

2023-24

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VIVA College



Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts

INDEX

Sr. No.	Course	Page No.
1.	Foundation Course	1
2.	Foundation Course in NSS	4
FACULTY OF SCIENCE		
3.	BSc. Botany	07
4.	BSc. Biochemistry	16
5.	BSc. Biotechnology	22
6.	BSc. Chemistry	36
7.	BSc. Computer Science	48
8.	BSc. Hospitality Studies	61
9.	BSc. Information Technology	64
10.	BSc. Physics	79
11.	BSc. Mathematics	88
12.	BSc. Statistics	96
13.	BSc. Zoology	104
14.	BSc. Data Science	115
15.	M.Sc. Bioanalytical Sciences	123
16.	M.Sc. Biotechnology	131
17.	M.Sc. Chemistry [Analytical & Organic]	135
18.	M.Sc. Computer Science	151
19.	M.Sc. Environmental Science	156



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

20.	M.Sc. Information Technology	161
21.	M.Sc. Physics	169
FACULTY OF COMMERCE		
22.	B.Com	181
23.	B. Com. [Accounting and Finance]	198
24.	B.Com [Banking & Insurance]	210
25.	B. Com. [Financial Management]	214
26.	B. Com. [Investment Management]	224
27.	B. Com. [Financial Market]	229
28.	B. Com. [Environment Management & Economics]	237
29.	Bachelor of Management Studies	246
30.	M.Com [Accountancy, Banking & Finance, Business Management]	261
FACULTY OF ARTS		
31.	BA - Culinary Arts	274
32.	BA - Economics	278
33.	BA - English	284
34.	BA - History	290
35.	BA - Political Science	294
36.	BA- Psychology	300
37.	BAMMC	309
38.	BA - Film TV and New Media Production	322
39.	MA Economics	329



Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts

Program Outcomes - Program Specific Outcomes – Course Outcomes

Academic Year: 2023- 2024

1. Foundation Course

Class: F.Y.B.Sc. Foundation Course	
Program Outcomes:	
Specific core discipline knowledge	
<ul style="list-style-type: none">● Students can recall and use the detailed information about Indian society, concepts of disparities amongst humans, human rights, understanding and managing stress and conflict, ecology, globalization, Indian constitution and other political processes.● Students can develop themselves in context with values, ethics, rules and regulations, etc.	
Communication skills	
<ul style="list-style-type: none">● Students can communicate effectively using oral and written communication skill.	
Problem solving and research skills	
<ul style="list-style-type: none">● Students can develop Problem solving aptitude and Research aptitude in various context.	
Program Specific Outcomes:	
<ul style="list-style-type: none">● To provide knowledge about overview of Indian society.● To make aware about concepts of disparities relating stratification and inequalities in gender and people with physical or mental disabilities.● To understand about other disparities relating caste and religion.● To give information about the Indian constitution as set out in the Preamble.● To understand duties of an Indian citizen, structure of the constitution and also about the schedules.● To make aware about aspects of political processes like the Local self-government in urban and rural areas; the 73rd and 74th Amendments and their implications for inclusive politics; Role and significance of women in politics.● To explain about the concepts of liberalization, privatization, globalization and impacts of globalization in different sectors like IT and communication, industries, agriculture, migration, etc.● To explain about the concept of Human Rights, its origin and evolution, and its constituents with reference to fundamental rights stated in the constitution.● To make aware about the importance of environmental studies in the developmental context, environmental degradation and sustainable development.● To explain issues related to stress and its causes, agents of socialization, significance of values and ethics, reasons for conflicts.● To able to understand the importance of stress and conflict management with the help of Maslow's Theory of self-actualization, methods to respond to conflicts and efforts towards building peace and harmony in society.	
SEMESTER I	
Course Code: USFC101	Course Title: Foundation Course- I
Course Outcomes:	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

The students would be able :

- To gain knowledge about diversity of the Indian society, population distribution throughout the country, and regional variations according to rural, urban and tribal characteristics.
- To understand the concept of disparity with respect to gender, especially the portrayal of women in society, inequalities faced by people with disabilities, differences created in society due to caste, religion, region, community, language, etc.
- To understand in detail about the Indian constitution, basic features of the constitution, The Preamble, duties of the Indian citizen.
- To learn various aspects in which a political party forms and processes.

SEMESTER IV

Course Code: USFC201

Course Title: Foundation Course- II

Course outcomes:

The students would be able :

- To gain knowledge about Globalization and its effects on all sectors responsible for survival and development.
- To understand the Human Rights and their origin and evolution.
- To understand Ecology and different environmental factors that have an effect on the development of the world as well as on human beings.
- To understand the meaning and causes of stress and conflict with the measures to tackle them.

Class: S.Y.B.Sc. Foundation Course

Program Outcomes:

Specific core discipline knowledge

- Students can recall and use the detail informative knowledge of Human and Citizen Right's provisions, Environment concerns and Dealing, Science & Technology and about different kind of Competitive Exams.
- Students can develop themselves in new and unique kind of personality, and they can choose good career.

Communication skills

- Students can develop an appraisal oral and written skill using effective communication skill.

Problem solving and research skills

- Students can develop Problem solving aptitude and Research aptitude in various context.

Program Specific Outcomes:

- To make knowledgeable about the basic concept of Indian Constitution, Indian Political system.
- To make aware about Constitutional legal Rights, Violations and Redressal Mechanism of Scheduled Castes, Scheduled tribes, Women's, Children and People with Disabilities, Minorities, and the Elderly population.
- To realize and develop the responsibility of being an Indian Citizen for Nation.
- To make knowledgeable and aware about some very important Acts like Consumer Protection Act 1986 and Right to Information 2005, Public Service Guarantee Act and Public Interest Litigation Law.



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- To provide information about Environment, different kind of approaches, issues (Past, Present and predictive future issues) and legally dealing with all issues and some important Environmental Organization at National and International level.
- To make aware about Carbon foot print, Carbon Credit and Environmental impact Assessment.
- To explain about Evolution of Science such as history of science and present time of science and technology.
- To explain about principles of science and fundamental duty of each Indian citizens for development of science and our Nation.
- To explore the information about different kind of research and Advance Modern technology of science such as LASER technology, Satellite technology, Biotechnology, ICT
- To explain issues of control, Access and misuse of Science and technology.
- To able to understand the important role of Personality Development such as Self-Empowerment, Style, Leadership skill, Team work and Communication skill.
- To explain the important role of Verbal and Nonverbal Communication skill.
- To make aware about Competitive Exams at National such as CAT, UGC-CSIR NET SET (State level) different UPSC exams and different SSC CGL exams and International level such as GRE, GMAT, SAT.
- To provide information about how to qualify all exams by different kind of skills such as Self-motivation, Goal setting, Time Management and Smart Strategy etc.

SEMESTER III

Course Code: USFC301

Course Title: Foundation Course- III

Course Outcomes:

The students would be able :

- To gain knowledge about Constitutional Human Rights Provision, Violations and Redressal mechanism of Scheduled Castes, Scheduled tribes, Women's, Children and People with Disabilities, Minorities, and the Elderly population.
- To understand and learn different kind of Environmental Concerns and their Dealing mechanism.
- To understand in detail about Development and Nature of Science and Technology with their uses in Everyday life.
- To learn Soft Skills for Effective Interpersonal Communication and Personality Development.

SEMESTER IV

Course Code: USFC401

Course Title: Foundation Course- IV

Course outcomes:

The students would be able :

- To gain knowledge Significant, contemporary Rights of Citizens.
- To understand all Approaches of Ecology.
- To understand and learn Some Significant Modern Technologies, Features and Applications with their Issues of control, Access and misuse.



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- To understand and learn Basic information on Competitive Examinations- the pattern, eligibility criteria and local centers and Soft skills required for competitive examinations.

2. Foundation Course – NSS

Name of Department: ARTS/ COMMERCE/ SCIENCE
Class: FYBA/FYBCOM/FYBSC
Program Outcomes:
Core Subject Knowledge: <ul style="list-style-type: none">● Students can get details and information about National Service Scheme (NSS) to understand the community in which they work.● Students can practise National Integration and Social Harmony.
Personality Development Skills: <ul style="list-style-type: none">● Students can develop among themselves a sense of social and civic responsibility. It helps to build their confidence and gain knowledge about different people in society.
Problem Solving and decision making skills: <p>Students identify/ understand need and problems of the community and try to find out problem solving process.</p>
Leadership Skills : <p>Students can provide opportunity to plan and execute development projects which encourage a team work by working all students together.</p>
Program Specific Outcomes: <ul style="list-style-type: none">● To understand emergence of NSS in India and it's development.● To know the historical background of NSS.● To acquire knowledge about symbol of NSS and its meaning.● To understand the pattern of distribution of working hours for NSS volunteer in a academic year (120 hrs / per year)● To find out classification of regular NSS activities and special NSS activities.● To study various social issues in India.● To gain knowledge about Indian Constitution and Social Justice.● To provide training of Volunteerism and to develop communication skills in NSS volunteers.● To be able to carry out Economic Survey in Adopted village / area.● To acquire knowledge about special camp activities.● To study the structure of Government and Non Government Organizations which are in coordination with NSS.



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> To deal with various Government Organization the understand policies for community development and help to spread awareness. 	
SEMESTER : I	
Course Code: UGNSS101	Course Title: NATIONAL SERVICE SCHEME(NSS) STUDIES – I
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> To understand organizational structure of NSS from National level to College level To know various objectives of NSS. To learn meaning of NSS symbol, Badge, Motto of NSS, NSS Song, various prayers to be used in NSS programmes To understand classification of all NSS activities on basis of urban, rural, college campus, self generated, need base ,related to Government and non-government organizations To understand the concept of society, community, steps involved in evaluation of society. To understand features of Indian societies. To study social issues in India like Family System, Caste System, Gender Issues, division of labour, 6regional imbalance in India and so on. To gain knowledge regarding Indian Constitution, Preamble, structure, features, fundamental rights and duties. To understand concept and features of social justice. To know about the contributors of social justice: Mahatma Jyotiba Phule, Dr.B R Aambedkar, Shahu Maharaj. 	
SEMESTER - II	
Course Code: UGNSS 102	Course Title: National Service Scheme (NSS) studies
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> To understand need for training of Volunteerism and to learn about various role models of volunteerism in India. To study various leadership skills, attributes of leadership. To understand what are communication skills, also importance and types of communication skills. To identify and understand strategic planning, advantages and limitations of planning, features of good planning and also to learn about requirements of successful plans. To understand and acquire the skills of preparing questionnaire for economic survey in adopted village, to find out income, gender ratio, literacy rate etc. To learn about design of interview, data analysis and report writing. To study in detail about work of various government agencies like Census, NSSO, NFHS. To understand different schemes for socio economic upliftment of farmers and rural population. To learn the special camping activities like selection of camp site, selection of theme, documentation work, pre camp site visit, ice breaking and team building activities. 	



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- To perform post camp activities like evaluation, feedback etc.
- To understand the structure of Government and Non government organizations for NSS regular activities, camp activities and for other development programs like HIV AIDS awareness, Blood Donation Camps and so on.





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Vidhya Dayanand Patil College of Arts**

FACULTY OF SCIENCE

3. B.Sc. Botany

Name of Department: Botany	
Class: FYBSc	
Program Outcomes:	
Core Discipline knowledge and Critical Thinking	
<ul style="list-style-type: none"> ● Students can learn structure, life cycle and systematic position of cryptogams and phanerogams. ● Students can study and evaluate the economic importance of these life forms. They should be able to understand industrial applications of plants. ● They can study about anatomy, physiology, cytology and genetics of these life forms. ● Students can acquire an ability to observe accurately and objectively. ● Students should be able to solve the problems and also think scientifically, independently and draw rational conclusions. 	
Science Communication	
<ul style="list-style-type: none"> ● Curriculum empowers communication skills in science, which further enhances easy spread of scientific knowledge in the society. ● Students are made aware of environment related issues. 	
All-round Personality	
<ul style="list-style-type: none"> ● Students acquire attributes of good citizens with certain ethics, made aware of environmental issues its management and planning. ● Students develop as all-round individuals possessing variety of values and skills conferred by extracurricular activities. 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> ● To get the knowledge of plants from primitive to highly evolved groups. ● To acquire valuable information regarding their utility in human welfare. ● To understand the significance of living single plant cell, its form and functions. ● To learn and correlate plants and their ecological adaptations of various environmental conditions. ● To get the experience of natural manipulation of genes by studying and performing crosses between genes on paper. ● To study the anatomical details of some plants. ● To explain how current medicinal practices are often based on knowledge of indigenous plant and to get introduced to different perspectives on treating ailments according to ethnomedicinal principles. ● To understand patterns of heredity and variation among individuals, species and populations. 	
SEMESTER I	
Course Code: USBO101	Course Title: Plant Diversity I
Course Outcomes:	



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Yashvant Keshav Patil College of Commerce
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<p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand morphology, structure and importance organisms ● To identify and learn their systematic position, habitat, life cycle, nature of reproduction of algae, fungi, lichens and bryophytes. ● To study their economic importance. 	
Course Code: USB0102	Course Title: Form and Function I
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To differentiate between eukaryotic and prokaryotic cell. To learn important cell organelles, their ultra-structures and functions. ● To understand the nature of energy flow in an ecosystem. ● To identify and understand adaptations of plants belonging to various ecological conditions. To study their morphological peculiarities. ● To study and understand different Mendelian Laws of genetics. To know the way of gene segregation and their independent assortment. To learn allelic and non-allelic interaction of genes and correlate the results. 	
SEMESTER II	
Course Code: USB0201	Course Title: Plant Diversity I
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To learn morphology, structure, systematic positions, modes of reproduction and economic importance of pteridophytes, gymnosperms as well as angiosperms. ● To learn the taxonomical terminology and understand the meaning of the same. ● To study two families and plants with economic importance belonging to them. 	
Course Code: USB0202	Course Title: Form and Function I
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To study types of plant tissues and differentiate monocots and dicots on the basis of their anatomy. ● To understand the structures of stomata of monocot and dicot leaves. ● To learn transport mechanism in plants and differentiate between the physiological processes and their importance. ● To study some organic compounds, their synthesis and breakdown in plants. ● To recall botanical names, active constituents, medicinal uses and useful parts of six medicinal plants, which have been used traditionally since very long time in India. 	
Class: S.Y.B.Sc.	
<p>Program Outcomes: Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students can recall details and information about the evolution, anatomy, morphology, systematic, genetics, physiology, ecology, and conservation of plants and all other forms of life. 	



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- Students can recall details of the unique ecological and evolutionary features of the local and Indian flora.

Communication skills

- Students can communicate effectively using oral and written communication skills
- Involvement of students towards interactive section in class

Problem solving and research skills

- Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context

Program Specific Outcomes:

- To understand the phylogeny of plants and study various systems of classification.
- To explore the morphological, anatomical, embryological details as well as economic importance of algae, fungi, bryophytes, pteridophytes, gymnosperms and angiosperms.
- To understand physiological processes and adaptations of plants.
- To provide knowledge about environmental factors and natural resources and their importance in sustainable development.
- To understand patterns of heredity and variation among individuals, species and populations and apply principles for improvement of quality and yield.
- To be able to apply statistical tools to gain insights into significantly different data from different sources.
- To acquire recently published knowledge in molecular biology, such as rDNA technology; PTC and bioinformatics and their applications.

SEMESTER III

Course Code: USBO301

Course Title: PLANT DIVERSITY

Course Outcomes:

The students would be able :

- To understand the salient features of three major groups of algae, their life cycle patterns with a suitable example; to be able to identify them.
- To gain the nomenclature information with various classification point of view.
- To provide plant description, describe the morphological and reproductive structures of four families and also identify and classify according to Bentham and Hooker's system.
- To study the modern methods about the instrument and their principles regarding working and functioning.

Course Code: USBO302

Course Title: FORM AND FUNCTION II

Course outcomes:

The students would be able :

- To gain the basic knowledge about the various essential organ / tissue systems/ cells/ cell organelles form the plant species diversities.
- To understand the pattern of cell division and its function according to types.
- To acquired the knowledge about the genetic materials and its role in living system.



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<ul style="list-style-type: none"> To gain the information about the various activities of the chromosomes along with variation with respect to examples like Drosophila as basic organism. To relate the above information for understanding the genetic hereditary effects of such variations. To gain the knowledge about the central dogma and mechanism of all machinery related to it. 	
Course Code: USBO303	Course Title: CURRENT TRENDS IN PLANT SCIENCES I
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> To understand the various aspects of pharmaceutical industries with respect to medicinal herbs and related adulterant plants to it. To gain the information about the international standards of pharmacopeia. To provide the concise knowledge about Indian pharmacopeia and Ayurvedic pharmacopeia To demonstrate the different geographical zones of India their existing flora and the economic values with respect to spices and medicines as well. To get exposure for the various aspects of plants in to industries like medicine, cosmetics and notional, Also to understand the sustainable practice such as Biofuel production form plants. 	
SEMESTER IV	
Course Code: USBO401	Course Title: PLANT DIVERSITY
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> To learn the general characteristics and classification of two major groups of fungi along with life cycles of each group; to be able to identify them. To observe the effect of infection occurred due to the fungi towards economic plants. To understand the basic mode of transmission and life cycle to preventive measures and other alternatives. To gain the information about very unique type of organism on the earth i.e. Lichens and its life cycle and uses for mankind. 	
Course Code: USBO402	Course Title: FORM AND FUNCTION II
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> To acquire the structure and functions of tissue systems of plants. To understand the arrangement of the conducting tissues in plants. To gain the knowledge of physiological mechanism related to the respiration in plants and specific responses given by plants towards the Photosynthetic region of light spectrum. To demonstrate the schematics of mineral cycles like Nitrogen, carbon and water respectively. To gain the information of different abiotic factors and the relation between the community flourishing in it. 	



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Course Code: USB0403	Course Title: CURRENT TRENDS IN PLANT SCIENCES I
Course Outcomes: The students would be able to : <ul style="list-style-type: none">● To construct schematics of garden types and specific locations with their suitable plant to grow.● To understand the importance of some garden types with its principle ideas with examples in India.● To gain the widely expanding knowledge related to genetic information and its uses in fields like PTC, R-DNA technology, and their utilization.● To acquire the use of biostatistician tools for analyze, relate, solve and interpret the data generated through the biological experiments.● To understand the importance and uses of bioinformatics and day to day need of it in various genetic experiments and discoveries.	
Class: T.Y.B.Sc.	
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none">● The subject provides the students' knowledge on paleontology, anatomy, plant diversity study, ecological adaptations, etc. and their co-relation with evolution and current trends● It prepares the students to tackle current affairs connected to botany, namely, cytotaxonomy, genetics, biotechnology, plant pathology and so on. Communication skills <ul style="list-style-type: none">● Students can communicate effectively using oral and written communication skills Problem solving and research skills <ul style="list-style-type: none">● Students gain knowledge on importance of group discussions in tackling scientific problems, looking at the same study in different angles and drawing different conclusions to enhance the field of study.● Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context	
Program Specific Outcomes: <ul style="list-style-type: none">● To recognize and identify major groups of non-vascular and vascular plants and their phylogenetic relationships.● To understand the phylogeny of plants and study various systems of classification.● To explore the morphological, anatomical, embryological details as well as economic importance of algae, fungi, bryophytes, pteridophytes, gymnosperms and angiosperms.● To understand physiological processes and adaptations of plants.● To provide knowledge about environmental factors and natural resources and their importance in sustainable development.● To be able to carry out phytochemical analysis of plant extracts and application of the isolated compounds for treatment of diseases.● To be able to deal with all microbes and the technologies for their effective uses in industry and mitigation of environmental concerns.	



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<ul style="list-style-type: none"> ● To explain how current medicinal practices are often based on indigenous plant knowledge and to get introduced to different perspectives on treating ailments according to ethnomedicinal principles. ● To understand patterns of heredity and variation among individuals, species and populations and apply principles for improvement of quality and yield. ● To be able to apply statistical tools to gain insights into significantly different data from different sources. ● To acquire recently published knowledge in molecular biology, such as rDNA technology; PTC and bioinformatics and their applications. 	
SEMESTER V	
Course Code: USB0501	Course Title: Plant Diversity III
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● To gain knowledge about microbial diversity and techniques for culturing and visualization. ● To understand the salient features of three major groups of algae, their life cycle patterns with a suitable example; to be able to identify them. ● To learn the general characteristics and classification of two major groups of fungi along with life cycles of each group; to be able to identify them. ● To understand the scope and importance of Plant Pathology and apply the concepts of various control measures of commonly widespread plant diseases. 	
Course Code: USB0502	Course Title: Plant Diversity III
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To acquire knowledge of different fossil forms and understand their role in evolution. ● To study in detail the morphology of various type of flowers and fruit, a tool to identify and describe various plants. ● To provide plant description, describe the morphological and reproductive structures of seven families and also identify and classify according to Bentham and Hooker's system. ● To gain proficiency in the use of keys and identification manuals for identifying any unknown plants to species level. ● To relate anomalies in internal stem structure with function and appreciate the salient features of the root stem transition zone. ● To get exposure to pollen study and learn to apply it in various fields. 	
Course Code: USB0503	Course Title: Form and Functions - II
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To acquire knowledge about two important organelles and molecular mechanisms of translation ● To understand water relations of plants, inorganic and organic solute transport, and apply the knowledge to manage mineral nutrition and survival in challenging abiotic stresses. 	



**Vishnu Waman Thakur Charitable Trust's
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<ul style="list-style-type: none"> To understand succession in plant communities and study remediation technologies in order to apply knowledge acquired for cleanup of polluted sites. To get exposure to principles and techniques of plant tissue culture and apply these studies for improving agriculture and horticulture and to become an entrepreneur. 	
Course Code: USBO504	Course Title: Current Trends in Plant Sciences - I
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> To get exposure to the technique of mushroom cultivation and explore the possibility of entrepreneurship in the same. To learn ethnobotanical principles, applications and utilize indigenous plant knowledge for the cure of common human diseases and improvement of agriculture. To gain knowledge about the latest biotechnological techniques for isolation and characterization of genes. To learn principles and application of commonly used techniques in instrumentation. To gain proficiency in the monograph study and pharmacognostic analysis of six medicinal plants. 	
SEMESTER VI	
Course Code: USBO601	Course Title: Plant Diversity III
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> To identify, describe and study in detail the life cycles of three Bryophytes. To and study in detail classification and general characters of three classes of Pteridophytes and identify as well as describe the life cycles of examples from each class. To study evolutionary aspects and economic utilization of Bryophytes and Pteridophytes. To identify, describe and study in detail the life cycles of three Gymnosperms. 	
Course Code: USBO602	Course Title: Plant Diversity IV
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> To study contribution of Botanical gardens, BSI to Angiosperm study and provide plant description, describe the morphological and reproductive structures of seven families. To gain exposure to a phylogenetic system of classification. To gain insight into the anatomical adaptations of different ecological plant groups. To understand development plant of male and female gametophytes, embryonic structure and development. To generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context, using suitable statistical techniques 	
Course Code: USBO603	Course Title: Form and Functions – III
<p>Course outcomes: The students would be able:</p>	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
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- To study various plants biomolecular structures and appreciate the structures, role, functions and applications of enzymes.
- To gain insight into the Nitrogen and plant hormone metabolism with applications of the same in agriculture and horticulture.
- To understand principles of genetic mapping, mutations and solve problems based on them, gain knowledge of various metabolic disorders and their implications.
- To understand and apply tools of Bioinformatics for data retrieval and phylogenetic analysis.

Course Code: USB0604

Course Title: Current Trends in Plant Sciences - II

Course outcomes:

The students would be able:

- To gain insight into recent molecular biology techniques for DNA analysis and amplification and Barcoding techniques and applications therein.
- To understand the different aspects and importance of Biodiversity and utilize them for conservation of species so as to prevent further loss or extinction
- To learn about the sources of economically important plants in the field of fats and oils and apply it for extraction, dealing with entrepreneurship in the field.
- To gain knowledge and proficiency in preservation of post-harvest produce and explore the possibility of entrepreneurship in the field.

Class: T.Y.B.Sc Applied Component (Horticulture and gardening)

Program Outcomes:

Specific core discipline knowledge

- Students can recall details and information about the Landscape gardening, Propagation practices, Floriculture, Olericulture, Commercial production, Manure, Fertilizers, plant Diseases, plant tissue culture, green house technology, Post- harvest technology and all other practices in horticultures.
- Students can recall the details of horticulture businesses, Management, and entrepreneurship development.

Communication skills

- Students can communicate effectively using oral and written communication skills.

Designing and Horticultural skills:

- Student can learn about Designing of garden, greenhouse management, florist shop Management, flower decoration, Cultivation of medicinal plants, spices and their application.

Program Specific Outcomes:

The students would be able:

- To recognize and identify major plant disorders and their control measures.
- To explore the natural and artificial propagation and their use in commercial production of the crops.



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- To recognize and identify plants for garden feature and their cultivation in the garden.
- To provide knowledge about environmental factors and natural resources and their importance in gardening.
- To be able to carry out analysis of soil pH and application for treatment of commercial production and landscape gardening.
- To get exposure to the technique of Floriculture and explore the possibility of entrepreneurship in the same.
- To learn the Indian (floral Rangoli, Gajara, Veni, etc.) and western type of flower arrangement.

SEMESTER: V

Course Code: USACHO501

Course Title: HORTICULTURE AND GARDENING

Course Outcomes:

The students would be able:

- To study the contribution of horticulture research institute and government schemes for strategy Cultivation of numerous Crops.
- To understand the salient features of major Plant diseases like fungal, Bacterial, Viral and their life cycle patterns with a suitable example; to be able to identify them.
- To understand the scope and importance of Plant Pathology and apply the concepts of various control measures of commonly widespread plant diseases.
- To acquire knowledge about Propagation practices and their applications in Cultivation of crops.
- To understand use of Manures, fertilizers and biofertilizers in the various fields of Horticulture.
- To get exposure to Organic farming and learn apply it in field.
- To gain the proficiency in use of garden tools in artificial Propagation practices like Cutting, Layering, budding, etc.

SEMESTER: VI

Course Code: USACHO601

Course Title: HORTICULTURE AND GARDENING

Course Outcomes:

The students would be able:

- To gain exposure to Landscape gardening and learn to design of Formal and informal garden.
- To gain knowledge about Horticultural branches, like Pomology (The science of fruit growing), Apiculture, Landscape gardening and Nursery development.
- To acquire knowledge about various garden feature (Hedge, Pergolas, Lawn, etc.) with suitable example for particular garden location.



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- To understand the importance of various Major gardens in India.
- To gain insight into the green House technology: Layout, types, Irrigation and construction with applications in agriculture and horticulture.
- To learn about the commercial production fruits and vegetables in relation to propagation, post plantation care, harvesting and post-harvest management.
- To gain knowledge and proficiency in preservation of post-harvest produce and explore the possibility of entrepreneurship in the field.
- To get exposure to the technique of Floriculture and explore the possibility of entrepreneurship in the same.

4. B.Sc. Biochemistry

Name of Department: Biochemistry
Class: FY BSc
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none">● Students can recall details and information about the properties of the universal solvent- Water, Biomolecules and Nutrition.● Students can recall details about Origin of life, Cell biology, Physiology and Microbiology. Communication skills <ul style="list-style-type: none">● Students can communicate effectively using oral and written communication skills Problem solving and research skills <ul style="list-style-type: none">● Students can make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context.● It provides familiarity with the basic biochemistry laboratory techniques. Also the practical skills of students enhance their observational skills and help them to use these skills for problem solving.
Program Specific Outcomes: <ul style="list-style-type: none">● To develop an adequate background for the students to study more advanced biochemistry topics.● To understand the unique properties of water which is essential for all the life processes.● To understand the life constituting bio molecules- Carbohydrates, proteins, amino acids, lipids and nucleic acids which are the important constituents of the living systems.● To understand everything about the Cell which is the basic unit of life and the center for all biochemical processes.● To understand the world of micro-organisms which exist as independent cellular units.● To acquire an interest in nutrition for sustaining life, physiology and functioning of life systems.● To understand the importance of broad spectrum of biochemistry.
SEMESTER I



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Yashvant Keshav Patil College of Commerce
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Course Code: USBCH101	Course Title: Biomolecules and Nutrition
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To gain knowledge about water, its effect on biomolecules, structure, properties and the biological significance of water as a universal solvent. ● To gain information about the concept of mole, molar, pH, acids, bases and buffers. ● To gain knowledge about amino acids and proteins structure, their classification, physical and chemical properties. ● To acquire information about the introduction, occurrence, classification and functions of carbohydrates. ● It also gives a detailed information about the physical and chemical properties of monosaccharides, disaccharides and polysaccharides. 	
Course Code: USBCH102	Course Title: Introduction to Cell biology, Physiology and Microbiology
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand different theories on origin of life, the big bang theory, the process of evolution, gene mutation, mechanism of evolution, gene flow and genetic drift. ● To gain knowledge about the structural organization of cells, the structure and functions of different cell organelles. ● To acquire detailed information about the process of cell division- Mitosis and Meiosis. ● To understand the concepts of microbiology this includes the historical background, general characteristics of bacteria, microbial taxonomy, structure and function of bacterial cell wall and different staining methods for identification of bacteria. 	
SEMESTER II	
Course Code: USBCH201	Course Title: Biomolecules and Nutrition
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To gain knowledge about Lipids- its definition, structure, their classification, physical properties and chemical reactions of fats like saponification, iodination, auto-oxidation etc. ● To acquire information about the introduction, structure, classification and functions of compound lipids, glycolipids, cerebrosides and steroids. ● To gain knowledge about Nucleic acids- its definition, structure, their classification, the structure of RNAs and DNA along with the physical and chemical properties of nucleic acids. ● To acquire information about the different concepts of nutrition like BMR, BMI and SDA. It also describes a detailed information about the nutritional significance of the macro and the micro molecules of a balanced diet. 	
Course Code: USBCH202	Course Title: Introduction to Cell biology, Physiology and Microbiology
Course Outcomes: The students would be able :	



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<ul style="list-style-type: none"> To understand the process of digestion and absorption of carbohydrates, proteins and lipids along with the different parts of GIT. To understand the physiology of respiration and excretion. To understand the concepts of microbiology which includes the microbial growth curve, different culture media, generation time, the techniques of sterilization and disinfection and the physical agent of sterilization. 	
Name of Department: Biochemistry	
Class: SYBSc	
Program Outcomes:	
Specific core discipline knowledge	
<ul style="list-style-type: none"> Students can recall details and information about the biomolecules, origin of life, cell biology, physiology and microbiology. Students can recall details of buffers, genetics, hormones, enzymes, and fermentation technology. 	
Communication skills	
<ul style="list-style-type: none"> Students can communicate effectively using oral and written communication skills 	
Problem solving and research skills	
<ul style="list-style-type: none"> Students can solve problems related to biochemistry such as formulation of balanced diet, ionic equilibria, enzyme kinetics and can carry out identification of biomolecules. 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> To recognize and identify major groups of biomolecules To understand the physiological processes in human body. To understand ionic equilibria and physicochemical principles. To be thorough with microscopy techniques. To understand patterns of heredity and variation among individuals, species and populations. To be able to deal with all microbes and the technologies for their effective uses in industry and mitigation of environmental concerns. To understand neurophysiology. To gain knowledge about various industrial processes and apply principles of the same. 	
SEMESTER III	
Course Code: US BCH 301	Course Title: Bio-organic chemistry & biophysical methods
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> To gain knowledge about the concepts, derivations and titration curves related to Acids, Bases, Buffers and Ionic equilibria and also would be able to solve the numerical problems for the same. To understand the Physicochemical Principles such as diffusion, Osmosis, Ways of expressing solute, Surface tension, Colloids and Viscosity To learn the Principles, working and construction of various types of Microscopy techniques 	
Course Code: US BCH 302	Course Title: Fundamentals of Genetics and Physiology
Course outcomes:	



**Vishnu Waman Thakur Charitable Trust's
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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>The students would be able :</p> <ul style="list-style-type: none"> ● To acquire knowledge about the History of Genetics, Concepts of Mendelian Genetics and would be able to solve numericals for the same. ● To learn about the blood and various body fluids such as bile, urine and lymph. ● To understand the biological transport mechanisms in plants , in blood and across cell membranes 	
Course Code: US BCH 303	Course Title: Applied Biochemistry I
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To acquire knowledge about beneficial as well as harmful microorganisms in health and diseases and about viruses also. ● To learn about the history, techniques and applications of both plant and animal tissue culture ● To understand fermentation process, fermenters ,processes for making various products and also immobilized enzymes , biosensors and single cell proteins and all applications 	
SEMESTER IV	
Course Code: US BCH 401	Course Title: Bio-organic chemistry & biophysical methods
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To gain knowledge about enzymes, their classification, kinetics as well as inhibition. ● To learn about various plant and animal hormones, their classification , mode of action, structure and functions. ● To study about various techniques for biochemical investigation like use of model organisms, organ and tissue studies and cell fractionation techniques. 	
Course Code: US BCH 402	Course Title: Fundamentals of Genetics and Physiology
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To gain knowledge about prokaryotic and eukaryotic genome organization, and also the process of recombination by transformation, transduction and conjugation . ● To study various types of movements in plants and the process of muscle contraction for locomotion. ● To understand neurophysiology by studying classification of nervous system, impulse transmission and neurotransmitters. 	
Course Code: US BCH 403	Course Title: Applied Biochemistry II
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To gain knowledge about recent trends in biotechnology like bioremediation, biodegradation, biofungicides and biofertilizers. ● To study about pharmacology viz. drugs , dosage forms, drug delivery and pharmacokinetics . ● To understand resource management by studying about solid waste, and its treatment. They would also learn about biomass and bioenergy production. 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Class: TYBSc	
Program Outcomes:	
Specific core discipline knowledge	
<ul style="list-style-type: none"> ● Students can recall details and information about metabolic roles of several components plus analytical techniques used to study them, also study about environmental science, genetics and recombinant DNA technology as well as immunological and pathophysiological studies of human body. ● Students can recall detailed role of nutrients and therapeutic drugs in use, applications of biostatistics and bioinformatics techniques. 	
Communication skills	
<ul style="list-style-type: none"> ● Students can communicate effectively using oral and written communication skills 	
Problem solving and research skills	
<ul style="list-style-type: none"> ● Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context. 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> ● To study the metabolic pathways and cycles of various bio-molecules. ● To learn about principle, working and applications of chromatography, spectrophotometer, colorimeter, centrifuge, electrophoresis and radioisotopes. ● To recognize environmental problems and study how to solve them. ● To study the process of DNA replication, repair, transcription and translation. ● To understand the tools and techniques of recombinant DNA technology and its applications. ● To gain knowledge regarding nutrients, its role in diet management and concept of balanced diet. ● To study the mechanism of drug action, pharmacotherapy and use of therapeutic drugs. ● To understand the role of human immune system, antigen-antibody reactions, MHC and its components, transplant immunology. ● To be able to carry out extraction and estimation of different biomolecules. ● To be able to understand and solve biostatistics problems. ● To study various bioinformatics techniques and use in biological science. 	
SEMESTER V	
Course Code: USBCH501	Course Name: Metabolism & Analytical Techniques-I
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To understand simple concepts related to metabolism, metabolic roles played by vitamins and minerals, appreciate the correlation between energy molecules, reducing equivalents and pathways. ● To comprehend the catabolism and anabolism of carbohydrates and the disorders associated with these biomolecules. ● To learn the principle, working and applications of chromatography technique and be able to appreciate the contribution of this technique to the study of various biomolecules. 	
Course Code: USBCH502	Course Code: Environmental Science



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Yashvant Keshav Patil College of Commerce
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Course outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To get aware of our environment ● To get sensitized to the challenging environmental issues and problem. ● To get motivated to address the environmental problems and to work towards finding solutions to these problems. 	
Course Code: USBCH503	Course Code: Genetics & Recombinant DNA Technology
Course outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To be able to appreciate the experiments carried out by various scientists to prove DNA as the genetic material, understand the mechanism of DNA replication and comprehend how DNA damage can lead to detrimental effects and how DNA repair systems in the cells try to prevent mutations before being inherited. ● To understand the mechanisms of DNA transcription and translation in prokaryotes. ● To understand the basic tools required and know the techniques of recombinant DNA technology, their applications and the use of the technology for the benefit of society. 	
Course Code: USBCH504	Course Code: Immunology and Pathophysiology- I
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand the overall organization of the immune system, appreciate the structure and function of antibodies, relationship between innate and adaptive systems and humoral and cell mediated immunity. ● To learn the normal and abnormal metabolic pathways of bio-molecules (carbohydrates, proteins, lipids) and diseases related. ● To be able to discuss pathophysiology and etiology of different diseases and in born errors. ● To understand basic aspects of cancer biology and familiarize with elementary facets of carcinogenesis and types of cancer along with therapy to treat the cancer. 	
SEMESTER VI	
Course Code: USBCH601	Course Code: Metabolism & Analytical Techniques-II
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand breakdown and synthesis of fatty acids and amino acids and appreciate experiments carried out by scientists to enable understand the pathways and cycles of metabolism. ● To understand basic concepts related to metabolism, be familiar with the various metabolic pathways and should be able to appreciate the importance of enzymes and coenzymes in pathophysiology of diseases. ● To be able to appreciate the various hormones, their actions, regulations and clinical significance. ● To learn the principle, working and applications of various analytical techniques and be able to appreciate the contribution of these techniques (colorimeter/ spectrophotometer, Centrifuges, 	



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

electrophoresis and radioisotopes) as tools in understanding the structure and function of biomolecules.	
Course Code: USBCH602	Course Code: Nutrition & Pharmacology
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To be able to appreciate the role of nutrients in diet to understand nutritional status and concept of balanced diet which will help to identify the overall nutrition to be given to men and women at various age groups. ● To be familiarized with dietary management in diseases. ● To be able to utilize critical thinking skills in discussing the concept of pharmacokinetics and pharmacotherapy. ● To be able to explain various therapeutic drugs in use. 	
Course Code: USBCH603	Course Code: Biostatistics & Bioinformatics
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand the basic principles of probability and how they relate to biostatistics ● To become familiar with the mathematical and statistical theory underlying the applications of biostatistical methods to interpret statistical results correctly, effectively and in context. ● To be able to interpret relationships among living things and analyze and solve biological problems, using basic biological concepts, grounded in foundational theories with the help of bioinformatics tools. ● To be able to apply existing software effectively to extract information from large databases and to use this information in biological sciences. 	
Course Code: USBCH604	Course Name: Immunology and Pathophysiology-II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand the pathways that activate the complement system. ● To be familiar with the MHC; its structure and classes, specific role of each class of MHC and importance in immune response and graft rejection. ● To grasp a contemporary understanding of classification, structure and mechanism of replication of viruses along with pathophysiology symptoms and preventive measures of AIDS. ● To understand the basic concepts of demography and epidemiology of aging and pathophysiology and issues in common diseases of older people. 	

5. B.Sc. Biotechnology

Name of Department: Biotechnology
Program Name : B.Sc. Biotechnology (Three Years – Six Semesters)



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Vidhya Dayanand Patil College of Arts**

Program Outcomes:

Specific core discipline knowledge

- Understand and analyze information and knowledge about Biotechnology and its branches such as molecular biology, genetic engineering, cell biology, basic plant and animal physiology, genetics, biostatistics, ecology and plant and animal tissue culture, communication skills and scientific writing. Conservation of plants and all other forms of life.
- Relate the theory with the current trends in scientific world and applicability of Biotechnology for the betterment of mankind.
- Apply knowledge gained from the field of biochemistry, biophysics, applied chemistry, immunology, cell biology, cytogenetics, molecular biology, medical microbiology, environmental biotechnology, biostatistics, and bioinformatics.
- Describe basic principles of bioprocess technology and molecular diagnostics.
- Develop logical thinking and reasoning abilities required in the in the field of research and entrepreneurship.
- Elaborate on important aspects of Biochemistry such as protein biochemistry, metabolic pathways and their regulation, hormones and their secretion, and role of biotechnology to treat over nutrition [obesity] and Protein-energy malnutrition.
- Understand basic industrial operations of a microbial fermentation based industry including QC and QA aspects.
- Develop skills in pharmacology and toxicology that can make them ready to be absorbed in the sector of Pharmaceutical Biotechnology.
- Apply biotechnological remedies to tackle Environmental pollution and industrial effluent and waste water treatment.

Communication skills

- Carry out verbal and non-verbal communication, using oral presentation, scientific writing and presentation.

Problem solving and research skills

- Perform basic microbial techniques in laboratory.
- Prepare review reports of scientific papers.
- Analyze statistical analysis of data via biometric analysis of mean, median, mode and standard deviation and data representation by graph, bar diagram, pie charts, histogram, polygon and curve.
- Generate and test hypotheses, make observations and generate data through various biotechnological techniques and instrumentation, analyze data and interpret results, derive conclusions, and evaluate their significance within a broad scientific context

Program Specific Outcomes:



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Class: FYBT

Program Specific Outcomes:

By the end of the program students will have:

- Understood the Nomenclature and classification of inorganic compounds and different types of chemical bonds.
- Gained hand-on skills in preparation of Buffers, Solutions, Titrimetric and volumetric estimation, Estimation and handling of basic Analytical Techniques like chromatography and calorimetry.
- Learned the origin of life and to understand in detail about the classification of plants, animals, microorganism, viruses and bacteria.
- Applied principles of sterilization and microbiological techniques to deal with microbes.
- Acquired knowledge of the emergence of new modern biotechnology from the traditional one.
- Known different branches of biotechnology and application of genetic engineering for food improvement to meet the need of growing population.

Class: SYBT

Program Specific Outcomes:

By the end of the program students will have:

- Gained an understanding of the different aspects of classical physics and its applications in the field of biology.
- Learned the fundamentals and applications of organic and green chemistry.
- Acquired knowledge of immune effector mechanisms and various immunotechniques.
- Comprehended the cell cytoskeleton, chromosomal aberrations and underlying principles of sex determination, linkage and mapping.
- Gained an insight into various mechanism of gene expression and regulation.
- Gained an understanding of the basic skills applied in fermentation technology and built a foundation for more advanced studies in bioprocess technology.
- Developed research aptitude, logical thinking and reasoning.
- Gained an insight into the metabolic processes associated with catabolism of carbohydrates, amino acids, lipids and nucleotides.
- Acquired knowledge of different aspects of analytical chemistry, natural product chemistry and basic concepts in polymer chemistry and nanomaterials.
- Acquired knowledge of various aspects of systemic infections and their causative agents and the skills required to deal with them.
- Gained an understanding of the causes, types and control methods for environmental pollution and application of different life forms in environmental remediation.
- Learned the basic concepts of biostatistics and application of the various statistical tools for analysis of biological data.
- Learned the basic concepts of and the tools used in Bioinformatics.



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> ● Gained an understanding of the basic principles and analytical skills used in molecular diagnosis and its application in developing new diagnostic kits. ● Developed an understanding of the systematic process and to select and screen a business idea and designing the strategies for successful implementation of ideas. ● Gained an insight into to write a business plan. 	
Class: TYBT	
Program Specific Outcomes:	
<ul style="list-style-type: none"> ● Generate skill based human resources for the fermentation-based Food and/or Pharmaceutical industry as well as academia. ● Understand basic knowledge of both upstream and downstream aspects of microbial fermentations. ● Gained required skills and platform knowledge of a protein biochemist, and a genetic engineer. ● Learn documentation skills related to QC and QA and other regulatory processes. ● Apply knowledge of Biotechnology in Environmental Management [Green Technology]. ● Acquire technical know-hows to adopt renewable energy sources such as solar, biomass based etc. 	
SEMESTER I	
Course Code: USBT101	Course Title: Basic Chemistry-I
Course Outcomes:	
<ul style="list-style-type: none"> ● Acquaint with basic concepts of Chemistry like Classification and Nomenclature of Chemical compounds. ● Understand the classification and nomenclature of Organic and Inorganic compounds. ● Understand about the nature, structure, theories and types of chemical bonds present in the chemical compounds. ● Prepare buffers and solutions and understanding the chemistry of water as it most important component in preparation of the buffers. ● Discuss units of concentration viz. normality, molarity, molality, mole fraction, mole concept, solubility, weight volume ratios, ppm, ppb etc. also, about able to inculcate skill of standard solutions preparation. ● Explain the properties of acid, bases and buffers. 	
Course Code: USBT102	Course Title: Basic Chemistry-II
Course outcomes:	
<ul style="list-style-type: none"> ● Explain concepts of Stereochemistry, Titrimetry and Gravimetry along with Analytical Techniques like Methods of Separation, Chromatography and Colorimetry ● Understand Stereochemistry, in detail, in terms of Types of Isomerism, Geometric Isomerism and Optical Isomerism, Conformation, Configuration and Projection formulae of it. ● Perform Titrimetric Analysis and Gravimetric Analysis. 	



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<ul style="list-style-type: none"> ● Elaborate on Analytical Techniques like Chromatography and Colorimetry ● Explain Methods of Separation. 	
Course Code: USBT103	Course Title: Basic Life Sciences-I: Biodiversity and Cell Biology.
Course outcomes: <ul style="list-style-type: none"> ● Discuss origin of Life, Biological evolution and origin of Eukaryotic cells. ● Understand the concept of Biodiversity, Ecological and Genetic Diversity, and will able to know its significance. ● Comment Plants, Animals and Microorganisms Diversity. ● Describe classification of Animals in to further Non-Chordates and Chordates with detail study of their general characteristic. ● Describe classification of Plants in to Algae, fungi, Bryophyta, pteridophyta, gymnosperms and angiosperms with detail study of their general characteristic. ● Understand ultrastructure of prokaryotic cell and Eukaryotic cell ● Explain classification of Bacteria and viruses. 	
Course Code: USBT104	Course Title: Basic Life Science-II: Microbial Techniques.
Course Outcomes: <ul style="list-style-type: none"> ● Explain different parts of simple, compound, dark field and phase contrast microscope and its functions. ● Discuss applicability of microscopes in the field of microbiology. ● Differentiate between stains and dyes. ● Elaborate on working mechanism of Simple Staining, Differential Staining and Acid Fast Staining with specific examples ● Explain physical and chemical sterilization, their principle, mechanism along with advantages and disadvantages. ● Describe nutritional/media requirements for the growth of microorganisms and preparation and application of different types of media. ● Perform isolation and pure culture of micro-organisms ● Comment on growth phase and enumeration of growth. ● Explain preservation of cultures. 	
Course Code: USBT105	Course Title: Basic Biotechnology-I : Introduction to Biotechnology
Course Outcomes: <ul style="list-style-type: none"> ● Discuss history, traditional and modern biotechnology, difference branches of biotechnology. ● Elaborate on recent advancement in technology and research in Biotechnology. 	



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<ul style="list-style-type: none">● Apply new advance techniques of molecular biology, Genetic engineering to improve the quality of food to meet the increasing food demand of the world.● Evaluate principles behind the ethics in Biotechnology and Intellectual property rights.● Discuss applications of biotechnology in food science and fermentation technology.	
Course Code: USBT106	Course Title: Basic Biotechnology-II : Molecular Biology
Course outcomes: <ul style="list-style-type: none">● Explain detailed structure of DNA.● Understand the replication mechanism of prokaryotes and eukaryotes.● Describe different types of mutation and various mutagens i.e., both physical and chemical.● Understand different DNA repair mechanisms.● Explain experimental evidences for DNA and RNA as Genetic Material.● Comment on genetic engineering in various model organisms.● Describe the salient features of various vectors and enzymes used in genetic engineering● Perform isolation and purification techniques of DNA and RNA	
Course Code: USBT107	Course Title: Societal Awareness
Course Outcomes: <ul style="list-style-type: none">● Describe concept of Indian society, disparity, The Indian Constitution and Significant Aspects of Political Processes● Explain multi-cultural diversity of Indian society through its demographic composition● Understand the concept of disparity as arising out of stratification and inequality● Discuss inter-group conflicts arising out of communalism.● Examine inequalities manifested due to the caste system and inter-group conflicts arising thereof.● Discuss on the guidelines in the Indian Constitution.● Understand Significant Aspects of Political Processes.	
SEMESTER II	
Course Code: USBT201	Course Title: Chemistry-I: Bioorganic Chemistry
Course Outcomes: <ul style="list-style-type: none">● Explain classification, structure and characterization of biomolecules such as carbohydrates, lipids, sterol, proteins, amino acids and nucleic acids.● Understand and comment on the chemical / physical properties, characteristics reactions, function, difference and its types.	
Course Code: USBT202	Course Title: Chemistry-II: Physical Chemistry



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes: <ul style="list-style-type: none">● Explain concepts of Thermodynamics, Chemical Kinetics, Oxidation Reduction reactions● Discuss Laws of Thermodynamics and its Limitations, Mathematical expression● Determine the Order of Reaction and Rate of reaction● Apply Rules to assign Oxidation Numbers, Balancing Redox Reactions by Ion Electron Method.	
Course Code: USBT203	Course Title: Life Science-I: Physiology and Ecology
Course outcomes: <ul style="list-style-type: none">● Describe physiological processes in plants and animals.● Discuss in detail the different physiological processes undergoing in plants and animals.● Explain different types of plant hormones and their functions along with plant secondary metabolites.● Understand different components of Ecosystem and their importance.● Analyze different types of Ecological pyramids, food chains and food web.● Summarize different types of biogeochemical cycles with their importance in ecosystem.● Comprehend different types of interaction with interspecific and intraspecific competition and their important to sustain ecosystem.	
Course Code: USBT204	Course Title: Life Science-II: Genetics
Course Outcomes: <ul style="list-style-type: none">● Comprehend Mendel's laws of heredity and understanding the concept of mono and di hybrid cross with examples.● Discuss Application of Mendel's Principles in human genetics.● Elaborate on Incomplete Dominance and Co-dominance.● Explain Multiple Alleles, Environmental effect on the expression of the Human Genes, Gene Interaction and Epistasis.● Understand gene exchange mechanism in bacteria, viral life cycle, and genetic analysis of bacteria.● Describe Genetic Structure of Populations; Hardy- Weinberg Law and its assumptions.● Discuss the techniques used in measuring Genetic Variation at Protein Level and measuring Genetic Variations at DNA level.● Understand about natural Selection, Genetic Drift, Speciation, Role of Population Genetics in Conservation Biology.	
Course Code: USBT205	Course Title: Biotechnology-I: Tissue Culture & Scientific Writing and communication Skills
Course Outcomes: <ul style="list-style-type: none">● Explain the principles and techniques of Plant tissue culture with their application.● Explain the principles and techniques of Animal tissue culture with their application.	



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<ul style="list-style-type: none"> ● Discuss the modes of communication and technique of scientific writing. ● Practice science communications in the form of oral presentations, scientific reading, writing & presentation in their research work. 	
Course Code: USBT206	Course Title: Biotechnology-II: Enzymology, Immunology and Biostatics
Course Outcomes: <ul style="list-style-type: none"> ● Explain concepts in Enzymology, Immunology and Biostatistics. ● Discuss classification, nomenclature, properties, enzyme kinetics and types of enzyme inhibitions. ● Give an overview of the immune system and about the cells and organelles involved there. ● Explain types of Immunity, factors influencing and mechanism of each, antigens, antibody and vaccines. ● Understand the importance of statistics in biology. ● Representation of data and types of data, Normal and frequency distribution, measure of central tendency and measure of dispersion. 	
Course Code: USBT207	Course Title: Globalization, Ecology and Sustainable Development.
Course outcomes: <ul style="list-style-type: none"> ● Understand the concept of Globalization and its impact. ● Understand the concepts of liberalization, privatization and globalization, effect of globalization on various sectors, origin and evolution of Human rights. ● Explain concepts of environment, ecology and how they are interconnected. ● Describe the reasons for degradation of environment and their impact on human life and importance of sustainable development. 	
SEMESTER III	
Course Code: USBT301	Course Title: BIOPROCESS TECHNOLOGY
Course Outcomes: The objective of this course is to understand the basics skills applied in fermentation technology and build a foundation for more advanced studies in bioprocess technology. Learning outcomes:- By the end of the course the student will be able to: <ul style="list-style-type: none"> ● develop an understanding of the various aspects of bioprocess technology. ● develop skills associated with screening of industrially important strains. ● understand principles underlying design of fermenter and fermentation process. 	
Course Code: USBT302	Course Title: MEDICAL MICROBIOLOGY
Course outcomes: The objective of this course is to gain insight into disease factors and processes and diseases caused by microorganisms.	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> ● list the factors playing a role in causing a disease gain. ● discuss the various aspects of systemic infections including causative agents, symptoms and prophylaxis. ● gain the technical capability of handling, isolating and identifying various bacteria. 	
Course Code: USBT303	Course Title: APPLIED CHEMISTRY-1
<p>Course outcomes: The objective of this course is to have a firm foundation in the fundamentals and applications of organic and green chemistry.</p> <p>By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> ● develop an understanding of the different aspects of organic and green chemistry. ● discuss the role of organic compounds in biology and synthesis of organic compounds. ● discuss the role of green chemistry and its application in industry. Understand the basic concept of electrophoresis 	
USBT304	Course Title: FUNDAMENTALS IN BIOPHYSICS
<p>Course outcomes: The objective of this course is to have a firm foundation in the fundamentals and applications of current biophysical theories.</p> <p>By the end of the course the student will:</p> <ul style="list-style-type: none"> ● develop an understanding of the different aspects of classical physics. ● be able to relate principles of physics to applications and techniques in the field of biology such as microscopy, spectroscopy and electrophoresis 	
USBT305	Course Title: IMMUNOLOGY
<p>Course Outcomes: Course objectives:- The objective of this course is to familiarize students with the immune effector mechanisms and various immunotechniques.</p> <p>By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> ● understand the role of different types of cells, effector molecules and effector mechanisms in immunology. ● understand the principles underlying various immunotechniques. 	
USBT306	Course Title: MOLECULAR BIOLOGY-III
<p>Course outcomes: The objective of this course is to have an insight into the mechanism of gene expression and regulation.</p> <p>By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> ● discuss the mechanisms associated with gene expression at the level of transcription and translation. ● discuss the mechanisms associated with regulation of gene expression in prokaryotes 	
USBT307	Course Title: BIOSAFETY
<p>Course outcomes:</p>	



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Learner will be able	
<ul style="list-style-type: none"> ● to document laboratory work, calibration records and prepare SOPs. ● to identify the role of the Biosafety Professional in Biomedical Research Laboratories 	
SEMESTER IV	
USBT401	Course Title: MEDICAL BIOTECHNOLOGY
Course Outcomes:	
Learner will be able to	
<ul style="list-style-type: none"> ● Demonstrate knowledge for infectious agents and drug action mechanisms ● to identify drug resistance problems in disease treatment. 	
USBT402	Course Title: CELL BIOLOGY AND CYTOGENETICS
Course outcomes:	
By the end of the course the student will be able to:	
<ul style="list-style-type: none"> ● develop an understanding of the cytoskeleton and cell membrane. ● discuss the structure of chromosomes and types of chromosomal aberrations. ● discuss the principles underlying sex determination, linkage and mapping. 	
USBT403	Course Title: APPLIED CHEMISTRY-2
Course outcomes:	
By the end of the course the student will:	
<ul style="list-style-type: none"> ● develop an understanding of the different aspects of analytical chemistry. ● gain knowledge of natural product chemistry and related acquired skills. ● gain an understanding of basic concepts in polymer chemistry and nanomaterials. 	
USBT404	Course Title: BIOCHEMISTRY
Course outcomes:	
Learner should:	
<ul style="list-style-type: none"> ● Be able to illustrate the metabolism of carbohydrates, amino acids and lipids through various metabolic pathways. ● Be able to undertake investigations and perform analysis that provide information about metabolic disorder. 	
USBT405	Course Title: MOLECULAR DIAGNOSTICS
Course Outcomes:	
By the end of the course the student will be able to:	
<ul style="list-style-type: none"> ● gain an understanding of the basic principles used in molecular diagnosis. ● gain critical thinking and analytical skills to understand new diagnostic methods. ● apply the knowledge and skills gained in the course should be useful in developing new diagnostic kits. 	
USBT406	Course Title: BIOINFORMATICS AND BIOSTATISTICS
Course Outcomes:	
By the end of the course the student will be able to:	
<ul style="list-style-type: none"> ● gain an understanding of the basic concepts of Bioinformatics and Biostatistics. 	



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<ul style="list-style-type: none"> ● understand the tools used in bioinformatics. ● apply the various statistical tools for analysis of biological data. 	
USBT407	RESEARCH METHODOLOGY
<p>Course Outcomes: By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> ● understand basic principles of research methodology and identify a research problem. ● understand a general definition of research design. ● identify the overall process of designing a research study from its inception to its report. 	
SEMESTER V	
Course Code: USBT501	Course Title: Cell Biology
<p>Course Outcomes:</p> <ul style="list-style-type: none"> ● Explain Cell cycle and its control ● Describe Cell cycle control in yeast and Animal Cell. ● Comprehend Cell signaling and signal transduction. ● Discuss General Principles of Cell Signaling and different receptors in signaling. ● Elaborate on Target-Cell Adaptation. ● Discuss the Logic of Intracellular and "Neural Networks". ● Describe Multidisciplinary approach in Developmental Biology. ● Comment on Stages of Embryonic development. ● Evaluate Mechanism of differentiation in Embryonic cells. ● Discuss Model Organism in Developmental Biology. ● Explain Cancer as microevolutionary process. ● Understand Molecular genetics of cancer. 	
Course Code: USBT502	Course Title: Medical Microbiology & Instrumentation
<p>Course outcomes:</p> <ul style="list-style-type: none"> ● Understand Virology: Classification, Cultivation, Purification and Infection. ● Describe Viroids and Prions ● Explain Chemotherapeutic drugs: Classification, Mechanism and use. ● Understand Principle, instrumentation, working and applications of Fluorescence Spectroscopy, Luminometry, Light scattering spectroscopy, infrared Spectroscopy and Atomic absorption Spectroscopy. ● Understand Principle, working and applications of Affinity chromatography, Ion-exchange chromatography, Molecular (size) exclusion chromatography. ● Describe HPLC - Method development and validation. ● Discuss Isotopes in Biology and autoradiography. ● Discuss Applications of Tracer techniques in Biology. 	
Course Code: USBT503	Course Title: Genomes and Molecular Biology



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Course outcomes:	
<ul style="list-style-type: none"> ● Explain Genetic engineering of plants; Methodology. Plant transformation with the Ti plasmid of <i>A.tumefaciens</i>, Ti plasmid derived vector system. ● Describe Transgenic plants: Physical methods of transferring genes to plants : electroporation, microprojectile bombardment, liposome mediated, protoplast fusion. ● Elaborate on vectors for plant cells. ● Discuss improvement of seed quality protein. ● Discuss Transgenic Animal: Method, cloning and application. ● Explain Vectors in Genetic Engineering: Types and applications. ● Explain Gene Sequencing and editing: Techniques and application. 	
Course Code: USBT504	Course Title: Marine Biotechnology
Course Outcomes:	
<ul style="list-style-type: none"> ● Understand Marine Biotechnology: Different types of Ecosystems, Bioprospecting. ● Explain bioactive compound from different marine organisms. ● Comment on approved Marine Drugs, Natural Products and Microbial enzyme. ● Discuss different marine food sources: Nutraceuticals. ● Describe Marine Bioresources like Secondary metabolites, proteins and lipids. ● Elaborate on Major Functions of Some Marine Components in Cosmetics and Cosmeceuticals. 	
Course Code: Applied Component	Course Title: Biosafety
Course outcomes:	
<ul style="list-style-type: none"> ● Understand Biosafety – Risk assessment, Laboratory procedures, equipment and risk management. ● Carry out Laboratory Practices – GLP, SOPs, data validation, documentation and Audits. ● Describe Microbial contamination detection methods and standard assays. ● Discuss different concepts of Biosafety in Biotechnology. ● Justify Biosafety and Bioethics in rDNA technology. 	
SEMESTER VI	
Course Code: USBT601	Course Title: Biochemistry
Course Outcomes:	
<ul style="list-style-type: none"> ● Understand higher protein structural levels- tertiary and quaternary with knowledge of protein denaturation and folding patterns. ● Describe protein interactions like complementary interactions between protein and ligand, those modulated by chemical energy with protein functions. ● Demonstrate practical understanding of how to purify proteins using different methods like salt precipitation and different chromatographic techniques. ● Explain carbohydrate biosynthesis and regulation particularly polysaccharides in bacteria, plants and animals. ● Understand cholesterol biosynthesis and regulation. 	



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- Discuss structure, release, transport, biochemical functions and disorders associated with hormones secreted by different endocrine glands in the body.
- Comment on dietary sources, bioactive form, functions and disorder associated with different fat soluble and water soluble vitamins.
- Describe physiological and biochemical functions of important and trace elements in malnutrition.

Course Code: USBT602

Course Title: Industrial Microbiology

Course outcomes:

- Understand the basic principles underlying Dairy Science and Technology such as processing of milk and production of dairy products like cheese, butter and yoghurt.
- Apply practical knowledge of performing rapid platform tests for the analysis of bacteriological quality of milk and/or dairy products.
- Describe unit operations such as Pasteurization, preservation techniques and composition of starter cultures and their role in the production of dairy products.
- Discuss up-stream and downstream aspects of microbial fermentations.
- Explain fermentative production of both primary and secondary metabolites of microbial origin with appropriate examples such as ethanol, enzymes, antibiotics, amino acids etc.
- Discuss various aspects of fermentative production such as inoculum development [both bacterial and fungal] and scale up.
- Carry out methods of recovery [filtration, centrifugation, precipitation, cell disruption] of biomass and/or products depending upon if the products are intracellular or extracellular.
- Explain various chromatographic techniques and membrane processes to separate, concentrate and/or purify the fermentation products.
- Comment on downstream processing operations such as whole broth processing and the product formulation techniques such as drying and crystallization.
- Explain importance of Good Manufacturing Practices [GMP] and its implementation requirements.
- Carry out documentation related to GMP practices and regulatory certification of GMP.
- Justify importance of Quality Control [QC] and Quality Assurance [QA] in an industrial set up and their requirements of implementation.

Course Code: USBT603

Course Title: Basic Pharmacology and Neurochemistry

Course outcomes:

- Explain mechanism of drug action with understanding of drug receptors and biological responses.
- Describe second messenger systems and chemistry of drug-receptor binding.
- Discuss dose- response relationship with knowledge of therapeutic index, ED and LD terms.



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- Understand drug antagonism concept.
- Explain absorption of drugs from alimentary tract, from lungs, after parenteral administration and factors affecting
- Discuss factors influencing drug distribution and physiological barriers to drug distribution.
- Understand terms in basic toxicology and regulatory toxicology.
- Discuss causes, allergy to drugs and effects of prolonged drug administration.
- Explain principles of treatment in deliberate and accidental self-poisoning.
- Describe general and poison specific measures in poisoning.
- Describe specific poisoning with examples, herbicides, pesticides, biological substances and incapacitating agents.
- Explain anatomy and functioning of the brain, neuronal pathways, propagation of nerve impulses, neuronal excitation and inhibition, synapses and gap junctions.
- Explain knowledge of neurotoxins and neurotransmitters.

Course Code: USBT604

Course Title: Environmental Biotechnology

Course Outcomes:

- Explain various renewable sources of energy such as Wind, Solar, Geo-thermal, Hydro and Biomass, the means to trap them and the need to replace non-renewable energy sources by renewable ones.
- Describe the concepts of Biogas technology-biogas plant and types, biogas production, and biodigester.
- Discuss fuel ethanol production from various raw materials such as corn and ligno-cellulosic biomass-advantages and disadvantages associated with the process.
- Explain microbial hydrogen, biodiesel production processes and petrocrops as an alternative and promising source of energy.
- Understand in details the process of industrial effluent treatment and the biotechnological process involved with it such as aerobic biological treatment-activated sludge process, and anaerobic biological treatment-contact digesters, various reactors etc.
- Discuss biological treatment of solid wastes, biological pollution indicators and role of biosensors in monitoring environmental pollution.
- Explain the prevalence of xenobiotics in the environment and their biodegradation using various microorganisms.
- Explain bioreactor based technology for the industrial effluent treatment using immobilized microbial cells and/or enzymes.
- Give scientific rationales behind biological treatment of waste water using packaged organisms and genetically engineered microorganisms.
- Discuss the causes of heavy metal pollution and their removal by microbial accumulation, biosorption methods by microorganisms and the biomass.



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- Explain dos and don'ts involved with hazardous waste management or simply learn biodegradation of wastes from various industries such as tannery, paper and pulp, petroleum, dairy, distillery, dye and antibiotic industry.
- Elaborate on biotechnological ways to remove oil spillage and grease deposits.
- Perform and carry out estimation of Biochemical Oxygen Demand [BOD], Chemical Oxygen Demand [COD] and characterization of industrial effluent.

6. B.Sc. Chemistry

Name of Department: Chemistry

Class: F.Y.B.Sc.

Program Outcomes:

- The student graduating with the Degree B.Sc Chemistry should be able to acquire;
- Core competency: Students will acquire core competency in the subject Chemistry, and in allied subject areas.
- A systematic and coherent understanding of the fundamental concepts in Physical chemistry, Organic Chemistry, Inorganic Chemistry, Analytical Chemistry, and all other related allied chemistry subjects.
- Students will be able to use the evidence-based comparative chemistry approach to explain chemical synthesis and analysis.
- Students will be able to characterize, identify and separate components of organic or inorganic origin and will also be able to analyze them by making use of the modern instrumental methods learned.
- Students will be able to understand the basic principle of equipment and instruments used in the chemistry laboratory.
- Students will be able to demonstrate the experimental techniques and methods of their area of specialization in Chemistry
- The course curriculum also includes components that can be helpful to graduate students to develop critical thinking ability by way of solving problems/numerical using basic chemistry knowledge and concepts.
- Appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals, environmental issues, and key issues facing our society in terms of energy, health, and medicine.



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- Lifelong learner: The course curriculum is designed to inculcate a habit of learning continuously using advanced ICT techniques and other available techniques/books/journals for personal academic growth as well as for increasing employability opportunity

Program Specific Outcomes:

This program gives understanding of:

- Common laboratory techniques including pH measurement, acid/base titrations, and colorimetry.
- The use of the techniques mentioned above to solve chemical problems.
- How to carry out practical laboratory experiments
- Identify chemical formulae and solve numerical problems.
- The basic colligative properties of solutions
- The fundamentals of acid/base equilibria, including pH calculations, buffer behavior, acid/base titrations,
- The thermodynamic and kinetic forces involved in chemical reactions which determine how much and how soon products are formed
- The basics of thermodynamic and stoichiometric parameters
- General periodicity patterns of (organic/inorganic) molecules, and the ability to design synthetic approaches to such species.
- General chemical equilibria, Solubility, and complex ion equilibria
- Use models, charts, equipment and safe handling of chemicals.

SEMESTER- I

Course Code: USCH 101

Course Title: Chemistry – I

Course Outcomes:

The students would be able :

- To understand concepts in thermodynamics, different thermodynamic quantities such as heat and work and how they are measured, related or transformed from one to the other
- To study states of matter and how they depend on temperature and pressure as well as how they co-exist in phase equilibria
- To acquire knowledge of chemical equilibrium and its relationship with thermodynamic quantities
- The transport of ions and thermodynamic functions with applications to electron transfer in biological systems
- To study chemical kinetics; how reaction rates are measured and represented in rate laws, and applications of chemical kinetics in studying enzyme mechanisms
- To study atomic structures of atoms Rutherford's Atomic Model, Bohr's theory
- To study Simple principles of quantum mechanics; Atomic orbitals, Aufbau principle
- To study Long form of Periodic Table; Classification for elements as main group, transition and inner transition elements; Periodicity properties
- To understand basic rules of IUPAC nomenclature, nomenclature of mono and bi-functional aliphatic compounds
- To learn bonding and structure of organic compounds, hybridization, overlap of atomic orbitals, shapes of molecules;
- To gain knowledge about Fundamentals of organic reaction mechanism, various Electronic Effects, Bond fission, Types , shape and their relative stability of reactive intermediates
- To study various types of organic reactions such as Addition, Elimination and Substitution reaction.



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- To determine the rate constant, enthalpy, to carry out standardization, commercial analysis and gravimetric analysis of several of samples in chemistry lab.
- To carry out Titration, Purification by recrystallization, to understand paper chromatography, thin layer chromatography in chemistry lab.

Course Code: USCH 102

Course Title: Chemistry -II

Course outcomes:

The students would be able :

- To understand concept of reaction rates and use the coefficients of a balanced chemical equation to express the rate of reaction in terms of the change in concentration of reactant or product over time
- To Distinguish between instantaneous rates and average rates from graphs
- To Determine the rate law from initial rate data and order of reaction with respect to each reactant
- To Recognize the rate law and able to use integrated rate equation of first and second order reactions to find the values of one variable, given values of the other variables
- To Explain the concept of reaction half-life and describe the relationship between half-life and rate constant for first order and second order reaction
- To study the terms Surface tension, Viscosity, coefficient of viscosity, relative viscosity, specific viscosity
- To understand concept of thermotropic phases, Nematic, smectic and cholesteric phases and also the applications of liquid crystals
- To know the determination of refractive index by Abbe's refractometer
- To understand properties of Metallic and non-metallic nature, diagonal relationship and anomalous behavior of second period elements
- To learn physical as well chemical properties of oxides of carbon, oxides and oxyacids of sulphur and nitrogen with respect to environmental aspects.
- To understand the basic concepts of stereo chemistry, Review the concept of isomer, Fischer Projection, Newman and Sawhorse Projection formulae of erythro, threo isomers which result from free rotation of C-C single bond ,from chirality ,from restricted rotation R,S and E, D/L, nomenclature
- To understand the Conformation analysis of alkanes that is ethane, propane and n-butane and their Relative stability with energy diagrams.
- To carry out quantitative analysis of salt mixture and redox titration in chemistry lab.

Class: FY BSc

Program Outcomes:

Specific core discipline knowledge

- Students can recall details about concept of Qualitative Analysis , Thermodynamics , Chemistry of Hydrocarbons , Reduction Chemistry , Stereochemistry.
- Students can recall details of Chemistry of Aliphatic Hydrocarbons , Aromatic Hydrocarbons as well as acid base theories .
- Students can communicate effectively using oral and written communication skills



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Problem solving and research skills

- Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context

Program Specific Outcomes:

- To identify types of chemical bonds as well as comparison between Ionic & Covalent Bonds .
- To study the Ideal Gas Laws , Chemical Equilibrium & Thermodynamic parameters .
- To able to understand Ionic Equilibria as well as introduction of various types of buffers .
- To understand concept of Qualitative Analysis , Balanced Chemical Equations .
- To study the acid base theories and their application .
- To provide the knowledge of Aliphatic Hydrocarbons and Aromatic Hydrocarbons through various reactions .
- To be able to deal with various instruments like Colorimetry , PH metry , Molecular Spectroscopy studied .
- To study the Oxidation and Reduction Chemistry as well as applications of Redox Chemistry .

SEMESTER II

Course Code: USCH201

Course Title: General Chemistry

Course Outcomes:

The students would be able :

- To acquire knowledge about basic concepts of physical chemistry , Inorganic chemistry as well as organic chemistry
- Students will be able to study ideal gas laws , solve the numericals ,
- Students will study the thermodynamic parameters
- In Inorganic chemistry they will understand the concepts of qualitative analysis which they are performing in the practical
- They will get the knowledge of all acid base theories which helps in understanding organic reactions like friedel craft's acylation reaction
- In organic chemistry they will understand how the reaction of alkenes takes place with their mechanism.

Course Code: USCH202

Course Title: General chemistry

Course outcomes:

The students would be able :

- To acquire knowledge about basic concepts of physical chemistry , Inorganic chemistry as well as organic chemistry
- To be able to understand Ionic Equilibria with strong, moderate and weak electrolytes. Buffers are introduced and numericals are solved
- In physical chemistry, they will study molecular spectroscopy as well as solid state chemistry.
- In Inorganic Chemistry, types of chemical bonds and their comparison, basic VSEPR theory for molecules is studied.



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- They will understand oxidation reduction chemistry with the application of Redox chemistry.
- In Organic Chemistry, they will study the stereochemistry of cycloalkanes and their conformational analysis.
- Also they will study aromaticity of aromatic hydrocarbons, electrophilic substitution reactions like halogenation, nitration and sulphonation.

Class: S.Y.B.Sc Sem III

Program Outcomes:

Specific core discipline knowledge

In the first two semesters of the six semester graduation program of B. Sc.(Chemistry) the learner was introduced to some basic aspects in the various core branches of chemistry like Physical Chemistry, Organic chemistry and Inorganic chemistry. Concepts about the structure of atoms, distribution of electrons, Thermodynamics, Formation of organic compounds and basic ideas in reactivity of molecules in general and organic compounds in particular were introduced to the learner. He was inquisitive about why and how atoms combine to give molecules or ions. The non-orbital approach to appreciating the shapes of polyatomic species in general and molecules in particular.

The story of chemistry is taken further in the coming two semesters of the second year of the B. Sc. (Chemistry) Program. However, it is also realised that some students opting for the course on Chemistry may not continue with the subject subsequently as such the syllabus is designed to retain the interest of the serious learner of chemistry as well as be helpful to non-chemistry learners. With such students who would want to pursue other branches of science but would want to acquire a basic appreciation and experience of chemistry a separate paper (Paper-III) is designed. This paper along with the laboratory session unit that goes with it deals with the basics of chemical analysis, separating components from a given sample, basic concepts like pH, experimental techniques like Titrimetry, Gravimetry, using instruments to carry out analysis, the various techniques like chromatography, electrophoresis, Instrumentation in general is felt to be of interest to learners of various branches like physics, botany, zoology, and microbiology.

Program Specific Outcomes:

- To infuse in the learner a spirit of inquiry into the fundamental aspects of the various core areas of Chemistry.
- To make the learner proficient in analysing the various observations and chemical phenomena presented to him during the course.
- To make the learner capable of solving problems in the various units of this course .To give the learner an opportunity to get hands-on experience of the various concepts and processes in the various branches of chemistry.
- To impart various skills of handling chemicals, reagents, apparatus, instruments and the care and safety aspects involved in such handling.
- To make the learner capable of analysing and interpreting results of the experiments students conduct or perform.
- To make the learner capable of acquiring or pursuing a source of livelihood like jobs in chemical industry



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
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<ul style="list-style-type: none">To arouse the interest to pursue higher levels of learning in chemistry,	
SEMESTER - III	
Course Code: USCH301	Course Title: (General Chemistry) Unit-I Physical Chemistry Unit-II Inorganic Chemistry Unit-III Organic Chemistry.
Course Outcomes: On completing the learning of this unit the learner is expected to <ul style="list-style-type: none">Know about Chemical Thermodynamics, free energy with Pressure and Temperature.To gain knowledge about Electrochemistry, Conductivity, degree of ionization, transference number.To study Chemical Bonding, Non-Directional Bonding, Directional Bonding-Orbital approach, Molecular Orbital Theory .Know the various reactions and reactivity of halogenated hydrocarbons: Alkyl halides, Aryl halides Organomagnesium and organolithium compounds.To understand the Nomenclature, methods of preparation and reactions of Alcohols, phenols and epoxides.	
Course Code: USCH302	Course Title: (General Chemistry) Unit-I Physical Chemistry Unit-II Inorganic Chemistry Unit-III Organic Chemistry.
Course outcomes: The students would be able : <ul style="list-style-type: none">➤ To know about Chemical Kinetics, Understand basics of chemical kinetics and predict reaction mechanism. Types of Complex Chemical reactions, Effect of temperature on the rate of reaction, Theories of reaction rates. Calculate rate constant of zero, first and second order reaction.➤ To understand the different aspects and importance of Solutions, the basics of solutions, colligative properties, and their applications. Thermodynamics of ideal solutions, Partial miscibility of liquids, of liquids, Nernst distribution law and its applications, Solvent extraction.➤ To study the Selected topics on p block elements like Chemistry of Boron compounds, Chemistry of Silicon and Germanium, Chemistry of Nitrogen family.➤ To gain knowledge about the Nomenclature of aliphatic, alicyclic and aromatic carbonyl compounds.➤ To know about General mechanism of nucleophilic addition reaction.➤ To understand the Reactions of aldehydes and ketones➤ To learn common reaction mechanisms of Benzoin condensation, Knoevenagel condensation, Claisen-Schmidt and Cannizzaro reaction.➤ To gain knowledge about the Keto-enol tautomerism.➤ To study the Active methylene compounds.	



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Course Code: USCH303	Course Title: Basics in Analytical Chemistry
Course outcomes: Introduction to Analytical Chemistry and Statistical Treatment of analytical data-I Learners should be able to <ul style="list-style-type: none">● Select a method of analysis.● Decide how to identify a sample and prepare it for analysis.● Select a procedure for analysis .● Identify sources of possible errors in the results obtained.. Classical Methods of Analysis The main objectives of this unit is to <ul style="list-style-type: none">● Introduce classical methods of chemical analysis.● Appreciate the various terms and types of titrimetric analysis.● Ability to select proper titrimetric method● Appreciate the usefulness of the gravimetric method of analysis● Identify a suitable gravimetric method● Perform the required calculations involved in the analysis by titrimetry as well as gravimetry. Instrumental Methods-I On completing the learning of this unit the learner is expected to <ul style="list-style-type: none">● Know the various instrumental methods of analysis● Advantages of using instruments to make measurements● The various observable properties of a given analyte and the stimulus best suited for its analysis● Know about a generalized diagram of an analytical instrument● Select a suitable instrumental method for analysis● Appreciate the basic terms in spectrometry● Use the relationship between absorbance (and its variations) and concentration of the analyte.● Choose a suitable method for photometric titrations.	
Class: SYBSc	
Program Outcomes: <ul style="list-style-type: none">● In the first two semesters of the six semester graduation program of B. Sc.(Chemistry) the learner was introduced to some basic aspects in the various core branches of chemistry like Physical Chemistry, Organic chemistry and Inorganic chemistry. Concepts about the structure of atom, distribution of electrons, Thermodynamics, Formation of organic compounds and basic ideas in reactivity of molecules in general and organic compounds in particular were introduced to the learner. He was inquisitive about why and how atoms combine to give	



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molecules or ions. The non-orbital approach to appreciating the shapes of polyatomic species in general and molecules in particular.

- The story of chemistry is taken further in the coming two semesters of the second year of the B. Sc. (Chemistry) Program. However, it is also realised that some students opting for the course on Chemistry may not continue with the subject subsequently as such the syllabus is designed to retain the interest of the serious learner of chemistry as well as be helpful to non-chemistry learners. With such students who would want to pursue other branches of science but would want to acquire a basic appreciation and experience of chemistry a separate paper (Paper-III) is designed. This paper along with the laboratory session unit that goes with it deals with the basics of chemical analysis, separating components from a given sample, basic concepts like pH, experimental techniques like Titrimetry, Gravimetry, using instruments to carry out analysis, the various techniques like chromatography, electrophoresis, Instrumentation in general is felt to be of interest to learners of various branches like physics, botany, zoology, and microbiology.

Program Specific Outcomes:

- To make the student proficient in analysing the various observations and chemical phenomena presented to him during the course.
- To make the student capable of solving problems in the various units of this course
- To give the student an opportunity to get hands on experience of the various concepts and processes in the various branches of chemistry
- To impart various skills of handling chemicals, reagents, apparatus, instruments and the care and safety aspects involved in such handling
- To make the student capable of analysing and interpreting results of the experiments he conducts or performs
- To make the student capable of acquiring or pursuing a source of livelihood like jobs in chemical industry
- To arouse the interest to pursue higher levels of learning in chemistry.

SEMESTER IV

Course Code: USCH401

Course Title: Chemistry paper 1

Course Outcomes:

The students would be able :

- To setup electrochemical cells, to analyze cell reactions, study spectrochemical series, study various types of electrodes.
- To study phase equilibria, phase rule, apply phase rule, study various phase diagram, condensed phase rule.
- To study coordination chemistry, theories of coordination compounds, and nature of the metal-ligand bond and application of coordination compounds
- To study comparative chemistry of transition metals, periodic table, Natural occurrence principal ores and minerals, magnetic properties of transition metal compounds.
- To study carboxylic acids and their derivatives, Nomenclature, structure and physical properties, Preparation of carboxylic acids and reactions, acidity, salt formation, decarboxylation, reduction of carboxylic acids.

Course Code: USCH402

Course Title: Chemistry paper 2



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Course outcomes:

The students would be able :

- To study laws of crystallography and types of crystals, use of x-rays in the study of crystal structure, Bragg's equation
- To study types of catalysis, catalytic activity, specificity and selectivity, inhibitors, catalyst poisoning and nanoparticles as catalyst.
- To study acidity of cations and basicity of anions, hydration of cations, classification of cations on the basis of acidity category, Hydration of Anions.
- To study Nitrogen containing compounds, Amines, reduction of nitriles, ammonolysis of halides, reductive amination, Hoffmann bromamide reaction Reactions- Salt Formation, N-acylation, N-alkylation, Diazonium Salts,
- To study Preparation and their reactions/synthetic application, Sandmeyer reaction, Gattermann reaction, Gomberg reaction

Course Code: USCH403

Course Title: Chemistry paper 3

Course outcomes:

The learner is expected to understand:

- The importance of separation in sample treatment
- Various methods of separations
- How to select a method of separation of an analyte from the matrix
- How a solute gets distributed between two immiscible phases
- Principle of solvent extraction and various terms involved therein
- Effect of various parameters on solvent extraction of a solute
- Classification of Chromatographic methods
- Paper and thin layer chromatography and using them in practice.
- Expected to appreciate the nature of interaction between applied electrical potential and the concentration of the analyte.
- The nature of chemical reactions that influence potential of a given cell.
- Familiar with the various types of electrodes or half cells.
- Appreciate the nature, need and importance of pH
- Expected to know the applications of the various instrumental methods dealt with in this unit.
- The use of statistical methods in chemical analysis.
- The randomness of such errors and its distribution around a correct or acceptable result
- Computation of Confidence limits and confidence interval
- Test for rejection of doubtful result
- Method to draw best fitting straight line.

Class: TYBSc

Program Outcomes:

Specific core discipline knowledge

- Students can solve and understand major concepts in chemistry and draw logical conclusion.
- Employ critical thinking and scientific knowledge to design carry out, record and analyze.

Communication skills

- Students can communicate effectively using oral and written communication skills

Program Specific Outcomes:



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- To be able to solve the problem and also think methodologically, independently and draw a logical conclusion.
- To find out the green route for chemical reaction for sustainable development.
- To create awareness of the impact of chemistry on the environment, society.

SEMESTER V

Course Code: USCH501

Course Title: PHYSICAL CHEMISTRY

Course Outcomes:

The students would be able :

- To gain knowledge about Molecular spectroscopy such as Rotational, Vibrational, Raman Spectroscopy.
- To understand Solution of solid in liquid, osmotic pressure, Collision theory of reaction rates.
- To learn decay constant half life, average life, unit of radioactivity, nuclear reaction, fission process fusion process.
- To study Chemical and physical adsorption ,to determine surface area of an adsorbent using BET equation, learn colloidal state and their electrical properties.

Course Code: USCH502

Course Title: INORGANIC CHEMISTRY

Course outcomes:

The students would be able :

- To understand importance of symmetry elements and operations, molecular orbital theory for Heteronuclear Diatomic molecule and polyatomic species.
- To study chemistry of lanthanides with respect to occurrence extraction separation and application.
- To gain insight of organometallic compounds and their reactions, to learn properties of metallocenes and catalysis.
- To learn types of metallurgies, metallurgy of copper and its extraction. Chemistry of group 18 with general characteristics and trends. to learn essential and non-essential elements in biological system

Course Code: USCH503

Course Title: ORGANIC CHEMISTRY

Course outcomes:

The students would be able :

- To learn how to write mechanism of organic reactions, NGP,acyl nucleophilic substitution reaction ,pericyclic reactions and nomenclature, Photochemical reactions.
- To study stereochemistry, molecular chirality, element of symmetry, chirality of compounds without chiral carbon.
- To learn agrochemicals their advantages and disadvantages.
- To learn heterocyclic chemistry with reactions
- To learn to write IUPAC nomenclature of bicyclic compounds biphenyl, cummulenes quinolones,isoquinolines.
- To write multicomponent synthesis, green chemistry, and planning of organic synthesis.



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<ul style="list-style-type: none">● To study UV-visible mass IR NMR spectroscopy.● To learn about Terpenoids, citral alkaloids, Nicotine with their structure synthesis and harmful effects.	
Course Code: USCH504	Course Title: ANALYTICAL CHEMISTRY
Course Outcomes: The students would be able : <ul style="list-style-type: none">● To learn quality in analytical chemistry, purpose, significance and difficulties in encountering in sampling of solid, liquid, gases.● To calculate numerical and word problem in Redox , complexometric ,EDTA titrations● To understand atomic spectroscopy, molecular fluorescence and phosphorescence spectroscopy ,instrumentation and application of turbidimetry and nephelometry.● To study insight of solvent extractions –principle apparatus and applications● Introduction and principle of HPLC and HPTLC	
Course Code: USACDD501	Course Title: DRUGS AND DYES
Course outcomes: The students would be able : <ul style="list-style-type: none">● To study about drugs ,sources, classification , nomenclature , route of drug administration and dosage forms.● To introduce about CNS drugs● To learn analgesics antipyretic and antiinflammatory ,antihistaminic drug,cardiovascular ,antidiabetic, antiparkinsonism drug● To understand the Dyestuff industry. Natural and synthetic drug, classification of dyes based on application and dying method, applicability on substrate .● To learn about unit processes like nitration,sulphonation , halogenation etc.● To study preparation of benzene ,naphthalene ,anthracene derivative	
Class: TYBSc	
Program Outcomes: <ul style="list-style-type: none">● Demonstrate, solve and an understanding of major concepts in all disciplines of chemistry.● Solve the problem and also think methodically, independently and draw a logical conclusion.● Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of chemical reactions.● Create an awareness of the impact of chemistry on the environment, society and development outside the scientific community.● To inculcate the scientific temperament in the students and outside the scientific community.● Use modern techniques, decent equipment and chemistry software.	
Program Specific Outcomes: <ul style="list-style-type: none">● Gain the knowledge of Chemistry through theory and practical.● To explain nomenclature, stereochemistry, structures, reactivity,and mechanism of the chemical reactions.	



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- Identify chemical formulae and solve numerical problems.
- Use modern chemical tools, Models, Chem-draw, Charts and Equipments.
- Know structure-activity relationship.
- Understand good laboratory practices and safety.
- Develop research oriented skills.
- make aware and handle the sophisticated instruments/equipment.

SEMESTER VI

Course Code: USCH 601

Course Title: Physical Chemistry

Course Outcomes:

The students would be able :

- To understand the concept of activity and activity coefficient.
- To classify cells and derive expression for cells.
- To understand the method of preparation and applications of light emitting polymers.
- To explain the meaning of polymers, their classification.
- To calculate molar mass of polymers.
- To understand the basics of quantum mechanics.
- To gain depth knowledge about renewable energy sources.
- To understand principle and instrumentation of NMR and ESR
- To solve numericals.

Course Code: USCH 602

Course Title: Inorganic Chemistry

Course outcomes:

The students would be able :

- To understand CFT in detail.
- To get knowledge about molecular orbital theory for coordination compounds.
- To study the stability of metal complexes.
- To know about electronic spectra
- To gain depth knowledge of reactivity of metal complexes.
- To learn organometallic compounds of main group metals.
- To study structure and bonding of metallocenes on the basis of VBT
- To gain knowledge about catalysis.
- To learn about metallurgy
- To inculcate knowledge of some essential and non essential elements in the biological system.
- To understand the chemistry of Group 18.

Course Code: USCH 603

Course Title: Organic Chemistry

Course outcomes:

The students would be able :

- To gain knowledge about stereoselectivity and stereospecificity
- To know about structure, configuration and classification of amino acids and proteins.



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<ul style="list-style-type: none">● To write mechanisms of different rearrangement reactions with example and stereochemistry of reactions.● To gain in depth knowledge of carbohydrates.● To understand IR, PMR spectroscopy.● To write polymerization reactions with examples.● To learn about different catalysts and reagents.	
Course Code: USCH 604	Course Title: Analytical Chemistry
Course Outcomes: The students would be able to : <ul style="list-style-type: none">● To learn different electro analytical techniques and be able to solve numerical and word problems based on this topic.● To get knowledge of different methods of separation techniques like Gas chromatography, Ion exchange chromatography and solve numerical problems based on it.● To learn principles, instrumentation of TGA and different types of thermometric titrations.● To know about validation parameters like specificity, selectivity, precision, linearity and accuracy.	
Course Code: USACDD 601	Course Title: Drugs and Dyes
Course outcomes: The students would be able to : <ul style="list-style-type: none">● To know drug discovery, design and development.● To learn about drug metabolism and chemotherapeutic agents.● To get a general idea of different types of drugs like Analgesics, Antipyretics, Anti-inflammatory, antihistaminic, Cardiovascular, Anti diabetic agents.● To classify dyes based on applications and dyeing methods.● To learn different dyes used in food and cosmetics, paper and leather dyes.● To get knowledge of the growth and development of the Indian dyestuff industry.	

7. B.Sc. Computer Science

Name of Department: Computer Science
Class: F.Y.B.Sc.
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none">● To lay the theoretical foundations of software and hardware equally supplemented by the practical techniques.● With this strong foundation of computer science along with core subjects like Mathematics, Statistics etc. the computer science students are expected to contribute efficient solutions for the various problems that are given to them.● To provide exposure to basics, advanced and emerging trend of the subject.



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Communication skills

- Students can communicate effectively using oral and written communication skills.

Problem solving and research skills

- Students can develop GUI applications, websites and web application.
- Student can form fundamental skills for solving computational problem that will inculcate research oriented acumen.

Program Specific Outcomes:

- To form strong foundation of computer science.
- To introduce emerging trend to the student in gradual way.
- To cover core concepts of Computer Science and also to cover the latest technologies this helps them to get industry ready.
- To promote Open Source Technologies as much as possible.
- To groom the students for the challenges of ICT industry.
- To help learners develop their soft skills and develop their personality together with their technical skills.
- To develop professional, social and academic skills to harness hidden strengths, capabilities and knowledge equip them to excel in real work environment and corporate life.
- To able to explain various concepts of programming using python.
- To explain that is anyone is freely licensed to use, copy, study and change the software in any way and source code openly shared to anyone.
- To understand the solving algorithm, problems.
- To familiarize students with basics of Statistics. This will be essential for prospective researchers and professionals to know these basics.
- To explore and understand the concepts of Data Structures and its significance in programming. Provide and holistic approach to design, use and implement abstract data types.
- To familiarize with the concept of Green Computing and Green IT infrastructure for making computing and information system environment sustainable.

SEMESTER I

Course Code: USCS101

Course Title: Digital Systems & Architecture

Course Outcomes:

The students would be able :

- To learn about how computer systems work and underlying principles.
- To understand the basics of digital electronics needed for computers.
- To understand the basics of instruction set architecture for reduced and complex instruction sets.
- To understand the basics of processor structure and operation.
- To understand how data is transferred between the processor and I/O devices.

Course Code: USCS102

Course Title: Introduction to Programming with Python

Course Outcomes:

The students would be able :

- To store, manipulate and access data in Python.



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<ul style="list-style-type: none"> ● To implement basic Input / Output operations in Python. ● To define the structure and components of a Python program. ● To learn how to write loops and decision statements in Python. ● To learn how to write functions and pass arguments in Python. ● To create and use Compound data types in Python 	
Course Code: USCS103	Course Title: LINUX Operating System
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To work with Linux file system structure, Linux Environment ● To handle shell commands for scripting, with features of regular expressions, redirections ● To implement file security permissions ● To work with vi, sed and awk editors for shell scripting using various control structures ● To install softwares like compilers and develop programs in C and Python programming languages on Linux Platform 	
Course Code: USCS104	Course Title: Open Source Technologies
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To evaluate business information problem and find the requirements of a problem in terms of data. ● To design the database schema with the use of appropriate data types for storage of data in database. ● To create, manipulate, query and back up the databases. 	
Course Code: USCS105	Course Title: Discrete Mathematics
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To define mathematical structures (relations, functions, graphs) and use them to model real life situations. ● To understand, construct and solve simple mathematical problems. ● To solve puzzles based on counting principles. ● To Provide basic knowledge about models of automata theory and the corresponding formal languages. ● To develop an attitude to solve problems based on graphs and trees, which are widely used in software. 	
Course Code: USCS106	Course Title: Descriptive Statistics
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To organize, manage and present data. ● To analyze Statistical data using measures of central tendency and dispersion. 	



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<ul style="list-style-type: none"> To analyze Statistical data using basics techniques of R. To study the relationship between variables using techniques of correlation and regression. 	
Course Code: USCS107	Course Title: Soft Skills
Course outcomes: The students would be able : <ul style="list-style-type: none"> To understand the importance and types soft skills To develop skills for Academic and Professional Presentations. To understand Leadership Qualities and Ethics. To understand the importance of stress management in their academic & professional life. 	
SEMESTER II	
Course Code: USCS201	Course Title: Design & Analysis of Algorithms
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand and evaluate efficiency of the programs that they write based on performance of the algorithms used. To appreciate the use of various data structures as per need To select, decide and apply appropriate design principle by understanding the requirements of any real life problems 	
Course Code: USCS202	Course Title: Advanced Python Programming
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To implement OOP concepts in Python including Inheritance and Polymorphism To work with files and perform operations on it using Python. To implement regular expression and concept of threads for developing efficient program To implement exception handling in Python applications for error handling. To get knowledge of working with databases, designing GUI in Python and implement networking in Python 	
Course Code: USCS203	Course Title: Introduction to OOPs using C++
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To work with numeric, character and textual data and arrays. To understand the importance of OOP approach over procedural language. To understand how to model classes and relationships using UML. To apply the concepts of OOPS like encapsulation, inheritance and polymorphism. • Handle basic file operations. 	
Course Code: USCS204	Course Title: Title:Database Systems
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To appreciate the importance of database design. To analyze database requirements and determine the entities involved in the system and their 	



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<ul style="list-style-type: none"> ● relationship to one another. ● To write simple queries to MySQL related to String, Maths and Date Functions. ● To Create tables and insert/update/delete data, and query data in a relational DBMS using MySQL commands. ● To understand the normalization and its role in the database design process. ● To Handle data permissions. ● To Create indexes and understands the role of Indexes in optimization search. 	
Course Code: USCS205	Course Title: Calculus
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understanding of Mathematical concepts like limit, continuity, derivative, integration of functions. ● To appreciate real world applications which uses these concepts. ● To formulate a problem through Mathematical modeling and simulation. 	
Course Code: USCS206	Course Title: Statistical Methods
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To calculate probability, conditional probability and independence. ● To apply the given discrete and continuous distributions whenever necessary. ● To define null hypothesis, alternative hypothesis, level of significance, test statistic and p value. <ul style="list-style-type: none"> • Perform Test of Hypothesis as well as calculate confidence interval for a population parameter for single sample and two sample cases. ● To apply non-parametric test whenever necessary. ● To conduct and interpret one-way and two-way ANOVA. 	
Course Code: USCS207	Course Title: E-Commerce & Digital Marketing
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand the core concepts of E-Commerce. ● To understand the various online payment techniques ● To understand the core concepts of digital marketing and the role of digital marketing in business. ● To apply digital marketing strategies to increase sales and growth of business \ ● To apply digital marketing through different channels and platforms ● To understand the significance of Web Analytics and Google Analytics and apply the same 	
Class: S.Y.B.Sc.	
<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students are able to learn core computer science subjects. ● Students can acquire skill sets as expected by the industry with the new technological environment. ● Students can able to cater the needs of society and nation in present day context. <p>Communication skills</p>	



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- Students can communicate effectively using oral and written communication skills.

Problem solving and research skills

- Student can form fundamental skills for solving computational problem that will inculcate research oriented acumen.

Program Specific Outcomes:

- To provide the comprehensive insight into theory of computation understanding of grammar, syntax and other elements of modern language designs.
- To develop capabilities to design formulations of computing models and its applications in diverse areas.
- To develop understanding of Object Oriented Programming which holds key indispensable position in any curriculum of Computer Science.
- To understand the structure, functioning and algorithms operating system.
- To provide understanding of modern day needs of Mobile platforms and applications
- To develop understanding of concepts and techniques for data management along with its implementation and usage.
- To explain Graph theory which is rapidly moving into the mainstream mainly because of its applications in diverse fields which include new opportunities in the areas of genomics, communications networks and coding theory, algorithms and computations and operations research.
- To introduce one of the upcoming concepts Physical Computing and IoT programming which will definitely open future area as Embedded Engineer, involvement in IoT projects, Robotics and many more.
- To provide insight into emerging technologies to design and develop state of the art web applications using client-side scripting, server-side scripting, and database connectivity.
- To understand basic principles of algorithm design and why algorithm analysis is important.
- To explore .NET technologies for designing and developing dynamic, interactive and responsive web applications.

SEMESTER III

Course Code: USCS301

Course Title: Principles of Operating Systems

Course Outcomes:

The students would be able :

- To work with any type of operating system
- To handle threads, processes, process synchronization
- To implement CPU scheduling algorithms
- To understand the background role of memory management
- To design file system.

Course Code: USCS302

Course Title: Linear Algebra

Course outcomes:

The students would be able :

- To appreciate the relevance and applications of Linear Algebra in the field of Computer Science.
- To understand the concepts through program implementation.
- To install computational thinking while learning linear algebra.



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<ul style="list-style-type: none"> ● To express a clear understanding of the concept of a solution to a system of equations. ● To find eigenvalues and corresponding eigenvectors for a square matrix. 	
Course Code: USCS303	Course Title: Data Structures
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To create different types of data structures. ● To understand which data structure to be used based on the type of the problem. ● To apply combined knowledge of algorithms and data structures to write highly effective programs in various domains. 	
Course Code: USCS304	Course Title: Advanced Database Concepts
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To master concepts of stored procedure, functions, cursors and triggers and its use. ● To learn about using PL/SQL for data management. ● To use Collections and records. ● To understand concepts and implementations of transaction management and crash recovery. 	
Course Code: USCS305	Course Title: Java based Application Development
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To design basic applications in java using Graphical User Interface. ● To develop applications using swings ● To develop web based applications using servlet and jsp ● To connect databases with java through ● To perform programs using JSON objects 	
Course Code: USCS306	Course Title: Web Technologies
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To design valid, well-formed, scalable, and meaningful pages using emerging technologies. ● To understand the various platforms, devices, display resolutions, viewports, and browsers that render websites ● To develop and implement client-side and server-side scripting language programs. ● To develop and implement Database Driven Websites. ● To design and apply XML to create a markup language for data and document centric applications. 	
Course Code: USCS3072	Course Title: Green Technologies
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To explain drivers and dimensions of change for Green Technology ● To appreciate Virtualization; smart meters and optimization in achieving green IT ● To gain knowledge about green assets, green processes, and green enterprise architecture ● To understand ISO 14001 and related standards for Audit for Green Compliance 	
SEMESTER IV	



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Course Code: USCS401	Course Title: Theory of Computation
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand Grammar and Languages ● To learn about Automata theory and its application in Language Design ● To learn about Turing Machines and Pushdown Automata ● To understand Linear Bound Automata and its applications 	
Course Code: USCS402	Course Title: Computer Networks
Course outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To learn basic networking concepts and layered architecture. ● To understand the concepts of networking, which are important for them to be known as a 'networking professionals'. 	
Course Code: USCS403	Course Title: Software Engineering
Course outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To plan a software engineering process life cycle, including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance and quality requirements ● To analyze and translate a specification into a design, and then realize that design practically, using an appropriate software engineering methodology. ● To know how to develop the code from the design and effectively apply relevant standards and perform testing, and quality management and practice ● To use modern engineering tools necessary for software project management, time management and software reuse. 	
Course Code: USCS404	Course Title: IoT Technologies
Course outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand SoC and IoT ● To use different types of IoT Platforms and interfaces ● To understand and implement an idea of various types of applications built using IoT 	
Course Code: USCS405	Course Title: Android Application Development
Course outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To build useful mobile applications using Kotlin language on Android ● To install and configure Android Studio for application development ● To use built-in widgets and components, work with the database to store data ● To understand Android programming concepts and deploy the application on Google Play 	
Course Code: USCS406	Course Title: Advanced Application Development
Course outcomes: The students would be able :	



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<ul style="list-style-type: none"> ● To store the data in NoSQL, document-oriented MongoDB database that brings performance and scalability. ● To use Node.js and Express Framework for building fast, scalable network applications ● To use AngularJS framework that offers declarative, two-way data binding for web applications. ● To integrate the front-end and back-end components of the MEAN stack. ● To develop robust mobile applications using Flutter. 	
Course Code: USCS4071	Course Title: Research Methodology
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To define research, formulate problems and describe the research process and research methods. ● To understand and apply basic research methods including research design, data analysis and interpretation. ● To understand ethical issues in research, write research report, research paper and publish the paper. 	
Name of Department: Computer Science	
Class: T.Y.B.Sc.	
<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students can able to develop capabilities to design formulations of computing models and its applications in diverse areas. ● Student can able to become technologically savvy, theoretically strong, innovatively skilled and ethically responsible of computer science professionals. <p>Skill Enhancement</p> <ul style="list-style-type: none"> ● It helps the student to evaluate their computer science domain specific skills and also to meet industry expectations. ● It will also give the opportunity to the student to prove their ability in the subject practically through the Project Implementation. ● It can boost their confidence and also can encourage them to perform innovations in the subject as the choice of the Project topic is kept open covering most of the areas of Computer Science subject as per the students interest and the subject they have learned during the Course. <p>Communication skills</p> <ul style="list-style-type: none"> ● Students can communicate effectively using oral and written communication skills. <p>Problem solving and research skills</p> <ul style="list-style-type: none"> ● Students can collect data, test hypothesis, prepare a model, train the model, test the model and predict its accuracy for further use. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To introduce tools and techniques use by AI which bring transformational changes to real world. ● To provide learner with knowledge in Software Testing techniques. ● To provide knowledge of basic concepts of computer security including network 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- Security and cryptography.
- To understand the details of web services technologies like SOAP, WSDL, and UDDI.
- To get the understanding computer Graphics programming using Directx or Opengl. Along with the VR and AR they should also aware of GPU, newer technologies and programming using most important API for windows.
- To know the wireless and adhoc network, connecting different wireless devices and understanding their compatibility.
- To gather information in many different ways from different devices. To learn to conceptualize and understand the framework.
- To understand the procedures for identification, preservation, and extraction of electronic evidence.
- To study auditing and investigation of network and host system intrusions, analysis and documentation of information gathered
- To provide an overview of the important issues in classical and web information retrieval.
- The focus is to give an up-to- date treatment of all aspects of the design and implementation of systems for gathering, indexing, and searching documents and of methods for evaluating systems.
- Understanding basic data science concepts.
- Learning to detect and diagnose common data issues, such as missing values, special values, outliers, inconsistencies, and localization.
- Making aware of how to address advanced statistical situations, Modeling and Machine Learning.
- To understand the ethics, legality, methodologies and techniques of hacking.

SEMESTER V

Course Code: USCS501

Course Title: Artificial Intelligence

Course Outcomes:

The students would be able :

- Demonstrate knowledge of the foundations and key concepts in the field of AI.
- Analyze and design intelligent agents for specific environments.
- Apply problem-solving techniques and algorithms to find solutions to different types of problems.
- Construct knowledge representation models and use reasoning techniques to derive new knowledge.
- Implement machine-learning algorithms and evaluate their performance for classification and regression tasks..
- Develop an understanding of machine learning techniques, including classification, regression, and ensemble learning.

Course Code: USCS502

Course Title: Information & Network Security

Course outcomes:

The students would be able :

- To understand various software testing methods and strategies.
- Analyze and evaluate security trends, attacks, and mechanisms, and propose effective security solutions based on the OSI security architecture.
- Apply classical encryption techniques, such as substitution and transposition ciphers, to encrypt and decrypt messages and analyze their security implications.



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<ul style="list-style-type: none"> ● Implement public-key cryptography algorithms, including RSA, and demonstrate the ability to securely exchange keys and establish secure communication channels. ● Design and implement secure authentication mechanisms, including message authentication codes and digital signatures, to ensure data integrity and non-repudiation. ● Evaluate and implement various security measures, such as IP security, web security protocols (e.g., SSL/TLS), intrusion detection systems, and firewall configurations, to protect networks and systems from unauthorized access and attacks. 	
Course Code: USCS5031	Course Title:Linux Server Administration
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand the principles and practices of cryptographic techniques. ● Demonstrate proficiency in managing software packages and repositories in Linux. ● Configure and administer user accounts, groups, and permissions in a Linux system. ● Implement network services such as DNS, FTP, and web servers, ensuring proper security measures. ● Design and manage advanced network services including NFS, Samba, and LDAP for efficient file sharing and user authentication. ● Apply troubleshooting techniques to identify and resolve common issues in Linux server administration. 	
Course Code: USCS5032	Course Title: Software Testing & Quality Assurance
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Explain the importance of software testing and its impact on software quality. ● Apply appropriate software testing techniques to identify and mitigate software defects. ● Design and execute test cases to verify the functionality and performance of software systems. ● Understand the principles of verification and validation and their application in software testing. ● Utilize software testing tools and frameworks to automate testing processes and improve efficiency. 	
Course Code: USCS5041	Course Title: Cyber Forensics
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Demonstrate a solid understanding of the principles and techniques used in computer forensics investigations. ● Apply systematic approaches to acquire, preserve, and analyze digital evidence from various sources. ● Utilize specialized tools and software for conducting effective computer forensics analysis. ● Develop strong skills in investigating network-related incidents, including live acquisitions and network forensics. ● Generate comprehensive and well-written reports that accurately document the findings of computer forensic investigations. 	
SEMESTER VI	
Course Code: USCS601	Course Title:Data Science
Course Outcomes:	



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>The students would be able :</p> <ul style="list-style-type: none"> ● Apply data preprocessing techniques to clean and transform raw data, handle missing values and outliers, and merge datasets. ● Implement machine-learning algorithms to perform tasks such as regression, classification, clustering, and ensemble learning. ● Evaluate and compare different machine learning models using appropriate evaluation metrics and cross-validation techniques. ● Create informative and visually appealing data visualizations to communicate insights and patterns in data. ● Understand the principles and practices of data management, including data governance, data quality assurance, and data privacy considerations. 	
Course Code: USCS602	Course Title: Cloud Computing and Web Services
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● Demonstrate a comprehensive understanding of cloud computing concepts, including different types of clouds and their characteristics. ● Implement and utilize web service technologies, such as SOAP and REST, to develop distributed and parallel computing applications. ● Design, deploy, and manage cloud-based applications and services using popular cloud computing platforms such as OpenStack and AWS. ● Apply secure development practices and implement cloud security policies to ensure the confidentiality, integrity, and availability of cloud software solutions. ● Utilize virtualization technologies to create and manage virtualized environments, considering the benefits and drawbacks of virtualization. 	
Course Code: USCS6031	Course Title: Wireless Sensor Networks
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● Understand the fundamental concepts, architectural elements, and optimization goals of Wireless Sensor Networks (WSNs) and apply this knowledge to analyze and design WSN solutions. ● Evaluate and compare different medium access control protocols and routing strategies in WSNs, and make informed decisions to ensure efficient and reliable communication. ● Demonstrate knowledge of wireless transmission technologies, such as frequency, signals, antennas, and propagation, and analyze their impact on WSN performance. ● Assess the role of telecommunication systems, satellite, broadcast systems in WSNs, and understand their applications and implications for WSN deployments. 	
Course Code: USCS6032	Course Title: Information Retrieval
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● Explain the key components and principles of information retrieval systems. ● Apply indexing, storage, and retrieval techniques to efficiently retrieve relevant documents. ● Compare and contrast different retrieval models and select appropriate models for specific search scenarios. ● Develop practical skills in implementing and evaluating information retrieval systems. 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> ● Demonstrate an understanding of advanced topics in information retrieval, including web search and machine learning techniques. 	
Course Code: USCS6041	Course Title: Data Mining & Warehousing
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Explain the purpose and components of a data warehouse and differentiate it from transactional databases. ● Perform OLAP operations on a multidimensional data model to analyze and query data. ● Implement data preprocessing techniques to address missing data and prepare the data for mining. ● Apply association rules mining algorithms to discover patterns and relationships in large datasets. 	
Course Code: USCS6042	Course Title: Ethical Hacking
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Apply ethical hacking methodologies to conduct comprehensive security assessments and penetration tests. ● Perform effective footprinting and reconnaissance techniques to gather critical information about target systems. ● Identify and exploit vulnerabilities in various network and system components using appropriate tools and techniques. ● Evaluate the security posture of web servers, web applications, and wireless networks, and recommend appropriate countermeasures. ● Demonstrate an understanding of ethical and legal considerations in conducting ethical hacking activities and adhere to professional codes of conduct. 	
Course Code: USCS6051	Course Code: Customer Relationship Management
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● to define and explain the various forms of CRM and their relevance to business contexts. ● · acquire the skills to manage the customer journey effectively, including implementing customer acquisition and retention programs. ● · understand the importance of customer-perceived value and its impact on customer satisfaction, loyalty, and business performance. ● · to apply strategic and operational CRM approaches, such as customer portfolio management and marketing automation, to enhance organizational effectiveness. ● · develop proficiency in analytical CRM techniques, including data management, analytics for strategy and tactics, and the successful implementation of CRM systems. ● to analyze and draw insights from real-life case studies and success stories related to CRM. 	



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8. B.Sc. Hospitality Studies

Name of Department: Hotel Management	
Class: FY B.Sc Hospitality Studies	
Program Outcomes:	
<ul style="list-style-type: none"> To create an atmosphere of excellence where students gain a plethora of knowledge and profundity of experience with emphasis on theory and practical. With the task , we aim to address the evolving needs of business & industry for present and future 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> The program for hospitality would impart the skills and the knowledge to adopt essential roles within the leisure industry, hotels, resorts, travel & tourism, airlines, cruise line, hospital, education, event management and other services. 	
SEMESTER - I	
Course Code: 548 / 423000081	Course Title: Bsc In Hospitality studies
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> To inculcate a right attitude and the required basic knowledge and technical skills in overall basic learning in kitchen, food & beverage, housekeeping and front office of an hospitality sector 	
Class: FY	
Program Outcomes:	
<ul style="list-style-type: none"> To create an atmosphere of excellence where students gain a plethora of knowledge and profundity of experience with emphasis on theory and practical. With the task , we aim to address the evolving needs of business & industry for present and future 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> The program for hospitality would impart the skills and the knowledge to adopt essential roles within the leisure industry, hotels, resorts, travel & tourism, airlines, cruise line, hospital, education, event management and other services. 	
SEMESTER - II	
Course Code: 548/ 423000081	Course Title: Bsc In Hospitality studies
Course Outcomes:	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>The students would be able :</p> <ul style="list-style-type: none"> ● By the end of the second semester students should be confident enough in their skills which would boost their morale to take up the challenge in various department of hospitality sector for the third and fourth semester 	
Class: SY	
Program Outcomes:	
<ul style="list-style-type: none"> ● To create an atmosphere of excellence where students gain a plethora of knowledge and profundity of experience with emphasis on theory and practical. With the task , we aim to address the evolving needs of business & industry for present and future 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> ● The program for hospitality would impart the skills and the knowledge to adopt essential roles within the leisure industry, hotels, resorts, travel & tourism, airlines, cruise line, hospital, education, event management and other services. 	
SEMESTER – III & IV	
Course Code: 548/423000081	Course Title: Bsc In Hospitality studies
Course Outcomes:	
<p>The students would be able :</p> <ul style="list-style-type: none"> ● Students will be sent for Industrial Training either during the IIIrd or IVth semester as per the convenience of Industry/Institute ● Students will able to learn the various operational aspects of the hospitality department like bulk cooking in the kitchen, alcoholic beverage knowledge in food & beverage, check in and check out procedure in front office, layouts of rooms , laundry procedure in the house keeping 	
Class: TY	
Program Outcomes:	
<ul style="list-style-type: none"> ● To create an atmosphere of excellence where students gain a plethora of knowledge and profundity of experience with emphasis on theory and practical. With the task , we aim to address the evolving needs of business & industry for present and future 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> ● The program for hospitality would impart the skills and the knowledge to adopt essential roles within the leisure industry, hotels, resorts, travel & tourism, airlines, cruise line, hospital, education, event management and other services. 	
SEMESTER - V	
Course Code: 548/423000081	Course Title: Bsc In Hospitality studies



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:

The students would be able :

- To educate students on basic to advance culinary skills.
- Identify Food & Beverage setup and planning of various outlets in the department.
- To understand the formulas that are applied in the front office for forecasting and
- Evaluating
- Explain and apply the guidelines for hiring various housekeeping contract services and man power

Class: TY

Program Outcomes:

- To create an atmosphere of excellence where students gain a plethora of knowledge and profundity of experience with emphasis on theory and practical. With the task , we aim to address the evolving needs of business & industry for present and future

Program Specific Outcomes:

- The program for hospitality would impart the skills and the knowledge to adopt essential roles within the leisure industry, hotels, resorts, travel & tourism, airlines, cruise line, hospital, education, event management and other services.

SEMESTER - VI

Course Code: 548/423000081

Course Title: Bsc In Hospitality studies

Course Outcomes:

The students would be able :

- The objective is to get students to attain expertise in their culinary skills to become independent entrepreneurs.
- Understand and apply cost dynamics as related to the Food & Beverage industry and the advance skills in the food & beverage
- To plan and evaluate budgets. Create and evaluate the aspects of Interior Design of housekeeping
- Yield management and its application in the Hotel Industry. Measurement of Yield for Management Decision Making. Passport & Visa regulations.



9. B.Sc. Information Technology

Name of Department: Information Technology	
Class: F.Y.B.Sc.	
Program Outcomes:	
<p>Software development knowledge</p> <ul style="list-style-type: none"> ● Students can learn to develop software, website, programming and assembly languages. ● Students learn the process of specifying, designing, programming, documentation, testing etc. <p>Communication skills</p> <ul style="list-style-type: none"> ● Students can communicate effectively using oral and written communication skills. ● Students are able to speak to a wide variety of people. ● Students can be able to share information effectively and clearly. <p>Mathematic skills</p> <ul style="list-style-type: none"> ● Students can learn to solve discrete and engineering mathematics problems. ● Different methods from mathematics are performed by the students. ● Green computing ● Students can learn to develop a green information system. Student studies and practice of designing and use of computer resources. 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> ● To think analytically, creatively and critically in developing robust, extensible and highly maintainable technological solutions to simple and complex problems. ● To apply their knowledge and skills to be employed and excel in IT professional careers and/or to continue their education in IT and/or related post graduate programs. ● To be capable of managing complex IT projects with consideration of the human, financial and environmental factors. ● To work effectively as a part of a team to achieve a common stated goal. ● To communicate effectively with a range of audiences both technical and non-technical. ● To develop an aptitude to engage in continuing professional development. 	
SEMESTER I	
Course Code: USIT101	Course Title: Programming Principles with C
Course Outcomes:	
<p>The students would be able :</p> <ul style="list-style-type: none"> ● To develop the logical ability of the student. ● To understand basic concepts to be cleared using suitable examples. ● To understand a different approach towards the problem. 	



**Vishnu Waman Thakur Charitable Trust's
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<ul style="list-style-type: none"> ● To handle the errors and find suitable solutions. ● To Debugging the code. ● To Develop applications ● To work with textual information, characters and strings. ● To understand of a functional hierarchical code organization ● To understand the differences between syntax errors, runtime errors, and logic errors. 	
Course Code: USIT102	Course Title: Digital Logic and Application
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To apply number conversion techniques in real digital systems ● To solve boolean algebra expressions ● To derive and design logic circuits by applying minimization in SOP and POS forms ● To design and develop Combinational and Sequential circuits 5. Understand and develop digital applications. 	
Course Code: USIT103	Course Title: Fundamentals of Database Management System
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To define and describe the fundamental elements of relational database management system. ● To relate the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL. ● To design ER-models to represent simple database application scenarios. ● To transform the ER-model to relational tables, populate relational database and formulate SQL queries on data. ● To improve the database design by normalization. ● To understand basic database storage structures and access techniques: file and page organizations, indexing methods and hashin 	
Course Code: USIT104	Course Title: Computational Logic and Discrete Structures
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To use logical notation ● To perform logical proofs ● To apply recursive functions and solve recurrence relations ● To use graphs and trees ● To apply basic and advanced principles of counting ● To Define sets and Relations 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> ● To Calculate discrete probabilities. 	
Course Code: USIT105	Course Title: Technical Communication Skills
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To analyze, synthesize and utilize the process and strategies from delivery to solving communication problem. ● To learn the communication methodologies at workplace and learning about importance of team collaboration. ● To learn about different technical communication such as presentations and interviews. ● To understand and apply the art of written communication in writing reports, proposals. ● To ground rules of ethical communication and MIS. ● To understand the functions of graphs, maps, charts. 	
SEMESTER II	
Course Code: USIT201	Course Title: Object Oriented Programming
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● The objective of this course is to provide a comprehensive study of the C++ programming language, it includes Internet and the World Wide Web. ● Students should be able to design web page using HTML5 logic. ● Students should be able to explain the concept of Java script with their properties and methods. ● Students should be able to understand the function of PHP, advanced PHP and MySQL. 	
Course Code: USIT202	Course Title: Fundamentals of Micro Processor and Microcontrollers
The students would be able : <ul style="list-style-type: none"> ● To understand the basic concepts of Micro Computer Systems ● To understand the architecture and hardware aspects of 8085 ● To write assembly language programs in 8085 ● To design elementary aspects of Micro Controller based systems ● To interfacing peripherals using Micro Controlle 	
Course Code: USIT203	Course Title: Web Applications Development
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand basic concepts of Internet and World Wide Web. ● To comprehend different HTML elements that can be used to develop static web pages. ● To familiar with concept of stylesheets and various CSS effects. ● To peruse JavaScript as a tool to add dynamism to static HTML pages. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> To explore how server-side script works on the web. Learn how PHP can be connected to a database to store and retrieve data. 	
Course Code: USIT204	Course Title: Numerical Methods
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> To understand numerical techniques to find the roots of non-linear equations and solution of system of linear equations. To understand the difference operators and the use of interpolation. To understand numerical differentiation and integration and numerical solutions of ordinary and partial differential equations.. 	
Course Code: USIT205	Course Title: Green IT
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> To understand the concept of Green IT and problems related to it. To know different standards for Green IT. To understand the how power usage can be minimized in Technology. To learn about how the way of work is changing. To understand the concept of recycling. Know how information system can stay Green Information system. 	
Class: S.Y.B.Sc	
<p>Program Outcomes: Specific core discipline knowledge</p> <ul style="list-style-type: none"> Students employable and impart industry oriented training to apply their knowledge and skills to be employed and excel in IT professional careers. Students can be capable of managing complex IT projects with consideration of the human, financial and environmental factors. Students can work effectively as a part of a team to achieve a common stated goal and adhere to the highest standards of ethics, including relevant industry and organizational codes of conduct. <p>Communication skills Students can communicate effectively with a range of audiences both technical and non-technical and to develop an aptitude to engage in continuing professional development.</p> <p>Problem solving and research skills</p> <ul style="list-style-type: none"> Students can think analytically, creatively and critically in developing robust, extensible and highly maintainable technological solutions to simple and complex problems. 	
Program Specific Outcomes:	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- To understand programming languages and tools to develop computer programs and systems that are effective solutions to problems.
- To gain experience of working in teams to build software systems.
- To understand, design, and analyze precise specifications of algorithms, procedures, and interaction behavior.
- To learn the practical implementation, as the learning of the practical subjects will happen in laboratories.
- To apply mathematics, logic, and statistics to the design, development, and analysis of software systems.
- Understand software development and the concepts behind Java programming, and develop simple to complex programs.
- To understand how to manage data using a database, how to perform ethical hacking and explain the different concepts in computer networks.
- To provide knowledge of the different types of data structures and develop programs to search and sort for elements.
- To acquire knowledge about different software development process models.
- To gain a strong ground in basic discipline of study.

SEMESTER III

Course Code: USIT301

Course Title: Python Programming

Course Outcomes:

The students would be able :

- Aware of the variables, expressions, looping and conditions used in Python programming.
- Implement functions, strings, lists, tuples and directories
- Create GUI forms and add widgets. C
- Use MySQL to store data.
- Apply the programming skillset learnt here into various domains by having advance programming skillset of Python and usage of libraries.

Course Code: USIT302

Course Title: Data Structures

Course outcomes:

The students would be able :

- To get deep knowledge about different types of data structures and also the importance of algorithm and its complexity
- To understand the use of array and different types of linked list
- To learn about stack, stack operations, queue and different types of it
- To understand the use of different sorting and searching techniques
- To learn about graph theory and different types of hashing techniques



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: USIT303	Course Title: Computer Networks
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand data communication, network models, physical layer, digital and analog transmission. ● To acquire knowledge about bandwidth utilization, transmission media, switching and data link layer. ● To get exposure to data link control, media access control, wireless LANs. ● To understand network layers, unicast routing and next generation IP. ● To gain proficiency in the transport layer and standard client0server protocols. 	
Course Code: USIT304	Course Title: Operating System
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● Role of Operating System Computer System. ● Use the different types of Operating System and their services. ● configure process scheduling algorithms and synchronization techniques to achieve better performance of a computer system. ● Apply virtual memory concepts. CO5: Effectively use and manage secondary memory. 	
Course Code: USIT305	Course Title: Applied Mathematics
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand the matrices and complex numbers in detail and different forms of them. ● To solve the equation of the first order and of the first degree, Differential equation of the first order of a degree higher than the first and Linear Differential Equations with Constant Coefficients. ● To learn about different types of theorem like The Laplace Transform, Second Shifting Theorem, The Convolution Theorem, CaleyHamilton Theorem, etc. ● To study about multiple integrals like double integrals, triple integrals and also to learn about beta and gamma functions. 	
SEMESTER IV	
Course Code: USIT401	Course Title: : Java Programming
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● Learn the architecture of Java ● Identify data types, control flow, classes, inheritance, exceptions and event handling ● Use object-oriented concepts for problem solving real-life applications ● Build GUI programs 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> ● Create event driven programs using java.. 	
Course Code: USIT402	Course Title: Introduction to Embedded Systems
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● Differentiate between general purpose and embedded systems ● Discuss the characteristics and quality attributes of embedded systems ● Use different types of sensors for appropriately ● Design and develop embedded systems 	
Course Code:USIT403	Course Title: Computer Oriented Statistical Techniques
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To perform the operations addition, inverse, transpose and multiplication on matrix. ● To execute the statistical functions like mean, median, mode, quartiles, range, inter quartile range histogram. ● To import the data from different sources and calculate the standard deviation, variance, co-variance. ● To perform the hypothetical testing, chi-squared test, Linear Regression. ● To perform the binomial and normal distribution on the data. ● To compute the Least squares means, the Linear Least Square Regression,etc. 	
Course Code:USIT404	Course Title: Software Engineering
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand the use of different types of software models like waterfall model, spiral model, iterative, RAD, time boxing model, etc. ● To learn about different types of systems like socio-technical system, critical system, etc. ● To get knowledge about different types of system models like data model, behavioural model, context and object models, etc. ● To study and implementation of different types of diagram like class, sequence, activity, deployment, state transition, component, collaboration, etc. ● To study and implementation of Entity Relationship Diagrams. 	
Course Code: USIT405	Course Title: Computer Graphics and Animation
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To introduce the use of the components of a graphics system and become familiar with building approach of graphics system components and algorithms related with them. ● To learn the basic principles of 2- dimensional and 3- dimensional computer graphics. 	



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- Provide an understanding of how to scan convert the basic geometrical primitives, how to transform the shapes to fit them as per the picture definition.
- Provide an understanding of mapping from a world coordinates to device coordinates, clipping, and projections.
- To be able to discuss the application of computer graphics concepts in the development of computer games, information visualization, and business applications.
- To comprehend and analyze the fundamentals of animation, virtual reality, underlying technologies and principles.

Class: T.Y.B.Sc.

Program Outcomes:

- Student can gain the knowledge of Software Project Management, student can able to learn process of monitoring and control issues or risks.
- Student can learn internet of things, transferring data through various devices.
- Students can able to learn advance Web Programming which helps to understand different methods to develop web site.
- Students can learn linux System Administration. Students can learn the process and methods of installing different servers and clients.
- Students able to do programming in high level language like JAVA
- Students can learn different Software Quality Assurance, Security in computing, Business intelligence, Geographical information systems and various aspects of Cyber laws.

Implementation and Practical Knowledge :

- Student can implement theoretical knowledge into practical in appropriate IDE to gain industrial work experience.

Program Specific Outcomes:

- To understand the planning, scheduling, resource allocation, execution, tracking and delivery of software and web projects.
- To understand the interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data.
- To learn the fundamental aspects of the JavaScript *programming* language and how to *program* using document object model application *programming*
- To manage the operations of a computer system like maintain, enhance, create user account/report, taking backups using Linux tools and command-line interface tools. There are some of the things that a Linux system administrator should know and understand: Linux File Systems.
- To support for many industry standards and continues simplification of *enterprise* ready APIs.



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- To assure that all software engineering processes, methods, activities and work items are monitored and comply against the defined standards.
- To provide security against users, software, devices, operating systems, networks, cloud and data.
- To provide a set of processes, architectures, and technologies that convert raw data into meaningful information that drives profitable business actions. It is a suite of software and services to transform data into actionable intelligence and knowledge.
- To understand a system designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data.
- To provide legal recognition to electronic documents and a framework to support e-filing and e-commerce transactions and also provides a legal framework to mitigate, check cybercrimes.

SEMESTER V

Course Code: USIT501

Course Title: Software Project Management

Course Outcomes:

The students would be able :

- To learn the definition of software Project.
- To gain knowledge about types of software projects and various activities covered by management.
- To differentiate between traditional and modern project management practices.
- To acquire knowledge about evaluation of individual project and cost benefit evaluation techniques.
- To learn about managing program and resource allocation..
- To understand the overview of Project Planning.
- To understand the importance of choosing methodologies and technologies for project.
- To gain knowledge about software process models.
- To learn different effort estimation techniques.
- To understand the importance of expert judgment.
- To acquire knowledge about COCOMO II model for cost estimation.
- To understand the importance of activity planning.
- To learn various ways of shortening the project duration.
- To understand the importance of risk management.
- To get exposure on measuring risks related to project.
- To acquire knowledge on resource allocation.
- To learn the various techniques of review.
- To understand the concept of cost monitoring.
- To gain knowledge about software configuration management.



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- To learn the different types of contracts.
- To acquire knowledge about managing people involved in software project.
- To understand the importance of working in teams.
- To gain knowledge about coordination and dependencies.
- To learn concept of software quality and quality management system.
- To get knowledge about quality improvement models.
- To learn the process of project closeout.

Course Code: USIT502

Course Title: Internet of Things

Course outcomes:

The students would be able :

- To understand the technology of the internet
- To learn the Design Principles for Connected Devices
- To learn the overview of internet
- To get knowledge of TCP/IP protocol suite.
- To learn the concept of prototyping.
- To understand prototyping in embedded devices.
- To acquire knowledge about Raspberry pi.
- To understand prototyping in physical design using various techniques.
- To learn prototyping in online components using API.
- To learn the techniques for writing embedded code.
- To understand the different business models.
- To acquire knowledge about an IOT start up.
- To learn different ideas of manufacturing IOT products.
- To get knowledge of costing and maintaining.
- To learn the ethics of IOT.

Course Code: USIT503

Course Title: Advanced Web Programming

Course outcomes:

The students would be able :

- To understand .Net framework and its run time environment.
- To gain basic knowledge of C# language with its object oriented concept.
- To gain the knowledge of namespaces and assemblies.
- To understand the fundamentals of web application development.
- To make use of different server controls like validation, navigation and rich server control.
- To be able to handle the exceptions and page tracing.
- To understand different levels of state management using cookies and sessions.
- To provide uniformity, enhance presentation use of themes and master pages.
- To understand back hand connectivity with SQL using ADO .Net Frame.



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- To use data binding with data controls like grid view, details view and form view.
- To make use of xml for validation and transformation.
- To understand web applications, security requirements using forms and windows authentication.
- To understand partial web page refreshing using ajax control tool.

Course Code: USIT505	Course Title: Linux System Administration
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<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To have knowledge about Red Hat Enterprise Linux. ● To be able to work with the Bash Shell. ● To learn System Administration Tasks like Performing Job Management Tasks, System and Process Monitoring and Management, Scheduling Jobs, Mounting Devices, Creating Backups, Managing Printers, Setting Up System Logging. ● To understand the concept of RPM, Meta Package Handlers, Creating Repositories, Managing Repositories, Installing Software with Yum, Querying Software, Extracting Files from RPM Packages. ● To learn how to Configure and Manage Storage. ● To have practical knowledge about Connecting to the Network by Understanding Network Manager, Network Service Scripts, Setting Up IPv6. ● To understand the concept of Users, Groups, and Permissions. ● To know the methods of securing Server with iptables by understanding Firewalls, Masquerading, Configuration Files. ● To learn how to Setting Up Cryptographic Services by Introducing SSL, GNU Privacy Guard, Signing RPM Files. ● To Configure Server for File Sharing by NFS, Configuring Samba, Offering FTP Services. ● To know the method of Configuring DNS and DHCP. ● To set up a Mail Server using the Message Transfer Agent, the Mail Delivery Agent, the Mail User Agent. ● To Configure Apache on Red Hat Enterprise Linux. ● To learn Bash Shell Scripting. ● To have knowledge on High-Availability Clustering. ● To know how to set up an Installation Server.
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Course Code: USIT506	Course Title: Enterprise Java
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<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand Java Enterprise edition with its different technologies. ● To understand Java EE architectural server and contains.



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- To understand server side technology like Java Servlets with its API and life cycle.
- To make data base connectivity using JDBC.
- To navigate using request dispatcher interface.
- To understand state management using cookies and session.
- To understand how to upload and download the file.
- To be able to work with non-blocking I/O resources.
- To understand server side technology like Java Server Pages.
- To make use of action elements, implicit objects, expression language and JSTL.
- To understand enterprise bill, architectural and its bill.
- To be able to working with session beans and message driven beans.
- To understand interceptors and JNDI.
- To make use of ORM and JPA with its API.
- To understand writing JPA application.
- To be able to understand hibernate architectural and components.
- To understand writing hibernate application.

SEMESTER VI

Course Code: USIT601

Course Title: Software Quality Assurance

Course Outcomes:

The students would be able :

- To understand the concept of Software Quality, how to use Total Quality Management concept.
- To have knowledge of software quality assessment, software development process, Quality Management System Structure.
- To gather information related to Fundamentals of Testing.
- To design Requirement Traceability Matrix.
- To know the idea of Test Policy, Test Strategy or Test Approach, Test Planning, Test Team Efficiency.
- To learn about different categories of Defect, Error, or Mistake in Software.
- To understand Testing throughout the software life cycle, Test levels.
- To learn different methods of Unit Testing- Boundary Value Testing, Equivalence Class Testing, Decision Table–Based Testing, Path Testing, Data Flow Testing.
- To understand the importance of Software Verification and Validation.
- To know methods of Verification, Types of reviews.
- To study Levels of Validation, Acceptance Testing.
- To learn V-test Model, VV Model.



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- To know about several Special Tests like GUI testing, Security Testing, Performance Testing, Volume Testing, Stress Testing, Recovery Testing, Regression Testing, Intersystem Testing, Smoke Testing, Compliance Testing.
- To understand different Risk Associated with New Technologies and how to overcome by using COTS Testing, Client Server Testing, Web Application Testing, Mobile Application Testing, e-Commerce Testing, Agile Development Testing, Data Warehousing Testing.

Course Code: USIT602

Course Title: Security in Computing

Course Outcomes:

The students would be able :

- To understand the concept of Information Security.
- To know how to use Security Methodology, Strategy and Tactics.
- To analyze Risk by identifying possible Threat, Types of Attacks.
- To learn about Secure Design Principles like the CIA Triad and Other Models, Defense Models.
- To understand concept of Authentication and Authorization.
- To know the idea of Encryption: difference in Symmetric-Key Cryptography, Public Key Cryptography and Public Key Infrastructure.
- To have information related to Storage Security, Database Security.
- To gain insight into Secure Network Design and Network Device Security.
- To learn about Firewalls.
- To gather knowledge related to Wireless Network Security basics, its threats, Wireless Vulnerabilities and Mitigations, Wireless Network Positioning and Secure Gateways.
- To know Intrusion Detection and Prevention Systems.
- To learn Voice over IP (VoIP) and PBX Security, TEM (Telecom Expense Management).
- To understand Operating System Security Models, International Standards for Operating System Security.
- To have information related to Virtual Machines and Cloud Computing.
- To study Secure Application Design in Web Application Security, Client Application Security, Remote Administration Security.
- To know how to implement Physical Security by Choosing Site Location for Security, Securing Assets - Locks and Entry Controls, Physical Intrusion Detection.

Course Code: USIT603

Course Title: Business Intelligence

Course Outcomes:

The students would be able :

- To learn the meaning of business intelligence.
- To understand the difference between data, knowledge and information.
- To learn the role of mathematical model.



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- To understand the role of decision making system.
- To learn mathematical models for decision making.
- To understand the definition of data mining.
- To learn the techniques of data preparation.
- To understand the various techniques of classification.
- To learn different methods of clustering.
- To gain knowledge of Business intelligence applications.
- To learn different marketing models.
- To understand logistic and production models.
- To learn the concept of Data envelopment analysis.
- To understand the importance of knowledge management.
- To learn the Concepts and Definitions of Artificial Intelligence.

Course Code: USIT604

Course Title: Principles of Geographic Information Systems.

Course Outcomes:

The students would be able :

- To understand the nature of GIS.
- To learn the real world and representations of GIS.
- To gain knowledge about Geographic Information and Spatial Database Models and Representations of the real world Geographic Phenomena.
- To understand Computer Representations of Geographic Information.
- To get exposure of Organizing and Managing Spatial Data The Temporal Dimension.
- To understand Data Management and Processing Systems Hardware and Software Trends Geographic Information Systems.
- To gain knowledge of Stages of Spatial Data handling.
- To learn the use of Database management Systems.
- To understand GIS and Spatial Databases.
- To learn Spatial referencing and Positioning Spatial Referencing.
- To understand Satellite-based Positioning.
- To gain knowledge of Data Entry and Preparation Spatial Data Input.
- To understand the concept of Data Quality.
- To learn the concept of Data Preparation.
- To understand the Point Data Transformation.
- To learn Spatial Data Analysis Classification of analytical GIS Capabilities Retrieval, classification and measurement.
- To understand the use of Overlay functions.
- To learn the Neighborhood functions.



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- To understand different types of analysis.
- To get exposure of GIS and Application models.
- To gain knowledge of Error Propagation in spatial data processing.
- To understand the need of Data Visualization GIS and Maps, The Visualization Process.
- To gain knowledge of different Visualization Strategies.
- To learn the mapping of qualitative data.
- To understand Mapping of Cosmetics, Mapping of Dissemination.

Course Code: USIT607

Course Title: Cyber Laws.

Course Outcome:

The students would be able:

- To understand the definition of cybercrime.
- To understand the meaning of Power of Arrest without Warrant under the IT Act, 2000.
- To learn the concept of Cyber Crime and Criminal Justice.
- To gain knowledge about Penalties, Adjudication and Appeals Under the IT Act,2000.
- To understand the Contracts in the InfoTech World.
- To learn Terms and Conditions of Contracts.
- To understand Jurisdiction in the Cyber World.
- To learn the concept of Concept of Domain Name and Reply to Cyber Squatter.
- To understand the concept of copyright.
- To gain knowledge of Hyper-Linking and Framing.
- To acquire knowledge about Liability of ISPs for Copyright Violation in the Cyber World.
- To understand the concept of E-Commerce Taxation.
- To gain knowledge about Income Tax Act.
- To understand The Impact of the Internet on Customer Duties, Taxation Policies in India.
- To acquire knowledge about Digital Signature, Certifying Authorities and E-Governance.
- To understand the concept of "A Warning to Babudom!".
- To learn the Indian Evidence Act of 1872 v. Information Technology Act, 2000
- To understand the different Amendments in the Indian Evidence Act by the IT Act.
- To gain knowledge about Protection of Cyber Consumers in India.



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10.B.Sc. Physics

Name of Department: Physics	
Class: F.Y.B.Sc.	
Program Outcomes: <ul style="list-style-type: none"> ● Students can recall details and information about Newton's laws, thermodynamics and different types of lenses and their applications. ● Students can recall details of different atomic model, Rutherford Postulates, Nuclear structure, different types of nuclear forces, energy laws, De-Broglie hypothesis, Einstein energy mass relation and Planck's postulates. ● Students can recall details and information about scalar, vector, differential equation and wave motion. ● Students can recall details and information about resistance, inductor capacitor, logic gates, electric field magnetic field, ohm's law, Kirchhoff's law. ● Students can perform basics experiments, observations, calculations and can interpret the result and can draw their own conclusion. 	
Program Specific Outcomes: <ul style="list-style-type: none"> ● To understand the Newton's law and its application. ● To understand the fluid mechanics and its applications. ● To understand the basic mathematical concepts and applications of them in physical situations. ● To develop analytical abilities towards real word problem. ● To be able to develop problem solving attitude. ● To familiarize with current & recent scientific & technological development. 	
SEMESTER - I	
Course Code: USPH101	Course Title: Classical Physics
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand Newton's laws and apply them in calculations of the motion of simple systems. ● To understand use the free body diagrams to analyze the forces on the object. ● To understand the concepts of friction and the concepts of elasticity, fluid mechanics and be able to perform calculations using them. ● To understand the concepts of lens system and interference. ● To apply the laws of thermodynamics to formulate the relations necessary to analyze a thermodynamic process. ● To develop the problem- solving skills in all the topics covered. 	
Course Code: USPH102	Course Title: Modern Physics



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Course outcomes:

The students would be able :

- To understand nuclear properties and nuclear behavior.
- To understand the type isotopes and their applications.
- To understand Carbon dating and its applications.
- To understand different types of chemical reactions.
- To demonstrate and understand the quantum mechanical concepts.
- To demonstrate quantitative problem-solving skills in all the topics covered.
- To understand different types of nuclear reactor and their uses.

SEMESTER- II

Course Code: USPH201

Course Title: Optics-I

Course Outcomes:

The students would be able :

- To understand the concept of lens, lens defects and their minimization.
- Significance of combination of lenses implied to eyepiece of optical instrument.
- To understand interference of light with a few well known daily life examples.
- to understand Lasers and Optical fibers and their applications.

Course Code: USPH202

Course Title: Electricity and electronics

Course Outcomes:

The students would be able :

- To understand the basic concepts of Alternating current theory and AC bridge.
- To understand the response of different electrical component to ac source.
- To understand the concept of digital electronics and its application.
- To demonstrate quantitative problem-solving skills in all the topics covered.

Class: S. Y. B. SC.

Program Outcomes:

Specific core discipline knowledge

- Students can recall about different laws of Scalar & vectors.
- Students can recall details and information about of optics
- Students can develop skills to operate instruments like spectrometer, DMM, Vernier calipers & travelling Microscope.

Communication skills

- Students can communicate effectively using oral and written communication skills as well as presentation skills

Problem solving and research skills



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- Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context

Program Specific Outcomes:

- To Comprehend the basic concepts of thermodynamics & its applications in physical situation.
- To Learn about situations in low temperature.
- To Understand the basics of transistor biasing, operational amplifiers, their applications.
- To Understand the basic concepts of oscillators and be able to perform calculations using them.
- To develop assembly language programming skills and learn the real time applications of microprocessor.
- To Understand the applications of interference in design and working of interferometers.
- To Understand the resolving power of different optical instruments.
- To develop assembly language programming skills and learn the real time applications of microprocessor.
- Understand the postulates of quantum mechanics. Understand its importance in explaining significant phenomena in Physics.

SEMESTER III

Course Code: USPH301

Course Title: Thermodynamics and Temperature Transducers

Course Outcomes:

The students would be able :

On successful completion of the course the learner would demonstrate and explain the understanding of the following:

- Understand the basics of transistor biasing, operational amplifiers, their applications.
- Understand the basic concepts of oscillators and be able to perform calculations using them.
- Demonstrate quantitative problem solving skill in all the topics covered Unit I Analog Electronics
1

Course Code: USPH302

Course Title: Electronics

Course outcomes:

The students would be able :

- To understand the basic concepts of mathematical physics and their applications in physical situations.
- To understand the basic laws of electrodynamics and be able to perform calculations using them.



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<ul style="list-style-type: none"> ● To understand the basics of transistor biasing, operational amplifiers, their applications ● To understand the basic concepts of oscillators and be able to perform calculations using them. ● To demonstrate quantitative problem solving skill in all the topics covered. 	
Course Code: USPH303	Course Title: Mathematical Methods & Applied Physics – I
<p>Course outcomes:</p> <p>On successful completion of the course the learner would demonstrate and explain the understanding of the following:</p> <ul style="list-style-type: none"> ● The ability to apply the principles of physics to solve new and unfamiliar problems. ● Learn Mathematical Techniques required to Physical phenomena at the under graduate level and get exposure to important ideas of differential equations. ● Solve non-homogeneous differential equation and partial differential equation using simple methods. ● Describe and recognize different types of differential equation in program. ● Understand the basic mathematical concepts and applications of them in physical situations. ● Students will be exposed to contextual real-life situations. ● Students will appreciate the role of Physics in 'interdisciplinary areas related to Acoustics and Radio Communication' and understand the scope of the subject in Industry.. 	
SEMESTER IV	
Course Code: USPH401	Course Title: USPH401 Optics & Applied Physics II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the diffraction and polarization processes and applications of them in physical situations. ● To understand the applications of interference in design and working of interferometers. ● To understand the resolving power of different optical instruments. ● To understand the working of digital circuits ● To use IC 555 timer for various timing applications. ● To demonstrate quantitative problem solving skills in all the topics covered. 	
Course Code: USPH402	Course Title: Electrodynamics
<p>Course Outcomes:</p> <p>On successful completion of this course students will be able to</p> <ul style="list-style-type: none"> ● Solve the following Line, surface, volume integrals, Fundamental thermos of Gradient, ● Understand the concepts like Coulomb's law, Comments on potential, Poisson's equation and Laplace's equation. 	



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<ul style="list-style-type: none">• Understand the concepts like Magnetization, The Divergence and Curl of B, Ampere's law in magnetized materials, Comparison of Magneto statics and Electrostatics,• Develop quantitative problem solving skill.	
Course Code: USPH403	Course Title: Quantum Mechanics
Course Outcomes: On successful completion of this course students will be able to <ul style="list-style-type: none">• Understand the postulates of quantum mechanics. Understand its importance in explaining significant phenomena in Physics.• Demonstrate quantitative problem solving skills in all the topics covered.	
Class: T.Y.B.Sc.	
Program Outcomes: <ul style="list-style-type: none">• The students are expected to understand the physical phenomena at the undergraduate level & get exposure to important ideas of Physics.• Students can recall details and information about the units and measurements of physical quantities, physical states of matter, different physical quantities and their behavior under different physical parameters.• Students can recall details of the different laws related to the classical, statistical and quantum mechanics along with modern physics concepts.• Students can solve the problem related to the actual practical problem; they can make small working circuits to analyze the working and characteristics of different IC's.	
Program Specific Outcomes: <ul style="list-style-type: none">• To make the students understand the kinds of motions those are related to physics.• The students are learning some mathematical techniques required to understand the physical phenomena at the undergraduate level and get exposure to important ideas of statistical mechanics.• The students learn the different aspects of solid state physics, atomic and molecular physics, and electrodynamics along with classical mechanics.• Understand the difference between different statistics, classical as well as quantum.• Develop quantitative problem solving skills.• The course is built on exploring the fundamentals of nuclear matter as well as considering some of the important applications of nuclear physics.• This course introduces students to the essence of special relativity which revolutionized the concept of physics in the last century by unifying space and time, mass and energy, electricity and magnetism.• This course also gives a very brief introduction of general relativity.	



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SEMESTER V	
Course Code: USPH501	Course Title: Mathematical ,Thermal & Statistical Physics
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● Solve simple problems in probability, understand the concept of independent events & work with standard continuous distributions. ● The students will have idea of the functions of complex variables; solve non-homogeneous differential equations & partial differential equations using simple methods. ● The units on statistical mechanics would introduce the students to the concept of microstates, Boltzmann distribution & statistical origins of entropy. ● It is also expected that the student will understand the difference between different statistics, classical as well as quantum. 	
Course Code: USPH502	Course Title: Solid State Physics
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● Understand the basics of crystallography, electrical properties of metals, Band theory of solids, demarcation among the types of materials, Semiconductor Physics & Superconductivity. ● Understand the basic concepts of Fermi probability distribution function, Density of States, conduction in semiconductors & BCS theory of superconductivity. ● Demonstrate quantitative problem solving skills in all the topics covered. 	
Course Code: USPH503	Course Title: Atomic & molecular Physics
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● The application of quantum physics in atomic physics. ● The importance of electron spins, symmetric & antisymmetric wave functions & vector atom model. ● Effect of magnetic field on a toms & its application. ● Learn molecular physics & its application. ● This course will be useful to get an insight into spectroscopy. 	
Course Code: USPH504	Course Title: Electrodynamics
Course Outcomes:	



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<p>The students would be able :</p> <ul style="list-style-type: none"> ● Understand the laws of electrodynamics & be able to perform calculations using them. ● Understand Maxwell's electrodynamics & its relation to relativity. ● Understand how optical laws can be derived from electromagnetic principles. ● Develop quantitative problem solving skills. 	
SEMESTER VI	
Course Code: USPH601	Course Title: Classical Mechanics
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the kinds of motions that can occur under a central potential and their applications to planetary orbits. ● The students should also appreciate the effect of moving coordinate system, rectilinear as well as rotating. The students are expected to learn the concepts needed for the important formalism of Lagrange's equations and derive the equations using D'Alembert's principle. ● They should also be able to solve simple examples using this formalism. The introduction to simple concepts from fluid mechanics and understanding of the dynamics of rigid bodies is also expected. ● They should appreciate the drastic effect of adding nonlinear corrections to usual problems of mechanics and nonlinear mechanics can help understand the irregularity we observe around us in nature. 	
Course Code: USPH602	Course Title: Electronics
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● Understand the basics of semiconductor devices and their applications. ● Understand the basic concepts of operational amplifier: its prototype and applications as instrumentation amplifier, active filters, comparators and waveform generation. ● Understand the basic concepts of timing pulse generation and regulated power supplies. ● Understand the basic electronic circuits for universal logic building blocks and basic concepts of digital communication. ● Develop quantitative problem solving skills in all the topics covered. 	
Course Code: USPH603	Course Title: Nuclear Physics
<p>Course Outcomes:</p> <p>The students would be able :</p>	



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<ul style="list-style-type: none">• To understand the fundamental principles and concepts governing classical nuclear and particle physics and have a knowledge of their applications interactions of ionizing radiation with matter the key techniques for particle accelerators the physical processes involved in nuclear power generation.• Knowledge on elementary particles will help students to understand the fundamental constituents of matter and lay foundation for the understanding of unsolved questions about dark matter, antimatter and other research oriented topics.	
Course Code: USPH604	Course Title: Special Theory of Relativity
Course Outcomes: The students would be able : <ul style="list-style-type: none">• Understand the significance of Michelson Morley experiment and failure of the existing theories to explain the null result.• Understand the importance of postulates of special relativity, Lorentz transformation equations and how it changed the way we look at space and time, Absolutism and relativity, Common sense versus Einstein concept of Space and time.• Understand the transformation equations for: Space and time, velocity, frequency, mass, momentum, force, Energy, Charge and current density, electric and magnetic fields.• Solve problems based on length contraction, time dilation, velocity addition, Doppler Effect, mass energy relation and resolve paradoxes in relativity like twin paradox etc.	
Name of Department: Electronic Instrumentation (Applied Component of Physics)	
Class: T.Y.B.Sc.	
Program Outcomes: The objective of these papers is to introduce the students to sensors and transducers, Signal conditioning, data acquisition systems and measuring instruments used in the laboratory. Students are to be exposed to know, in principle, the modern techniques in the field of medical science.	
Program Specific Outcomes: <ul style="list-style-type: none">• To learn PCB designing and working of consumer electronic devices.• To develop logic circuit design and implementation.• To know advanced programming skills and interfacing techniques.• To understand basic building blocks of microcontrollers.• To know the terminologies like embedded, CISK and RISK processors.• To master Programming and interfacing skills of microprocessor and microcontrollers.	



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<ul style="list-style-type: none">To develop object oriented programming skills and programming in C++. To develop various experimental skills.	
SEMESTER V	
Course Code: USACEI501	Course Title: Analog circuits, instruments & consumer appliances
Course Outcomes: The students would be able : <ul style="list-style-type: none">To know the difference between transducers & sensors.To understand the construction, working & uses of different types of transducers.To understand the concept of signal conditioning, devices used and their operations.To get acquainted with the measuring instruments used in laboratory.To get the insight of the modern medical instruments in principle, which are used in day to day life.	
Course Code: USACEI5P1	Course Title: Practical
Course outcomes: The students would be able : <ul style="list-style-type: none">To understand relevant concepts.The planning of the experiments.To understand designing of experiments.To make the experiments open ended.To recording of observations & plotting of graphs.To do calculation of results & estimation of possible errors in the observation of results.	
SEMESTER VI	
Course Code: USACEI602	Course Title: DIGITAL ELECTRONICS, MICROPROCESSOR, MICROCONTROLLER AND OOP
Course Outcomes: The students would be able : <ul style="list-style-type: none">To Analyze/design and implement combinational logic circuits.To develop assembly language programming skills and real time applications of microprocessor.To illustrate how to interface the I/O peripheral (PPI) with 8085 microprocessor.	



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<ul style="list-style-type: none"> To understand architecture, silent features, instruction set, programming and interfacing of 8051 microcontroller. To develop the programming skills in programming Language C++. 	
Course Code: USACEI6P1	Course Title: PRACTICAL
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To verify theoretical knowledge practically through lab experiments. To get practical training to interface different programmable peripherals and I/O devices to microprocessor and microcontroller. 	

11.B.Sc. Mathematics

Name of Department: Mathematics
Class: FYBSc
<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> Students will demonstrate an understanding of the common body of knowledge in mathematics. Students can be able to identify areas in mathematics and other fields where calculus is useful. <p>Communication skills</p> <ul style="list-style-type: none"> Students will be able to productively discuss mathematics and able to write detailed solutions using appropriate mathematical language. <p>Problem solving and research skills</p> <ul style="list-style-type: none"> Students will demonstrate the ability to apply analytical and theoretical skills to model and solve mathematical problems. Students will demonstrate the ability to analyze data and draw appropriate statistical conclusions. Prepare students for pursuing research or careers in industry in mathematical sciences and allied fields
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> Compute limits and derivatives of algebraic, trigonometric, inverse trigonometric, exponential, logarithmic, and piecewise defined functions. Determine the continuity and differentiability of a function at a point and on a set. Use the derivative of a function to determine the properties of the graph of the function and use the graph of a function to estimate its derivative.



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<ul style="list-style-type: none"> ● Be able to recognize the power of abstraction and generalization, and to carry out investigative mathematical work with independent judgment. ● Be able to carry out objective analysis and prediction of quantitative information with independent judgment. ● Provide advanced knowledge on topics in pure mathematics, empowering the students to pursue higher degrees at reputed academic institutions. ● Good understanding of number theory which can be used in modern online cryptographic technologies. ● Provide scope for interaction with international researchers and developing collaborations. ● Be able to work independently, and to collaborate effectively in team work and team building. 	
SEMESTER I	
Course Code: USMT101	Course Title: CALCULUS I
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● to understand and recall basic facts about mathematics ● to identify algebraic and order properties of real numbers. ● to identify and apply the function property of a real number system such as the completeness property. ● to understand the concept of sandwich theorem ,monotonic theorem, monotonic convergence theorem, subsequence sequence. ● to define and solve ordinary differential equations. ● to understand the applications of differential equations in real life problems. 	
Course Code: USMT102	Course Title: ALGEBRA I
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To study about integers, divisibility in integers, congruence and its elementary properties. ● To define g.c.d and its properties such as its existence and uniqueness etc.s ● To study the basic concept of a function, its various types and various aspect of equivalence relation. ● To define binary operation, its properties and solve the questions related to it ● To study polynomials and its various properties. 	
SEMESTER II	
Course Code: USMT201	Course Title: CALCULUS II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To define the limit of a function and will be able to find the limiting value of function whenever it exists. ● To check continuity and differentiability of a function. 	



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<ul style="list-style-type: none"> ● To understand the applications of derivatives. <ul style="list-style-type: none"> ○ To sketch the graphs of functions using properties ○ To define and prove Rolle's theorem, Lagrange's and Cauchy's mean value theorem. 	
Course Code: USMT202	Course Title: LINEAR ALGEBRA
Course outcomes: The students would be able to : <ul style="list-style-type: none"> ● To study about permutation and its various types. ● To learn how to use recurrence relation in counting problems and its different forms. ● To understand finite, infinite, countable, uncountable sets with examples. ● To study arrangement, selection, derangement, example of standard identities. 	
Class: SYBSc	
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> ● To develop problem solving abilities. ● Using result and definition students can proofs related to differentiation, determinant, matrices, Vector Spaces, inner product space, counting and advance counting. ● Using result and definition students can proofs related to Riemann integral, indefinite and improper integral, group theory, differential equation. Communication skills <ul style="list-style-type: none"> ● It develops communication skill with new symbols and sign in mathematics. Problem solving and research skills <ul style="list-style-type: none"> ● Students can solve various problem of Computer science, Social science, Engineering and technology and operation research. Further it is use in master study as prerequisites and research works	
Program Specific Outcomes: <ul style="list-style-type: none"> ● To learn the concept of Vector Spaces ● To learn the concept of function of several variables. ● To learn the differentiations and its applications. ● To learn linear transformation and matrices. ● To learn determinant and Linear Equations. ● To learn counting and advance counting with recurrence relation. ● To learn Riemann integral, indefinite and improper integrals. ● To learn beta and gamma function with improper integrals. ● To learn the basic concept of group theory. ● To learn first order and second order differential equations. 	
SEMESTER III	
Course Code: USMT 301	Course Title: CALCULUS III
Course Outcomes: The students would be able to :	



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- To understand the concept of Convergence and divergence, tests for convergence like comparison test, limit test, ratio test, Leibnitz test etc.
- To analyze the basic results of absolute and conditional convergence.
- To understand the idea behind partition of an interval and Riemann integration.
- To find Upper and Lower sums for a bounded real valued function.
- To analyze properties related to Riemann integral and its algebra.
- To gain knowledge about Characterization of the Riemann integral as the limit of a sum.
- To understand uses of the mean value theorem, integration by parts formula.
- To understand the concept of Gamma and Beta functions and their properties.

Course Code: USMT 302

Course Title: LINEAR ALGEBRA I

Course outcomes:

The students would be able to:

- Systems of homogeneous and non-homogeneous linear equations
- Solve simple examples of such systems.
- Learn Applications to solving systems of linear equations.
- Study about Vector Space, dimension of vector space and Linear dependence and independence of subsets of a vector space.
- Gain knowledge about Basis of a vector space
- Analyze the determinant and basic properties of determinant.
- Understand Notions of row rank and the column rank.
- Gain knowledge about Cramer's Rule. LU Decomposition.

Course Code: USMT 303

Course Title: ORDINARY DIFFERENTIAL EQUATION

Course outcomes:

The students would be able :

- To study about Higher order Linear Differential equations
- To learn An existence and uniqueness theorem, the Wronskian, LDE and the differential operator.
- To understand auxiliary equations, roots of auxiliary equations.
- To study about The inverse differential operator and particular integral, The Cauchy's equation, The Legendre's equation
- Solve initial problems using numerical solution methods like Picard's method, Modified Euler's Method, Runge-Kutta method etc.

SEMESTER IV

Course Code: USMT 401

Course Title: MULTIVARIABLE CALCULUS I

Course Outcomes:

The students would be able:

- To understand Real-valued functions of several variables (Scalar fields). Graph of a function
- To define Sequences, Limits and Continuity: Sequence in \mathbb{R}^n



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<ul style="list-style-type: none"> ● To understand Partial and Directional Derivatives of scalar fields ● To gain knowledge about Gradient. Relation between total derivative and gradient of a function. Chain rule. Geometric properties of gradient. Tangent planes. ● Euler's Theorem, Higher order partial derivatives. Mixed Partial Theorem. ● To learn applications of differentiation of scalar fields. ● To find local maxima, local minima, hessian matrix, Jacobian matrix and saddle points. 	
Course Code: USMT 402	Course Title: LINEAR ALGEBRA II
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Definition of a linear transformation of vector spaces; elementary properties. ● Definition of Null-space (kernel) and the image (range) of a linear transformation. ● To Understand The Rank-Nullity Theorem, Linear operator. ● Solve problems on inner product space, norm and learn Cauchy-Schwarz inequality. Triangle inequality. ● Understand orthogonal decomposition of an inner product space with respect to its subspace. Orthogonal projection of a vector. ● Eigenvalues and eigenvectors of a linear transformation, Characteristic polynomial, Diagonalisable matrix etc. 	
Course Code: USMT 403	Course Title: NUMERICAL METHODS (ELECTIVE A)
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand Measures of Errors like Relative, absolute and percentage errors, Accuracy and precision. ● To learn to use Iteration methods based on first degree equation ● To study about Interpolation: Lagrange's Interpolation. Finite difference operators: ● Forward Difference operator, Backward Difference operator ● To use the Trapezoidal Rule. Simpson's 1/3 rd Rule. Simpson's 3/8th Rule. ● To solve problems using Gauss-Seidel Iterative method, Eigenvalue problems using Jacobi's method for symmetric matrices 	
Class: TYBSc (Mathematics)	
<p>Program Outcomes: Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● To develop problem solving abilities. ● Using result and definition student can proofs related to multivariable calculus with integrals, linear algebra, Topology of metric space and graph theory. ● Using result and definition student can proofs related to Complex analysis, algebra, topology and metric space with real analysis and combinatory. <p>Communication skills</p>	



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- It develops communication skill with new symbols, sign and concept in mathematics.

Problem solving and research skills

- Students can solve various problem of Computer science, Social science, Engineering and technology and operation research.

Further it is use in master study as prerequisites and research works.

Program Specific Outcomes:

- To learn the concept of multiple integral, surfaces integral, line integral.
- To learn the Quotien space and orthogonal transformation, eigen value and eigen vectors and diagonalization.
- To learn metric space and sequence and complete metric space and compact sets.
- To learn basic of graph, trees and Eulerian and Hamiltonian graphs.
- To learn introduction to complex, Cauchy integral formula and power series, Laurent series, isolated singularities.
- To learn group theory, Ring theory and filed theory.
- To learn Continues function of metric space, connected sets and sequence and series of functions.
- To learn Coloring of graphs, planer graphs and combinatorial.

SEMESTER V

Course Code: USMT501

Course Title: MULTIVARIABLE CALCULUS II

Course Outcomes:

The students would be able :

- To study double and triple integral to calculate area of region, area under the curve, the volume and the average value of a function of two variables over rectangular region.
- To get exposure to the techniques of integration which is used to improve the architecture, not only of buildings but also of important infra structure, such as bridge.
- To relate single, double and triple integral, i.e. to understand the conversion of double integral to single integral using Stoke's theorem and triple integral to double integral using Divergence theorem.
- To gain knowledge about line integral for the calculation of the area of the surface in three dimension which can be used to calculate the work done on a charged particle travelling along some curve.

Course Code: USMT502

Course Title: Linear Algebra

Course outcomes:

The students would be able :

- To gain the knowledge of Eigen Value and L.T.
- Student will demonstrate competence with basic ideas of linear algebra.
- Compose clear and accurate proofs using the concepts of linear algebra.
- To understand what is meant by eigen value and eigen vectors with the help of this students explain concept of eigen in real life eg.-Consider we eat pizza but there are so many tastes i.e. sour, salty, bitter,sweet etc if we compare it to our topic then we get conclusion i.e.Eigen



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value =pizza. Eigen vectors =sweet,sour ,bitter,salty etc It is also applicable in google It is also applicable in electronics	
Course Code: USMT 503	Course Title: Topology of Metric Spaces
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● Demonstrate an understanding of the concepts of metric spaces and Topological spaces and their role in mathematics ● Demonstrate familiarity with range of examples of these structures ● Prove basic results about completeness, compactness and convergence within these structures ● Apply the theory in the course to solve a variety of problems at an appropriate level of difficulty ● Demonstrate skills in communicating mathematics orally and in writing 	
Course Code: USMT5C4	Course Title: Graph Theory (Elective C)
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To get familiar with the concepts of graphs and learn the fundamental results. ● To understand various types of trees, algorithms for spanning trees, shortest path problems which are used to find shortest path in road or a network. ● To determine whether graphs are Hamiltonian or Eulerian and study related results. ● To apply graph theory based tool in solving practical problems. ● To improve proof writing skill. 	
SEMESTER VI	
Course Code: USMT 601	Course Title: BASIC COMPLEX ANALYSIS
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● To understand the concept of limit of a complex valued function. ● To define and check the continuity and differentiability of complex valued functions. ● To gain knowledge about the stereographic projection of complex numbers. ● To understand the concept of analytic functions and the necessary sufficient conditions to check whether a function is analytic. ● To find the harmonic conjugate of harmonic functions. ● To state Cauchy Integral Theorem and understand its applications. ● To define complex exponential, logarithmic and hyperbolic functions and analyze their properties. ● To understand the concept of mobius transformations. ● To state Taylor's theorem and establish Taylor's series of various functions. 	



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<ul style="list-style-type: none"> ● To find different type of singularities in complex valued functions. ● To understand the concept of power series in complex numbers. ● To find radius of convergence of different power series and analyze the results. ● To acquire knowledge about Cauchy residue Theorem and its applications. 	
Course Code: USMT 602	Course Title: ALGEBRA
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To demonstrate and understanding of idea of group,ring,integral domain. ● Appreciate and to be able to prove basic result of group and ring theory. ● Demonstrate capacity for mathematical reasoning and analyzing proving ,explaining concepts of group and ring. ● Generate groups in specific condition.It is useful for computer science for coding 	
Course Code: USMT 603	Course Title: Topology of Metric Spaces and Real Analysis
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Demonstrate an understanding of the concepts of Connectedness, Continuity and Sequence Series ● Prove basic results about these structures ● Apply the theory in the course to solve variety of problems ● Handle abstraction ideas of mathematics and mathematical proof ● Understand the fundamental of topology for these who wish to continue further study in pure mathematics 	
Course Code: USMT6C4	Course Title: Graph Theory and Combinatorics (Elective C)
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To solve problems involving vertex and edge coloring,chromatic polynomial in coloring of graphs. ● To describe planarity of graphs,flows in Networks, Mini-Max Theorem. ● To understand the ideas of permutations and combinations, inclusion and exclusion principle, basic properties of matching,solving recurrence relation. ● To know some important classes of graph theoretic problems. 	



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Name of Department: Statistics	
Class: FY	
Program Outcomes:	
Specific core discipline knowledge	
<ul style="list-style-type: none"> ● Students will demonstrate an understanding of the common body of knowledge in Statistics. ● Students can be able to identify areas in Statistics is useful. 	
Communication skills	
<ul style="list-style-type: none"> ● Students will be able to productively discuss statistics and able to communicate numeric data in a much detailed and precised language. 	
Problem solving and research skills	
<ul style="list-style-type: none"> ● Students will demonstrate the ability to apply analytical and theoretical stlls to model and solve mathematical problems. ● Students will demonstrate the ability to analyze data and draw appropriate statistical conclusions. 	
Prepare students for pursuing research or careers in industry in statistics and allied fields	
Program Specific Outcomes:	
<ul style="list-style-type: none"> ● The course will enable the students to (understand basic concepts and aspects related to research, data collection, analyses and interpretation, ● Prepare and finalize research report on some real life situations. With a bachelor's degree in Statistics, one can become a business analyst, research officer, data analyst or even an investigator. ● Statisticians are also required in the government sector to work on studies and research on consumer prices, fluctuations in the economy, employment patterns, population trends, etc. 	
Semester I	
Course Code: USST101	Course Title: Descriptive Statistics - I
<ul style="list-style-type: none"> ● Understand Concept of population and sample ● Categories different types of scales ● Identify Qualitative and quantitative data 	
Course Code: USST102	Course Title: Statistics Method- I
<ul style="list-style-type: none"> ● Define an event in Elementary Probability Theory ● Understand and explain Theorems on Addition and Multiplication of probabilities. ● Explain concept of Skewness and Kurtosi 	
Semester II	
Course Code: USST201	Course Title: Descriptive Statistics - II
<ul style="list-style-type: none"> ● Perform Correlation and regression analysis ● Identify the Relation between regression coefficients and correlation coefficient. ● Estimate trend 	



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Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> ● Define Time series 	
Course Code: USST202	Course Title: Statistics Method- II
<ul style="list-style-type: none"> ● Explain the Concept of bias and standard error of an estimator ● Define concept of hypothesis Null and alternate hypothesis ● Explain Sampling distribution for large sample 	
Class - S.Y.BSc.	
<p>Programme Outcome:</p> <ul style="list-style-type: none"> ● Upon completion of this programme student will have knowledge of <ul style="list-style-type: none"> ○ Statistical theory and techniques to analyze and model different real life data sets. ○ Statistical software such as, MINITAB, SPSS, SAS, R-environment. ● Student can make carrier in different fields as, banks, multinational companies, insurance companies, pharmaceutical companies, business analytics etc. as well as government services as, UPSC, MPSC, RBI, ISS etc. ● Student can pursue research degree in statistics form Indian as well as foreign universities. 	
<p>Programme Specific Outcome:</p> <p>Student will be able to</p> <ul style="list-style-type: none"> ● Recognize the importance and value of statistical thinking, training and approach to problem solving. ● Recognize and appreciate the connection between theory and applications in a variety of disciplines. ● Use statistical techniques to work effectively in analytical, scientific, financial, actuarial, pharmaceutical, technical and other positions of government/non government organizations. ● Pursue academic research to widen the subject domain. ● Be familiar with problem solving techniques. 	
SEMESTER - III	
Course Code: PSST 301	Course Title: MULTIVARIATE ANALYSIS - II
<p>Course Outcome :</p> <p>Upon completion of this course student will have knowledge of</p> <ul style="list-style-type: none"> ● Data reduction and dimension reduction techniques. ● Clustering/grouping data. ● Analyzing multivariate real life data sets. 	
Course Code: PSST 302	Course Title: TESTING OF HYPOTHESES
<p>Outcome of the Course:</p> <p>Upon completion of this course student will have knowledge of</p> <ul style="list-style-type: none"> ● Fundamental concepts of testing of hypotheses. ● Formulation of statistical hypothesis in real life situations. ● Developing best test procedures to test the hypothesis. ● Obtaining best confidence sets of unknown parameters. ● Analyzing real life data by using different nonparametric test procedures. ● Measuring association between bivariate random variables. 	



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Course Code: PSST 303	Course Title: PLANNING AND ANALYSIS OF EXPERIMENTS - II
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> ● Statistical techniques of planning and designing of experiments. ● Analyzing, comparing and identifying significant factors in industrial data sets. 	
Course Code: PSSTE1 304	Course Title: FINANCIAL MATHEMATICS.
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> ● Modern probability and statistics, essential to develop economic and finance theories/models. ● Testing of the validity of different theories/models. ● Forming effective monetary and fiscal policies and to develop pricing models for financial assets such as equities, bonds, currencies, and derivative securities. 	
Course Code: PSSTE2 304	Course Title: ELEMENTS OF DATA SCIENCE.
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> ● Extracting information from different big data sets. ● Dimension reduction and visualization of big data sets. ● Artificial intelligence and neural networks. 	
Course Code: PSSTE3 304	Course Title: STATISTICAL PROCESS CONTROL
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> ● Controlling quality of industrial products. ● Optimization of output or yield of industrial process. ● Statistical methodology to get rid of defects and improve operational efficiency. ● Six sigma and ISO standard concepts. 	
Course Code: PSSTE4 304	Course Title: CATEGORICAL DATA ANALYSIS
Course Outcome: <ul style="list-style-type: none"> ● Upon completion of this course student will have knowledge of ● Concept of non-quantifiable data. ● Modeling and analyzing real life data when response is non-quantifiable. 	
Course Code: PSSTE5 304	Course Title: MEASURE THEORY
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> ● Mathematical concepts required for advanced probability theory. 	
SEMESTER IV	
Course Code: PSST 401	Course Title: STOCHASTIC PROCESSES
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> ● Fundamental concepts of dependent data sets. 	



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Bhaskar Waman Thakur College of Science
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Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> Analyzing and interpreting financial, epidemiological, biological etc. data sets. 	
Course Code: PSST 402	Course Title: TIME SERIES ANALYSIS
Course Outcome: <ul style="list-style-type: none"> Upon completion of this course student will have knowledge of Time dependent data sets. Concepts of modeling time dependent data sets and forecasting. 	
Course Code: PSST 403	Course Title: RELIABILITY AND SURVIVAL ANALYSIS
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> Lifetime data and its distribution. Modeling of such data sets. Computing expected lifetime. Identifying significant factors affecting lifetime. Computing reliability of different systems and its components. 	
Course Code: PSSTE1 404	Course Title: ADVANCED THEORY OF DESIGNS
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> Advanced statistical techniques of planning and designing of experiments. Optimization of output or yield of industrial process. Analyzing, comparing and identifying significant factors in industrial data sets. 	
Course Code: PSSTE2 404	Course Title: OPERATIONS RESEARCH
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> Finding optimum solution of linear and non-linear functions under constraints. Inventory management. Implementation of statistical techniques for providing efficient services. 	
Course Code: PSSTE3 404	Course Title: STATISTICAL DECISION THEORY
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> Formulating decision making problems. Providing best decision by minimizing loss and risk. 	
Course Code: PSSTE4 404	Course Title: STATISTICS IN INSURANCE
Course Outcome: Upon completion of this course student will have knowledge of <ul style="list-style-type: none"> Making assurance policies. Computing premiums, interest rates and other financial indices. 	
Course Code: PSSTE5 404	Course Title: MODERN STATISTICAL INFERENCE.



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Course Outcome:

Upon completion of this course student will have knowledge of

- Modern statistical techniques of estimation of parameters associated with different real life data sets.

Program Outcomes:

- Students will demonstrate an understanding of the common body of knowledge in Statistics.
- Students can be able to identify areas in Statistics and other fields where study of statistics is useful

Communication skills

- Communicate concepts in probability and statistics using both technical and non-technical language
- Apply laws of probability to concrete problems,
- Perform statistical inference in several circumstances and interpret the results in an applied context,
- Use mathematical tools, including calculus and linear algebra, to study probability and mathematical statistics and in the description and development of statistical procedures,
- Use a statistical software package for computations with data

Problem solving and research skills

- Students will demonstrate the ability to apply analytical and theoretical skills to model and solve statistical problems.
- Students will demonstrate the ability to analyse data and draw appropriate statistical conclusions.
- Prepare students for pursuing research or careers in industry in Statistical field and allied fields

Program Specific Outcomes:

- Students learn to design data collection plans and basic tools of descriptive statistics
- Student learn to identify the relationship between variables using binomial, trinomial and multinomial distribution and interpret a sample correlation.
- Students learn different types of continuous distribution with their properties and applications
- Students learn the sampling theory Understand the concept of sampling distribution of a statistic and its properties, difference between parametric and non-parametric test.
- Students are able to identify the null hypothesis, alternative hypothesis and test statistic. Students are able to explain the different meanings of the quality concept and its influence
- Students learn to identify situations where we use maximax, maximin, Laplace and minimax regret criterion.



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> ● Students will demonstrate an understanding of the common body of knowledge in Statistics. ● Determine the concept of bioassays, its meaning and scope ● Students will be able to apply laws of probability to concrete problems. ● Students will perform statistical inference in several circumstances and interpret the results in an applied context. ● Students will use mathematical tools, including calculus and linear algebra, to study probability and mathematical statistics and in the description and development of statistical procedures. 	
SEMESTER V	
Course Code:USST501	Course Code:USST501
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> ● to understand and recall basic facts about random experiment, outcomes, events and different types of events. ● to identify and apply the knowledge of trinomial distribution and multinomial distribution. ● to identify and apply the knowledge of addition theorem, multiplication theorem and Bayes' theorem. ● to understand the concept of inequalities like Markov inequality, Tchebyshev's inequality and law of large numbers. ● to learn and understand concept of order statistics. ● to understand and learn p.d.f. and c.d.f. of different order statistics. 	
Course Code:USST502	Course Title: THEORY OF ESTIMATION
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> ● To study concept of point estimation and properties of estimators, MVUE. ● To study different methods of estimation such as method of Maximum Likelihood Estimation, Method of Moments. ● To study about Bayes' method of finding point estimator and interval estimation. ● To study about the confidence interval and confidence limits.. ● To learn and understand the linear models, Gauss Markoff theorem for full rank model 	
Course Code:USST502	Course Title: THEORY OF ESTIMATION
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> ● To study concept of point estimation and properties of estimators, MVUE. ● To study different methods of estimation such as method of Maximum Likelihood Estimation, Method of Moments. ● To study about Bayes' method of finding point estimator and interval estimation. ● To study about the confidence interval and confidence limits.. 	



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Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> To learn and understand the linear models, Gauss Markoff theorem for full rank model 	
Course Code:USST503	Course Title: BIostatistics
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> to learn and understand epidemic models, the features of epidemic spread and definition. to understand the concept of bioassays, its meaning and scope. to identify and apply the validity tests for orthogonal contrasts. to understand the concept of clinical trials, its need and ethics, study protocol, case record/report form, study designs. to learn and understand the concept of bioequivalence. to understand designs in bioequivalence, advantages and analysis of designs. 	
Course Code:USST504	Course Title: REGRESSION ANALYSIS USING R SOFTWARE
<p>Course outcomes: The students would be able to:</p> <ul style="list-style-type: none"> to study the concept of R, installation, starting and ending in R, basic operations. to understand and learn data types, data manipulation, data processing, etc. to define and study the concept of simple linear regression model, data pre-processing, interpretation of output in R. to understand multiple linear regression model, procedure of testing significance. to understand validity of assumptions, autocorrelation, Ridge regression. 	
Course Code: USACOR501	Course Title: ELEMENTS OF OPERATIONS RESEARCH – I
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> to study the mathematical formulation, feasible solution, graphical solution to problems. to understand and study simplex method, big M method and its use in solving L.P.P. to study the dual simplex method algorithm, introduction of Integer Programming Problem. to study mean and variance of uniform, exponential, binomial, poisson, normal distributions. to understand fitting of poisson and normal distribution. 	
SEMESTER VI	
Course Code: USST601	Course Code: USST601
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> to understand the joint probability distribution of Bivariate Normal Distribution. to understand the distribution of sample correlation coefficient and Fisher's Z-transformation. 	



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<ul style="list-style-type: none"> ● to learn the generating function of a convolution. ● to understand the relation between Bernoulli and Binomial distributions, Geometric and Negative Binomial distribution using convolutions. ● to learn and understand the different equations for Pure birth process, Yule process, Pure death process. ● to understand the basic elements of the Queuing model and different models. 	
Course Code: USST602	Course Code: USST602
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> ● To study the concept of testing of hypothesis using different types of test ● To study the most powerful test of a hypothesis, Neyman-Pearson fundamental Lemma, Randomized test. ● To study the construction of Uniformly Most Powerful (UMP) test and LRT for the mean and variance of Normal Distribution. ● To understand the sequential test procedure for testing a simple null hypothesis, Wald's SPRT of strength. ● To understand the need of non-parametric test and to understand the difference between parametric and non-parametric. ● To study different types of non-parametric test. 	
Course Code: USST603	Course Code: USST603
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> ● to study Two-Phase Simplex method, Dual Simplex method. ● to find the effect on optimal solution to the LPP and improvement in the solution. ● to define concept of Inventory Problem and study Single item static EOQ model ● to understand and define Replacement of items that deteriorate with time and value of money. ● to define concept and scope of Simulation and study Monte Carlo Technique of simulation. ● to understand the concept of reliability, Hazard-rate, Bath tub Curve. 	
Course Code: USST604	Course Code: USST604
<p>Course outcomes: The students would be able to:</p> <ul style="list-style-type: none"> ● to study the various mortality functions and probabilities of living and dying. ● to understand and learn Laws of mortality: Gompertz's and Makeham's first law ● to define concept of Compound Interest and annuities certain. ● to understand the present value in terms of communication functions of Life annuities and temporary life annuities with and without deferment period. ● to understand the assurance benefits. 	



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts

Course Code: USACOR601	Course Code: USACOR601
Course outcomes: The students would be able to: <ul style="list-style-type: none">● to study the Fundamental theorem of Information Theory and properties of Entropy function.● to understand the channel capacity, efficiency and redundancy, Shannon-Fano encoding procedure.● to define concept of Laplace criterion, maximax, maximin, minimax regret criterion.● to understand the decision making under risk.● to understand simple and compound interest, present value of Annuities.● to understand securities market such as stock market, mutual fund, NAV, SIP, SWP, STP.	

13. B.Sc. Zoology

Name of Department: Zoology
Class: F.Y.BSc
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none">● Curiosity will be ignited in the mind of learners to know more about fascinating world of animals and therefore enhancing interest in the subject.● Students would understand the treasures of biodiversity and would therefore contribute their best for its conservation. And also understand physical chemical and biological factors and interdependence of animals and would spur an interest for making a career in wildlife conservation and research fields.● Learners would be able to understand safety measures in a laboratory and also the working of instruments which help to study different components of zoology
Program Specific Outcomes: <ul style="list-style-type: none">● To nurture interest in the students for the subject of Zoology● To create awareness of the basic and modern concepts of Zoology● To orient students about the importance of abiotic and biotic factors of environment and their conservation● To provide an insight to the basic nutritional and health aspects of human life



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<ul style="list-style-type: none"> To inculcate good laboratory practices in students and to train them about scientific handling of important instruments 	
SEMESTER I	
Course Code: USZO101	Course Title: I. Wonders of the animal world, II. Biodiversity and its conservation III. Footsteps to follow
<ul style="list-style-type: none"> Course Outcomes: The students would be able Curiosity will be ignited in the mind of learners, to know more about the fascinating world of animals which would enhance their interest and love for the subject of Zoology Learners would appreciate treasure of Biodiversity, its importance and hence would contribute their best for its conservation Minds of learners would be impulsed to think differently and would be encouraged ipso facto to their original crude ideas from the field of biological sciences 	
Course Code: USZO102	Course Title: I. Laboratory safety and units of measurements II. Animal biotechnology. III. Instrumentation
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To work safely in the laboratory and avoid occurrence of accidents (mishaps) which will boost their scholastic performance and economy in use of materials/chemicals during practical sessions. To understand recent advances in the subject and their applications for the betterment of mankind; and that the young minds would be tuned to think out of the box. To be skilled to select and operate suitable instruments for the studies of different components of Zoology of this course and also of higher classes including research. 	
SEMESTER II	
Course Code: USZO201	Course Title: I. Ecology and Wildlife management II. Ecosystem



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	III. National parks and Sanctuaries.
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To study about nature of animal population, specific factors affecting its growth and its impact on the population of other life form. ● To grasp the concept of interdependence and interaction of physical, chemical and biological factors in the environment and will lead to better understanding about implications of loss of fauna specifically on human being, erupting spur of desire for conservation of all flora and fauna. ● To choose career options in the field of wild life conservation, research, photography and ecotourism 	
Course Code: USZO202	<p>Course Title: I. Nutrition and health</p> <p>II. Public health and Hygiene.</p> <p>III. Common Human diseases and disorders.</p>
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To inculcate healthy dietary habits in the life style of learners in order to prevent risk of developing health hazards in younger generation due to faulty eating habits.. ● To promote optimum conservation of water, encouragement for maintaining adequate personal hygiene, optimum use of electronic gadgets, avoiding addiction, thus facilitating achievement of the goal of healthy young India in true sense. ● To promptly recognize stress related problems at initial stages and would be able to adopt relevant solutions which would lead to psychologically strong mind set promoting positive attitude important for academics and would be able to acquire knowledge of cause, symptoms and precautions of infectious diseases. 	
Class: S.Y.BSc	
<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students will be able to understand basic terms and concepts in genetics, Mendelian inheritance, origin of life and evolution 	



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Yashvant Keshav Patil College of Commerce
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- The learners will be able to understand the cell biology, biomolecules, physiology of osmoregulation, nutrition and excretion and the organs related to them.
- Students will be able to understand basic concepts Human reproduction, Embryology, ethology, economic zoology and pollution.

Program Specific Outcomes:

- To Introduce basic terms of genetics and study Mendelian principles of inheritance and other forms pattern of inheritance
- To familiarize the learners with the structure, types and classification of chromosome, concept of sex determination and its types, sex influenced and sex limited genes.
- To make the learner understand the structure of nucleic acids and the concept of central dogma of molecular biology and basic concept of gene regulation
- To expose the learners to various nutritional apparatus, excretory and osmoregulatory structures in different classes of organisms and make them understand the physiology of each process
- To expose the learners to various respiratory and circulatory structures in different classes of organisms and understand their physiology.
- To expose the learners to various locomotory and reproductive structures in different classes of organisms and to make them understand physiology of locomotion and reproduction
- To equip learners with a sound knowledge of how animals interact with one another and their environment.
- To acquaint learners with the concepts of parasitism, their relationship with environment and modes of transmission.
- To disseminate information on economic aspects of zoology like apiculture, vermiculture, dairy science and encourage young learners for self employment.
- To impart scientific knowledge to the learner about how life originated and evolved on our planet.
- To develop learner's knowledge and understanding of genetic variability within a population and how the change in the gene pool leads to evolution of species.
- To inculcate scientific temperament in the learner.



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<ul style="list-style-type: none"> ● To study the structural and functional organization of cell with an emphasis on nucleus, plasma membrane and cytoskeleton ● To give learner insight into the structure of biomolecules, and their role in sustenance of life. ● To acquaint the learners with different aspects of human reproduction and make them aware of the causes of infertility, techniques to overcome infertility and the concept of birth control. ● To provide a panoramic view of impact of human activities leading to pollution and its implications. 	
SEMESTER III	
Course Code: USZO301	Course Title: I. Fundamentals of Genetics. II. Chromosome & Heredity III. Nucleic Acids
<ul style="list-style-type: none"> ● Course Outcomes: The students would be able ● Understand and apply the principles of inheritance. Understand the concept of multiple alleles, linkage and crossing over. ● Learners would understand the structure and types of chromosomes. Learners would understand mechanisms of sex determination. Learners would be able to correlate the disorders linked to a particular sex chromosome. ● Learner would understand the importance of nucleic acids as genetic material 	
Course Code: USZO302	Course Title: I. Study of Nutrition & Excretion II .Study of Respiration & circulation III. Control and Coordination Locomotion & Reproduction
Course outcomes: The students would be able :	



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- To understand the increasing complexity of nutritional, excretory and osmoregulatory physiology in evolutionary hierarchy. Learners would be able to correlate the habit and habitat with nutritional, excretory and osmoregulatory structures.
- To understand the increasing complexity of respiratory and circulatory physiology in evolutionary hierarchy. Learners would be able to correlate the habit and habitat with respiratory and circulatory structures.
- understand the process of control and coordination by nervous and endocrine regulation. Learners would be fascinated by various locomotory structures found in the animal kingdom. Learners would be acquainted with various reproductive strategies present
- To understand the

Course Code: USZO303

**Course Title: I. Ethology
 II .Parasitology
 III. Economic Zoology**

Course outcomes:

The students would be able :

- To gain an insight into different types of animal behaviour and their role in biological adaptations.
- Learners would be sensitized to the feelings instrumental in social behavior in animals.
- To understand the general epidemiological aspects of parasites that affect humans and apply simple preventive measures for the same. Learners would comprehend the life cycle of specific parasites, the symptoms of the disease and its treatment
- To gain knowledge on animals useful to mankind and the means to make the most of it.
- Learners would learn the modern techniques in animal husbandry. Learners would be pursuing entrepreneurship as careers.

SEMESTER IV

- **Course Outcomes:**
- To understand the principles of taxonomy, levels of organizations, modern classification up to class and the evolutionary significance of various levels of organization like symmetry, coelom, segmentation, etc.
- To learn in the field and practice experiential learning making taxonomy live and interesting.



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<ul style="list-style-type: none"> To draw diagram of an organism / animal as they perceive through observation rather than copying a diagram from a book into the journal. 	
Course Code: USZO401	Course Title: I.Origin & Evolution of Life II. Population Genetics & Evolution III. Scientific Attitude, Methodology, Writing & Ethics.
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To learn insight about the origin of life. Learners will know about the different theories of evolution. To gain understand the forces that cause evolutionary changes in natural populations. Learner would comprehend the mechanisms of speciation .Learner will be able to distinguish between microevolution, macroevolution and megaevolution To learn develop qualities such as critical thinking and analysis. The learner will develop the skills of scientific communication. Learner will understand the ethical aspects of research 	
Course Code: USZO402	Course Title: I.Cell Biology II. Endomembrane System III.Biomolecules
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To acquire insight of transport mechanisms for maintenance and composition of cell To appreciate the intricacy of endomembrane system. Learner would understand the interlinking of endomembrane system for functioning of cell. To realize the importance of biomolecules and their clinical significance 	
Course Code: USZO303	Course Title: I. Comparative Embryology II. Aspects of human Reproduction III.Pollution and Effects on Animals
Course Outcomes: The students would be able :	



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- To understand and compare the different pre- embryonic stages Learner will be able to appreciate the functional aspects of extra embryonic membranes and classify the different types of placentae.
- To understand human reproductive physiology Learners will become familiar with advances in ART and related ethical issues
- To sensitize about the adverse effects of pollution and measures to control it

Class: T.Y.BSc

Program Outcomes:

Specific core discipline knowledge

- Students can recall the principles of taxonomy, levels of organisations, modern classification up to class and the evolutionary significance, various aspects of human blood, clinical disorders and their, Diagnosis, Mammalian Histology, Basic Toxicology, General Pathology and Biostatistics, integumentary system, osteology and the developmental stages of chick embryo.
- Students can recall details of the unique ecological and evolutionary features of the local and Indian fauna.
- Students can recall various environmental issues and their management.

Communication skills

- Students can communicate effectively using oral and written communication skills

Problem solving and research skills

Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context

Program Specific Outcomes:

- To recognize and identify major groups of up to class and the evolutionary significance of various levels of organization like symmetry, coelom, segmentation, etc.
- To understand the significance of the diagnostic tools relevant to human health.
- To explore the morphological, anatomical, embryological details as well as economic importance of Kingdom Animalia
- To understand physiological processes and adaptations of Kingdom Animalia.



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<ul style="list-style-type: none"> ● To provide knowledge about environmental factors and natural resources and their importance in sustainable development. ● To be able to deal with all microbes and the technologies for their effective uses in industry and mitigation of environmental concerns. ● To understand patterns of heredity and variation among individuals, species and populations and apply principles for improvement of quality and yield. ● To be able to apply statistical tools to gain insights into significantly different data from different sources. 	
SEMESTER V	
Course Code: USZO501	Course Title: Principles of Taxonomy, Kingdom: Animalia I,III Kingdom: Animalia II,IV Type study: Sepia
<ul style="list-style-type: none"> ● Course Outcomes: The students would be able ● To understand the principles of taxonomy, levels of organizations, modern classification up to class and the evolutionary significance of various levels of organization like symmetry, coelom, segmentation, etc. ● To learn in the field and practice experiential learning making taxonomy live and interesting. ● To draw diagram of an organism / animal as they perceive through observation rather than copying a diagram from a book into the journal. ● To attribute characters of a specimen up to specific class. 	
Course Code: USZO502	Course Title: Basic Haematology II Applied Haematology III Basic Immunology IV Applied Immunology
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To learn various aspects of human blood, clinical disorders and their diagnosis. ● To learn the significance of the diagnostic tools relevant to human health. 	



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<ul style="list-style-type: none"> To understand scope of hematology and immunology as career options in the field of pathology. To understand the clinical significance of various diagnostic tests. 	
Course Code: USZO503	Course Title: Mammalian Histology II Toxicology III General Pathology IV Biostatistics
Course outcomes: The students would be able : <ul style="list-style-type: none"> To learn use of Microtomy as a histo-pathological tools for clinical pathology also its applications in research. To learn toxicology emphasizing its importance in pharmaceuticals and additionally the insights into regulatory aspect. To understand the practical difficulties and the norms associated with toxicity testing. To apply biostatistics in interpretation and validation of experimental data. 	
Course Code: USZO504	Course Title: Integumentary system and derivatives Human Osteology Muscles of long bones of Human limbs Developmental biology of Chick
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand concepts of integumentary system, osteology and the developmental stages of chick embryo. To understand the structural and the functional aspects of epidermal and dermal derivatives, various fore limb and hind limb muscles and their arrangement etc. 	
SEMESTER VI	
Course Code: USZO601	Course Title: Phylum Chordata: Group Protochordata and Group Euchordata I Group Euchordata II Group Euchordata III



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	Type study: Shark
<p>Course Outcomes:</p> <ul style="list-style-type: none"> ● To understand the principles of taxonomy, levels of organizations, modern classification up to class and the evolutionary significance of various levels of organization like symmetry, coelom, segmentation, etc. ● To learn in the field and practice experiential learning making taxonomy live and interesting. ● To draw diagram of an organism / animal as they perceive through observation rather than copying a diagram from a book into the journal. ● To attribute characters of a specimen up to specific class. 	
Course Code: USZO602	<p>Course Title: Enzymology</p> <p>Homeostasis</p> <p>Endocrinology</p> <p>Animal Tissue Culture</p>
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To learn about adaptive responses of animals to environment for their survival. ● To gain awareness about industrial significance of enzymes. ● To learn sterilization and culture techniques in animal tissue culture. 	
Course Code: USZO603	<p>Course Title: Molecular Biology</p> <p>Genetic Engineering</p> <p>Human Genetics</p> <p>Bioinformatics</p>
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To learn concepts of Molecular Biology, Genetic Engineering, Human Genetics and Bioinformatics. Molecular biology and genetic engineering. ● To learn scope of gene manipulation techniques in medical science as well as industry. ● To learn various concepts of bioinformatics such as protein sequencing, construction of evolutionary trees etc. ● To learn Use of available software in public domain to study human diseases . 	



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<ul style="list-style-type: none"> To learn the practical utilization of bioinformatics in preparing probes using database. 	
Course Code: USZO604	Course Title: Environment management Wildlife management Bioprospecting and Zoopharmacognosy Zoogeography
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand various environmental issues and their management. To learn wildlife conservation as well as human-animal conflict. To learn concepts of bioprospecting and zoopharmacognosy. Case studies supplemented with it will help understanding the patterns of distribution of different animal species throughout the globe. 	

14. Data Science

Name of Department: Data Science
Class: F.Y.B.Sc.
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> To lay the theoretical foundations of software and hardware equally supplemented by the practical techniques. With this strong foundation of data science along with core subjects like Mathematics, Statistics etc. the computer science students are expected to contribute efficient solutions for the various problems that are given to them. To provide exposure to basics, advanced and emerging trend of subject. Communication skills <ul style="list-style-type: none"> Students can communicate effectively using oral and written communication skills. Problem solving and research skills <ul style="list-style-type: none"> Students can develop GUI applications, websites and web application. Student can form fundamental skills for solving computational problem that will inculcate research oriented acumen.
Program Specific Outcomes: <ul style="list-style-type: none"> To build a strong foundation of statistics for data science. To use all the features and new updates of Python and R for data science. To perform scientific and technical computing using the Python SciPy package and its subpackages Integrate, Optimize, Statistics, IO, and Weave.



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<ul style="list-style-type: none"> ● To gain expertise in mathematical computing using the NumPy and Scikit-Learn package ● To gain an in-depth understanding of data structure and data manipulation ● To understand and use linear and non-linear regression models and classification techniques for data analysis ● To obtain a comprehensive knowledge of supervised and unsupervised learning models such as linear regression, logistic regression, clustering, dimensionality reduction, KNN and pipeline ● To master the concepts recommendation engine, time series modelling, gain practical mastery over principles, algorithms, and applications of Machine Learning ● To learn to analyse data using Tableau and Power BI and become proficient in building interactive dashboards ● To understand deep reinforcement learning techniques applied in Natural Language Processing ● To understand the different components of the Hadoop ecosystem and learn to work with HBase, its architecture and data storage, learning the difference between HBase and RDBMS, and use Hive and Impala for partitioning ● To understand MapReduce and its characteristics and learn how to ingest data using Sqoop and Flume 	
SEMESTER I	
Course Code: USDS101	Course Title: Descriptive Statistics
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand the use of data for tabulating and analyze statistical information given in descriptive form with attributes. ● To use graphical techniques as well as to compute various measures of central tendency. ● To compute various measures of dispersion, skewness and kurtosis and to calculate range of variables and the deviation of specific data point. ● To compute the correlation coefficient for bivariate data and Calculate the simple linear regression equation for a set of data. ● To Describe and verify mathematical considerations for analyzing time series. 	
Course Code: USDS102	Course Title: Introduction to Programming
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To learn Programming fundamentals using Python ● To understand the concepts and usage data types, variables and other basic elements ● To learn about using operators and control statements in Python ● To learn about using arrays and strings in Python. ● To learn about using IPython architecture for Python. ● To get knowledge of data Science Tools and plot data using appropriate Python visualization libraries 	
Course Code: USDS103	Course Title: Web Technology
Course Outcomes:	



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<p>The students would be able :</p> <ul style="list-style-type: none"> ● To get the basic concepts of Internet and web design to learners. ● To provide brief knowledge about HTML5 concepts. ● To give insight of the Page layout and navigation with HTML5. ● To be aware about the use of Tables, Forms and Media with HTML5. ● To get knowledge of web page design using CSS. ● To get knowledge about transmission of data on web page using JSON object. 	
Course Code: USDS104	Course Title: Business Communication and Information Ethics
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To discuss various components of communication, explain how non-verbal communication techniques enhance communication and explain the barriers to communication. ● To discuss various business activities which are essential at workplace. To explain business communication covering the structure and layout of a letter, planning of a letter and use of language. ● To explain the use of agenda and minutes for effective functioning of any organisation. ● To direct the learners' attention to the significance of effective writing and the importance and structure of reports. ● To explain to interpret information ethics (IE) as the branch of the philosophy of information that investigates, in a broad sense, the ethical impact of Information and Communication Technologies (ICTs) on human life and society 	
Course Code: USDS105	Course Title: Precalculus
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To master the number fundamentals, equations and different types of mathematical functions. ● To review and explain trigonometry and gain expertise in trigonometric identities. ● To understand analytical trigonometry and inverse functions. ● To give detailed knowledge about complex numbers, vectors and matrices. ● To understand the conics, sequences and series 	
SEMESTER II	
Course Code: USDS201	Course Title: : Probability and Distributions
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To explore about random variables and implement various distribution functions ● To familiarize with concepts of probability and learn implementation of different types of probabilities. ● To learn and implement the concept of expectation, related theorems and generating functions ● To know the concept and implementation of discrete distributions including Bernoulli, Binomial and power series distributions 	



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<ul style="list-style-type: none"> To get acquainted with theory and practical implementation of concepts of continuous distributions 	
Course Code: USDS202	Course Title: : Database Management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand Organizing, structuring and storing data To understand Database as Relational model To understand SQL to retrieve data and concept of redundancy To specify the functional and data requirements for a typical database application To understand creation, manipulation and querying of data in databases 	
Course Code: USDS203	Course Title:R Programming
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand the use of the R interactive environment and expanding by installing R packages To read Structured Data into R from various sources To understand the different data types and data structures in R To manipulate strings, dates in R To understand basic regular expressions in R To understand base R graphics To focus on GGplot2 graphics for R and be familiar with trellis (lattice) graphics 	
Course Code: USDS204	Course Title: Environmental Science
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To learn and sensitize learners to their environment To know about natural resources, ecology and ecosystem To learn insights of biodiversity, pollution and its impact To explore about Social Issues and the Environment To learn about Environment Management and sustainable development 	
Course Code: USDS205	Course Title:Calculus
Course outcomes: The students would be able : <ul style="list-style-type: none"> To give the insight of calculus starting with continuity and derivatives. To gain proficiency in integration. To apply derivatives and integration to various domains. To use polar coordinates for different conics and understand multiple integrals. To understand partial differentiation and differential equations. 	
SEMESTER III	
Course Code: USDS301	Course Code: USDS301
Course outcomes: The students would be able :	



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<ul style="list-style-type: none"> ● To impart analytical skill in solving complex problems. ● To foster the ability to critically think in developing robust, extensible and highly maintainable solutions to simple and complex problems. ● To explore the unknown and unlock new possibilities in different dimensions of the system. ● To portray accurately the characteristics of a particular individual, situation or a group under study. 	
Course Code: USDS302	Course Title: : Data Structures and Algorithms Using Python
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To learn the essential Python data structures. ● To learn the significant Python implementation of popular data structures ● To learn about various data structure algorithms and design paradigms ● To acquire knowledge of how to create complex data structures. ● To acquire basic understanding of complex data structures such as trees and graphs and their applications 	
Course Code: USDS303	Course Title: Economics
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand Fundamental economic ideas and the operation of the economy on a national scale. ● To basic Understanding of production, distribution and consumption of goods and services, the exchange process, the role of government, the national income and its distribution, GDP, consumption function, savings function, investment spending and the multiplier principle ● To acquire basic knowledge of the influence of government spending on income and output. ● To develop the ability to analyze monetary policy, including the banking system and the Federal Reserve System. 	
Course Code: USDS304	Course Title: Data Warehousing and Mining
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand business intelligence for an enterprise and review data warehouse with architectural types and architectural building blocks ● To discuss and understand changing dimensions and learn about aggregate tables and determine their usage. ● To learn the basics of data mining, understand the need and the process of data mining in contrast with machine learning. ● To study the use of classification and clustering techniques for Data Mining. ● To appreciate the use of various data mining algorithms and learn about their specific applications. 	
Course Code: USDS305	Course Title: Linear Algebra and Discrete Mathematics
Course outcomes:	



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<p>The students would be able :</p> <ul style="list-style-type: none"> ● To analyze the solution set of a system of linear equations. ● To interpret the existence and uniqueness of solutions geometrically. ● To formulate, solve, apply, and interpret properties of linear systems. 	
Semester IV	
Course Code: USDS401	Course Code: USDS401
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To impart statistical significance in solving complex problems. ● To critically test in developing robust, extensible and highly maintainable solutions to simple and complex problems. ● To implement various statistical functions using suitable programming languages and packages. ● To scientifically test the unknown and unlock possibilities in different dimensions of the system. ● To write the reports of analytical results generated by the system. 	
Course Code: USDS402	Course Title: Big Data
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To develop core abilities to make data-driven decisions through big data. ● To provide an overview of an exciting growing field of big data analytics. ● To introduce the tools required to manage and analyze big data like Hadoop, NoSql MapReduce. ● To teach the fundamental techniques and principles in achieving big data analytics with scalability and streaming capability. 	
Course Code: USDS403	Course Title: Fundamentals of Accounting
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To be able to track a company's finances in their numerous forms, from credits, debits, and profitability to payroll and tax filing. ● To analyzing the organization's financial health and apply data science principles/practices on that information to plot current and future strategies for growth. 	
Course Code: USDS404	Course Title: Artificial Intelligence
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To introduce and appreciate use of AI and the theory underlying for solving problems. ● To Learn about Rational Intelligent Agent and Agent types to solve problems ● To learn about representing difficult real life problems as state space representation and solving them using AI techniques. ● To understand the basic issues of knowledge representation and develop skills for reasoning and handling uncertainty ● To introduce advanced topics of AI for solving complex problems 	



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Course Code: USDS405	Course Title: Numerical Methods
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To be able to precisely solve problems using mathematical modeling. ● To be able to find solution for a solvable to unsolvable problems. ● To find an answer or solution close to answer, without even knowing what the answer is 	
SEMESTER V	
Course Code: USDS501	Course Code: USDS501
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● Understand the fundamentals of image formation. ● Use and Demonstrate operations of Image Processing. ● Relate and Explain various features of Image. ● Understand, Identify and Examine various image patterns. ● Design and develop practical and innovative image processing and computer vision applications or systems 	
Course Code: USDS502	Course Code: USDS502
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To remember and explain the Data Engineering basics and Lifecycle. ● To apply the Data Architecture Design with various options available. ● To create the Data from source and make use of Storage. ● To understand Ingestion process and know about Queries, Modeling, and Transformation. ● To Illustrate Data Analytics, Machine Learning and to Explain the importance of Security and Privacy. 	
Course Code: USDS505c	Course Code: USDS505c
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● Understand and implement the mechanism of business process and can provide the solution in an optimize way. ● Apply the features use for interacting with database plugins. ● Apply and Use the plug-ins and other controls used for process automation. ● Implement and handle the different events, debugging and managing the errors. ● Test and deploy the automated process. 	
Course Code: USDS504	Course Code: USDS504
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● Apply active listening techniques and overcome barriers to become a better listener. ● Demonstrate improved speaking skills with clarity, confidence, and fluency. ● Utilize interview techniques to enhance job interview performance and create impactful résumés. 	



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<ul style="list-style-type: none"> ● Apply interpersonal communication skills to build effective relationships and manage conflicts in professional settings. ● Effectively deliver negative news messages, develop crisis communication plans, and handle press conferences in challenging situations 	
Course Code: USDS505a	Course Code: USDS505a
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Demonstrate a comprehensive understanding of social media analytics concepts, theories, and tools. ● Apply various social media analytics techniques to extract insights and make informed decisions. ● Perform social network analysis to uncover patterns, relationships, and influential nodes within social networks. ● Utilize text analytics methods to extract meaningful information from social media text data. ● Design and implement recommender systems for social media platforms, considering user preferences and item similarities to enhance user experiences 	
SEMESTER VI	
Course Code: USDS601	Course Code: USDS601
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Understand the foundational concepts and principles of Machine Learning ● Apply supervised and unsupervised learning techniques, including classification algorithms and clustering algorithms ● Evaluate the performance of Machine Learning models using classification metrics, ROC/AUC curve analysis, and cross-validation techniques. ● Implement regression models (such as linear regression and logistic regression) and understand their applications in predictive analysis. ● Utilize dimensionality reduction techniques (Like PCA) for feature reduction and selection, and apply association rule mining algorithms (such as the Apriori algorithm) for discovering meaningful patterns in datasets 	
Course Code: USDS602	Course Code: USDS602
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Understand importance of data and its types in Exploratory Data Analysis. ● Classify EDA and summary statistics in context of interpretation. ● Understand the significance of missing value imputations in better EDA interpretations. ● Analyse the measure of central tendency in describing the quick view of data set. ● Categorize measure of dispersion and its interpretation in spread ness of data. 	
Course Code: USDS603	Course Code: USDS603
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Describe what IoT is and how it works today and Recognise the factors that contributed 	



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<p>to the emergence of IoT</p> <ul style="list-style-type: none"> ● Design and program IoT devices and Use real IoT protocols for communication ● Secure the elements of an IoT device ● Design an IoT device to work with a Cloud Computing infrastructure. ● Transfer IoT data to the cloud and in between cloud providers and Define the infrastructure for supporting IoT deployments 	
Course Code: USDS604	Course Code: USDS604
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Understand basics of statistical concepts like probability distribution, hypothesis testing etc. ● Experiment with Business Intelligence Tools for Data Analysis. ● Make use of the business analytics methods for discovering the knowledge ● Apply Regression Analysis with Time Series Analysis and forecasting ● Apply and Construct various modelling techniques for Optimization and simulation 	
Course Code: : USDS605a	Course Title: Sports Analytics
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To remember and understand the Cricket analytics and its procedures. ● To apply cricketr package for analysing performances of cricketers. ● To understand the use of cricketr package template. ● To analysing performances of cricketers using of Cricpy package. ● To apply and evaluate Cricket analysis with Machine Learning using Octave 	

15. M.Sc. Bioanalytical Sciences

Class: M.Sc. Bioanalytical Sciences
<p>Objectives of the Course</p> <ul style="list-style-type: none"> ● Develop trained manpower in the field of Bio-analytical Sciences with specific emphasis for exploitation of ASU system of medicine as well as its need for changing trends of modern pharmaceutical Industries ● Amalgamate traditional analytical chemical techniques with modern genomic and proteomic technologies of manufacturing and analysis ● Introduce the powerful tools of informatics in routine use at manufacturing, QC and research. ● Exposure to National & International regulatory affairs with reference to drugs <p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students can recall details and information about the Indian Pharmaceutical Industry Pharmacopeias ● Students can recall details and information about traditional medicinal system of ASU



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- Students can develop skills to operate instruments like UV Visible spectrometer, HPLC, HPTLC, FTIR, GC, GC-MS.
- Students get exposed with guidelines and regulations with reference to drugs

Communication skills

- Students can communicate effectively using oral and written communication skills as well as presentation skills

Problem solving and research skills

- Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context
- Students are enabled to solve complex problems with reference to the technique used to identify, purify and isolate a compound from mixed solutions via HPLC, GC-MS, FTIR, HPTLC, UV-Visible Spectroscopy.

Program Specific Outcomes:

- To recognize and identify the importance of Indian traditional system of medicine and compare it with the modern medicine system.
- To understand the working of pharmaceutical industries and learn the guidelines which are followed by the industries
- To make the learner industry ready by providing them with hands-on experience on instruments.
- To understand processes of standardization and manufacture of drugs from biological sources.
- To get exposed to classic and modern methods of extraction
- To be able to carry out phytochemical analysis of plant extracts and application of the isolated compounds for treatment of diseases.
- To be able to deal with all microbes and the technologies for their effective uses in industry and mitigation of environmental concerns.
- To explain how current medicinal practices are often based on indigenous plant knowledge and to get introduced to different perspectives on treating ailments according to ethnomedicinal principles.
- To get exposed to pharmacopeias and to know the regulations and guidelines in manufacturing of drugs
- To be able to apply statistical tools to gain insights into significantly different data from different sources.
- To acquire recently published knowledge in molecular biology, such as rDNA technology; PTC and bioinformatics and their applications.
- To get skilled in handling and carry out experimentation on UV- Visible spectroscopy, HPLC, GC, HPTLC, GC -MS and LC- MS.
- To get hands-on experience to perform bioassays and different microbial assays
- To gain knowledge about BA/ BE
- To gain knowledge about QA and QC

SEMESTER I

Course 1

Course Title: Different Medicinal Systems, Pharmacognosy & Extraction Techniques



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Course Outcomes: On successful completion of the course the learner would demonstrate and explain the understanding of the following:	
<ul style="list-style-type: none"> ● Understand the concept of traditional medicines. ● Compare Traditional and Modern medicines with respect to its formulation, types and dosage. ● Discuss the importance of Pharmacognosy in drug preparation. ● Plan strategies for extraction and isolation of drug formulation. 	
Course 2	Course Title: Bioanalytical techniques - Chromatography and spectroscopy - I
Course outcomes: The students would be able to :	
<ul style="list-style-type: none"> ● On successful completion of the course the learner would demonstrate and explain the understanding of the following: ● Students will learn the different techniques of Planar Chromatography ● Students will also get familiarized with instrumentation and applications of Gas Chromatography and will be able to effectively use chromatography for analysis of samples and interpret the results. ● Students will get an insight into recent advances and troubleshooting involved in High Performance Liquid Chromatography. ● Students will be able to carry out simultaneous analysis of Phytoconstituents using sophisticated analytical techniques like HPLC and GC. 	
Course 4	Course Title: Drug Discovery and Development & Pharmacokinetics
Course outcomes: On successful completion of the course the learner would demonstrate and explain the understanding of the following:	
<ul style="list-style-type: none"> ● To make students aware about the development of New drug ● To understand about the drug interaction in the biological system ● To introduce students with the concept of Pharmacokinetics & Pharmacodynamics, parameters, techniques and models involved' ● To make student understand the basic concept of drug, its formulation, concepts of drug metabolism, ADR and SAE 	
Elective: Course 1	Course Title: Pharmaceutical Microbiology
Course outcomes: On successful completion of the course the learner would demonstrate and explain the understanding of the following:	
<ul style="list-style-type: none"> ● Identify microorganisms of relevance to healthcare and the pharmaceutical industry and their sources. ● Discuss Microbial contamination/product spoilage and antimicrobial preservation of pharmaceutical formulations during production and in products ● Understand various disinfection and sterilization techniques, evaluate the sterility testing, microbial assays, pharmacopoeial standards of sterilization process 	



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<ul style="list-style-type: none"> ● Discuss Microbial contamination, product spoilage and antimicrobial preservation of Cosmetic products ● Evaluate microbial content testing and sterility testing ● Understand the mechanism of action of Non-therapeutic antimicrobial and therapeutic antimicrobial agents. ● Demonstrate a knowledge and understanding of microbiological assays of growth promoting and growth inhibiting substances. 	
Elective: Course 2	Molecular Biology
<p>Course Outcomes: On successful completion of the course the learner would be able to;-</p> <ul style="list-style-type: none"> ● Discuss the concept of Genetic engineering. ● Describe the tools used in genetic engineering. ● Discuss the application of restriction enzymes. ● Comment on gene editing tool. ● Application of PCR and DNA fingerprinting techniques. 	
Elective: Course 3	IPR and Patenting, Stability Studies and Packaging
<p>Course Outcomes On successful completion of the course the learner would demonstrate and explain the understanding of the following:</p> <ul style="list-style-type: none"> ● To familiarize students with IPR, Patenting. Basic concepts of TRIPS, International Agreements and current scenario. ● To teach students the importance of drug stability and its comparison with ASU drugs. ● To provide insights on IPR with respect to India and the world. ● To familiarize students with packaging in Pharmaceutical Industry with respect to needs, rules and regulations 	
Course4	Research Methodology
<p>Course Outcomes: On successful completion of the course the learner would be able to: -</p> <ul style="list-style-type: none"> ● Demonstrate knowledge of research processes (reading, evaluating, and developing). ● Identify, explain, compare, and prepare the key elements of a research proposal/report. ● Define and develop a possible research proposal using specific research designs. ● Compare and contrast quantitative and qualitative research paradigms. ● Describe sampling methods, measurement scales and instruments, and appropriate uses of each. ● Describe, analyze, and apply descriptive and inferential statistics, and computational tools with suitable examples. 	
SEMESTER II	



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Course 1	Course Title: Indian Pharmaceutical Industry, Phytochemistry & Extraction Techniques
<p>Course Outcomes: On successful completion of the course the learner would demonstrate and explain the understanding of the following:</p> <ul style="list-style-type: none"> ● Provide insights of Indian Pharmaceutical industry with respect to R&D and the recent trends. ● Illustrate and demonstrate the Solid Phase Extraction ● Understand and classify phytochemicals ● Understand and comment on Super Critical Fluid Extraction (SCFE) and SCFC (Super Critical Fluid Chromatography) 	
Course 2	Course Title: Bioanalytical Techniques -II (Chromatography & Spectroscopy)
<p>Course outcomes: On successful completion of the course the learner would demonstrate and explain the understanding of the following:</p> <ul style="list-style-type: none"> ● Understand, compare types of chromatographic and Spectroscopic tools ● Explain & differentiate between Chromatography and Spectroscopy ● Students will be able to conduct method development and validation using analytical instruments. ● Students will get hands on method validation using sophisticated analytical instruments like HPLC or GC. 	
Course 4	Course Title: GLP, Drug Act and Quality Management
<p>Course outcomes: On successful completion of the course the learner would demonstrate and explain the understanding of the following:</p> <ul style="list-style-type: none"> ● Students will be able to give an outline of the overall concept of GLP ● Demonstrate Quality Control (QC) and Quality Assurance (QA) 	
Elective Course 1	Course Title: Biostatistics & Bioinformatics
<p>Course outcomes: On successful completion of the course the learner would demonstrate and explain the understanding of the following:</p> <ul style="list-style-type: none"> ● Apply statistical methods to analyse and interpret the biological data. ● Represent the data of experimental and field studies through graphs and diagrams. ● Understand statistical concepts and learn to use a variety of statistical tests. ● Know how to use bioinformatics for DNA and protein sequence analysis through bioinformatics tools and databases. ● Understand the concept of Basic softwares and computer programming for Bioinformatics. 	



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Class: M.Sc. Bioanalytical Sciences	
SEMESTER III	
Course Code: PSBN301	Course Title: Basic Microbiology, Genomics, Capillary Electrophoresis and Toxicology - I
<p>Course Outcomes: The students would be able to :</p> <ul style="list-style-type: none"> • Define microbes and their environment, significance and scope of microbiology. • Discuss biodiversity and different types of microorganisms. • Learn method of visualization of microorganisms using staining and microscopy techniques • Study the growth of microorganisms, its preservation, maintenance of media, etc. • Describe sources of antimicrobial agents, commercial production of therapeutic antimicrobial agents such as Erythromycin, Amphotericin B, Cephalosporins, • Describe antimicrobial drug resistance and drug discovery. • Discuss nucleic acid chemistry, principles of DNA sequencing and different DNA and RNA Probes • Learn concepts of Gene manipulation • Describe different types of restriction enzymes, vectors and their uses. • Learn how transgenic microorganisms are produced and about hybridoma technology. • Describe production of cDNA, Gene libraries and its application. • Define toxicity, its scope and different types of toxicity studies. • Describe toxicants, their route of entry, distribution, metabolism and its elimination. • Learn concepts of LD50, ED50 and regulatory toxicology • Study different types of toxicity studies and their designs. • Learn how results obtained from animal studies can be extrapolated to humans. • Know OECD guidelines and Schedule Y on toxicological studies • Learn different concepts of asepsis, sterilization, disinfection, death curve of microbial population, classification of clean rooms, clean areas, QA, QC in microbial laboratory and how aseptic formulations are filled in pharmaceutical industries. • Explain importance of microbes in food and drug industry, • Explain different regulatory microbiological testing and assays for pharmaceutical products. 	
Course Code: PSBN302	Course Title: MS Applications, Metabolite Studies, Thermal Analysis and Tracer Techniques - I
<p>Course outcomes: The students would be able to :</p> <ul style="list-style-type: none"> • Describe mass spectroscopy and its components. • Explain MS/MS, TQ/Ion trap • Describe hyphenation techniques such as LC/MS, LC/MS/MS, GC/MS and GC/MS/MS • Learn different scan events in TQ, and other tandem and hybrid systems • ICP/MS and its application in pharmaceuticals and food. • Learns different principles of thermal analysis and its required instrumentation. • Understand applications of thermal analysis • Use thermal techniques for analysis of bhasma application • Study different thermal analysis techniques • Explain concepts of method development and its application • Understand concepts of sample preparation. • Describe headspace GC and GC-MS 	
Course Code: PSBN303	Course Title: Standardization of ASU drugs, Statistics and GMP - I
Course outcomes:	



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The students would be able to :

- Understand the need of standardization of Ayurvedic drugs
- What does standardization involve?
- Study different bioanalytical tools used for standardization and clinical studies involved in standardization
- Study different approaches for standardization of raw, in-process and finished materials.
- Develop standardized QC methods and study shelf life studies on finished products
- Describe concept of sample statistics, sample size, power, randomization, sampling techniques, significance and confidence limits
- Enlist various statistical tests such as parametric and non-parametric
- Use statistical packages for data evaluation
- Study concepts such as random sampling, sampling techniques, level of significance, power of test, confidence limits and sample size
- Study application of normal distribution
- Study data collection techniques
- Apply different statistical techniques such as COV, ANOVA, chi square Student's t test, F test, Regression analysis and non-parametric test with examples
- Study use of statistical packages for data analysis
- Describe what is good manufacturing practice, its requirements and documentation
- Know different regulatory certification of GMP
- Use of GMP in production of ASU drugs
- Study harmonisation of SOP and audits for GMP compliances

Course Code: PSBN304 | Course Title: BA/BE studies, GCP and Method Validation- I

Course outcomes:

The students would be able to:

- Learn origin and how to deal with ethical issues
- know ethical committee, its set up and compliance to ethical issue
- Study regulatory powers and issues in animal studies
- Deal with different ethical issues
- Know what is good clinical practices, its origin and its requirements.
- Describe guidelines for GCP
- Describe what is BA/BE, its parameters and factors.
- Study different evaluation and estimation parameters for BA/BE of a drug.
- Study different strategies for method development and its regulatory requirements
- Describe different concepts such as IQ, OQ and PQ of analytical instrument
- Use reference standards, intra and inter lab validations, sampling, calibration of glasswares and instruments.
- Learn to prepare format of certificate of analysis

SEMESTER IV

Course Code: PSBN401 | Course Title: Basic Microbiology, Genomics, Capillary Electrophoresis and Toxicology - II

Course Outcomes:

The students would be able to :

- Study different bioassay system used in pharmaceutical evaluations
- Enlist invitro and in vivo assays and ethical issues of animal assay systems
- Give other alternatives to animal assays
- Study types of PCR, DNA amplification and DNA fingerprinting with its application



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<ul style="list-style-type: none"> • Study use of genomic techniques in diagnostics • Understand automation and its advantages in sample preparation • Study advanced automated liquid handling systems, robotic workstations and high throughput screening • Understand how and why to use capillary electrophoresis. • Enlist different CE hardware and its use in bioanalysis 	
Course Code: PSBN402	Course Title: MS Applications, Metabolite Studies, Thermal Analysis and Tracer Techniques - II
<p>Course outcomes: The students would be able to:</p> <ul style="list-style-type: none"> • Understand quantification of small and macromolecules • Study techniques for generating drug metabolites and its identification • Study impurity profiling of drugs and drug products • Gain insight into proteomics • Study pesticides and pesticide residues in food using LC/MS/MS • Gain insight of radioactivity and half life • Study alpha, beta and gamma emitters with their biological applications • Understand different tracers, detectors and counters. • Study the concept of autoradiography and radio labelled probes 	
Course Code: PSBN403	Course Title: Standardization of ASU drugs, Statistics and GMP - II
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> • Understand National and international initiatives for regulation of ASU drugs. • Describe schedule T and schedule Y of Drugs and Cosmetics Act • Gain insight of strategies to reduce environmental impact of bioanalytical laboratory and learn different standards of laboratory safety • Gain knowledge of ISO 14001 and OHSAS 18001 • Learn about biodiversity, red data book, endemic and endangered medicinal plants species, its conservation and sustainable use of medicinal raw materials. • Study carbon footprints and carbon credits • Gain insight of electronic acquisition of data, its management, validation and regulatory requirements • Study how to generate reports using computers. • Describe regulatory issues on OTC drugs, cosmetics, food supplements and nutraceuticals. 	
Course Code: PSBN404	Course Title: BA/BE studies, GCP and Method Validation- II
<p>Course outcomes: The students would be able to :</p> <ul style="list-style-type: none"> • Study the purpose of therapeutic drug monitoring and bioanalytical techniques used in TDM. • Study analytical and practical issues of TDM and its pharmacoeconomics. • Study the significance and need of pharmacovigilance and safe use of medicines. • Study GCP guidelines of ICH and ICMR. • Gain insight of documentation practices and audits of GCP compliance. • Understand the design, conduct, data collection and evaluation of BA/BE studies. • Study regulatory requirements of BA/BE. • Gain insight of herbal pharmacopoeia and Ayurvedic formulary of India. • Study different approaches to quality control of ASU formulations. • Understand QC of RM, In process and Finished products. 	



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Vidhya Dayanand Patil College of Arts**

- Study the application of herbal pharmacopoeia and Ayurvedic formulary of India.
- Understand the importance of QA/QC for finished products.

16. M.Sc. Biotechnology

Name of Department: Biotechnology	
Class: M.Sc Biotechnology	
Program Outcomes:	
<ul style="list-style-type: none"> ● After the completion of this programme, the students will be able – ● PLO 1 - To identify, formulate, review research literature, analyze, and design experiments and identify the solutions for complex problems using modern tools. ● PLO 2 - To apply the knowledge of basic biotechnology to solve complex problems in society. ● PLO 3 - To apply reasoning informed by contextual knowledge to assess societal, health, safety, and the consequent responsibilities relevant to the professional biotechnology practices. ● PLO 4 - To recognize the need and have the ability to engage in independent and lifelong learning in technological change. ● PLO 5 - To function effectively as an individual and as a member or leader in diverse teams and in inter- and multi-disciplinary areas. 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> ● The course covers the fundamental and advanced areas of ● Biotechnology with a range of core subjects in each semester. Along with providing the traditional biotechnology knowledge, the course also has enough scope for inter- and multi-disciplinary subjects in the form of departmental electives. ● This course also caters the skill enhancement needs of the students as well as provides opportunity for collaboration and learning from other disciplines. ● Every semester has a practical course for strengthening their skills in designing and conducting experiments in the field of Biotechnology. 	
SEMESTER I	
Course 1	Course Title: Biochemistry
Course Outcomes:	
<ul style="list-style-type: none"> ● CO1: to build upon undergraduate level knowledge of biochemical principles. ● CO2: Special emphasis on different metabolic structures in correlation to the pathways. 	
Course 2	Course Title: Bioprocess engineering and technology
Course outcomes:	
<ul style="list-style-type: none"> ● CO1: The objectives of this course are to educate students about the fundamental concepts of ● bioprocess technology and its related applications, 	



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<ul style="list-style-type: none"> CO 2: prepare them to meet the challenges of the new and emerging areas of biotechnology industry. 	
Course 3	Course Title: Practical
Course outcomes: <ul style="list-style-type: none"> On successful completion of the course the learner would demonstrate and explain the understanding of the following: <ul style="list-style-type: none"> CO1: Fundamentals of biochemistry and analytical techniques CO2: Correlating the applications of the techniques in real world. 	
Course 4	Course Title: Basics in IPR and Patents
Course Outcomes: <ul style="list-style-type: none"> On successful completion of the course the learner would demonstrate and explain the understanding <ul style="list-style-type: none"> of with India's IPR Policy; the following: <ul style="list-style-type: none"> CO1: basic knowledge on intellectual property rights and their implications in biological research and product development. Co 2: Familiarizing Topics 	
Elective Course I	Immunology
Course Outcomes: CO1: This course will provide students with an overview of current developments in different areas of vaccines. CO2: This will be imperative for students as it will help them to predict about nature of immune response that develops against bacterial, viral or parasitic infection, and proves it by designing new experiments.	
Elective Course II	Molecular diagnostics
Course Outcomes: CO1: The objectives of this course are to sensitize students about recent advances in molecular biology and various facets of molecular medicine. CO 3 The course would enable learners understand different aspects of modern medicine including pre- or post- natal analysis of genetic diseases and identification of individuals predisposed to disease ranging from common cold to cancer.	
Course	Research Methodology
Course Outcomes: On successful completion of the course the learner would be able to: <ul style="list-style-type: none"> CO1: Demonstrate knowledge of characteristics of research and research types and processes (reading, evaluating, and developing). Identify, explain, compare, and prepare the key elements of a research proposal/report. CO 2 Describe sampling methods, measurement scales and instruments, and appropriate uses of each. Describe, analyze, and apply computational tools with suitable examples. Describe, Discuss, and evaluate plagiarism and its types. 	



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SEMESTER II	
Course I	Course Title: Bioinformatics and Biostatistics
<ul style="list-style-type: none"> ● Course Outcomes: On successful completion of the course the learner would demonstrate and explain the understanding of the following: ● CO 1: practical training in bioinformatic methods including accessing major public sequence databases, use of different computational tools to find sequences, analysis of protein and nucleic acid sequences by various software packages. 	
Course II	Course Title: Plant and Animal Biotechnology
Course Outcomes: <ul style="list-style-type: none"> ● Co 1: Students will be acquainted with the principles, practices and application of animal biotechnology, plant tissue culture, plant and animal genomics, genetic transformation and molecular breeding of plants and animals. 	
Course III	Course Title: Practical
<ul style="list-style-type: none"> ● Course Outcomes: ● The aim of this course is ● CO 1: to provide practical training in bioinformatic methods including accessing major public sequence databases, ● CO 2: use of different computational tools to find sequences, analysis of protein and nucleic acid sequences by various software packages. 	
Course IV	Course Title: Patenting in Biotechnology and Bioethics
Course Outcomes: <ul style="list-style-type: none"> ● CO1: The course will provide basic knowledge on intellectual property rights and their implications in biological research and product development; ● CO2: The course will facilitate the students in understanding India's IPR Policy. 	
Elective Course 1	Bio Entrepreneurship
Course Outcomes: CO1: Bio-entrepreneurship, an interdisciplinary course, revolves around the central theme of how to manage and develop life science companies and projects. CO2: The objectives of this course are to teach students about concepts of entrepreneurship including identifying a winning business opportunity, gathering funds and launching a business, growing and nurturing the organization and harvesting the rewards	
Elective Course II	Molecular Biology
Course outcomes: CO1: The objectives of this course are to provide students with theoretical and experimental knowledge of molecular biology and tools essential for techniques in molecular biology	
SEMESTER III	



**Vishnu Waman Thakur Charitable Trust's
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Yashvant Keshav Patil College of Commerce
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Course Code: PSBT301	Course Title: PTC and ATC
Course Outcomes:	
<ul style="list-style-type: none"> ● Gain knowledge about important metabolic pathway in plant cells. ● Understand the principle and types of cryopreservation for plant as well as animal cells/tissues. ● Learn about microbial and cross contamination. ● Acquire knowledge of troubleshooting the problems common to cell culture. 	
Course Code: PSBT302	Course Title: Medical microbiology
Course outcomes:	
<ul style="list-style-type: none"> ● Understand the basics of medical microbiology and gain knowledge regarding the pathogenesis and molecular diagnosis of bacterial fungal and viral diseases. ● Acquire knowledge about chromosomal disorders and their diagnosis using cytological techniques. ● Develop an understanding of medical biofilms and their various diseases associated with them. 	
Course Code: PSBT303	Course Title: Clinical Studies
Course outcomes:	
<ul style="list-style-type: none"> ● Learn about different phases of new drug discovery. ● Gain knowledge about ethical regulations and working system of ethics committee concerned with clinical trials. ● Understand the types and significance of toxicological studies. ● Understand the scope and importance of Medical writing and Clinical data management. 	
Course Code: PSBT304	Course Title: Developmental Biology
Course Outcomes:	
<ul style="list-style-type: none"> ● Understand principles of developmental biology towards evaluating and analyzing primary literature in the field. ● Explain key concepts, including mechanisms by which differential gene activity controls development, mechanisms that determine cell fate and mechanisms that ensure consistency and reliability of development. ● Get exposure to frontiers in the field of developmental biology and contraceptive research. 	
SEMESTER IV	
Course Code: PSBT401	Course Title: Nanotechnology
Course Outcomes:	
<ul style="list-style-type: none"> ● Get exposure to the technique of synthesis of nanomaterials. ● Gain knowledge about the characterization of nanomaterials. 	



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<ul style="list-style-type: none"> Learn about nanomedicine. Understand the different aspects and importance of nanomaterials. Learn principle and applications of nanomaterials. 	
Course Code: PSBT402	Course Title: GMO and environment
Course Outcomes: <ul style="list-style-type: none"> Develop an understanding of GMOs/GM crops and their development Gain insights in the way genetic modification affects agriculture Understand the potential risks & benefits associated with GMO crop consumption Learn about the potential risks of human activities on the environment and the measures to remediate the environment. 	
Course Code: PSBT403	Course Title: Bioinformatics
Course Outcomes: <ul style="list-style-type: none"> Learn the basics of bioinformatics Understand the process of analyzing nucleic acid and protein data using different tools Gain knowledge about gene expression profiling and microarrays. Analyze sequence data and interpret results of their study using different software packages. Perform text and sequence-based searches and analyze and discuss results in light of molecular biological knowledge. 	
Course Code: PSBT404	Course Title: Biostatistics
Course outcomes: <ul style="list-style-type: none"> Analyze and interpret large set of numerical survey or research data. Learn selection and application of suitable statistical test to reveal significance / confidence level in data interpretation. Reveal the distribution pattern in collected data. Find out correlation between variables in any data 	

17. M.Sc. Chemistry

Name of Department: Chemistry
Class: M.Sc. Part- I
Program Outcomes: <ul style="list-style-type: none"> The learning outcomes of an M.Sc. (Organic Chemistry) course are designed to equip students with a comprehensive and advanced understanding of the field of chemistry. These learning outcomes reflect the knowledge, skills, and competencies that students are expected to gain upon successful completion of the program
Program Specific Outcomes: <ul style="list-style-type: none"> Gain knowledge of the advanced concepts in the branch of chemistry, scrutinize and accomplish a solution to problems encountered in the field of research and analysis.



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<ul style="list-style-type: none"> ● Apply the basic knowledge of chemistry to perform various tasks assigned to them at the workplace in industry and academia to meet the global standards. ● Deduce qualitative and quantitative information of chemical compounds using advanced spectroscopic methods which can further be analysed using practical skills inculcated in them during the course. ● Imbibe the attitude as well as aptitude of a scientific approach along with analytical reasoning with respect to the novel techniques actually implemented in the Industry. ● Use the subject knowledge, communication and ICT skills to become an effective team leader/team member in the interdisciplinary fields. ● Understand, Manage and contribute to solve basic societal issues and environmental concerns ethically based on principles of scientific knowledge gained. ● Exhibit professional work ethics and norms of scientific development. 	
SEMESTER - I	
Course Code: PSCH501	Course Title: PHYSICAL CHEMISTRY - I
<p>Course Outcomes: The students would be able to :</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● The learners will apply the advanced thermodynamics, Maxwell equation and its applications to ideal gases. ● The learners evaluate the different theories of chemical kinetics and effect of temperature on reaction rates. ● The learners will implement the applications of chemical thermodynamics to real gases, solutions, surfaces and their energetics. ● The learners will understand the applications of operators and Schrodinger equation in the field of quantum Chemistry. ● The learners will evaluate the resting membrane potential by using the concept of bio electrochemistry. ● The learners will try to accomplish a solution to problems encountered in the field of research. 	
Course Code: CHEM502	Course Title: Inorganic Chemistry-I
<p>Course Outcomes: The students would be able to :</p> <ul style="list-style-type: none"> ● The learner will know the important fundamental concept of Group Theory, which helps them in understanding the properties and bonding in polyatomic molecules. ● The learner get the knowledge about the various techniques used for Characterization coordination compounds. ● The learners develops the skill in interpretation of the spectra. ● Thelearnerswill get comprehensive idea about established instrumental techniques and Significant characterization tools available to study inorganic complexes having wide applications in industries. 	
Course Code: CHEM 503	Course Title: Organic Chemistry-I
<p>Course outcomes: The students would be able to :</p>	



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- predict the reactivity of organic compound from its structure.
- understand different methods used for determination of Organic Reaction Mechanism
- understand the fundamental concept in stereochemistry by applying various symmetry elements of organic molecule.
- acquire the knowledge of chirality by taking examples of symmetrical and unsymmetrical molecule.
- develop interest in stereochemistry by studying stereochemical features of different classes of organic compounds
- identify the nomenclature of various stereochemical phenomena
- organize the techniques of aromatic nucleophilic substitution reactions for synthesizing/transforming molecules.
- understand the concept of aromaticity and to know the nature of bonds, electronic effects and other properties of molecules.
- understand the preparation of important oxidizing reagent and predict the selectivity of the reagents in organic reactions.
- explain the preparation and uses of important reducing reagents in various organic transformation reaction.

Course Code: CHEM 505

Course Title: Analytical Chemistry-I

After completion of this Course, the learner will be able to:

- Understand various terms used in analytical chemistry.
- Identify the different types of errors in analysis.
- Sketch out the role and importance of total quality management, safety, accreditations and GLP in industries.
- Understand the efficacy of automation in chemical analysis.
- Design and specify applications of advanced analytical techniques in various fields.
- Explore the applications of IR spectroscopy and thermal methods.
- Perform basic calculations required in chemical analysis
- Interpret the experimental results of analytical techniques. transformation reaction.

Course Code: CHEM 506

Course Title: Research Methodology

Course Outcomes:

The students would be able :

- Understand the concept of errors and types of error, some term involve in analytical method.
- Know the safety in laboratories and good laboratory practices.
- The principle and application of modern instrumentation.
- Formulation and solving the problems in analytical chemistry.
- Study the instrumentation and applications of IR spectroscopy.

Class: M.Sc. Part 1

Program Outcomes:

- The learning outcomes of an M.Sc. (Organic Chemistry) course are designed to equip students with a comprehensive and advanced understanding of the field of chemistry.
- These learning outcomes reflect the knowledge, skills, and competencies that students are expected to gain upon successful completion of the program.



**Vishnu Waman Thakur Charitable Trust's
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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Program Specific Outcomes:

- Gain knowledge of the advanced concepts in the branch of chemistry, scrutinize and accomplish a solution to problems encountered in the field of research and analysis.
- Apply the basic knowledge of chemistry to perform various tasks assigned to them at the workplace in industry and academia to meet the global standards.
- Deduce qualitative and quantitative information of chemical compounds using advanced spectroscopic methods which can further be analysed using practical skills inculcated in them during the course.
- Imbibe the attitude as well as aptitude of a scientific approach along with analytical reasoning with respect to the novel techniques actually implemented in the Industry.
- Use the subject knowledge, communication and ICT skills to become an effective team leader/team member in the interdisciplinary fields.
- Understand, Manage and contribute to solve basic societal issues and environmental concerns ethically based on principles of scientific knowledge gained.
- Exhibit professional work ethics and norms of scientific development.
- To understand various organic reactions and its rearrangements.
- To be able to apply Schrödinger wave equation, Huckel molecular orbital theory to different molecules.
- To acquire recently published knowledge in electro analytical methods, NMR and Mass spectroscopy, X-ray spectroscopy, Mass spectrometry and radioanalytical methods.

SEMESTER II

Course Code: CHEM 507

Course Title: Physical Chemistry-II

Course Outcomes:

- To learn the concept of quantum chemistry and able to solve problems related to 1D box, 2D box, 3D box and to explain the role of operators in quantum chemistry.
- To understand the use of Schrodinger wave equation in one and two electron systems along with applications of HMO.
- To develop the skill to solve the problems based on chemical thermodynamics, molecular dynamics and quantum Chemistry.
- To apply the concept of Jablonski mechanism in photochemical reactions.
- Learners will get knowledge of advanced chemical kinetics and molecular dynamics.

Course Code: CHEM 508

Course Title: Inorganic Chemistry-II

Course Outcomes:

The students would be able :

- The learners will be able to learn ligand substitution reactions of Octahedral and Square planar complexes, Trans effect and factors affecting these substitution reactions.
- The learners will be able to understand the 18 e- and 16 e- electron square planar complexes by studying different examples. They will also learn the preparation and properties of a few selected compounds including sandwich compounds of Fe, Cr
- The learners will understand the structure and bonding of a few inorganic compounds like Ziese's salt, ferrocene and bis(arene)chromium(0)



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> The learners will understand the occurrence and effect of toxic metals like Pb, As, Cu, Cd, and Hg on the environment, the different diseases caused by poisoning of metals and the impact these metals have on the living organism. The learners will be familiar with the role of Inorganic chemistry in Biological systems, understand the structure of various biological oxygen carriers and molecules involved in electron storage and transport. 	
Course Code: PSCH 203	Course Title: Organic Chemistry
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> To understand generation of carbanion, dianion and alkylation of aldehydes, ketones, esters, amides and nitriles, nitrogen analogs of enols and enolates and reaction of carbon nucleophiles with carbonyl groups. To acquire knowledge about various reactions and its rearrangements. To learn introduction to molecular orbital theory for organic chemistry, To get exposure to principles and applications of ultraviolet, infrared, NMR and Mass spectroscopy. 	
Course Code: CHEM 510	Course Title: Analytical Chemistry-II
<p>Course outcomes: After completion of this course, the learner will be:</p> <ul style="list-style-type: none"> able to compare the advantages/disadvantages of SEM, STM and TEM. able to develop different techniques to separate the components of mixture. conversant with basic principles and theories of mass spectrometry. able to apply the electroanalytical methods to sample under consideration. able to elaborate on electrogravimetry and coulometry techniques 	
Course Code: CHEM512	Course Title: Industrial Training/ Field Projects
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> Understand the Organizational Structure of a company. Develop work habits and attitudes necessary for job success (technical competence, professional attitude, organization skills etc.) Develop written communication and technical report writing skills. 	
Class: M.Sc - II (Organic chemistry)	
<p>Program Outcomes: Specific core discipline knowledge</p> <ul style="list-style-type: none"> Students can understand the concepts of Aromatic Substitution Reactions, i.e, electrophilic, nucleophilic, radical. Students can gain insights into aliphatic nucleophilic substitution reactions Derive knowledge about spectroscopic techniques UV, IR, NMR and Mass Students can learn about drug discovery, and the methods employed for drug development To study the chemistry of natural products, their synthesis and properties. 	



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Communication Skills

- Students can communicate effectively using oral and written communication skills

Problem solving and research skills

Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context

Program Specific Outcomes:

- To understand the Mechanistic aspects in nucleophilic and electrophilic substitution.
- To understand the reaction conditions, products formation and mechanisms of some named reactions.
- To understand the mechanisms of addition reactions of C=C and C=O bonds and elimination reactions
- To understand drug designing and development, their SAR and QSAR
- To understand the mode of action of different drugs
- To understand the role of drugs to inhibit the particular enzymes and treatment of disease
- To understand the concepts of green chemistry and the applications of green chemistry for sustainable development
- To understand photochemistry and photophysical principles with identification and characterization of transient intermediates by ultrafast modern techniques.
- To be able to develop logical thinking and apply the same for the understanding of underlining principles, proposing mechanism.
- To understand spectroscopy techniques such as UV, IR, NMR and Mass Spectroscopy for problem solving, identification of organic compounds and elucidating their structures.

SEMESTER III

Course Code: PSCHO301

Course Title: Theoretical Organic Chemistry

Course Outcomes:

The students would be able :

- To analyze the various features of aliphatic nucleophilic substitution and to gain knowledge on ambident nucleophiles, neighbouring group participation.
- To Interpret anchimeric effect shown by sigma, pi bonds participation in acyclic, bi-cyclic systems
- To gain insights in to generation, stability and reactions of organic intermediates
- To gain knowledge on ambident nucleophiles, neighbouring group participation
- To acquire Knowledge on Pericyclic reactions, Symmetry properties and Frontier molecular orbitals.
- To describe Electrocyclic reactions mechanism, and the stereo aspects
- To gain knowledge on cycloaddition reactions mechanism and the stereo aspects different types of reactions.
- To describe sigmatropic reactions, mechanism and the stereo aspects
- To understand point group based on symmetry groups
- To understand the stereochemistry of eight to ten membered rings, anomeric systems.



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- To Study the photochemistry of Carbonyl compounds, alkenes, dienes, polyenes and aromatic compounds.
- To Study photo rearrangement Barton reaction, application of photochemical reaction.
- To gain knowledge about singlet oxygen and photo-oxygenation reactions.

Course Code: PSCHO302

Course Title: Synthetic Organic Chemistry - I

Course outcomes:

The students would be able :

- To gain insight into multicomponent reactions, name reactions, domino reactions such as Mitsunobu reaction, Yamaguchi esterification, Hantzsch synthesis, Nazarov cyclization.
- To understand the generation, stability, reactivity and structures of free radicals, persistent and charged radicals.
- To study radicals in synthesis, radical chain reactions, radical halogenation reactions
- To study the inter and intra molecular C-C bond formation via mercuric hydride, tin hydride, thiol donors and cleavage of C-C bond formation in aromatics
- To study the generation and applications of enamines in organic synthesis and reactivity of enamines and enolates
- To study the preparation and synthetic application of nitrogen, sulfur and phosphorus ylides with their stereochemical aspects
- To study α -C-H functionalization by nitro, sulfoxide, sulfone and phosphonate groups
- To study Bamford- Steven's reaction, Julia olefination, Stevens rearrangement
- To gain insights into use of metals and non-metals in organic synthesis and mechanism of oxymercuration and demercuration of alkenes
- To study mechanism and regiochemistry of hydroboration of alkenes and alkynes using chiral boron reagents, oxoazaborolidine, 9-BBN hydroboration.
- To study the organosilicons, preparation and important bond forming reactions of alkyl silanes, alkenyl silanes, and allyl silanes
- To study organotin compounds and selenium used in organic synthesis

Course Code: PSCHO303

Course Title: Natural Products and Spectroscopy

Course outcomes:

The students would be able :

- To study carbohydrates, structure elucidation of lactose and D-glucosamine.
- To gain insights into structural features and applications of inositol, starch, cellulose, chitin and heparin
- To study the general structural features, occurrence, biological importance and applications of carotenoids, anthocyanins, quinones, flavones, pterins and porphyrins
- To understand the structure elucidation of beta carotene, and synthesis of ubiquinone
- To study insect pheromones, their general features and importance
- To study the synthesis of Taxol, Juvabione, Corey synthesis of Longifoline and Griseofulvine.



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Yashvant Keshav Patil College of Commerce
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- To understand classification, general classification of Prostaglandins and lipids
- To study the Insect and Plant growth regulators, their structural features and applications
- To study proton NMR spectroscopy and the spin system notations for A₂, AB, AX, AB₂, AMX spin systems
- To understand long range coupling in aromatic and heteroaromatic systems
- To study ¹³C-NMR spectroscopy and to calculate the shifts of aromatic carbons, heteronuclear coupling of carbon to ¹⁹F and ³¹P.
- Solve spectral problems based upon UV, IR, NMR and Mass Spectroscopy
- Gain firm knowledge on the advanced spectrometric techniques such as DEPT, NOESY, COSY, HETCOR techniques

Course Code: PSCHOEC-I-304

Course Title: Drug Discovery, Biogenesis and Green chemistry

Course Outcomes:

The students would be able to :

- To get introduced to drug discovery, design and development
- To understand the procedures in drug design
- Gain insights in terms involved in medicinal chemistry like drug assay and potency and the general factors affecting the bioactivity
- To study discovery without a lead of Penicillin, Librium and Lead discovery including random screening, non – random screening
- Understand functional group modification, structure activity relationships
- To get introduced to Quantitative structure activity relationships studies
- To know the QSAR parameters such as steric effects and the Taft equations
- To get introduced to modern methods of drug design and synthesis
- To understand the concept of drugs and pro-drugs, their functional groups and advantages
- To study the synthesis of Fluconazole, Zidovudine, Diclofenac, Esomeprazole, methotrexate, labetalol and fenofibrate
- To study various pathways such as acetate pathway, shikimic acid pathway, Mevalonate pathway and their biosynthesis
- To understand what is green synthesis, basic principles of green synthesis, and the green reagents
- To understand the green catalysts, green solvents, solid state reactions, microwave assisted reactions and ultrasound assisted reactions
- To compare the traditional and green synthesis of ibuprofen, adipic acid, 4-aminodiphenylamine, p-bromtoluene, benzimidazole
- To understand nanocatalysts, their types, advantages and disadvantages of Nanocatalysts

Class: M.Sc. Part II Organic Chemistry

Program Outcomes:

Core discipline knowledge



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts

- Development of in-depth knowledge of theoretical organic chemistry, synthetic organic chemistry, Natural products, Heterocyclic chemistry.

Career building and growth

- Enhancement of scope for career growth in industry, academia and Government sector.
- Experience of paper presentation at seminar/conference.
- Higher proficiency in techno commercial aspects with the possibility of entrepreneurship in the field.

Problem solving and research skills

- Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context.

Program Specific Outcomes:

- Laboratory exposure and orientation towards conducting practical experiments.
- Synthesis of various class of compounds having application as intermediates in synthesis of drugs, Heterocyclic compounds, Natural products.
- Spectral data analysis.
- Experience of project work including mini dissertation and research.

SEMESTER IV

Course Code: PSCHO401

Course Title: Theoretical organic chemistry-II

Course Outcomes:

The students would be able :

- To study in detail the following topics of theoretical organic chemistry
 - **Physical organic chemistry-** Linear free energy relationship in determination of organic reaction mechanism, Hammett equation, Yukawa-Tsuno equation, Taft model, Okamoto-Brown equation, Swain-Scott equation, Edward and Ritchie correlations, Grunwald-Winstein equation, Dimroth's ET parameter, Solvatochromism Zscale.
 - **Supramolecular chemistry-**
 - Principles of molecular associations and organizations as exemplified in biological macromolecules like nucleic acids, proteins and enzymes.
 - Synthetic molecular receptors: receptors with molecular cleft, molecular tweezers, receptors with multiple hydrogen sites.
 - Structures and properties of crown ethers, cryptands, cyclophanes, calixarenes, rotaxanes and cyclodextrins.
 - **Stereochemistry- II-**
 - Mechanism of racemisation, methods of resolution.
 - Determination of enantiomer and diastereomer composition by enzymatic method, chromatographic methods, methods based on NMR spectroscopy.
 - Cotton effect and its applications.
 - **Asymmetric synthesis-**
 - Principles of asymmetric synthesis.
 - Synthesis of L-DOPA [Knowles's Mosanto process].



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- Asymmetric reactions with mechanism.

Course Code: PSCHO402

Course Title: Synthetic organic chemistry-II

Course outcomes:

The students would be able :

- To study in detail the following topics of synthetic organic chemistry
 - **Designing Organic Synthesis-I-**
 - Protection and deprotection of various functional groups.
 - Concept of umpolung.
 - Introduction to Retrosynthetic analysis and synthetic planning.
 - **Designing Organic Synthesis-II-** One and two group C-C Disconnections of compounds.
 - **Electro-organic chemistry and Selected methods of Organic synthesis-**
 - Electro-organic chemistry.
 - Electrode potential, cell parameters, electrolyte, working electrode, choice of solvents, supporting electrolytes.
 - Cathodic reduction.
 - Anodic oxidation.
 - Applications of crown ethers, cryptands, micelles, cyclodextrins, catenanes in organic synthesis.
 - Applications of Organocatalysts like Proline, Imidazolidinone.
 - **Transition and rare earth metals in organic synthesis-**
 - Introduction to basic concepts like 18 electron rule, bonding in transition metal complexes, C-H activation, oxidative addition, reductive elimination, migratory insertion.
 - Reactions with Palladium in organic synthesis.
 - Olefin metathesis using Grubb's catalyst.
 - Application of Ni, Co, Fe, Rh, and Cr carbonyls, samarium iodide, Ce(IV) in organic synthesis.

Course Code: PSCHO403

Course Title: Natural products and heterocyclic chemistry

Course outcomes:

The students would be able :

- To study in detail the following topics of Natural products and Heterocyclic chemistry
 - **Natural products-III-**
 - Steroids: General structure, classification, occurrence, biological role, important structural and stereochemical features of various classes.
 - Synthesis of 16-DPA and synthesis of various sex hormones from 16-DPA.
 - **Natural products-IV-**
 - Vitamins: Classification, sources and biological importance of vitamin B1, B2, B6, folic acid, B12, C, D1, E (α -tocopherol), K1, K2, H (β - biotin).



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- Antibiotics: Classification on the basis of activity. Structure elucidation, spectral data of penicillin-G.
- Naturally occurring insecticides: Sources, structure and biological properties.
- Terpenoids: Occurrence, classification.
- **Heterocyclic compounds-I-**
 - Heterocyclic compounds: Introduction, classification.
 - Nomenclature of monocyclic (3-6 membered) compounds by common, systematic (Hantzsch-Widman) and replacement nomenclature.
 - Structure, reactivity, synthesis and reactions of various monocyclic heterocycles.
- **Heterocyclic compounds-II-**
 - Nomenclature of bicyclic/tricyclic (5-6 membered) compounds, fused heterocycles (up to three hetero atoms) by common, systematic (Hantzsch-Widman) and replacement nomenclature.
 - Nucleophilic ring opening reactions of three and four-membered heterocyclic compounds.
 - Structure, reactivity, synthesis and reactions of bicyclic/tricyclic, fused heterocycles.

Course Code: PSCHOOO-II 404

Course Title: Research Methodology

Course Outcomes:

The students would be able :

- To study in detail the systematic techniques of conducting scientific research.
 - **Sources of literature-**
 - Print: Primary, Secondary and Tertiary sources.
 - Journals: Journal abbreviations, Abstracts- Introduction to Chemical Abstracts and Beilstein, Formula Index, Author Index, Substance Index, Subject Index, current titles, reviews, monographs, dictionaries, text-books, current contents.
 - Digital: Web sources, E-journals, Journal access, Table of Contents alerts, Hot articles, Citation Index, Impact factor, H-index, E-consortium, UGC infonet, E-books, Internet discussion groups and communities, Blogs, preprint servers, Search engines, Scirus, Google Scholar, ChemIndustry, Wiki-databases, ChemSpider, Science Direct, SciFinder, Scopus.
 - **Data analysis-**
 - The Investigative Approach: Making and recording Measurements, SI units and their use, Scientific methods and design of experiments.
 - Analysis and Presentation of Data.
 - **Methods of scientific research and writing-**
 - Reporting practical and project work.
 - Writing literature surveys and reviews.
 - Organizing a poster display.
 - Giving an oral presentation.



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- Writing Scientific Papers: Justification for scientific contributions, bibliography, description of methods, conclusions, writing ethics, avoiding plagiarism.
- **Chemical safety and ethical handling of chemicals-**
 - Safe working procedure and protective environment.
 - Protective apparel.
 - First aid.
 - Laboratory ventilation.
 - Safe storage and use of chemicals.
 - Procedure for working with substances that pose hazards, flammable or explosive hazards.
 - Procedures for working with gases at pressures above or below atmospheric pressure.
 - Disposal of waste chemicals, recovery, recycling and reuse of laboratory chemicals.

Class: MSC II (Analytical chemistry)

Program Outcomes:

- The students after completing the course would have fortified their ability in the field of chemical analysis by their exposure to the sophisticated analytical instruments.
- The advanced and updated syllabi of this course will equip the students to face the employment challenges and instill confidence to turn into entrepreneur.
- curriculum of this course kindle the students enough interest to step into the research career.
- **Communication skills**
Students can communicate effectively using oral and written communication skills

Problem solving and research skills

Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context.

Program Specific Outcomes:

- The students will improve their competencies on par with their counterparts in premier institutions across the nation.
- The students will become technically sound to handle the advance analytical instruments.
- The students will intensify their desire to contribute to the nation in the capacity of chemist or as innovator by taking up research career afterwards.
- The students will become well versed in the all types of advance and complicated Miscellaneous techniques, Chromatographic Techniques , Spectral methods, Electroanalytical methods.
- Students can recall details and information about Quality in Analytical Chemistry , Air pollution , Potable Wate, types of pollution , Industrial materials , Pharmaceutical analysis , analysis of Drugs, Forensic science and Cosmetics , Cosmetic analysis .

SEMESTER III

Course Code: PSCHA301

Course Title: QUALITY IN ANALYTICAL CHEMISTRY



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Course Outcomes:

The students would be able :

- To understand the Sampling process, types of sample, sampling plan, quality of sample, Sampling of raw materials, intermediates and finished products. Sample preparations – dissolution technology and decomposition, storage of samples.
- To provide knowledge about Pre-treatment of samples such as soil, food and cosmetics, Selection of the Method, sources of methods, factors to consider when selecting a method, performance criteria for methods used.
- To be able to carry out evaluation of uncertainty, putting uncertainty to use, interpretation of results and improving the quality of results.
- To study Signal to noise ratio, sources of noise in instrumental analysis. Signal to noise enhancement, hardware devices for noise reduction, software methods for noise reduction.
- To gain knowledge about drug acts, drug rules,, concept of regulatory affairs in pharmaceuticals, review of GLP and GMP and their regulations for analytical labs, roles and responsibilities of personnel, appropriate design and placement of laboratory equipment, requirements for maintenance and calibration.
- To learn about Ion exchange equilibria, breakthrough capacity, inorganic ion exchangers, synthetic ion exchangers, chelating resins and their applications for separation of inorganic and organic compounds.
- To understand principle of Ion chromatography, instrumentation with special reference to separation and suppressor columns, applications.
- To gain knowledge of Theory of Exclusion chromatography, instrumentation and applications of gel permeation chromatography, and able to determine the molecular weight of polymers.
- To learn Theory of Supercritical fluid Chromatography, concept of critical state of matter and supercritical state, types of supercritical fluids, instrumentation, applications to environmental, food, pharmaceuticals and polymeric analysis.
- To understand about principle of Affinity Chromatography, instrumentation and applications and Optimum pressure liquid chromatography (OPLC).

Course Code: PSCHA302

Course Title: Advance Instrumental Techniques



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Course outcomes:

The students would be able :

- To know about Surface Analytical Technique, Preparation of the surface, difficulties involved in the surface analysis.
- To gain knowledge of Principle, instrumentation and applications of Secondary Ion mass spectroscopy, Particle-Induced X-Ray Emission, Low-Energy Ion Scattering and Rutherford Backscattering.
- To learn about Principle, Instrumentation, and Applications of Electron Spin Resonance Spectroscopy (ESR), Mossbauer's Spectroscopy, Atomic Emission Spectroscopy- based on plasma and electrical discharge sources.
- To acquire knowledge about Advanced Electroanalytical Techniques such as Polarography, voltammetry, Chronoamperometry, Chronopotentiometry and to get an idea about electrodes.
- To understand Principle, Instrumentation and Applications of Chemiluminescence techniques, Chiroptical Methods, Photoacoustic spectroscopy, Photoacoustic spectroscopy , Spectroelectrochemistry.

Course Code: PSCHA303

Course Title: Bioanalytical Chemistry and Food Analysis

Course outcomes:

The students would be able :

- To know about Bioanalytical chemistry such as Body Fluids, Composition of body fluids and detection of abnormal levels of glucose, creatinine, uric acid in blood, protein, ketone bodies and bilirubin in urine leading to diagnosis of diseases.
- To understand Physiological and nutritional significance of vitamins and minerals.
- To get knowledge of Analytical techniques (including microbiological techniques) for vitamins.
- To Provide knowledge about processes of immune response, antigen-antibody reactions, precipitation reactions, radio, enzyme and fluoro-immuno assays.
- To learn about Biological values and estimation of enzymes, carbohydrates, proteins, essential amino acids and lipids.
- To study Fuel value of food and importance of food nutrients .
- To get General idea about Food processing and preservation, Chemical preservatives, fortifying agents, emulsifiers, texturizing agents, flavours, colours, artificial sweeteners, enzymes.
- To get exposure to Analysis of food products for flavoring agents and colour.
- To be able to understand Food Contaminants– Trace metals and pesticide residues, contaminants from industrial wastes, toxicants formed during food processing, veterinary drug residues and melamine contaminants.
- To know about Food packaging and industrial requirements.



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- To gain knowledge about Processing and Quality requirements of Milk and milk products, vegetables and fruits, meat and meat product.
- To be able to carry out Analysis of Milk. and Analysis of Oils and Fats.
- To understand the concept of rancidity and antioxidants, volatile oils and fixed oils and to be able to deal with Analysis of spices.

Course Code: PSCHAEC-II 304

Course Title: Pharmaceutical and Organic Analysis

Course Outcomes:

The students would be able :

- To get an General idea regarding the Pharmaceutical Industry, classification of drugs, pharmaceutical formulations, classification of dosage forms.
- To understand about Role of FDA in pharmaceutical industries.
- To know about Sources of impurities in pharmaceutical products and raw materials.
- To gain knowledge regarding Standardization of finished products and their characteristics, official methods of quality control.
- To be able to understand about Analysis of compounds based on functional groups, instrumental methods for analysis of drugs, assays involving chromatographic separations, proximate assays, assays of enzyme containing substances, biological and microbiological assays and tests.
- To be able know about Limit tests, solubility tests, disintegration tests, stability studies, impurity profile of drugs, bioequivalence and bioavailability studies. Polymers in pharmaceuticals and novel drug delivery systems.
- To get a general idea about Analytical Chemistry in Forensic Science and to be able to know about analysis of blood, DNA profiling, Hair analysis, Alcohol in body fluids, systematic drug identification.
- To be able to isolate, identify and determine of Analytical Toxicology such as Narcotics, Stimulants, Depressants, Hallucinogens.
- To gain knowledge about Metabolites of drugs in blood and urine of addicts and also to know about Viscera, stomach wash, vomit and postmortem blood for poisons like cyanide, arsenic, mercury, insecticides and pesticides.
- To learn about Cosmetics and Evaluation of cosmetic materials and additives.
- To know about Formulation and standards and methods of analysis of Deodorants and antiperspirants, Face powder, Hair tonic, Creams and Lotions, Lipsticks.

Class: MSc part 2 analytical chemistry

Program Outcomes:

Specific core discipline knowledge

- Students can recall the understanding and knowledge about separation, separation analysis and standardization of herbal based products, green chemistry and advanced techniques.
- Students can recall the advanced instrumental technique, separation technique, plastic and polymer and metallurgy, research methodology.

Communication skills



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Students can communicate effectively using oral and written communication skills	
Problem solving and research skills	
Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context	
Program Specific Outcomes:	
<ul style="list-style-type: none"> • To understand various separation science like filtration, ultrafiltration and reverse osmosis dialysis and electro dialysis • To gain the knowledge about separation, analysis and standardization of herbal products. • To understand about green chemistry and plastic and polymers and metallurgy. • To provide knowledge about environmental factors and natural resources and their importance in sustainable development. • To understand about the spectral method, thermal methods and hyphenated techniques. • To develop knowledge about research methodology like print, journals, techniques, information techniques and resource journals and data analysis. • To understand about o provide knowledge about method of scientific research and writing of scientific papers. • To learn about chemical safety and ethical handling of chemicals. 	
SEMESTER - IV	
Course Code: PSCHA401	Course Title: Quality in Analytical chemistry
Course Outcomes:	
The students would be able:	
<ul style="list-style-type: none"> • To study membrane separation processes and applications of solvent extraction in analytical chemistry. • To study separation, analysis and standardization of herbal products. • To identify the principle and concept of green chemistry, organic solvents, emerging green techniques, designing greener processes. • To study the electrophoresis, techniques of electrophoresis and introduction to nanotechnology. 	
Course Code: PSCHA402	Course Title: Advanced instrumental techniques
Course outcomes:	
The students would be able:	
<ul style="list-style-type: none"> • To study the principle, instrumentation and application of NMR spectroscopy. • To acquire knowledge about the principle, instrumentation and application of Mass spectroscopy. • To understand knowledge about Radiochemical and Thermal methods. • To study the concept about hyphenated techniques like GC-MS, ICP-MS etc. 	
Course Code: PSCHA403	Course Title: Selected topics in Analytical chemistry
Course outcomes:	
The students would be able:	
<ul style="list-style-type: none"> • To understand about the effluent treatment, treatment and disposal of sewage, effluent parameters, permissible limits for metals. 	



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<ul style="list-style-type: none"> ● To study about solid waste management: concept of recycle, reuse and recovery. ● To acquire knowledge about classification of plastics, impurities present in plastic and impact of plastics on environment, paints and pigments. ● To understand the knowledge about metallurgy, alloys and ores, chemical analysis of ores and alloys, techniques of purification. 	
Course Code: PSCHA404	Course Title: Research methodology
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● To understand about print, journal and digital, information technology and library resources. ● To gain knowledge about data analysis, analysis and presentation data. ● To study about methods of scientific research and writing scientific papers. ● To acquire knowledge about chemical safety and ethical handling of chemicals 	

18. M.Sc. Computer Science

Name of Department: Computer Science	
Class: M.Sc.(Part 1)	
Program Outcomes: In order to give an impetus to research among students, course gives an overview on how to do research in Computer Science. <ul style="list-style-type: none"> ● Give strong foundation on core Computer Science subjects. ● Expose the student to emerging trends in a gradual and incremental way. ● Offer specialization on a chosen area. ● Create a research temper among students in the whole process. ● Prepare student community for the demands of ICT industry. 	
Problem solving skills <ul style="list-style-type: none"> ● Identify, analyse, and synthesize scholarly literature relating to the field of computer science 	
Program Specific Outcomes: <ul style="list-style-type: none"> ● Incorporate advanced and most recent trends. ● Identify and nurture research temper among students. ● Offer provision for internship with industry. ● Focus, as far as possible, only on open source software. ● Students focusing on driven research, learning will be more interesting and stimulating. 	
SEMESTER I	
Course Code: PSCS501	Course Title: Applied Signal and Image Processing
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● Apply signal processing techniques: Demonstrate upsampling, downsampling, and FFT for analyzing signals.its performance. 	



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<ul style="list-style-type: none"> ● Signal analysis and correlation: Create triangle signals, compute correlations between segments, and plot signal segments. ● Sound and image processing: Implement convolution operations, template matching, and image derivatives for analysis. 	
Course Code: PSCS102	Course Title: Software Defined Networking
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understanding computer network basics. ● To Obtain the knowledge of Software defined networks with understanding of data plane, control plane and application plane. ● To apply network virtualization for industry standard solutions. ● To improve skills in implementing network virtualization and Software Defined Network (SDN). 	
Course Code: PSCS103	Course Title: Principles of Compiler Design
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Understand the theoretical foundations and concepts underlying the design and implementation of compilers. ● Acquire knowledge about the different phases of the compilation process ● Learn how to design and implement lexical analyzers and parsers ● Gain hands-on experience in building semantic analyzers ● Understand intermediate code generation and Implement optimization technique ● Gain practical experience in code generation 	
Course Code: PSCS506a	Course Title: NoSQL Technologies
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Set up and configure various NoSQL databases, including MongoDB, Redis, HBase, and Apache Cassandra ● Perform CRUD operations and retrieve data from different NoSQL databases using appropriate query languages and commands. ● Understand the storage architecture and internal workings of different NoSQL databases, such as column-oriented databases, document stores, and key/value stores. 	
Course Code: PSCS506b	Course Title Robotics
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Leverage the features of the Raspberry Pi OS ● Discover how to configure a Raspberry Pi to build an AI-enabled robot ● Interface motors and sensors with a Raspberry P ● Code robot to develop engaging and intelligent robot behavior Explore AI behaviour such as speech recognition and visual processing 	



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SEMESTER II	
Course Code: PSCS201	Course Title: Machine Learning
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand core concepts of ML through implementations in python ● To implement and understand deep learning and ANNs useful for industry today. ● To Understand and implement algorithms and techniques of Machine Learning useful in the field of Data Science, Image Processing, NLP, etc 	
Course Code: PSCS202	Course Title: Natural Language Processing
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand the importance and concepts of Natural Language Processing (NLP) ● To Apply algorithms available for the processing of linguistic information and computational properties of natural languages. ● To get Knowledge on various morphological, syntactic, and semantic NLP tasks. ● To do Designing and developing practical NLP based applications 	
Course Code: PSCS203	Course Title: Simulation and Modelling
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To Understand the difference between Web Mining and Data mining. ● To Understand the Basics and Needs of Web Mining. ● To Understand Web-based Data. ● To Understand Opinion Mining and Sentiment classification. . 	
Course Code: PSCS516a	Course Title: Bioinformatics
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand basic components and functionalities of Embedded System including its hardware. ● To design and executive projects in IoT with Automatic Identification and Data Capture ● To understand basic components and functionalities of Embedded System including its hardware. 	
Name of Department: Computer Science	
Class: M.sc. Part II	
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> ● Core part of course is to build strong army of building computer science researchers. ● Communicate computer science concepts, designs, and solutions effectively and professionally. 	



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- Apply knowledge of computing to produce effective designs and solutions for specific problems.
- Student can research on cutting edge and emerging trends with lots of practical experience that will make the learning more interesting and stimulating.
- Use software development tools, software systems, and modern computing platforms.
- This program could provide well trained professionals for the technology and allied industries to meet the well trained manpower requirements.
- This program will bridge the gap between the industry and academics, and hence forming efficiently skilled computer professionals.

Communication skills

- Students can communicate effectively by using ICT.

Problem solving skills

- Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, Mobile applications.
- Identify, analyse, and synthesize scholarly literature relating to the field of computer science

Program Specific Outcomes:

- Create, select, and apply appropriate techniques, resources, and modern computer science and IT tools including prediction and modeling to complex activities with an understanding of the limitations.
- Apply problem-solving skills and the knowledge of computer science to solve real world problems.
- Understand how technological advances impact society and the social, legal, ethical and cultural of computer technology and their usage.
- Explore, query and summarize business data.
- Apply descriptive statistical measures for business decision.
- Perform progression analysis and forecasting techniques.
- Understand human-computer interaction (HCI) models.
- Analyse and discuss HCI issues in groupware, ubiquitous computing, virtual reality, multimedia, and Word Wide Web-related environments.
- Understand and analyse social networks, social actors and their behavior.
- Explore the field of cyber security, understands the legal issues related to cyber crime.
- Perform forensic, investigation related to information, computer, mobile, network.
- Understand and solve real world and critical issues by simulating 2D and 3D models.
- Develop software solution by use learned technologies.
- Identify the working skills, industry standards, learning to do team work, achieve goals.

SEMESTER: III

Course Code: PSCS3011

Course Title: : Advanced Computing (Web3 Technologies)

Course Outcomes:

The students would be able :

- To cover the technical aspects of cryptocurrencies, blockchain technologies, and distributed consensus.



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<ul style="list-style-type: none"> ● To familiarize potential applications for Bitcoin-like cryptocurrencies ● To Basics of smart contracts, decentralized apps, and decentralized anonymous organizations (DAOs). ● To know Solidity programming. 	
Course Code: PSCS3021	Course Title: Security (Cryptography and Cryptanalysis)
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To develop the foundation for the study of cryptography and its use in security. ● To understand the application of Number Theory and Algebra for the design of cryptographic algorithms ● To understand the role of cryptography in communication over an insecure channel. ● To analyze and compare symmetric-key encryption and public-key encryption schemes based on different security models 	
Course Code: PSCS3032	Course Title: Computer Networking (Wireless Networking)
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand basic concepts of wireless networking. ● To understand 4G, 5G Technologies and their working. ● To implement Wireless architecture practically. ● To gain knowledge about sensors and their working. 	
Course Code:PSCS3041	Course Title: Data Science (Data Visualization
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To perform data wrangling for practical purposes. ● To solve real-world data analysis problems with thorough, detailed examples. ● To use Tableau to handle data from various sources and perform analysis of data. ● To understand the fundamentals of Visualization. ● To work with different Data Collection Structures. ● To efficiently handle various source data using Tableau 	
SEMESTER IV	
Course Code: PSCS 401	Course Title: Robotics (Online Mode)
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To leverage the features of the Raspberry Pi OS ● To discover how to configure a Raspberry Pi to build an AI-enabled robot ● To interface motors and sensors with a Raspberry Pi ● To Code robot to develop engaging and intelligent robot behavior ● To explore AI behavior such as speech recognition and visual processing 	
Course Code:PSCS402	Course Title: Advanced Deep Learning (Online Mode)
Course outcomes:	



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<p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the context and use of neural networks and deep learning ● To understand the tools and libraries for deep learning ● To have a working knowledge of neural networks and deep learning ● To explore the parameters for neural networks ● To Identify emerging applications of deep learning 	
Course Code: PSCSP8	Course Title: Internship with industry
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● Capability to acquire and apply fundamental principles of engineering. ● Become master in specialized technology ● Become updated with all the latest changes in technological world. ● Ability to communicate efficiently. ● Ability to be a multi-skilled engineer with good technical knowledge, management, leadership and entrepreneurship skills. ● Ability to identify, formulate and model problems and find engineering solution based on a systems approach. ● Capability and enthusiasm for self-improvement through continuous professional development and life-long learning 	
Course Code: PSCSP9	Course Title: Project Implementation
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To practice software analysis and design techniques ● To develop a functional application based on the software design. ● To apply coding, debugging and testing tools to enhance the quality of the software. ● To construct new software system based on the theory and practice gained through this exercise. ● To demonstrate the knowledge, skills and attitudes of a professional engineer. ● To prepare to accept and meet challenges in the real world, mirroring what professionals do every day. 	

19. M.Sc. Environmental Science

Name of Department: Botany
Class: MSC Environmental Science
<p>Program Outcomes:</p> <ul style="list-style-type: none"> ● To specialize students in different areas like Biodiversity , conservation, ecology, pollution control technology and environmental chemistry. ● To prepare students with the latest knowledge about Impact Assessments.



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<ul style="list-style-type: none"> To prepare students with the strong knowledge about Environmental Sciences so that they can be eligible for various positions in educational institution, Industry, governmental and non-governmental organizations. To make the students ready for research and promoting them for higher studies. 	
Program Specific Outcomes: <ul style="list-style-type: none"> Students will be able to understand and gain knowledge about the impacts of development on ecosystem. Students will have a better understanding aspect on values and conservation of biodiversity. Students get involved in companies, consultancies, NGOs, teaching and research and some may go for higher education Student will gain knowledge on concepts and principles of EIA and EIA notification, 2006. Student will gain knowledge about various tools involved in environmental management. Student will be able to understand Environmental management systems and its significance. 	
SEMESTER - I	
Course Code: Paper I	Course Title: Ecology and Ecosystem
Course Objective <ul style="list-style-type: none"> To understand the principle and scope of ecology To study the concept of Biosphere To read and analyze organization of Ecological system To understand energy and ecological succession. Course Outcomes: The students would be able : <ul style="list-style-type: none"> Students will be able to understand different types of ecology and types of interactions in ecosystem. 	
Course Code: Paper II	Course Title: Biodiversity
Course Objective <ul style="list-style-type: none"> To learn about biodiversity concept, components, biodiversity, evaluation, convention, acts and conservation. To understand the aspects on biodiversity and evaluation. To study the biodiversity convention and biodiversity act. To understand the importance of biodiversity conservation. Course Outcomes <ul style="list-style-type: none"> Students will be able to understand the status related to importance of biodiversity and its conservation. 	
Course Code: Paper III	Course Title: Environment and Natural Resources
Course Objective <ul style="list-style-type: none"> To realize and understand relationships between man, earth, environment, mass and energy transfer. 	



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<ul style="list-style-type: none"> To contribute to the sustainable development of ecosystem by which humans could use natural and energy resources. 	
Course Outcomes <ul style="list-style-type: none"> Students will be able to understand overall concept and role of an individual in conservation of Natural Resources 	
Course Code: Paper IV	Course Title: Environmental Pollution
Course Objective <ul style="list-style-type: none"> To learn about types of environmental pollution, its effects and consequences. To convey the students regarding improvement in the quality of the environment. 	
Course Outcomes <ul style="list-style-type: none"> Students will be able to acquire knowledge about various sources and causes of pollution. 	
PSEVS 105A	Environmental Geosciences (Credit: 4)
Course objective: <ul style="list-style-type: none"> To learn about Origin and evolution of Earth, Atmosphere, Dynamic aspects of earth and Environmental Geology. 	
Course Outcomes <ul style="list-style-type: none"> Students will be able to acquire knowledge about geology. 	
PSEVS 106	Research Methodology
Course Objective <ul style="list-style-type: none"> The main objective of this course is to introduce the basic concepts in research methodology in Environmental Science. This course addresses the issues inherent in selecting a research problem and discuss the techniques and tools to be employed in completing a research project. This will also enable the students to prepare report writing and framing Research proposals. 	
Course Outcomes: <ul style="list-style-type: none"> Students who complete this course will be able to understand and comprehend the basics in research methodology and applying them in research/ project work. This course will help them to select an appropriate research design. With the help of this course, students will be able to take up and implement a research project/ study. The course will also enable them to collect the data, edit it properly and analyse it accordingly. Thus, it will facilitate students' prosperity in higher education. The Students will develop skills in qualitative and quantitative data analysis and presentation. Students will be able to demonstrate the ability to choose methods appropriate to research objectives. 	
SEMESTER - II	
Course Code: Paper I	Course Title: Environmental Monitoring and Assessment



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Objective	
<ul style="list-style-type: none"> To know about deterioration of environmental quality with reference to anthropogenic quality, need of environmental impact assessment, remote sensing/GIS and its applications in environmental monitoring. 	
Course Outcomes	
<ul style="list-style-type: none"> Students will be able to understand the importance of environmental monitoring. Students will be able to identify the components on an aerial photograph. Students can understand the principles and applications of Remote sensing and GIS 	
Course Code: Paper II	Course Title: Pollution Control Technology
Course Objective	
<ul style="list-style-type: none"> To understand about pollution control technologies and devices. 	
Course Outcomes	
<ul style="list-style-type: none"> Student will understand about various steps involved in treatment of drinking water. Student can gain knowledge about pollution control technologies and methods to control pollution. 	
Course Code: Paper III	Course Title: Green Technology
Course Objective	
<ul style="list-style-type: none"> To know about concept and tools of green chemistry. To understand green synthetic methods, design, green nanotechnology and its applications. 	
Course Outcomes	
<ul style="list-style-type: none"> Student can understand about the concept, principle and tools of green technology. Student will be able to understand Nano-materials, its uses and its effects on the ecosystem 	
Course Code: Paper IV	Course Title: Environmental Policies and Regulations
Course Objectives	
<ul style="list-style-type: none"> To study the evolution of environmental policy, environmental movements in India, International environmental treaties and conventions. To understand the objectives and provisions of Acts and Rules 	
Course Outcomes	
<ul style="list-style-type: none"> The student can think about on major environmental acts and regulations. The student can gain knowledge on environmental movements in India and international agreements. 	
SEMESTER III	
Course Code: Paper I	Course Title: Advanced Pollution Control Technology
Course Objectives	
<ul style="list-style-type: none"> To orient the students about the methods to control and prevent pollution and also to reduce the generation of toxic substances. 	
Course Outcomes	
<ul style="list-style-type: none"> Student will be able to understand water and waste water Pollution Control aspects. Student can gain knowledge about air pollution control techniques. 	



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> Student will be able to understand the concept of Hazardous, Radioactive, Biomedical and Electronic waste management 	
Course Code: Paper II	Course Title: Instrumentation and Biostatistics
<p>Course Objectives</p> <ul style="list-style-type: none"> To understand the application of instrumentation and biostatistics to a extensive range in the subject of environment. <p>Course Outcomes</p> <ul style="list-style-type: none"> Student will be able to gain knowledge about environmental monitoring, instrumental methods used in environmental analysis. Students will be able to understand about Statistical aspects. 	
Course Code: Paper III	Course Title: Environmental Toxicology
<p>Course Objective</p> <ul style="list-style-type: none"> To become familiar with the basic concepts of eco-toxicology, including aspects of exposures and toxicity of chemicals. <p>Course Outcomes</p> <ul style="list-style-type: none"> At the time of completion of the unit a student will be able to understand the fundamental concepts of Eco-toxicology and pressure of ecological factors on the effect of toxicity. Student can understand about the toxic substances. Student can gain information about dose response relationship and principles of toxicology. 	
Course Code: Paper IV	Course Title: Industrial Hygiene and Chemical Safety
<p>Course Objective</p> <ul style="list-style-type: none"> To know about occupational environmental stress, industrial work environment, disaster management, risk assessment and safety in industry. <p>Course Outcome</p> <ul style="list-style-type: none"> Student will be able understand about the significance and principles of industrial safety and safety information. Student will be able to gain knowledge about various kinds of occupational diseases and personal protective equipments used for safety in industries. 	
SEMESTER IV	
Course Code: Paper I	Course Title: Ecotechnology
<p>Course Objective</p> <ul style="list-style-type: none"> To understand the application of ecotechnology, phytosanitation, green inhibitors, climate change mitigation, carbon sequestration, and restoration ecology and remediation technology. <p>Course Outcome</p> <ul style="list-style-type: none"> Student will be able to understand the overall concept of ecotechnology. 	
Course Code: Paper II	Course Title: Environmental Biotechnology and Nanotechnology



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Course Objective	
<ul style="list-style-type: none"> To learn about biotechnology in prevention and conservation of environment, organic farming and also understand the application of Nanotechnology in agriculture and food industry. 	
Course Outcome	
<ul style="list-style-type: none"> Student will be able to understand the scope, role and recent status of biotechnology and Nanotechnology. 	
Course Code: Paper III	Course Title: Sustainable Management
Course Objective	
<ul style="list-style-type: none"> To understand the basic concept of sustainable development, business strategies and sustainability, sustainable urban development and sustainability in practice. 	
Course outcome	
<ul style="list-style-type: none"> Student will gain knowledge about the concept of Sustainable Management 	
Course Code: Paper IV	Course Title: Environmental Management
Course Objective	
<ul style="list-style-type: none"> To study the principles of environmental management, its systems. To understand the procedure of life cycle assessment. To know about types of environmental audit and environmental economics. To study the principles of environmental design and modelling. 	
Course Outcome	
<ul style="list-style-type: none"> Student will gain knowledge on concepts and principles of EIA and EIA notification, 2006. Student will gain knowledge about various tools involved in environmental management. Student will be able to understand Environmental management systems and its significance. 	

20. M.Sc. Information Technology

Name of Department: Information Technology
Class: M.Sc.(I.T.) Part I
Program Outcomes:
<ul style="list-style-type: none"> To recognize, understand and apply the language, theory and models of the field of business analysis. To develop in depth understanding of the key technologies in data science and business analyst: data mining, machine learning, visualization techniques, predictive modeling and statistics. To learn how to use cloud Services. To broadly educate to know the impact of engineering on legal and societal issues involved related to cloud computing. To develop soft computing concepts like fuzzy logics, neural network and genetic algorithm and artificial intelligence.



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- To provide an overview of an exciting growing field of big data analytics using various tools.
- To investigate novel ideas in the area of Networking via term-long research projects.
- To acquire a working knowledge of Web application development using ASP.NET Core MVC 6 and Visual Studio
- To evaluate the techniques for image enhancement and image restoration in the field of image processing.

Program Specific Outcomes:

- To provide ability in applying the knowledge of Information Technology with recent trends aligned with research and industry.
- To provide ability in applying IT in the field of Computational Research, Soft Computing, Big Data Analytics, Data Science, Image Processing, Artificial Intelligence, Networking and Cloud Computing.
- To provide ability in providing socially acceptable technical solutions in the domains of Information Security, Machine Learning, Internet of Things and Embedded System, Infrastructure Services as specializations.
- To provide ability in applying the knowledge of Intellectual Property Rights, Cyber Laws and Cyber Forensics and various standards in interest of National Security and Integrity along with IT Industry.
- To provide ability in writing effective project reports, research publications and content development and to work in multidisciplinary environment in the context of changing technologies.

SEMESTER I

Course Code: PSIT101

Course Title: Soft Computing Techniques

Course Outcomes:

The students would be able :

- Upon completing this course, the student will be able to: OC1 Gain a solid understanding of the fundamental concepts underlying soft computing, including the differences between soft computing and traditional hard computing methods.
- OC2 Familiarize with a variety of soft computing techniques such as fuzzy logic, neural networks, genetic algorithms, swarm intelligence, and probabilistic reasoning. OC3 Apply soft computing techniques to solve real-world problems from various domains such as engineering, finance, healthcare, and more.
- OC4 Formulate problems in a way that lends itself to the application of soft computing techniques, taking into account the uncertainties and imprecisions present in real-world data.
- OC5 Understand of how fuzzy logic works and its applications in modeling and decisionmaking under uncertainty.
- OC6 Gain knowledge of neural network architectures, training algorithms, and their applications in pattern recognition, regression, and classification tasks. OC7 Understand



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genetic algorithms, their components, and their use in optimization problems and search spaces. OC8 Familiarize with swarm intelligence algorithms such as ant colony optimization and particle swarm optimization, and their applications in optimization and search problems.	
Course Code: PSIT102	Course Title: Data Science
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Apply quantitative modeling and data analysis techniques to the solution of real world business problems, communicate findings, and effectively present results using data visualization techniques. ● Recognize and analyze ethical issues in business related to intellectual property, data security, integrity, and privacy. ● Apply ethical practices in everyday business activities and make well-reasoned ethical business and data management decisions. ● Demonstrate knowledge of statistical data analysis techniques utilized in business decision making. ● Apply principles of Data Science to the analysis of business problems. ● Use data mining software to solve real-world problems.. 	
Course Code: PSIT103	Course Title: Cloud computing
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To analyze the cloud computing setup with it's vulnerabilities and applications using different architectures. ● To design different workflows according to requirement and apply map reduce programming model. ● To apply and design suitable virtualization concepts, cloud resource management and design scheduling algorithms. ● To create combinatorial auctions for cloud resources and design scheduling algorithms for computing cloud. ● To build Private cloud. ● To implement task scheduling algorithms 	
Course Code: PSIT104	Course Title: Soft Computing techniques
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To identify and describe soft computing techniques and their roles in building intelligent machines. ● To recognize the feasibility of applying a soft computing mythology for a particular problem ● To apply fuzzy logic and reasoning to handle uncertainty and solve engineering problems. ● To apply genetic algorithms to combinatorial, optimization problem. 	



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<ul style="list-style-type: none"> ● To apply neural networks for classification and regression problem. ● To evaluate and compare solution by various soft computing approaches for a given problem. 	
SEMESTER II	
Course Code: PSIT201	Course Title: Big Data Analytics
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand the key issues in big data management and its associated applications in intelligent business and scientific computing. ● To acquire fundamental enabling techniques and scalable algorithms like Hadoop, Map Reduce and NO SQL in big data analytics. ● To interpret business models and scientific computing paradigms, and apply software tools for big data analytics. ● To achieve adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc. 	
Course Code: PSIT202	Course Title: Modern Networking
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To demonstrate in-depth knowledge in the area of Computer Networking. ● To demonstrate scholarship of knowledge through performing in a group to identify, formulate and solve a problem related to Computer Networks. ● To prepare a technical document for the identified Networking System Conducting experiments to analyze the identified research work in building Computer Networks. 	
Course Code: PSIT203	Course Title: Microservices Architecture
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To develop web applications using Model View Control.☐ ● To Create MVC Models and write code that implements business logic within Model methods, properties, and events.☐ ● To create Views in an MVC application that display and edit data and interact with Models and Controllers.☐ ● To boost your hire ability through innovative and independent learning.☐ ● To gain a thorough understanding of the philosophy and architecture of .NET Core.☐ ● To understand packages, metapackages and frameworks.☐ ● To acquire a working knowledge of the .NET programming model.☐ ● To implement multi-threading effectively in .NET applications.☐ 	
Course Code: PSIT204	Course Title: Image Processing
Course outcomes:	



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The students would be able :

- To understand the relevant aspects of digital image representation and their practical implications.
- To have the ability to design point wise intensity transformations to meet stated specifications.
- To understand 2-D convolution, the 2-D DFT, and have the ability to design systems using these concepts.
- To have a command of basic image restoration techniques.
- To understand the role of alternative color spaces and the design requirements leading to choices of color space.
- To appreciate the utility of wavelet decompositions and their role in image processing systems.
- To have an understanding of the underlying mechanisms of image compression, and the ability to design systems using standard algorithms to meet design specifications.

Class: MSC IT Part II

Program Outcomes:

Specific core discipline knowledge

- Remembrance about Artificial Neural Network, Embedded System, Image Processing, Information Security aspects and Audit.
- Students can recall details of programming languages, Data Processing tools, embedded assembling on simulator.
- To develop, understand and apply the theory and models for logics, different algorithm of the knowledge based system.
- To develop in depth understanding of the key concept in artificial intelligence: computations, search, representation and reasoning, machine learning and predictive modeling.
- To understand forensics and computing investigation Processes.
- To acquire a working knowledge of to identify crime, incidents, analysis and provide the reports.
- To understand the application in areas of advanced Image processing, their implementation, working with different tools and techniques.
- To evaluate the techniques for image classifications and medical image processing, feature extraction and statistical measurement.

Communication skills

- Students appear for viva voce. They can communicate effectively using oral and written communication skills

Problem solving and research skills



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<ul style="list-style-type: none"> ● Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To identify and categorize general Computing Systems. ● To comprehend the Security Management of IT Systems. ● To explore the key management principles in an organization. ● To understand Compliances and recovery methodologies. ● To provide knowledge about Information factors and resources and their importance in sustainable development. ● To be able to carry out Imperial process to enhance digital system. ● To be able to apply statistical tools to gain insights into significantly different data from different sources. ● To acquire recently published knowledge in Information Technology embedded systems, Image Processing, Information Security management and compliance applications. 	
SEMESTER III	
Course Code: PSIT301	Course Title: Technical Writing and Entrepreneurship Development
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To develop technical documents that meet the requirements with standard guidelines ● To write Better Quality Content Which Ranks faster at Search Engines. Build effective Social Media Pages. ● To evaluate the essentials parameters of effective Social Media Pages. ● To understand importance of innovation and entrepreneurship. ● To analyze research and development projects. 	
Course Code: PSIT302d	Course Title: Security Breaches and Countermeasures
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To identify the different security breaches that can occur. ● To evaluate the security of an organization and identify the loopholes. ● To perform enumeration and network scanning. ● To identify the vulnerability in the systems, breach the security of the system, identify the threats due to malware and sniff the network. ● To do the penetration testing to check the vulnerability of the system towards malware and network sniffing. 	



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- To perform social engineering and educate people to be careful from attacks due to social engineering, understand and launch DoS and DDoS attacks, hijack and active session and evade IDS and Firewalls. To identify the vulnerabilities in the Web Servers, Web Applications, perform SQL injection and get into the wireless networks.
- To help the organization aware about these vulnerabilities in their systems.
- To identify the vulnerabilities in the newer technologies like mobiles, IoT and cloud computing.
- To use different methods of cryptography.

Course Code: PSIT303a	Course Title: Machine Learning
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Course outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand the key issues in Machine Learning and its associated applications in intelligent business and scientific computing. ● To understand and implement the techniques for extracting the knowledge using machine learning methods. ● To Achieve adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc. ● To understand the statistical approach related to machine learning. ● To apply the algorithms to a real-world problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models. 	

Course Code: PSIT304a	Course Title: Robotic Process Automation
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Course outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand the mechanism of business process and can provide the solution in an optimize way. ● To understand the features use for interacting with database plugins. ● To use the plug-ins and other controls used for process automation. ● To use and handle the different events, debugging and managing the errors. ● To test and deploy the automated process 	

SEMESTER IV

Course Code: PSIT401	Course Title: Blockchain
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Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand function of Blockchain as a method of securing distributed ledgers, how consensus on their contents is achieved, and the new applications that they enable. ● To understand the structure of a blockchain and why/when it is better than a simple distributed database 	



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<ul style="list-style-type: none"> ● To analyze the incentive structure in a blockchain based system and critically assess its functions, benefits and vulnerabilities ● To evaluate the setting where a blockchain based structure may be applied, its potential and its limitations. ● To understand and what constitutes a “smart” contract, what are its legal implications and what it can and cannot do, now and in the near future. ● To develop blockchain DApps. 	
Course Code: PSIT402b	Course Title: Cyber Forensics
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To investigate the cyber forensics with standard operating procedures. ● To recover the data from the hard disk with legal procedure. ● To recover and analyses the data using forensics tool ● To acquire the knowledge of network analysis and use it for analysing the internet attacks. ● To investigate internet frauds done through various gadgets like mobile, laptops, tablets and become a forensic investigator. 	
Course Code: PSIT403a	Course Title: Deep Learning
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand the concepts of Deep Learning. ● To understand and describe model of deep learning ● To design and implement various deep supervised learning architectures for text & image data. ● To design and implement various deep learning models and architectures. ● To apply various deep learning techniques to design efficient algorithms for real-world applications. 	
Course Code: PSIT404a	Course Title: Human Computer Interaction
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand the evaluation techniques used for any of the proposed system. ● To understand the cognitive models and its design. ● To understand how to manage the system resources and do the task analysis. ● To design and implement a complete system. 	

21. M.Sc. Physics



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Class: M.Sc.-I

Program Outcomes:

Specific core discipline knowledge

- Students can recall details differential equation, matrices & determinants.
- Students can recall details quantum mechanics postulates, operators & Eigen values & Eigen vectors.
- Students can recall details and information about C++.
- Students can develop skills to operate instruments like Four probe, magnetic susceptibility & Interferometer.
- Students can develop skills to debug different programs of C++, VHDL, ARM 7, PIC & Microcontrollers

Communication skills

- Students can communicate scientific ideas through oral presentations, scientific writing, and visual representations. They will be capable of preparing clear and concise reports, publications, and presentations suitable for academic and professional audiences.

Problem solving and research skills

- Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context.

- To study about laws of motion, Lagrange's equation, D'Alembert principle.
- To understand how to solve problem using Lagrange's equation.
- To study about Canonical transformation, infinite canonical transformation and conservation theorems.
- To study about Postulate of quantum mechanics, observation and operators, the time dependent Schrodinger equations.
- To understand about Schrodinger equation solutions (Three dimensional problems).
- To evaluate angular momentum
- To understand about linear vector space and operator, Dirac notation, Hilbert space, Hermitian operators and their properties, unitary transformations and Heisenberg and interaction picture
- To understand the concept of complex variable, limits, continuity, derivatives and integration with the problem-solving techniques.
- To use reference management software like Zotero and Mendeley for managing citations.
- To formulate research questions, design experiments, and conduct independent research. They will be adept at critically evaluating scientific literature, presenting research findings effectively, and publishing in peer-reviewed journals.
- To solve polynomial and transcendental equations using bisection, false position, and Newton-Raphson methods.



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<ul style="list-style-type: none"> To acquire specialized knowledge in chosen areas such as condensed matter physics, particle physics, nuclear physics, astrophysics, biophysics, plasma physics, materials science, and nanotechnology, preparing them for specialized careers or further research in these fields. 	
SEMESTER I	
Course 1	Course Title: Classical Mechanics (Major) (501)
<p>Course Outcomes: On successful completion of the course the learner would be able to explain the understanding of the following:</p> <ul style="list-style-type: none"> To study about laws of motion, Lagrange's equation, D'Alembert principle. To understand how to solve problem using Lagrange's equation. To understand two body central force problem To know about the small oscillation. To study about Legendre transformation and the Hamilton equations of motion To study about Canonical transformation, infinite canonical transformation and conservation theorems. 	
Course 2	Course Title: Quantum Mechanics (502)
<p>Course outcomes: On successful completion of the course the learner would be able to explain the following:</p> <ul style="list-style-type: none"> To study about Postulate of quantum mechanics, observation and operators, the time dependent Schrodinger equations. To study about the Blackbody radiation & wave versus particle & de Broglie Hypothesis To understand the Heisenberg's uncertainty principle To understand about linear vector space and operator, Dirac notation, Hilbert space, Hermitian operators and their properties, unitary transformations and Heisenberg and interaction picture. To know about wave packet and Schrodinger equation solutions (One dimensional problems). To understand about Schrodinger equation solutions (Three dimensional problems). To evaluate angular momentum 	
Course 3	Course Title: Mathematical Methods of Physics (503)
<p>Course outcomes: On successful completion of the course the learner would demonstrate and explain the understanding of the following: The students would be able:</p> <ul style="list-style-type: none"> To understand the concept of complex variable, limits, continuity, derivatives and integration with the problem-solving techniques. To study about Cauchy Riemann equations, Taylor and Laurent series, residue theorem, contour integrals. To apply the different concept for solving problems To solve matrices, eigenvalues and Eigen vectors and understand Levi-Civita symbols. 	



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<ul style="list-style-type: none"> ● To evaluate second order linear differential equations with non-constant coefficients, power series solutions. ● To study about Fourier Integral transforms & Laplace Transforms. ● To use the Laplace's Transform in solving differential equations 	
Elective: Course 1	Course Title: Solid State Devices (505)
<p>On successful completion of the course the learner would able to</p> <ul style="list-style-type: none"> ● Learn about Semiconductor Physics. ● Understand about p-n junction. ● Understand different Schottky barrier-energy band relation, BJT and Quantum well structure. ● Understand fabrication of p-n junction by diffusion and ion -implantation ● Study about MESFET, MOSFET, MODFET and introduction to Integrated circuits. ● learn concept like integrates circuits. 	
Elective: Course 2	Research Methodology – Theory (506)
<p>Course Outcomes:</p> <p>On successful completion of the course the learner would be able to: -</p> <ul style="list-style-type: none"> ● Define and explain the meaning and objectives of research. ● Identify the different motivations that drive research activities. ● Classify and compare the various types of research and research approaches. ● Differentiate between research methods and research methodology. ● Describe the significance of research and its contribution to scientific methods. ● Explain the importance of understanding how research is conducted. ● Explain the process of selecting and defining a research problem. ● Apply techniques involved in defining a research problem, illustrated with examples ● Demonstrate methods to search for required information effectively. ● Use reference management software like Zotero and Mendeley for managing citations. ● Utilize software like LaTeX and MS Office for paper formatting. 	
SEMESTER II	
Course Code: PSPH201	Course Title: Numerical Techniques and Programming – (511)
<p>Course Outcomes:</p> <p>On successful completion of the course the learner would demonstrate and explain the understanding of the following:</p> <p>Understand and explain the basic concepts of Python programming.</p> <ul style="list-style-type: none"> ● Identify and use various data types in Python. ● Demonstrate the use of object references and collection data types. ● Implement control flow statements such as if, while, and for statements. ● Construct conditional statements including if-else, nested if-else, and elif. ● Work with arrays in Python using lists, tuples, sets, and dictionaries. ● Use modules such as math and numpy for mathematical operations. ● Understand and apply the basics of object-oriented programming. 	



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- Create classes and objects, including the use of constructors.
- Use modules such as math and numpy for mathematical operations.
- Understand and apply the basics of object-oriented programming.
- Create classes and objects, including the use of constructors.
- Solve polynomial and transcendental equations using bisection, false position, and Newton-Raphson methods.
- Implement the least squares method to fit different types of curves including straight lines, exponential curves, and parabolas.
- Perform numerical differentiation.
- Apply Newton-Cotes formulas including Trapezoidal rule, Simpson's one-third rule, and Simpson's three-eighth rule.
- Use the Gauss quadrature method for numerical integration.
- Solve simultaneous equations using Gaussian elimination, Gaussian elimination with pivotal condensation, and Gauss-Jordan elimination methods.
- Implement the Gauss-Seidel iteration method for solving linear equations.

Course 2

**Course Title: Applications of Quantum Mechanics:
Atomic and Nuclear Physics**

On successful completion of the course the learner would demonstrate and explain the understanding of the following:

- Define and explain the concept of total angular momentum J and its components J^2 and J_z
- Describe L.S. coupling and its significance in quantum mechanics.
- Differentiate between coupled and uncoupled representations of Eigen functions.
- Construct and manipulate angular momentum matrices.
- Use Pauli spin matrices to describe spin Eigen functions.
- Analyse free particle wave functions, including spin, and understand the addition of two spins.
- Apply first-order and second-order corrections in non-degenerate perturbation theory.
- Solve problems using degenerate perturbation theory, including first-order energies and secular equations.
- Explain and apply time-dependent perturbation theory to various physical scenarios.
- Understand the principles of the Ritz variational method.
- Illustrate the method with simple examples to approximate ground state energies.
- Define scattering cross section and scattering amplitude.
- Explain partial wave phase shifts and the optical theorem.
- Analyse S-wave scattering from finite spherical attractive and repulsive potential wells.
- Describe scattering in the centre of mass frame using the Born approximation.
- Differentiate between symmetric and antisymmetric wave functions for bosons and fermions.
- Apply the Pauli Exclusion Principle and construct Slater determinants.
- Discuss the Deuteron problem qualitatively.
- Derive and interpret the Klein-Gordon and Dirac equations.



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<ul style="list-style-type: none"> ● Use Dirac matrices and spinors to understand positive and negative energy solutions. Explain the non-relativistic limit of the Dirac equation and its physical implications. 	
Course 3	Course Title: Electrodynamics (513)
<p>Course Outcomes:</p> <p>On successful completion of the course the learner would demonstrate and explain the understanding of the following:</p> <ul style="list-style-type: none"> ● Explain Maxwell's equations and their significance in describing electromagnetic phenomena. ● Calculate and interpret the Poynting vector to understand energy flow in electromagnetic fields. ● Apply the Maxwellian stress tensor to analyze stress and momentum in electromagnetic fields. ● Classify different types of fields in waveguides and apply boundary conditions to electromagnetic fields. ● Calculate phase velocity and group velocity of waves propagating in waveguides. ● Analyze the behaviour of electromagnetic waves in resonant cavities. ● Explain adiabatic invariants and their role in understanding plasma dynamics. ● Apply Lorentz transformations to describe the transformation of electromagnetic fields between different inertial frames. ● Describe four-vectors and tensors in the context of electromagnetism. ● Derive the covariant Lagrangian formalism for relativistic point charges in electromagnetic fields. ● Explain the concept of the energy-momentum tensor and its role in conservation laws in electromagnetism. ● Analyze the behaviour of moving charges in vacuum and apply gauge transformations to electromagnetic potentials. ● Derive and use the time-dependent Green function to solve problems related to radiation from moving charges. ● Calculate and interpret the Lienard-Wiechert potentials and fields for both parallel and arbitrary velocity cases. ● Describe radiation by multipole moments and analyze the characteristics of electric dipole radiation. ● Calculate the complete fields of a time-dependent electric dipole and interpret its radiation pattern. ● Explain magnetic dipole radiation and its properties. 	
Elective Course 2	Course Title: Solid State Physics (515)
<p>Course Outcomes:</p> <p>On successful completion of the course the learner would demonstrate and explain the understanding of the following:</p> <ul style="list-style-type: none"> ● Explain the Bragg law and its significance in crystallography. ● Analyze the amplitude of scattered waves using Fourier analysis. ● Define reciprocal lattice vectors and their relationship to the direct lattice. ● Determine diffraction conditions and Brillouin zones in reciprocal space. 	



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- Apply reciprocal lattice concepts to simple cubic (SC), body-centered cubic (BCC), and face-centered cubic (FCC) lattices.
- Discuss interference of waves and its manifestation in diffraction patterns.
- Calculate atomic form factors and their implications in elastic scattering by crystals.
- Utilize the Ewald construction to visualize reciprocal lattice diffraction.
- Describe experimental techniques such as the Laue method, rotating crystal method, and powder method for studying crystal diffraction.
- Explain elastic scattering from surfaces and the principles of elastic scattering by amorphous solids.
- Analyze vibrations in monoatomic lattices, including normal mode frequencies and dispersion relations.
- Extend the analysis to lattices with two atoms per unit cell, exploring their normal mode frequencies and dispersion relations.
- Quantize lattice vibrations and define phonon momentum.
- Discuss inelastic scattering of neutrons by phonons and their role in thermal conductivity.
- Describe thermal conductivity and its relationship to lattice thermal resistivity.
- Explain the Umklapp process and its impact on thermal conductivity.
- Discuss the effects of lattice imperfections on thermal properties.
- Introduce the Langevin diamagnetic equation and analyze diamagnetic response.
- Discuss the quantum mechanical formulation of diamagnetism and core diamagnetism effects.
- Outline the quantum theory of paramagnetism, focusing on rare earth ions and iron group ions.
- Explain Hund's rule, crystal field splitting, and the quenching of orbital angular momentum.
- Discuss the adiabatic demagnetization of paramagnetic salts and paramagnetic susceptibility of conduction electrons.
- Define exchange integral and saturation magnetization in the context of ferromagnetic materials.
- Describe magnons and their relevance in neutron magnetic scattering.
- Discuss ferrimagnetic order, spinels, and yttrium iron garnets.
- Explain antiferromagnetic order and its characteristics.
- Analyse ferromagnetic domains, including anisotropy energy and the origin of domains.
- Describe the transition region between domains, Bloch walls, coercive force, and hysteresis in ferromagnetic materials.

Class: M.SC-II (Electronics-I)

Program Outcomes:

Students can recall details of the Thermodynamics, Electrodynamics and mathematical tools.
Students can recall details of the Shell model, alpha decay, beta decay and gamma decay.



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<p>Students can recall the details of the Hydrogen atoms, Fine structures and selection rules. Students can recall details of the C++, VHDL, Interfacing, Microprocessor and microcontroller. Students can recall the details of the embedded system. Students can perform basic experiments, observation, and calculation and write their own conclusion.</p>	
<p>Program Specific Outcomes:</p> <p>To understand the basic mathematical concepts and applications of them in physical situations. To develop analytical abilities towards real word problem. To be able to develop program solving attitude.</p>	
<p>SEMESTER III</p>	
<p>Course Code: PSPH301</p>	<p>Course Title: Statistical Mechanics</p>
<p>Course Outcomes:</p> <p>The students would be able to:</p> <ul style="list-style-type: none"> ● Understand the connection between statistical mechanics and thermodynamics. ● Application of statistical methods to the ideal gas. ● Describe of systems in contact with a thermal reservoir. ● Differentiate between macroscopic and microscopic states in thermodynamic systems and describe their connection to statistical mechanics. ● Analyze and describe the behaviour of classical ideal gases, including calculating thermodynamic quantities such as entropy and partition functions. ● Apply the canonical ensemble to describe systems in thermal equilibrium with a heat reservoir, calculating thermodynamic quantities such as the partition function, and interpreting energy fluctuations. ● Apply quantum-mechanical ensemble theory, using the density matrix to analyze systems of indistinguishable particles, calculating partition functions, and solving problems involving quantum statistical mechanics. ● Develop strong problem-solving skills through regular practice sessions, applying theoretical concepts to solve numerical and conceptual problems in statistical mechanics and thermodynamics. 	
<p>Course Code: PSPH302</p>	<p>Course Title: Nuclear Physics</p>
<p>Course outcomes:</p> <p>The students would be able to:</p> <ul style="list-style-type: none"> ● Understand the composition of nuclei in terms of protons and neutrons. ● Learn about the angular momentum of nuclei, which contributes to their stability and behavior. ● Study the electric quadrupole moment and its implications for nuclear structure. ● Analysis and interpretation of data from Fermi-Curie plots. 	



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- Understand the selection rules governing Fermi and Gamow-Teller (G-T) transitions.
- Calculate and interpret of cross sections in scattering and reaction processes.
- Understand the direct interactions leading to nuclear reactions.
- Calculate of Q-values and energy release in fusion and fission reactions.
- Understand the quark model and its implications for particle interactions.
- Study of particle interactions, decays, and resonance phenomena.

Elective Paper-3

**Course Title: PSPHET305: 8, 16 – bit
Microprocessors, Microcontroller and PIC**

Course outcomes:

The students would be able to:

- Learn the concept of interrupts in 8085 microprocessors, including vectored interrupts and restart instructions. know ethical committee, its set up and compliance to ethical issue
- Study the basic concepts in serial I/O, software-controlled asynchronous serial I/O, and utilization of SOD and SID lines on the 8085. Deal with different ethical issues
- Describe physical memory organization, general bus operation, and I/O addressing capabilities of the 8086.
- Proficiency in writing assembly language programs using Debug and understanding machine coding processes.
- Understand basics of serial communication, RS232 connection, and programming the 8051 serial port in assembly language.
- to program interrupts, timers, and utilize the analog-to-digital converter in PIC 16C61/71 microcontrollers.

Elective Paper-4

**Course Title: PSPHET306: Programming Using C++,
VC++, Embedded Systems and RTOS**

Course Outcomes:

The students would be able to:

- Understand the basics of programming, including the role of computers in problem-solving.
- Gain proficiency in C++ syntax, expressions, decision-making (if statements), and looping (for, while, do-while).
- Write and use functions for modular programming.
- Deepen understanding of classes, inheritance, polymorphism, and virtual functions.
- Apply OOP concepts to solve complex problems.
- Understand fundamentals of operating systems, types, tasks, processes, and threads.
- Identify and analyze characteristics and quality attributes specific to embedded systems.
- Analyze real-world applications of embedded systems like washing machines, digital cameras, and mobile phones.
- Understand the role and implementation of device drivers in embedded systems.
- Learn about real-time operating systems, task scheduling, task communication, and synchronization.



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<ul style="list-style-type: none"> ● Gain insights into considerations for selecting an appropriate RTOS for embedded system design. 	
SEMESTER IV	
Course 1	Course Title: PSPH401 Experimental Physics
<p>Course Outcomes: The students would be able to:</p> <ul style="list-style-type: none"> ● Differentiate between population and sample data, and comprehend the importance of data distributions in scientific analysis. ● Gain proficiency in probability concepts and their application to real data distributions. ● Understand the characteristics of the normal distribution, its applications in data analysis, and the central limit theorem. ● Learn about experimental error, measurement uncertainty, and the distinction between random and systematic errors. ● Develop practical skills in applying statistical methods using Excel, including data visualization and analysis. ● Acquire knowledge of fundamental processes and materials used in vacuum systems, essential for various scientific and industrial applications. ● Understand the operation and characteristics of high vacuum and ultra-high vacuum pump systems. ● Apply knowledge of vacuum techniques to practical problems, such as designing vacuum systems and troubleshooting vacuum-related issues. ● Understand the principles behind gamma ray detection using NaI(Tl) scintillation detectors, including interaction of gamma rays with matter and production of scintillation light. ● Learn techniques for data acquisition and analysis using gamma ray spectrometry, including energy calibration and spectrum interpretation. ● Explore various applications of gamma ray spectrometry in nuclear physics, environmental monitoring, and medical imaging. ● Develop proficiency in operating various spectroscopy and microscopy instruments, including understanding their principles and limitations. ● Acquire skills in data acquisition, processing, and interpretation specific to each spectroscopy and microscopy technique. ● Understand the broad range of applications for each technique in scientific research, industrial applications, and materials characterization. ● Appreciate the interdisciplinary nature of spectroscopy and microscopy in fields such as chemistry, physics, materials science, biology, and engineering. 	
Course 2	Course Title: PSPH402 Atomic and Molecular Physics
Course Outcomes:	



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The students would be able :

The students would be able:

- Understand the Eigen functions and energy levels of one-electron atoms through the Schrödinger equation, including the probability density and the Virial theorem.
- Study the fine structure of hydrogen-like atoms, including the Lamb shift, hyperfine structure, and isotope shift.
- Learn about the Stark effect in spherical polar coordinates, both linear and quadratic variations.
- Explore the Zeeman effect in strong and weak magnetic fields, and the Paschen-Back effect.
- Study the Schrödinger equation for two-electron atoms, considering identical particles, exchange forces, the Exclusion Principle, and the ground/excited states of helium-like atoms.
- Explore the Hartree theory and its application to describe the ground state of multi-electron atoms and their arrangement in the periodic table.
- Study the L-S coupling approximation, allowed terms in LS coupling, fine structure effects, relative intensities, and j-j coupling approximation.
- Understand how electromagnetic radiation interacts with one-electron atoms, including absorption and emission transition rates, dipole approximation, and Einstein coefficients.
- Study line intensities, lifetimes of excited states, line shapes, line widths, and X-ray spectra.
- Explore the Born-Oppenheimer approximation and its application to describe rotational, vibrational, and electronic energy levels of diatomic molecules.
- Compare the Linear Combination of Atomic Orbitals (LCAO) and Valence Bond (VB) approximations, and understand their implications for molecular structure.
- Study rotational energy levels of diatomic molecules, classification of molecular types, vibrational energy levels, and vibrational-rotational spectra.
- Understand the vibrational and rotational structure of electronic spectra.

Elective Paper-III

**Course Title: no.: PSPHET405: 32 – Bit
Microprocessor, Interfacing 8-bit Microcontrollers**

Course Outcomes:

The students would be able to:

- Understand the basic architecture, features, and applications of PIC 16F8XX microcontrollers.
- Gain knowledge of essential registers such as STATUS, Power Control (PCON), OPTION_REG, and their functions in controlling and monitoring the microcontroller.
- Learn about the functionality and applications of Capture/Compare/PWM (CCP) modules in PIC 16F877 microcontrollers.
- Understand the principles of ADC and its interfacing with PIC microcontrollers for converting analog signals to digital data.
- Learn practical interfacing techniques including LEDs, push buttons, relays, latches, keyboard, 7-segment displays, and LCDs with microcontrollers.



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- Study the interfacing of Analog-to-Digital Converters (ADC) and Digital-to-Analog Converters (DAC) with microcontrollers, focusing on measurement applications.
- Explore the use of microcontrollers in industrial settings, including DC motor interfacing and Pulse Width Modulation (PWM) techniques.
- Understand the evolution and foundational concepts of the ARM architecture, including the Acorn RISC Machine (ARM).
- Explore the ARM Programmer's model, which includes registers, modes, and the execution environment for ARM processors.
- Focus on the features and capabilities of the ARM7TDMI processor core, including its architecture and implementation details.
- Learn the basics of ARM assembly language programming, including data processing instructions, data transfer instructions, and control flow instructions.
- Study the comprehensive ARM instruction set, covering data processing, multiply instructions, data transfer instructions for different data sizes, and special instructions like SWI (Software Interrupt) and CLZ (Count Leading Zeros).
- Understand the Thumb instruction set, including its architecture, programmer's model, branch instructions, data processing instructions, and its implementation and applications.

Elective Paper-IV

**PSPHET406: VHDL, Understanding USB and
Communication Interface**

Course outcomes:

The students would be able to:

- Understand basic terminology used in VHDL, such as entity, architecture, concurrent signal assignment, etc.
- Learn how to describe digital hardware using VHDL constructs like entities and architectures.
- Understand how events are scheduled and managed in VHDL simulations.
- Study sequential behavior modeling in VHDL using process statements and sequential statements.
- Understand configuration statements and their role in specifying how components are interconnected.
- Explore the flexibility and power configurations provide in designing complex systems in VHDL.
- Study the different types of objects in VHDL, including signals, variables, constants, and files.
- Learn about scalar types, composite types, incomplete types, and file types in VHDL.
- Understand the concept of subtypes and how they are used to refine and constrain data types in VHDL.
- Understand control transfers, including standard requests and other request types.
- Learn about bulk transfers and their suitability for large data transfers.
- Acquire practical skills in developing USB devices, handling data transfers, and ensuring reliable communication.



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- Apply knowledge of USB protocols and communication interfaces to solve practical problems in device design and integration.
- Develop foundational skills that prepare for advanced studies and research in embedded systems, communication protocols, and hardware interfacing.





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Program Outcomes - Program Specific Outcomes – Course Outcomes

Academic Year: 2023 – 24

FACULTY OF COMMERCE

22.B.Com.

Name of Department: Commerce
Class: FYBCom
<p>Program Outcomes:</p> <p>After completing three years for Bachelors in Commerce (B.Com) program, students would gain a thorough grounding in the fundamentals of Commerce and Finance. The Specific Programme outcomes can be enumerated as follows;</p> <ul style="list-style-type: none">● To build a strong foundation of knowledge in different areas of Commerce.● To develop the skill of applying concepts and techniques used in Commerce.● To develop an attitude for working effectively and efficiently in a business environment.● To integrate knowledge, skill and attitude that will sustain an environment of learning and creativity among the students.● To expose students about entrepreneurship.● To enable a student to be capable of making decisions at personal and professional level
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none">● Students will demonstrate progressive affective domain development of values, the role of accounting in society and business.● Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.● Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.● Students will gain thorough systematic and subject skills within various disciplines of commerce, business, accounting, economics, finance, auditing and marketing.● Learners will be able to recognise features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and to react aptly
SEMESTER I



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Course Code:	Course Title: Financial Accounting & Auditing I
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To develop conceptual understanding of fundamentals of financial Accounting system and to impart skills in accounting for various kinds of business transactions. ● To enable the students to learn principles and concepts of Accountancy. ● To understand the concept of capital and revenue expenditure ● To study the accounting for manufacturing concerns and departmental accounting ● To gain insight into the accounting aspects of hire purchase system And Stock valuation methods 	
Course Code:	Course Title: Business Communication –I
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To develop communication skills and overall personality development of the students ● To study the concepts of business communication, its types and barriers ● To explore various types of business letters and statement of purpose 	
Course Code:	Course Title: Commerce I
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To acquires the knowledge about the various types of business organizations, office management and related aspects ● To study the environment of business and genesis involved in setting up of a business unit ● To understand the concepts of business turnaround ● To explore the term entrepreneur and skills required for an entrepreneur 	
Course Code:	Course Title: Business Economics –I
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To acquaint the students with the business economic principles applicable in business ● To understand the forces of market demand and supply. ● To study the concept of production and cost 	



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<ul style="list-style-type: none"> To explore the production a function 	
Course Code:	Course Title: Environmental studies-I
Course outcomes: The students would be able : <ul style="list-style-type: none"> To know the importance Conservation of natural resources, To understand the ecological aspects of environment To have insight into the types of pollution and ways controlling the pollution To study the social impacts of human population on the environment 	
Course Code:	Course Title: Mathematical and Statistical Techniques –I
Course outcomes: The students would be able : <ul style="list-style-type: none"> To understand the practical applicability of mathematical and statistical tools in commerce To study the measure of central tendency and dispersion To explore the genesis in calculation of shares and mutual funds To study the theory of probability and decision making 	
Course Code:	Course Title: Foundation Course I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand the inter-disciplinary approach of social fabric. To sensitize on the socio-economic concerns in India with specific focus on the issues of the youth To help learners articulate their views on the contemporary social issues. To understand factual aspects of Indian society. 	
SEMESTER II	
Course Code:	Course Title: Financial Accounting and auditing –III
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To impart the Knowledge in the practical applications of accounting. To enable the students to learn the basic concepts of Partnership Accounting, and allied 	



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<p>aspects of accounting.</p> <ul style="list-style-type: none"> To understand how consignment account and branch accounts are prepared <p>To explore the concept of fire insurance claims</p>	
Course Code:	Course Title: Business Communication -II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To understand the aspects and importance of group communication To enhance language and writing skills To study the formal business correspondence such as trade and sales letters 	
Course Code:	Course Title: Commerce –II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To study the concept of service marketing mix To understand the concept of retailing , various retail formats and current retail scenario To gain insight into banking, insurance and logistics services To explore the concept of E-Commerce 	
Course Code:	Course Title: Business Economics -II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To study the market structure under perfect competition and monopoly To know how pricing and output decisions are taken under perfect competition To understand various cost oriented pricing methods To learn techniques and importance of capital budgeting for evaluating capital projects 	
Course Code:	Course Title: Environmental Studies-II



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<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To study the concept of solid waste management for sustainable society ● To explore the genesis of agricultural and industrial development and its impact on environment ● To understand the aspect of tourism and environment ● To know various environmental movements in India and its Management 	
Course Code:	Course Title: Mathematical and Statistical Techniques –II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the functions of derivatives and their applications ● To know the concept of interest and annuity ● To study the Bivariate linear correlation and regression ● To explore the time series and index numbers 	
Course Code:	Course Title: Foundation Course -II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To enable the students to know the concept of liberalization, privatization and globalization ● To study the various concepts of Human Rights ● To understand the concept of environment, ecology and their interconnections ● To gain insight into the causes and management of stress and conflict in society 	
Class: S.Y.Bcom	
<p>Program Outcomes:</p> <ul style="list-style-type: none"> ● To build a strong foundation of knowledge in different areas of Commerce. ● To develop the skill of applying concepts and techniques used in Commerce. ● To develop an attitude for working effectively and efficiently in a business environment. ● To integrate knowledge, skill and attitude that will sustain an environment of learning and creativity among the students. ● To expose students about entrepreneurship. ● To enable a student to be capable of making decisions at personal and professional level. 	



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<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● Students will demonstrate progressive affective domain development of values, the role of accounting in society and business. ● Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business. ● Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business. ● Students will gain thorough systematic and subject skills within various disciplines of commerce, business, accounting, economics, finance, auditing and marketing. ● Learners will be able to recognise features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and to react aptly when confronted with critical decision making. ● Learners will acquire the skills like effective communication, decision making, problem solving in day to day business affairs ● Learners will involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure. 	
SEMESTER III	
Course Code:	Course Title: Financial Accounting & Auditing III Financial Accounting
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To make the students understand the concept of Amalgamation , preparation of Accounts of Accounting for Amalgamation of Partnership Firms and its accounting effect. ● Students would be able to Account for Amalgamation of Partnership Firms ● To make the students understand the concept of Piecemeal Distribution and the procedure and steps involved in preparing the Statement of Distribution of Cash ● To make students understand the nittygritties of preparation of Partnership Final Accounts in case of Admission, retirement and death of a Partner ● Students would be able to prepare Final Accounts of a Partnership Firm in case of Admission, retirement and death of a Partner ● To help the students understand the need, procedure, accounting effects and treatment for Conversion of a Partnership Firm into a Limited Company ● Students would be able to Account for Conversion of a Partnership Firm into a Limited 	



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Company	
Course Code:	Course Title: Financial accounting & Auditing IV Management Accounting
Course outcomes: The students would be able : <ul style="list-style-type: none">● Students understand the significance of basic concept, importance & Functions of Management Accounting● To help the students analyze and interpret the financial statements.● To make students understand the various ratios and its interpretation● To help the students estimate working capital with the help of data given.● To help the students understand the budgeting of capital expenditure by using various methods	
Course Code:	Course Title: Advertising –I



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<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To give a conceptual understanding on the basics of advertising and its benefits to business firms ● The students will get a clarity on the basics of advertising and its importance to firms and consumers ● To emphasize the role of ad agencies in creating successful ad campaigns for the companies ● The students will get acquainted with the different services provided by an ad agency and the strategies executed by them ● To give an essence of the various career opportunities in the field of advertising Students who wish to pursue their career in Advertising industry will get an idea about the different career options available to them ● To discuss about the ethical, social, economic and cultural aspects in advertising The students will be exposed to the various social, ethical issues facing advertising industry in the present scenario and its impact on the society 	
Course Code:	Course Title: Commerce III
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To Orient the students on the conceptual knowledge of management The students ability to manage is enhanced ● To Build awareness of the evolution of management Practical application of management styles ● To enhance the management application skills of students Familiarity with management 	
Course Code:	Course Title: Business economics III
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To help students to understand basic macroeconomic theories and models. Students ● To make the students understand how an economy as a whole works from the Keynesian perspective. Students would learn concepts of effective demand, investment and consumption and would be able to see the relevance of the theory in the developing countries. ● To familiarize students with theories of ISLM, Phillips Curve and its application in the real world. Students would learn the impact of supply side economics using case studies ● To equip students with the features of Students would know the effects of inflation and its 	



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remedies along with theories of demand and supply of money. public policies on the control of inflation and the various approaches to liquidity approach.

Course Code:	Course Title: Business law I
Course outcomes: The students would be able : <ul style="list-style-type: none">● To provide students a brief idea about formation and validity of a contract. Students would be aware of the essentials and legal rules regarding Contract Act.● To provide students a brief description on types of contracts and its performance. Students would learn the concept of performance, discharge and remedies on breach of contract.● To familiarize students with special contracts. Students would be aware of the essentials, parties, rights and duties of such parties to the contract.● To familiarize students with the formation of contract of sale of goods. Students would learn the rights of unpaid seller.● To provide students a brief idea about various types of negotiable instruments. Students would learn the essence of such instruments and the miscellaneous provisions incidental	
Course Code:	Course Title: Foundation Course III



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Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To provide a brief idea on various constitutional and legal rights of the socially under privileged Students would develop empathy and be better sensitized towards various social issues. ● To educate students on various aspects of disaster and the steps in disaster management Students would get clarity on different types of disasters and the precautions and actions to be taken when disaster hits. ● To foster interest in science and technology which is not a part of hard core commerce syllabus The topic would help to develop scientific temper in commerce students ● To help students to fine tune the various aspects of communication Students would understand the nuances of communication in formal and informal setting 	
SEMESTER IV	
Course Code:	Course Title: Financial Accounting and Auditing- V Financial Accounting
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To make the students understand the concept of a Company, preparation of Company Accounts and its accounting effect. Students should be able to understand various terms related to a Limited Company ● To make the students understand the concept of Redemption of Preference Shares and the procedure and steps involved in Redemption of Preference Shares Students should be able to Account for Redemption of Preference Shares and the procedure involved. ● To make the students understand the concept of Redemption of Debentures and the procedure and steps involved in Redemption of Debentures Students should be able to account for Redemption of Debentures and the process for the same. ● To help the students understand the need, procedure, accounting effects and treatment for Profit Prior to Incorporation of a Company Students should be able to calculate Profit Prior to Incorporation of a Company 	
Course Code:	Course Title: Financial Accounting and Auditing- VI Auditing



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To introduce the concept of auditing to the students. Students would be able to understand the basic terms and concepts related to auditing. ● To make the students understand the objectives, importance and the process of audit planning, preparation of an audit program and audit working papers. Students would be able to understand the purpose, objectives and importance of planning an audit. They should also be able to understand the contents of audit working papers along with the factors to be kept in mind while preparing the audit program. ● To make students understand the various auditing techniques and the basic concepts related to internal auditing. Students would be able to understand various concepts related to auditing techniques like audit sampling, test check, materiality as well as understand the basic concepts related to internal audit. ● To help the students understand the auditing techniques of vouching and verification in detail. Students would be able to understand the auditing technique of vouching of various transactions in relation to incomes, expenses etc. and auditing technique of verification as regards balance sheet items 	
Course Code:	Course Title: Commerce IV
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To Orient the students on the conceptual knowledge of quality, production management and financial management. The students ability to comprehend concepts in quality, production and financial management is enhanced. ● To Build awareness of the trends in quality, production and financial management. The students ability to apply the concepts to practical applications is improved. ● To enhance the operating knowledge of stock markets, commodity markets and derivative markets. Decision making on vital aspects of finance gets developed. 	
Course Code:	Course Title: Business Economics IV



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To help students understand the role of Government in an economy with respect to efficiency, welfare, social advantage and provision of public goods. Students would learn the importance of Government through various theories. ● To orient students with the sources of Public Revenue and the means of shifting tax burden Students would understand the economic and redistributive impact of taxation in the economy ● To familiarize students with theories of Public Expenditure and the significance of Public Debt Students would learn the effects of Public spending on production, consumption and stabilization. ● To orient students with the principles of Fiscal finance and the Budget. Students would know about Fiscal Responsibility and other Financial Relations between the Centre and State Governments 	
Course Code:	Course Title: Business Law II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To provide students a brief description on formation of a company and procedure of its incorporation. Students would learn the various provisions governing such companies. ● To provide a brief idea on types of meetings conducted in companies. Students would be aware of the members of the company and provisions governing convening of different types of meetings. ● To familiarize students with Indian Partnership Laws. Students would learn the formation, dissolution of partnership and provisions incidental thereto. ● To provide students an overview of laws relating to Consumer Protection and Competition Act. Students would be aware of the rights of consumers and remedies for unfair trade practices. ● To provide students a brief idea on categorization of creativity and technical know-how under IPR laws. Students would learn the procedure for registration of IPR and to protect it from infringement of their rights. 	
Course Code:	Course Title: Advertising II



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:

The students would be able :

- To familiarize the learners with the different traditional and new age media used in advertising. The learners would be able to understand the pros and cons of the various media used in advertising
- To give an idea about the planning process and the steps involved in planning an ad. The learners would know the process in planning an ad campaign
- To make the learners understand the role and importance of creativity in advertising. The learners would understand role and various creative aspects involved in making an ad campaign
- To acquaint the learners with the execution of advertisements and discuss the techniques of evaluating an ad campaign. The learners would be well versed with the various execution styles and evaluation techniques of an ad campaign

Course Code:

Course Title: Foundation Course IV

Course Outcomes:

The students would be able :

- To provide a brief description on provisions governing consumer protection law. Students would be aware of the rights of consumers and remedies in relation to unfair trade practices
- To sensitise students towards various ecological issues. Students would develop a deeper understanding of ecological issues and would motivate them to be a part of environmental conservation
- To introduce various technologies used in day to day life. Students would develop curiosity in the application of science in everyday life
- To provide necessary life skills such as time management, goal setting etc. The topics would equip them with necessary life skills.

Class: TYBCom



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● The program provides well versed manpower requirement in the area of banking, Insurance, finance and taxation, transport, marketing, human resource ec. ● Students can acquire specialization in subject of their interest such as finance and accounts, taxation, marketing, human resource etc and decide the roadmap for future studies and career <p>Communication skills</p> <ul style="list-style-type: none"> ● Students can communicate effectively using oral and written communication skills <p>Problem solving and other skills</p> <ul style="list-style-type: none"> ● Students can acquire skills regarding various aspects of Marketing, taxation, financial accounting,, human resource and overall administration abilities ● It enables the students to take decisions at professional and personal level. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To understand the basic concepts of the commerce, management, accounting of & economics ● To develop communication skills and computer awareness and rules of income tax act. ● To enable students to gain systematic and subject skills within various disciplines of finance, auditing and taxation, accounting, management, communication, computer. ● Learners will be able to prove proficiency with the ability to engage in competitive exams like CA, CS, ICWA and other courses. ● To help students get the practical skills to work as accountant, audit assistant, tax consultant, and computer operator. As well as other financial supporting services. ● To make students learn relevant Advanced accounting career skills, applying both quantitative and qualitative knowledge to their future careers ● To enable students to develop confidence in Self employment opportunities ● To enable students to persue their higher education and can make research in the field of finance and commerce 	
<p>SEMESTER V</p>	
<p>Course Code:</p>	<p>Course Title: Financial Accounting and Auditing VII Financial Accounting</p>



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge in preparation of final accounts of a company ● To understand the concepts and practical implications of internal reconstruction of a company To know the concept and accounting effects during buyback of shares ● To study the concept of investment accounting and accounting standards 	
Course Code:	Course Title: : Financial Accounting and Auditing VIII Cost Accounting
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To gain basic knowledge of Cost Accounting. ● To understand the concepts of material cost, labour cost, and overhead costs. ● To know different classification of cost and preparation of cost sheet. ● To study the reconciliation of cost and financial accounts. 	
Course Code:	Course Title: Commerce- V Marketing
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To acquaint with the basic concept of marketing. ● To understand the concept relating to marketing mix decisions viz, product, pricing, place and promotion ● To know the ethical issues in marketing and concepts of rural marketing. ● To know the challenges faced by modern marketing managers and concept of digital marketing 	
Course Code:	Course Title: Business Economics V
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To get exposure to macroeconomic overview of India in light of new economic policy of 1991. To understand agricultural scenario during post reform period ● To know the industry and service sector during post reform period ● To study banking sector and financial market (money market and capital market) 	
Course Code:	Course Title: computer systems and application – paper I



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To understand concept of data communication, networking basics and infrastructure and ● To understand practical applicability of spreadsheets, which includes creating and navigating work sheets, adding information, multiple spreadsheets, mathematical functions, data analysis ● To understand practical application of word processing MySQL and spreadsheets. 	
Course Code:	Course Title: Direct taxation
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about definition u/s 2 ● To know basis of charged and exclusion from total income. ● To understand different heads of income like salary, house property, business professions and other sources ● To analysis different deduction under section VI A ● To understand computation of total income 	
SEMESTER VI	
Course Code:	Course Title: Financial Accounting and Auditing- IX Financial accounting
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To gain insight into AS-14, amalgamation, Absorption & External reconstruction ● To understand the transaction of Foreign Currency ● To study various accounting aspects related to liquidation of companies ● To explore the genesis of underwriting of shares and debentures ● To know accounting for limited liability partnership. 	
Course Code:	Course Title: Financial Accounting and Auditing- X Cost Accounting
Course outcomes:	



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

<p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the aspects of cost control accounts ● To know the genesis of contract and Process costing. ● To understand the concepts of marginal costing and standard costing ● To study some emerging trends of cost accounting 	
Course Code	Course Title: Commerce VI Human Resource Management
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ☐ To know the basic terms, concepts and definitions of human resource management ☐ To study the aspect of human resource development viz training and development ☐ To analyze the importance of human relations in human resource management ☐ To study the recent trend in human resource management 	
Course Code	Course Title: Business Economics VI- International Economics
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To study the theories of trade and terms of trade ● To understand the Commercial Policy, trade barrier and international Economic integration To explore the concept of balance of payment and international economic organization ● To know the working of foreign exchange markets 	
Course Code	Course Title: Computer systems and applications -II
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the basics of E-commerce ● To know the concepts of Advanced spread sheet and its functions ● To explore the genesis of visual basic ● To gain insight into practical approach of presentation skills, ,advanced spread sheet and VB 	
Course Code	Course Title: Indirect Taxation



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To acquire knowledge about indirect taxation and GST ● To know the computation and levy of GST ● To study the documentation and registration required for GST ● To understand input tax credit and computation of GST

23. B. Com. [Accounting and Finance]

Name of Department: B. Com. [Accounting and Finance]
Class: F. Y. B. C. A. F.
<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students can acquire knowledge about preparation of Accounts, elements of accountancy, Special accounting areas, elements of cost accountancy, Financial Management, Auditing. ● Students can understand primary details of the Financial Accounts, Financial Management, Cost Accountancy and Auditing. ● Students can understand Business environment, Innovation in Financial services and business economics. <p>Communication skills</p> <ul style="list-style-type: none"> ● Students can communicate effectively using oral and written communication skills. <p>Problem solving and research skills</p> <ul style="list-style-type: none"> ● Students can analytically solve and record transactions in different accounting systems.
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To understand elements of financial accounting. ● To explore the special accounting areas in financial accountancy. ● To analyze different elements of cost accountancy. ● To understand need and importance of financial management. ● To provide knowledge about auditing and its planning. ● To develop good communication skills in oral and written form. ● To make aware about innovations in financial services. ● To explain business environment and its impact on world. ● To understand overview of business economics. ● To acquire knowledge of legal business regulatory framework. ● To analyze different mathematical techniques to calculate financial return and risk. ● To aware about human values and responsibility towards society.
SEMESTER I



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: 1	Course Title: Financial Accounting (Elements of Financial Accounting) - I
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To gain knowledge about accounting standards issued by ICAI ● To understand inventory valuation. ● To Analyse final accounts of manufacturing concern. ● To prepare final accounts of proprietary concern. ● To acquire knowledge about departmental accounts. ● To learn about accounting for Hire Purchase. 	
Course Code: 2	Course Title: Cost Accounting – Introduction and Elements of cost – I
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To gain knowledge about cost accountancy. ● To understand material costing with different techniques. ● To Analyse labour costing and its methods for remuneration. ● To acquire knowledge about overheads costings and techniques of allocation. 	
Course Code: 3	Course Title: Financial Management – Introduction to Financial Management - I
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To gain knowledge about Financial Management. ● To understand Concept of valuation. ● To Analyse leverages and its applications. ● To acquire knowledge about types of financing. ● To understand concept of cost of capital. 	
Course Code: 4	Course Title: Business Communication – I
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To gain knowledge about theories of communication. ● To understand obstacles to communication in Business world. ● To acquire knowledge about business correspondence. ● To apply the language and writing skills. 	
Course Code: 5	Course Title: Foundation Course – I



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To gain knowledge about overview of Indian society. ● To understand concept of disparity. ● To acquire knowledge about Indian Constitutions. ● To understand significant aspects of political processes. 	
Course Code: 6	Course Title: Business Environment – I
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand business and its environment. ● To acquire knowledge about business and society. ● To analyse contemporary issues. ● To understand international environment. 	
Course Code: 7	Course Title: Business Economics – I
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about business economics. ● To understand concept of demand. ● To analyse supply and production decisions and cost of production. ● To understand market structure. ● To get knowledge about pricing practices. 	
SEMESTER II	
Course Code: 1	Course Title: Financial Accounting – Special Accounting Areas - II
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand accounting from incomplete records. ● To acquire knowledge about Consignment accounts. ● To Prepare and analyse branch accounts. ● To understand fire insurance claims. 	
Course Code: 2	Course Title: Auditing – Introduction and Planning – I
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about auditing. ● To understand audit planning, procedures and documentation. ● To analyse the auditing techniques. ● To understand internal audit. 	
Course Code: 3	Course Title: Innovative Financial Services



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about traditional financial services. ● To analyse issue management and securitization. ● To understand financial services and its mechanism. ● To know consumer finance and credit rating. 	
Course Code: 4	Course Title: Business Communication - II
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To know about presentation skills. ● To understand group communication. ● To get acquainted with Business correspondence. ● To apply language and writing skills. 	
Course Code: 5	Course Title: Foundation Course - II
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about globalization and Indian Society. ● To understand human rights. ● To get understanding about stress and conflicts. ● To apply knowledge in managing stress and conflicts in contemporary society. 	
Course Code: 6	Course Title: Business Law – Business Regulatory framework - I
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about Law of contract 1872. ● To understand Sale of Goods Act 1930. ● To understand Negotiable Instrument Act 1881. ● To acquire knowledge about consumer protection Act 1986. 	
Course Code: 7	Course Title: Business Mathematics
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand ratio, proportion and percentage. ● To analyse profit and loss. ● To understand interest and annuity. ● To get knowledge about shares and mutual fund. 	
Class: S. Y. B. C. A. F.	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students can acquire knowledge about Special accounting areas, methods of costing, Direct Taxation, Management accounting. ● Students can understand Financial Market operations, functions of management, Business law and business economics. <p>Communication skills</p> <ul style="list-style-type: none"> ● Students can communicate effectively using medium of information technology. <p>Problem solving and research skills</p> <ul style="list-style-type: none"> ● Students can understand basics of research methodology. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To understand special areas of financial accounting. ● To know different methods of cost accounting. ● To acquire knowledge of direct taxation system of India. ● To analyse usefulness of information technology in accountancy. ● To understand business regulatory framework in India. ● To study business economics for better understanding of business environment. ● To understand the financial market operations in detail. ● To acquire knowledge of management accounting. ● To understand direct tax system related to different persons in India. ● To understand need of research methodology in accounting and finance. ● To know functions and role of management in business environment. 	
SEMESTER III	
Course Code: EC – 1	Course Title: Financial Accounting (Special Accounting areas) – III
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand partnership final account with adjustment of admission or retirement / death of partner during the year. ● To acquire knowledge of piecemeal distribution of cash. ● To understand conversion or sale of a partnership firm into a Ltd. Company. ● To get knowledge about accounting of transactions of foreign currency. ● To know about procedure of amalgamation of firms. 	
Course Code: EC – 2	Course Title: Cost Accounting (Methods of costing) – II
1	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To classify the costs and prepare cost sheet. ● To analyse cost accounts, financial accounts and reconcile them. ● To understand contract costing. ● To acquire knowledge of process costing. 	
Course Code: EC – 4 1	Course Title: Taxation – II (Direct Taxes paper – I)
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about definitions u/s 2. ● To know basis of charge and exclusion from total income. ● To understand different heads of incomes like Salary, House property, Business profession, Capital Gain, Other sources. ● To analyse different deductions under chapter VI – A ● To understand computation of total income. 	
Course Code: AEC 4 2A	Course Title: Information technology in accountancy – I
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about computers. ● To understand office productivity tools. ● To understand Web and its importance. ● To get knowledge about internet and other emerging technologies. ● To understand electronic commerce. 	
Course Code: SEC 4 2B	Course Title: Foundation Course in commerce (Financial Market operations) – III
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To know overview of the financial system. ● To understand financial markets. ● To acquire knowledge about financial instruments. ● To know different financial services. 	
Course Code: CC 3 6	Course Title: Business Law (Business Regulatory Framework) – II



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To know the Indian partnership Act 1932. ● To acquire knowledge about limited liability partnership Act – 2008. ● To know about factories Act 1948. 	
Course Code: CC 3 7	Course Title: Business Economics – II
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To know overview of macroeconomics ● To understand money, prices and inflation. ● To acquire knowledge about public finance. ● To analyse public revenue, public expenditure and debt. ● To understand fiscal management and financial administration. 	
SEMESTER IV	
Course Code: EC 1 1	Course Title: Financial Accounting (Special Accounting Areas) – IV
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand preparation of final accounts of companies. ● To acquire knowledge about redemption of preference shares. ● To know about redemption of debentures. ● To understand ascertainment and treatment of profit prior to incorporation. ● To understand concept and preparation of foreign branch accounts. 	
	Course Title: Management Accounting (Introduction to Management Accounting)
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about management accountancy. ● To study analysis and interpretation of accounts. ● To understand financial statement. ● To calculate and analyse different ratios of financial statements. ● To study cash flow statement and its analysis. ● To understand working capital management. 	
Course Code: EC 1 4	Course Title: Taxation – III (Direct Taxes – II)



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To understand clubbing of income. ● To acquire knowledge about set off and carry forward of losses. ● To know computation of tax liability of individual and HUF. ● To study computation of income of partnership firm in relation to section 40(b) and tax thereon. ● To understand return of income under section 139. ● To know concept of Tax deducted at source ● To calculate advance tax and interest payable. ● To acquire knowledge about DTAA U/S 90 and 91. ● To know about tax planning and ethics in taxation. 	
Course Code: AEC 2A4	Course Title : Information Technology in Accountancy – II
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To understand business process. ● To know about computerized accounting system. ● To understand concept of MIS reports in computer environment. ● To understand relationship between information technology and auditing. 	
Course Code: SEC 2B5	Course Title : Foundation Course – Contemporary issues – IV
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To know about significant, contemporary rights of citizens. ● To know approaches to understanding ecology. ● To understand science and technology. ● To understand competitive exams. 	
Course Code: CC 3 6	Course Title : Business Law (Company Law) – III
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To know about incorporation of companies. ● To study public offer. ● To understand private placement. ● To acquire knowledge about share capital and debentures. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: CC 3 7	Course Title : Research Methodology in accounting and finance
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To acquire knowledge about research. ● To understand research design in accounting and finance. ● To study data collection and processing. ● To know about interpretation and report writing. 	
Class: T. Y. B. C. A. F.	
<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students can acquire knowledge about financial accounting, cost accounting, Financial Management, Indirect Taxation. ● Students can understand management applications and structure of Indian economy. <p>Communication skills</p> <ul style="list-style-type: none"> ● Students can express their thoughts through research project. <p>Problem solving and research skills</p> <ul style="list-style-type: none"> ● Students can analyse and examine data from research through testing of hypothesis. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To understand financial accounting system in depth. ● To know different tools and techniques of cost accounting. ● To acquire knowledge of indirect taxation system of India. ● To analyse usefulness of financial management. ● To acquire knowledge about Indian economic structure. ● To understand management applications in business environment. 	
SEMESTER V	
Course Code: EC 1 1	Course Title : Cost accounting – III
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand uniform costing and inter-firm comparison. ● To study integrated system and non integrated system of accounts. ● To acquire knowledge about operating costing. 	



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> ● To understand process costing equivalent production and inter-process profit. ● To learn about activity based costing system. 	
Course Code: 2 EC 1	Course Title : Financial Management – II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand strategic financial management. ● To study capital budgeting with project planning and risk analysis. ● To learn capital structure theories and dividend decisions. ● To understand mutual funds and bond valuation. ● To know credit management. 	
Course Code: 3 EC 1	Course Title : Taxation – IV (Indirect Taxes – II)
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To acquire knowledge about indirect taxation and GST. ● To compute levy and collection of GST. ● To understand concept of supply. ● To know about documentation required for GST. ● To understand input tax credit and computation of GST. ● To acquire knowledge about registration under GST. 	
Course Code: EC 1 6	Course Title : Management – II (Management Applications)
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To study concept of marketing management. ● To understand production management. ● To acquire knowledge about human resource management. ● To understand financial management. 	
Course Code: CC 2 5	Course Title : Financial Accounting – V



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about underwriting of shares and debentures. ● To understand buy back of shares. ● To know AS-14 amalgamation, absorption, external reconstruction. ● To study internal reconstruction. ● To understand liquidation of companies. 	
Course Code: CC 2 6	Course Title : Financial Accounting – VI
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To understand final accounts of banking company. ● To study final accounts of insurance company. ● To acquire knowledge about non banking financial companies. ● To compute value of Goodwill and Shares. ● To understand accounting for limited liability partnership. 	
SEMESTER VI	
Course Code: 1 EC 1	Course Title : Cost Accounting - IV
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about budgeting and budgetary control. ● To understand absorption costing and marginal costing cost volume and profit analysis. ● To know about managerial decision making. ● To understand standard costing and variance analysis. 	
Course Code: 2 EC 1	Course Title : Financial Management – III
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about business valuation. ● To understand mergers and acquisitions. ● To learn about corporate restructuring and takeovers. ● To understand lease and hire purchase financing. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> To study about Working capital financing. 	
Course Code: EC 1 3	Course Title : Taxation – Paper V (Indirect Taxes – III)
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To learn about payment of tax and refunds. To study about returns of tax To acquire knowledge about Accounts, Audit, Assessment and records. To understand Custom Act. To know about foreign trade policy. 	
Course Code: EC 1 6	Course Title : Economics Paper – III (Indian Economy)
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To acquire knowledge about agricultural sector. To understand industrial sector. To study service sector and External sector. To acquire knowledge about money and banking. 	
Course Code: 5 CC 2	Course Title : Financial Accounting – VII
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To understand final account for electricity company. To study final accounts for co-operative society. To learn accounting standard – 13 of investment accounting. To acquire knowledge about mutual fund. To know about IFRS and Indian accounting standards. 	
Course Code: CC 2 6	Course Title : project work - II



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:

The students would be able :

- To understand research design.
- To learn data collection.
- To analyse collected data with different statistical techniques.
- To know project writing skills.

24. B.Com. [Banking and Insurance]

Name of Department: B.Com. [Banking and Insurance]

Class: F. Y. B. B. I.

Program Outcomes:

Specific core discipline knowledge

- Students can understand the banking services and insurance related services, its functions, regulatory mechanism.
- Students can understand the principles of management and essential of management, business economics, basics of quantitative methods
- **Communication skills**
Students can acquire knowledge related to oral and written communication skills.

Problem solving and research skills

- Students can analytically solve and record transactions in different accounting systems.

Program Specific Outcomes:

- To understand banking and its related services and types of banking and its function
- To understand insurance and their types and its services.
- To study the role of Regulatory bodies.
- To make aware about innovations in financial services.
- To study the significant role of risk in banks
- To understand elements of financial accounting.
- To understand overview of business economics.
- To study the principles of management, areas of management and its function in detail.
- To understand the structure of banking and insurance Companies.
- To develop communication skills.



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> ● To learn the basis of society. ● To get knowledge about the Indian constitution and their rights. ● To aware about human values and responsibility towards society. ● To study the accounting standards. ● To enhance the behaviour of the organization, stress management symptoms and tools to manage. ● To understand the importance of financial management and methods of cost accounting. 	
SEMESTER I	
Course Code: EC 1	Course Title: Environment and Management of Financial Services
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To enrich students with the knowledge of the functioning of banks and insurance companies. ● To Study the mobilization of funds by banking and insurance sector. ● To study Indian financial markets, financial instruments and financial regulators ● To help students realize the quintessential role of banks and insurance in the world today 	
Course Code: EC 2	Course Title: Principle of Management
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To Study of leadership with live examples of business leaders. ● Introduction to the concept of management and its functions. ● To know concept of planning, decision making, controlling, staffing, organizing etc. and to understand new approaches in management 	
Course Code: EC 3	Course Title: Financial Accounting –I
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To have knowledge of basic accounting concepts such as journal, ledger, subsidiary book, journal proper and bank reconciliation statements. ● To gain knowledge on AS -6 (depreciation) and AS 10 (fixed assets). ● To Understand closing of accounts at the end of the year for sole trading concern and partnership firms. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: AECC 2A 4	Course Title: Business Communication – I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To gain knowledge about theories of communication. ● To understand obstacles to communication in Business world. ● To acquire knowledge about business correspondence. ● To apply the language and writing skills. 	
Course Code: SEC 2B 5	Course Title: Foundation Course – I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To sensitize learners about Indian society. ● To Understand multi-cultural diversity of Indian society. ● To Understand of India's political processes and the Indian constitution. 	
Course Code: CC 6	Course Title: Business Economics – I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To Enhance knowledge on demand-supply analysis, production function, break even analysis and economies of scale. ● To Understand markets structures such as perfect competition, monopoly, monopolistic competition and oligopoly. ● To acquaint the students with the economic principles as are applicable in business 	
Course Code: CC 7	Course Title: Quantitative Methods –I
<ul style="list-style-type: none"> ● To Understand index numbers and application to banking and insurance sector. ● To provide fundamental basic knowledge of statistical techniques as applicable to business. ● To Develop graphical presentation 	
SEMESTER II	
Course Code: EC 1	Course Title: Principles and Practices of Banking and Insurance



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To Study banking sector in India ● To Study Insurance sector in India. 	
Course Code: EC 2	Course Title: Business Law
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To get Knowledge about the Indian Contract Act 1872 and special contracts. ● Knowledge and understanding of the sale of Goods Act 1930 and Negotiable Instruments Act 1881. ● Knowledge of Consumer Protection Act, 1986. 	
Course Code: EC 3	Course Title: Financial Accounting – II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand valuation of goodwill and shares. ● To study Buyback of equity shares and redemption of Preference shares ● To study Redemption of debentures 	
Course Code: AECC 2A 4	Course Title: Business Communication - II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To know about presentation skills. ● To understand group communication. ● To get acquainted with Business correspondence. ● To apply language and writing skills. ● To Understand of presentation skills and making of power point presentation. ● Understanding of group communication – interviews, meetings, conference and public relation. ● Understanding business correspondence, language and writing skills. 	
Course Code: SEC 2B 5	Course Title: Foundation Course – II



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● The objective of this course is to understand the concepts of liberalization, privatization and globalization. ● Understanding the importance of environmental studies. ● Understanding and managing stress and conflict. ● Understanding the importance of environmental studies. 	
Course Code: CC 6	Course Title: Organizational Behaviour
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To Study organizational behaviour with respect to motivation in banking and insurance sector. ● To Understand group dynamics. ● To Develop organizational culture and organizational development. 	
Course Code: CC 7	Course Title: Quantitative Methods –II
<ul style="list-style-type: none"> ● To know Testing of Hypothesis. ● To study Calculation of Ratio, Proportion and Percentage ● To understand Application of statistics in Investments 	

25. B.Com. [Financial Management]

Name of Department: B. Com. [Financial Management]
Class: F. Y. B. F.MG
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> ● Students can acquire knowledge about preparation of Accounts, elements of accountancy, Special accounting areas, Business Mathematics, Financial System, Principles Of Finance, Environmental Science, Business Environment and Computer skills. ● Students can understand primary details of the Financial Accounts, Financial System. ● Students can understand Business environment, Business Communication Communication skills Students can communicate effectively using oral and written communication skills. Problem solving and research skills



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Students can analytically solve and record transactions in different accounting systems.

Program Specific Outcomes:

- To understand elements of financial accounting.
- To explore the special accounting areas in financial accountancy.
- To analyze and understand the Indian Financial System.
- To provide knowledge about Computer Skills.
- To develop good communication skills in oral and written form.
- To make awareness of The Principles of Finance.
- To explain business environment and its impact on world.
- To understand overview of business economics.
- To analyze different mathematical techniques to calculate financial return and risk.
- To aware about human values and responsibility towards society.

SEMESTER I

Course Code: EC 1

Course Title: Financial Accounting

Course Outcomes:

The students would be able :

- To gain knowledge about the accounting concepts and conventions.
- To understand depreciation, its meaning and methods.
- To prepare final accounts of proprietary concern.
- To understand the single entry system of accounting.

Course Code: EC 2

Course Title: Business Mathematics

Course Outcomes:

The students would be able :

- To understand calculation of ratio, proportion and percentage.
- To calculate profit & loss, trade discount, cash discount, commission and brokerage.
- To gain knowledge about Interest and annuity.
- To understand about shares and mutual funds.

Course Code: EC 3

Course Title: Indian Financial System.

Course Outcomes:

The students would be able :

- To gain knowledge about financial system.
- To analyze and understand the various financial institutions .
- To acquire knowledge about the non banking financial institutions.
- To understand the evolution of finance companies.

Course Code: AEECC 2A 4

Course Title: Business Communication – I



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To gain knowledge about theories of communication. ● To understand obstacles to communication in Business world. ● To acquire knowledge about business correspondence. ● To apply the language and writing skills. 	
Course Code: SEC 2B 5	Course Title: Foundation Course – I
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To gain knowledge about overview of Indian society. ● To understand concept of disparity. ● To acquire knowledge about Indian Constitutions. ● To understand significant aspects of political processes. 	
Course Code: CC 6	Course Title: Business Environment – I
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand business and its environment. ● To acquire knowledge about business and society. ● To analyze contemporary issues. ● To understand international environment. 	
Course Code: CC 7	Course Title: Business Economics – I
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about business economics. ● To understand concept of demand. ● To analyze supply and production decisions and cost of production. ● To understand market structure. ● To get knowledge about pricing practices. 	
SEMESTER II	
Course Code: EC 1	Course Title: Financial Accounting – II
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand branch accounts. ● To acquire knowledge about departmental accounts. ● To understand the hire purchase and installment system. ● To acquire knowledge of partnership accounts. 	
Course Code: EC 2	Course Title: Business Statistics



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge of statistics, population, sampling. ● To understand the measures of central tendency. ● To understand measures of dispersion. ● To acquire knowledge of correlation and regression. 	
Course Code: EC 3	Course Title: Principles of Finance
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge of finance, financial management and financial planning. ● To know capital structure and capitalization. ● To understand the external sources of finance. ● To know the internal sources of finance. 	
Course Code: AEECC 2A 4	Course Title: Business Communication - II
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To know about presentation skills. ● To understand group communication. ● To get acquainted with Business correspondence. ● To apply language and writing skills. 	
Course Code: SEC 2B 5	Course Title: Foundation Course - II
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about globalization and Indian Society. ● To understand human rights. ● To get knowledge about the ecology. ● To get understanding about stress and conflicts. ● To apply knowledge in managing stress and conflicts in contemporary society. 	
Course Code: CC 6	Course Title: Environmental Science
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To have an overview of environment. ● To understand the various natural resources. ● To understand environment and economic activities. ● To get acquainted with environment management. 	
Course Code: CC 7	Course Title: Computer skills - I
Course Outcomes:	



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

<p>The students would be able :</p> <ul style="list-style-type: none"> ● To get knowledge of computer hardware. ● To understand windows and its features ● To get familiar with internet ● To understand word – 2013 ● To understand excel - 2013 	
Class: S. Y. B.FMG.	
<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students can acquire knowledge about Management accounting, Corporate accounts, Cost accounting, Corporate finance. ● Students can understand Entrepreneurial development, Taxation, Business regulatory framework, Office management, Business and companylaw. <p>● Communication skills Students can communicate effectively using medium of information technology.</p>	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To understand Corporate accounting. ● To know different methods of cost accounting. ● To acquire knowledge of direct taxation system of India. ● To analyze usefulness of information technology in accountancy. ● To understand business regulatory framework in India. ● To study entrepreneurial development. ● To understand the business laws. ● To acquire knowledge of management accounting. ● To understand indirect tax system in India. ● To understand need of Office management. 	
SEMESTER III	
Course Code: EC 1 (DRE)	Course Title: Corporate Accounts -1
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand partnership final account with adjustment of admission or retirement / death of partner during the year. ● To acquire knowledge of piecemeal distribution of cash. ● To understand conversion or sale of a partnership firm into a Ltd. Company. ● To know about procedure of amalgamation of firms. 	
Course Code: EC 2 (DRE)	Course Title: Direct Tax - 1



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To acquire knowledge about definitions u/s 2. ● To know basis of charge and exclusion from total income. ● To understand different heads of incomes like Salary, House property, Business profession, Capital Gain, Other sources. ● To analyse different deductions under chapter VI – A ● To understand computation of total income.. 	
Course Code: EC 3 (DRE)	Course Title: Cost Accounting - 1
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand the cost accounting. ● To acquire knowledge about material cost ● To understand labour cost. ● To understand overheads ; classification and apportionment. 	
Course Code: AEC 4	Course Title: Entrepreneurial Development.
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand entrepreneur and entrepreneurship. ● To gain knowledge about entrepreneurial Development. ● To analyze the legal considerations for different forms of organizations. ● To get knowledge about Entrepreneurship Development Programme and Risk Management. 	
Course Code: CC 5	Course Title: Management Accounting.
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To get introduced to Management accounting. ● To analyze and interpret Accounts. ● To understand Ratio analysis. ● To get knowledge of Cash Flow Statement. ● To understand working capital management. 	
Course Code : CC 6	Course Title: Business Law
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To know the Indian Contract Act, 1872 ● To understand Special contracts. ● To gain knowledge of The Sales of Goods Act, 1930 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> To acquire knowledge about The Negotiable Instruments (Amended) Act, 2015 	
Course Code: CC 7	Course Title: Business Regulatory Framework
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To know the Laws related to Industrial Relations and Industrial Disputes. To understand Laws related to Health, Safety and Welfare. To gain knowledge of Social Legislation. To know laws related to Compensation Management. 	
SEMESTER IV	
Course Code: EC 1 (DRE)	Course Title: Corporate Accounts - II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand preparation of final accounts of companies. To acquire knowledge about redemption of preference shares. To know about redemption of debentures. To understand ascertainment and treatment of profit prior to incorporation. 	
Course Code: EC 2 (DRE)	Course Title: Direct Tax - II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand clubbing of income. To acquire knowledge about set off and carry forward of losses. To know computation of tax liability of individual and HUF. To study computation of income of partnership firm in relation to section 40(b) and tax thereon. To understand return of income under section 139. To know concept of Tax deducted at source To calculate advance tax and interest payable. To acquire knowledge about DTAA U/S 90 and 91. 	
Course Code: EC 3 (DRE)	Course Title: Cost Accounting - II



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To classify Costs and Costs sheets. ● To understand reconciliation of Costs and Financial accounts. ● To gain knowledge of Contract costing ● To gain knowledge of Process costing. 	
Course Code: AEC 4	Course Title : Information Technology in Management
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand business process. ● To know about computerized accounting system. ● To understand concept of MIS reports in computer environment. ● To understand relationship between information technology and auditing. 	
Course Code: CC 5	Course Title : Corporate Finance
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To get an overview of Corporate finance ● To do planning of corporate financial Activities ● To understand capital structure ● To understand the sources and methods of raising corporate finance. 	
Course Code: CC 6	Course Title: Corporate Law
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To know The Indian Companies Act, 2013 ● To understand The Indian Partnership Act, 1932 ● To understand the Consumer Protection Act, 1986 and The Competition Act, 2002 ● To know the laws related to intellectual property rights. 	
Course Code: CC 7	Course Title : Office Management.
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To know Office Accommodation and Environment. ● To know Office Automation ● To understand HRM for office Management ● To know the planning and scheduling office work 	
Class: T. Y. B. F.MG	



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> ● Students can acquire knowledge about financial management, corporate accounting, auditing. ● Students can understand Financial analysis and business valuation. 	
Program Specific Outcomes: <ul style="list-style-type: none"> ● To understand corporate accounting system in depth. ● To analyze usefulness of financial management. ● To understand the need and importance of auditing. ● To analyze usefulness of financial management. ● To do financial analysis and business valuation. ● To understand organizational behavior ● To gain knowledge about security analysis and portfolio management. 	
SEMESTER V	
Course Code: EC 1	Course Title :Corporate accounts - III
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand final accounts of Banking Company. ● To understand final accounts of Insurance Company. ● To gain knowledge of Investment accounting. ● To understand about accounting for foreign currency translation. 	
Course Code: EC 2	Course Title : Auditing - I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand need and importance of Auditing. ● To do audit planning, Procedure and documentation. ● To understand various auditing techniques. ● To understand internal audit. 	
Course Code: EC 4	Course Title : Business Ethics
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand about ethics and areas of business ethics ● To get knowledge about Business ethics in global economy ● To study the concept of corporate social responsibility ● To understand about the functional ethics. 	
Course Code: EC 6	Course Title : Financial Planning and Business valuation



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To study analysis of financial statement and statement of shareholder's equity ● To do analysis of Income, profitability, growth and sustainable earnings. ● To understand business valuation and its models. ● To get knowledge of valuation of business for Mergers & acquisitions and Valuation of Intellectual property. 	
Course Code: CC 5	Course Title : Financial Management - I
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To get an introduction about Financial Management. ● To acquire knowledge about investment decisions ● To understand types of financing. ● To get knowledge about the cost of capital. 	
Course Code: CC 6	Course Title : Research Methodology in Financial Management.
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To get an introduction of research. ● To understand data collection and processing. ● To understand data analysis and interpretation ● To acquire knowledge of research report writing. 	
SEMESTER VI	
Course Code: CC 5	Course Title : Financial Management - II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To acquire knowledge about risk and return ● To analyze capital structure decisions ● To understand cash management. ● To understand receivable management 	
Course Code: EC 1	Course Title : Corporate Accounting - IV
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To study corporate financial statement. ● To understand internal reconstruction. ● To study AS 14- Amalgamation, Absorption. ● To study external reconstruction 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: EC 2	Course Title : Auditing - II
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To learn about vouching ● To study verification ● To study various auditing standards. ● To understand about audit of companies. 	
Course Code: EC 4	Course Title : Organisational Behaviour
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To acquire knowledge about organizational behavior ● To understand inter personal relationships ● To understand group behavior and team behavior ● To get knowledge about stress management and change. 	
Course Code: CC 6	Course Title : Security Analysis and Portfolio Management
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand portfolio management ; its introduction and process ● To understand portfolio management valuation ● To understand fundamental and technical analysis ● To know the efficient market theory and CAPM 	

26. B. Com. [Investment Management]

Name of Department: B. Com. [Investment Management]
Class: F. Y. B. I.M
Program Outcomes:
Specific core discipline knowledge
<ul style="list-style-type: none"> ● Students can understand the Investment, Investment alternatives, Investment related services and regulatory mechanism. ● Students can understand the basic of wealth creation and wealth management , business economics, basics of quantitative methods
Communication skills
<ul style="list-style-type: none"> ● Students can acquire knowledge related to oral and written communication skills.
Problem solving and research skills



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- Students can analytically solve and record transactions in different accounting systems.

- Program Specific Outcomes:**
- To understand Investment and its related services and types of Investment and its importance.
 - To study the role of Regulatory bodies.
 - To make aware about innovations in investment services.
 - To study the significant role of risk in Investment.
 - To understand elements of financial accounting.
 - To understand overview of business economics.
 - To study the principles of wealth creation and wealth management in detail.
 - To understand the structure of capital market in India.
 - To develop communication skills.
 - To learn the basis of society.
 - To get knowledge about the Indian constitution and their rights.
 - To aware about human values and responsibility towards society.
 - To study the accounting standards.
 - To study the role of financial intermediaries and Investment Banking.
 - To understand the importance of financial management and methods of cost accounting.

SEMESTER I

Course Code: EC 1	Course Title: Basic of Investment & Wealth Creation
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- Course Outcomes:**
- The students would be able :
- To enrich students with the knowledge of the basics of Investment and Wealth creation.
 - To Study the deployment of funds in different sectors by way of Investment.
 - To study Investment alternatives.
 - To help students realize the importance of investment and wealth creation in the today developing economy.



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: EC 2	Course Title: Introduction to Accounting- I
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To have knowledge of basic accounting concepts such as journal, ledger, subsidiary book, journal proper and bank reconciliation statements. ● To gain knowledge on AS -1 (Disclosure of Accounting Policies), AS 2 (Valuation of Inventories (Stock)) and AS – 9 Revenue Recognition. ● To understand manufacturing trading account, profit and loss account and Balance sheet (final account). ● To understand the concept of Hire Purchase System. 	
Course Code: EC 3	Course Title: Introduction to Financial System
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the financial system in India. ● To understand the types of financial market in India. ● To understand the importance of financial institutions. ● To have knowledge of financial services and financial regulators. ● To have knowledge of different financial instruments. 	
Course Code: AECC 2A 4	Course Title: Business Communication – I
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To gain knowledge about theories of communication. ● To understand obstacles to communication in Business world. ● To acquire knowledge about business correspondence. ● To apply the language and writing skills 	
Course Code: SEC 2B 5	Course Title: Foundation Course – I
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To sensitize learners about Indian society. ● To Understand multi-cultural diversity of Indian society. ● To Understand of India's political processes and the Indian constitution. 	
Course Code: CC 6	Course Title: Business Economics – I



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To Enhance knowledge on demand-supply analysis, production function, break even analysis and economies of scale. ● To Understand markets structures such as perfect competition, monopoly, monopolistic competition and oligopoly. ● To acquaint the students with the economic pricing practices as are applicable in business. 	
Course Code: CC 7	Course Title: Quantitative Techniques
<ul style="list-style-type: none"> ● To Understand Financial mathematics. Simple interest, compound interest-nominal rate effective rate and continuous compounding and EMI calculation. ● To provide fundamental basic knowledge of statistical techniques as applicable to business. ● To understand Concept of real functions and Derivatives. 	
SEMESTER II	
Course Code: EC 1	Course Title: Introduction to Wealth Management
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To Study overview of wealth management. ● To study the role of Insurance in wealth management. ● To Study Insurance sector in India. ● To gain the knowledge of retirement planning and estate planning. 	
Course Code: EC 2	Course Title: Introduction to Accounting-II
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To understand the concept of Investment Accounting w.r.t AS 13. ● To study Foreign currency transactions w.r.t AS 11 ● To study Accounts of Non–Trading Institutions & Service Industries. ● To understand the concept of Issue of Shares and Debentures, Redemption of Preference shares. 	
Course Code: EC 3	Course Title: Introduction to Financial Markets



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand Structure of financial markets in India. ● To study Capital market and money market. ● To study Foreign exchange markets, Commodity markets and Derivative markets. ● To understand Market exchanges and Market regulators. 	
Course Code: AECC 2A 4	Course Title: Business Communication – II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To know about presentation skills. ● To understand group communication. ● To get acquainted with Business correspondence. ● To apply language and writing skills. ● To understand of presentation skills and making of power point presentation. ● Understanding of group communication – interviews, meetings, conference and public relation. ● Understanding business correspondence, language and writing skills. 	
Course Code: SEC 2B 5	Course Title: Foundation Course – II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● The objective of this course is to understand the concepts of liberalization, privatization and globalization. ● Understanding the importance of environmental studies. ● Understanding and managing stress and conflict. ● Understanding the importance of environmental studies. 	
Course Code: CC 6	Course Title: Introduction to Financial Intermediaries
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To Study Basics of Financial Intermediaries. ● To Understand Taxonomy of Financial Intermediaries. ● To understand Theories and Management of Financial Intermediation. ● To study Future and Challenges in Financial Intermediaries. ● To study Financial Intermediaries – Global Perspective. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: CC 7	Course Title: Investment Banking
<ul style="list-style-type: none"> ● To understand the concept of Investment Banking. ● To understand the concept Risk and Return. ● To study Investment Banking Activities 	

27. B. Com. [Financial Market]

Name of Department: B. Com. [Financial Market]		
Class: F. Y. B. FM		
Program Outcomes:		
<ul style="list-style-type: none"> ● After completing the three years Bachelor of Commerce (Financial Markets) program the students will be able to Understand the fundamental & operations of financial market, to apply & evaluate the financial & investment theories. ● To focus deep in basics of trading & its regulations market forces etc. ● To gain knowledge about risk, wealth, economics as well as legal framework of financial market. ● To pursue masters degree in the field finance such as MFM, MBA(Finance) PGDFM etc. ● To achieve highly paid jobs as finance manager Research analysis, financial consultant, project Co-ordinator, wealth manager etc. 		
Program Specific Outcomes:		
<ul style="list-style-type: none"> ● To give an idea about fundamentals of financial services and players in financial sectors, key concept from environment studies, political, and social analysis as they pertain to the design, about different trade policy on export and import, Preparing financial statements in accordance with appropriate standards. ● To understand the law of demand, supply forecasting, consumer durable, Understand the mechanics and conventions of the foreign exchange market. ● To examine forwards and futures contracts for equity indexes, commodities, and currencies, Enabling the students to understand the about the Equity Market, Derivative market, commodity market, Capital market. Financial market, Debt market, Venture capital & private equity, to understand the basic concept of ● direct and indirect tax. 		
Course Outcome		
SR NO	SUBJECT	OBJECTIVES



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

SEM 1		
1	Financial Accounting 1	<ul style="list-style-type: none"> To enable students to learn principles and fundamental concepts of Accountancy
		<ul style="list-style-type: none"> Prepare ledger accounts using double entry bookkeeping and record journal entries accordingly
2	Introduction to Financial System	<ul style="list-style-type: none"> To learn the fundamentals of financial system in economy.
3	Business Mathematics	<ul style="list-style-type: none"> To enable students to learn the basic concepts of mathematics and its application in finance.
4	Business Communication	<ul style="list-style-type: none"> To develop the ability of the students to communicate professionally and correspond correctly.
		<ul style="list-style-type: none"> To understand effective interpersonal communications skills that maximize team effectiveness.
5	Foundation Course	<ul style="list-style-type: none"> Course taken at colleges gives wide range of subjects or in one subject at a basic level, preparing students for more advanced study it teaches us about social values, moral values in students
6	Business Environment	<ul style="list-style-type: none"> To provide knowledge of the environment in which business operate, understand the concept, significance and changing dimensions of business environment.
7	Business Economics	<ul style="list-style-type: none"> To understand the basic framework of modern economy in which business operates.
Semester 2		
1	Financial Accounting 2	<ul style="list-style-type: none"> Preparing financial statements in accordance with appropriate standards. Interpreting the business implications of financial statement information. Preparing accounting information for planning and control and for the evaluation of finance. Prepare Bank reconciliation statement from incomplete statement. Explain the purpose of double entry system to understanding the accounting system properly. Preparation of ratification errors.
2	Principles of Management	<ul style="list-style-type: none"> Term management refers to the coordination of work activities through and with other people to accomplish the goals of an organization. Learner will explore the various functions of management. Management involves not only coordination, but also planning, organizing, leading, and controlling.



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

3	Business Statistics	<ul style="list-style-type: none"> To impart the basis in Statistics to help students acquire new skills on the application of statistical tools and techniques in Business decision-making.
4	Business Communication	<ul style="list-style-type: none"> Upon completion of the course, students can demonstrate a good understanding of effective business writing and effective business communications. To acquire the skills of report writing and Modern forms of communication: email, video conference, internet, websites and their importance.
5	Environmental Science	<ul style="list-style-type: none"> Understand key concepts from environment studies, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions. Learners can acquire knowledge on ecosystem, Food Chains, and historical context of environmental issues and the links between human and natural systems To understand appreciate concepts and methods from renewable and non-renewable sources and their application in environmental problem solving. Students understand critically on Biodiversity, threats for Biodiversity and their roles and identities as citizens, consumers.
6	Computer Skills	<ul style="list-style-type: none"> To introduce the students about basics of computer. To provide practical knowledge exposure to MS- Word. To provide practical knowledge exposure MS- Excel. To provide practical knowledge exposure MS- Power.
7	Foundation Course	<ul style="list-style-type: none"> It prepares students for more advanced study it teaches us about social problems about the society and to tackle the problem
Sem 3		
1	Portfolio Management	<ul style="list-style-type: none"> To help them to understand security analysis. To create an awareness about risk and return of different investments To enlighten the evolution of securities and derivatives



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

2	Management Accounting	<ul style="list-style-type: none"> ● To make them understand the investment decisions and portfolio performance ● To enlighten the students on management Accounting. Helps to give proper idea on financial statement analysis in practical point of view. ● To introduce the concept of fund flow and cash flow statement. To provide knowledge about budget control keeping in mind the scope of the concept. ● To develop the know-how and concept of marginal costing with practical problem.
3	Business Law	<ul style="list-style-type: none"> ● Make the students understand about business and corporate law ● Develop knowledge on contract and various types of contracts. ● To help the students to understand the concept of sale of. ● Make the students understand about Negotiable Instruments.
4	Debt Market 1	<ul style="list-style-type: none"> ● The debt market is the market where debt instruments are traded. ● Debt instruments are assets that require a fixed payment to the holder, usually with interest. ● Examples of debt instruments include bonds (government or corporate) and mortgages
5	Computer Skills	<ul style="list-style-type: none"> ● Basic computer literacy. ● The ability to back-up ● Experience of online project work. ● The ability to nurture creativity – and mark it. ● Social networking skills.
6	Foundation Course - Money Market.	<ul style="list-style-type: none"> ● The Financial Markets Foundation Qualification (FMFQ) is an introductory level Programme intended for anyone entering a career in the financial markets. ● The interaction between cash and derivative markets. The key features of both equity and debt products



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

7	Equity Market	<ul style="list-style-type: none"> ● The equity market (often referred to as the stock market) is the market for trading equity instruments. ● Stocks are securities that are a claim on the earnings and assets of a corporation. ● An example of an equity instrument would be common stock shares, such as those traded on the overseas Stock Exchange.
Sem 4		
1	Equity Market 2	<ul style="list-style-type: none"> ● The stock market refers to the collection of markets and exchanges where regular activities of buying, selling, and issuance of shares of publicly held companies take place. ● Such financial activities are conducted through institutionalized formal exchanges or <u>over-the-counter (OTC)</u> marketplaces which operate under a defined set of regulations. ● There can be multiple stock trading venues in a country or a region which allow transactions in stocks and other forms of securities.
2	Debt Market 2	<ul style="list-style-type: none"> ● Investments in debt securities typically involve less risk than equity investments and offer a lower potential <u>return on investment</u>. ● Debt investments by nature fluctuate less in price than stocks. ● Even if a company is liquidated, bondholders are the first to be paid
3	Business Law 2	<p>Upon completion of this course, students will be able to:</p> <ul style="list-style-type: none"> ● Know about the Corporate Laws in general. ● Become aware of legal aspects of Company law. ● Understand company contracts and become confident therein. ● Deal with corporate and Securities law
4	Merchant Banking	<ul style="list-style-type: none"> ● A merchant bank is a company that conducts underwriting, loan services, financial advising, and fundraising services for large corporations and high net worth individuals. Unlike retail or commercial banks, merchant banks do not provide services to the general public



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

5	Business Economics-Ii	<ul style="list-style-type: none"> Economics is a social science concerned with the production, distribution, and consumption of goods and services. It studies how individuals, businesses, governments, and nations make choices on allocating resources to satisfy their wants and needs and tries to determine how these groups should organize and coordinate efforts to achieve maximum output.
6	Corporate Finance	<ul style="list-style-type: none"> Corporate finance is an area of finance that deals with sources of funding, the capital structure of corporations, the actions that managers take to increase the value of the firm to the shareholders, and the tools and analysis used to allocate financial resources
7	Foreign Exchange Markets Foundation Course	<ul style="list-style-type: none"> The foreign exchange market (Forex, FX, or currency market) is a global decentralized or over the counter (OTC) market for the trading of currencies. This market determines the foreign exchange rate. It includes all aspects of buying, selling and exchanging currencies at current or determined prices.
Sem 5		
1	Corporate Accounting	It deals with accounting for company, preparation of their Final accounts and cash flow statement analysis and interpretation of company financial results.
2	Technical Analysis	It helps us to understand trading discipline employed to evaluate investment and identify trading opportunities in price trends and pattern seen on charts.
3	Marketing in Financial Services	It refers to collective use of marketing tactics employed by marketers in financial services sector
4	Financial Derivatives	The course describes and examines financial derivatives such as Forward, Future and option, drawing real world financial market experience and application.
5	Tax Direct and Income Tax	To introduce the basic concept of Income Tax. In order to familiarize the different know-how and heads of income with its components. It helps to build an idea about income from house property as a concept. It give more idea about the income from business or profession .Tax saving investments.



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

6	Business Ethics and Corporate Governance	<ul style="list-style-type: none"> ● It helps to identify the key players involved in corporate governance, discuss the rightful role of various authorities. ● To understand the emerging need and growing importance of good governance and CSR by organizations ● To study the ethical business practices, CSR and Corporate Governance practiced by various organizations
Sem 6		
1	Risk Management	<ul style="list-style-type: none"> ● It helps the student to identify and address the risk facing your business and in doing so increases the likelihood of successfully achieving your business objective. ● To understand issues pertaining to pricing and hedging with options on individual stocks and indexes, to examine forwards and futures contracts for equity indexes, commodities, and currencies, and to analyze second generation derivative products such as interest rates and the management of credit risks ● Understanding and managing risk, introduces financial risk management. The processes of risk identification, risk measurement and risk management are explored. The course then goes on to examine reputational risk and operational risk. ● It concludes with an examination of the subject of behavioural finance and what this can contribute to our understanding of risk taking and risk management.
2	Venture Capital and Private Equity.	<ul style="list-style-type: none"> ● Both private equity and venture capitalist invest in companies, both recruit former <u>Investment Bankers</u>, and they both make money from investments rather than advisory fees. ● But if you take a closer look at them, you'll see that they're significantly different.
3	Mutual Fund Management	<ul style="list-style-type: none"> ● A mutual fund collects money from investors and invests the money on their behalf. ● It charges a small fee for managing the money. ● Mutual funds are an ideal investment vehicle for regular investors who do not know much about investing.



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

		Investors can choose a mutual fund scheme based on their financial goal and start investing to achieve the goal.
4	Strategic Corporate Finance	Strategic Corporate Finance translates principles of corporate finance theory into practical methods for implementing them. Filled with in-depth insights, expert advice, and detailed case studies, Strategic Corporate Finance will prepare you for the issues involved in raising, allocating and managing capital, and its associated risks.
5	Indirect Tax GST	<ul style="list-style-type: none"> • People have taken note of the GST or the Goods Services Tax law. A new law has been proposed which is set to reform how people do business and the way goods and services are taxed in India. Whether it makes goods cheaper for the common man like you and me, nobody can tell. But this is going to impact our lives in our jobs, our businesses and the overall economic environment. Reason enough for us to learn something about it!
6	Project.	<ul style="list-style-type: none"> • Project Work is a learning experience which aims to provide students with the opportunity to synthesize knowledge from various areas of learning, and critically and creatively apply it to real life situations. • This process, which enhances students' knowledge and enables them to acquire skills like collaboration, communication and independent learning, prepares them for lifelong learning and the challenges ahead.



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

28. B. Com. (Environmental Management & Economics)

Name of Department: B. Com. (Environmental Management & Economics)	
Class: F. Y.E.M.E	
<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students can understand to values, attitude and practical skills for management of Environment. ● Students can understand the principles of management and essential of management, business economics, basics of quantitative methods <p>Communication skills</p> <p style="padding-left: 40px;">Students can acquire knowledge related to oral and written communication skills.</p> <p>Problem solving and research skills</p> <ul style="list-style-type: none"> ● Students can analytically solve and record transactions in different accounting systems. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To understand environment and its related management concerns. ● To understand the goals towards sustainability. ● To study the role of Regulatory bodies. ● To make aware about innovations in. ● To understand elements of environment. ● To understand overview of business economics. ● To study the principles of management, areas of management and its function in detail. ● To understand the structure of environment. ● To develop communication skills. ● To learn the basis of society. ● To get knowledge about the Indian constitution and their rights. ● To aware about human values and responsibility towards society. ● To study the management goals ● To enhance the behaviour of the organization, stress management symptoms and tools to manage. ● To understand the importance of management and its benefits to the society. 	
SEMESTER I	
Course Code: EC 1	Course Title: Introduction to Environmental Management & Economics -I



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To enrich students with the knowledge of different functions of Environment. ● To Study the skills of management. ● To solve Environmental problems. ● To help students realize the concens towards sustainability. 	
Course Code: EC 2	Course Title: Principle of Management
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To Study of leadership with live examples of business leaders. ● Introduction to the concept of management and its functions. ● To know concept of planning, decision making, controlling, staffing, organizing etc. and to understand new approaches in management 	
Course Code: EC 3	Course Title: Financial Accounting –I
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To have knowledge of basic accounting concepts such as journal, ledger, subsidiary book, journal proper and bank reconciliation statements. ● To gain knowledge on AS -6 (depreciation) and AS 10 (fixed assets). ● To Understand closing of accounts at the end of the year for sole trading concern and partnership firms. 	
Course Code: AECC 2A 4	Course Title: Business Communication – I
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To gain knowledge about theories of communication. ● To understand obstacles to communication in Business world. ● To acquire knowledge about business correspondence. ● To apply the language and writing skills. 	
Course Code: SEC 2B 5	Course Title: Organizational Behaviour
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To sensitize learners about the fundamentals of Organizational Behaviour. ● To Understand dimensions & interaction in society. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> To Understand the techniques of organizational behaviour. 	
Course Code: CC 6	Course Title: Business Economics – I
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To Enhance knowledge on demand-supply analysis, production function, break even analysis and economies of scale. To Understand markets structures such as perfect competition, monopoly, monopolistic competition and oligopoly. To acquaint the students with the economic principles as are applicable in business 	
SEMESTER II	
Course Code: EC 1	Course Title: Ecology & Environment
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To Study Ecology. To Study fundamental concept of Ecology & conservation ethics . 	
Course Code: EC 2	Course Title: Human Resource Management
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To get Knowledge Human Resource Management. Knowledge and understanding human resource planning & HRIS. 	
Course Code: EC 3	Course Title: Cost Accounting – II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> To understand valuation of goodwill and shares. To study Buyback of equity shares and redemption of Preference shares To study Redemption of debentures 	
Course Code: AECC 2A 4	Course Title: Economic Environment of Business- II



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To know about Macro Economics aggregates & concept. ● To understand policy Environment. ● To get acquainted with International trades. ● To understand globalization. ● Understanding business correspondence, language and writing skills. 	
Course Code: SEC 2B 5	Course Title: Production Management & Materials Management
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● The objective of this course is to understand the concepts of liberalization, privatization and globalization. ● Understanding the concept of operations & operation management. ● Understanding importance of material management. ● Understanding the value analysis & value Engineering. 	
Course Code: CC 6	Course Title: Business Statistics - II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To Study descriptive Statistics for universal data. ● To Understand the forecasting techniques. ● To understand probability distribution. ● To know Testing of Hypothesis. ● To study Calculation of Ratio, Proportion and Percentage. ● To understand Application of statistics in Investments. 	
Class: S. Y. E.M.E	
SEMESTER III	
Course Code: EC – 1 1	Course Title: Financial Management
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand Concept of finance and sources of finance ● To get Knowledge and understand of financial management ● To study Financial planning and Capital budgeting 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: EC – 1 2	Course Title: Marketing Management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● Understanding the role of management in marketing and decision making. ● Understanding marketing research. ● Understanding consumer behaviour, product & brand management. 	
Course Code: EC – 1 3	Course Title: Research Methods in Business
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand fundamentals of research. ● To study different types of research ● To understand importance of research in management decisions. 	
Course Code: AECC 2A 4	Course Title: Global Warming & Climate Change
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand the concept of Global Warming. ● To acquire knowledge of GHG's & its effects. ● To understand mitigation measures for cleaner & alternative fuel measures. 	
Course Code: SEC 2B 5	Course Title: Natural Resources & Management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To Understand the concept of resources & its types. ● To Learn aspects of practical skills for resource management. 	
Course Code: CC 3 6	Course Title: Environmental Economics - I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To get Knowledge and understand micro economic theory. ● To get Knowledge and understand valuation methods ● To get Knowledge and understand natural resource economics, international trade & environment. 	
SEMESTER IV	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: EC 1 1	Course Title: Environmental Safety, health & Management
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To Understand different types of diseases, factors affecting health. ● To understand occupational health & safety measures. ● To Study industrial safety & management safety. 	
Course Code: EC 1 2	Course Title: Environmental Pollution & Management
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● Knowledge and understanding the concept of pollution & its types. ● Understanding preventive control measures. ● To understand Government agencies & its programs 	
Course Code: EC 1 3	Course Title: Customer relationship management.
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● Knowledge and understanding entrepreneur and business planning. ● Knowledge and understanding key areas of new venture. ● To Understand the evolving concepts of entrepreneurship ● To understand emergence of permission marketing 	
Course Code: AECC 2A 4	Course Title : Occupational Health & Safety
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To understand health services & safety foundations, policies. ● To understand chemical & biological health hazards & its control ● Knowledge of monitoring, review and audit. 	
Course Code: CC 3 5	Course Title : Management Information System



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● Understanding information & information system in an organization. ● Study the strategic use of information & IS. ● Knowledge of information system. 	
<p>Course Code: CC 3 6</p>	<p>Course Title : Business Economics - II</p>
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● Knowledge and understanding of macro economics ● To Know money, inflation and monetary policy. ● To Understand the constituents of fiscal policy. ● To Study open economy. 	
<p>Class: T. Y. E.M.E</p>	
<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● Students can acquire knowledge analysis, management. ● Students can understand the strategy formulation. ● Students can get acquainted with the recourse management . <p>Communication skills</p> <p style="padding-left: 20px;">Students can express their ideas through research project.</p> <p>Problem solving and research skills</p> <p>Students can analyses and examine data from research through testing of hypothesis.</p> <p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To understand sustanbility towards environment. ● To study different key environment management techniques. ● To acquire research techniques through project. ● To understand management and its strategic importance. ● To understand the role of human as a resource. ● To understand portfolio management. 	
<p>SEMESTER V</p>	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: 1 EC 1	Course Title Environmental Impact Assessment
Course Outcomes: The students would be able : <ul style="list-style-type: none">● To understand the concept of EIA.● Knowledge and understanding various steps of EIA ,its notifications.	
Course Code: 2 EC 1	Course Title : Entrepreneurship Management
Course Outcomes: The students would be able : <ul style="list-style-type: none">● To get Knowledge and understand entrepreneurship, importance & its significance.● To understand Environmental project development.● To understand managing problems faced by enterpreneur.	
Course Code: 3 EC 1	Course Title : Strategic Management
Course Outcomes: The students would be able : <ul style="list-style-type: none">● To acquire knowledge about Strategic management● To study models of strategic management.● To understand strategic implementation, evaluation and control.	
Course Code: EC 1 4	Course Title Environmental Legislation
Course Outcomes: The students would be able : <ul style="list-style-type: none">● Have Knowledge and understanding of various Constitutional provisions for environmental protection.● Have Knowledge and understanding of various Environmental Acts Rules & notification.	
Course Code: CC 2 5	Course Title Project Management
Course Outcomes: The students would be able : <ul style="list-style-type: none">● To get Knowledge and understand project management and its types.	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> • Knowledge and understanding of network techniques , planning & coordination.. 	
Course Code: AEC 6	Course Title : Corporate Social Responsibility
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> • To understand the business ethics &its conceptual approaches. • To understand building blocks of CSR. • To understand the standards & codes <p>To understand stakeholders concepts.</p>	
SEMESTER VI	
Course Code: 1 EC 1	Course Title : Solid &Hazardous Waste Management
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> • Have Knowledge to understand wastes & its types. • Knowledge and understanding of fundamental and technical of handling wastes. 	
Course Code: 2 EC 1	Course Title : Environment & Eco tourism
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> • To understand the concept of Ecotourism. • Introduction to principles of Eco tourism. • Understanding different impact of Ecotourism. 	
Course Code: 3 EC 1	Course Title : Disaster Management
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> • To understand different types of disaster. • To study management of disaster. 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: 4 EC 1	Course Title : Environmental Problems, hazards & mitigation
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● Have Knowledge and understanding of natural & man made environmental problems. ● To understand regional and global environmental issues. 	
Course Code: CC 2 5	Course Title : Corporate Governance
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To gain Knowledge and understanding of corporate Governance ● To understand role of CEO, Board & Senior Executives. ● To understand right of investors & shareholders. 	
Course Code: AEC3 6	Course Title : Project work
Course Outcomes: The students would be able :	
<ul style="list-style-type: none"> ● To analyse collected data with different statistical techniques. ● To know project writing skills. ● To inculcate the element of research analysis and scientific temperament among learners. ● To understand research design. ● To learn data collection. 	

29. Bachelor of Management Studies

Name of Department: DEPARTMENT OF MANAGEMENT STUDIES (BMS)
Program Outcomes:
<ul style="list-style-type: none"> ● Develop Effective Business Communication Skills & Presentation Skills. ● Develop Research Abilities to Collect, Organize & Analyze Data & take appropriate Decisions to Solve Business Problems. ● Develop Generic Business Management Skills & also Specific Functional Skills pertaining to their respective Functional Area (i.e. Finance / Marketing / HR).



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Program Specific Outcomes:	
<ul style="list-style-type: none"> ● Understand the Importance of Business Ethics, Corporate Governance & CSR. ● Understand Basics of Operations Management (i.e. Logistics, Supply Chain Management & Operations Research). ● Understand Basics of Financial Accounting & Cost Accounting for making Managerial Decisions. ● Understand Basics of Marketing, Human Resource & Financial Management. ● Develop ability to conduct a Business Research Project. ● Have a Basic knowledge of Business Economics. ● Have a Basic knowledge of Business Law & Industrial Law. ● Becoming acquainted with important techniques of Business Statistics & Business Mathematics. ● Becoming aware of various Macro & Micro Environmental issues that affect the Business. ● Develop Competence, In-depth Knowledge & Employability in their selected Specialization (i.e. Finance / Marketing / HR). 	
Class: F.Y.B.M.S	
SEMESTER I	
Course Code: 1	Course Title: INTRODUCTION TO FINANCIAL ACCOUNTS
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● This subject is designed to equip the students with accounting principles and standards used in the corporate sector. ● This helps in gaining broad view with respect to financial system adopted in companies. 	
Course Code: 2	Course Title: BUSINESS LAW
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● The curriculum helps in gaining a in-depth knowledge of various laws applied in business at large. ● This curriculum covers various legal aspects related to businesses which are used in real life with practical examples. 	
Course Code: 3	Course Title: BUSINESS STATISTICS



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● This curriculum introduces core business statistics and fundamental aspects of decision-making with the help of statistical analysis of data. ● The given subject helps to reach a decision with respect to business and its execution. 	
Course Code: 4	Course Title: BUSINESS COMMUNICATION – I
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● This curriculum covers the basic soft skills for communication- listening, oral and written as per industry standards. ● It presents communication as an integral element to management strategy and as a critical component for success in the work place. 	
Course Code: 5	Course Title: FOUNDATION COURSE – I
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● This course is designed to enable the students to understand the process for conflict resolution in a team ● This curriculum also helps to make aware about the various types of negotiation while working in team. 	
Course Code: 6	Course Title: FOUNDATION OF HUMAN SKILLS
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To enable the students to learn about understanding human nature, group behavior, organizational culture, motivation at workplace. ● This curriculum helps in gaining the desired knowledge of human skills to be applied in organization. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: 7	Course Title: BUSINESS ECONOMICS – I
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● The curriculum introduces economic concepts and principles which are useful in understanding the general economic environment within which businesses and other organizations operate. ● It examines how consumers and firms make decisions and how they interact with each other in markets. 	
SEMESTER II	
Course Code: 1	Course Title: PRINCIPLES OF MARKETING
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the basic concepts of marketing, analyzing marketing environment i.e. micro and macro environment. ● This curriculum also helps in learning importance of market research, understanding marketing mix – product, price, place and promotion, analyzing trends in marketing 	
Course Code: 2	Course Title: INDUSTRIAL LAW
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To make students understand crucial rules and regulations listed under following acts: Industrial Disputes Act 1947, The Trade Union Act 1926, The Factories Act 1948, The Workmen's Compensation Act 1923, Employee State Insurance Act 1948, Payment of Wages Act 1948, Payment of Bonus Act, 1965 and Payment of Gratuity Act 1972 	
Course Code: 3	Course Title: BUSINESS MATHEMATICS



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To make students learn mathematical calculations with regards to Simple and Compound Interest, ● This curriculum also gives in-depth of Depreciation of Assets, Algebraic functions used in business. 	
Course Code: 4	Course Title: BUSINESS COMMUNICATION – II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To enhance students' presentations skills, promoting group communication, importance of interview and meetings, learning trade letters like inquiry letter, complaint letter, RTI letter, grievance letter, sales letters etc. 	
Course Code: 5	Course Title: FOUNDATION COURSE – II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To make students knowledgeable with the Human Rights, understanding concepts of Liberalisation, Privatisation and Globalisation and its impact on employment, understanding environment and its causes of degradation, promoting sustainable development, promoting socialization, reducing stress and conflicts in the society. 	
Course Code: 6	Course Title: BUSINESS ENVIRONMENT
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To enable students to understand micro and macro environment, understanding political, legal, social, cultural, technological, competitive and international environment affecting businesses (Major part in PEST) 	
Course Code: 7	Course Title: PRINCIPLES OF MANAGEMENT



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> The curriculum focuses on critical thinking and problem solving, using logic and Analysis with the help of application oriented learning and case studies as well as caselets with role playing activities. 	
Class: S.Y.B.M.S	
SEMESTER III	
Course Code: 1	Course Title: INTRODUCTION TO COST ACCOUNTING
Course Outcomes:	
The students would be able:	
<ul style="list-style-type: none"> To enable the students to understand the principles and procedure of cost accounting and to apply them to different practical situations This course exposes the students to the basic concepts and the tools used in Cost Accounting. 	
Course Code: 2	Course Title: CORPORATE FINANCE
Course outcomes:	
The students would be able:	
<ul style="list-style-type: none"> The course aims at explaining the core concepts of corporate finance and its importance in managing a business and its aspects. The objectives of develop a conceptual framework of finance function and to acquaint the participants with the tool's techniques and process of financial management in the realm of financial decision making. This course and its studies help in decision making process in corporate industries. 	
Course Code: 3	Course Title: ADVERTISING
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> This course highlights the increasing importance of consumers as the driving force in today's advertising strategies, social media, and the Internet evolution. 	
Course Code: 4	Course Title: CONSUMER BEHAVIOUR



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> • The course gives an understanding of how a consumer selects, purchases, uses and disposes of products and services is pertinent to successfully managing the • marketing function and also learn the role of CONSUMER BEHAVIOUR within marketing. 	
Course Code: 5	Course Title: RECRUITMENT AND SELECTION
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> • To familiarize the students with current trends in Recruitment and selection. • Understand the links between Recruitment and selection and other HRM activities. • To understand Recruitment and selection policies and procedures that are said to characterize the high- performance organization. 	
Course Code: 6	Course Title: MOTIVATION AND LEADERSHIP
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> • The learners receive a solid grounding in leadership approaches, theories & Motivation concepts. • It also discusses the importance of rewards & recognition, grievances& discipline procedure. • To acquaint the students about practical approaches to Motivation and leadership and its application in Indian context. 	
Course Code: 7	Course Title: INFORMATION TECHNOLOGY – I



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To learn basic concepts of Information Technology, its support and role in Management, for managers ● It comprises of practical hands on training required for office automation. It is expected to have practical sessions of latest MS-Office software ● To understand basic concepts of Email, Internet and websites, domains and security therein ● To recognize security aspects of IT in business, highlighting electronic transactions, advanced security features 	
Course Code: 8	Course Title: FOUNDATION COURSE – III
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To enable students to understand causes for environmental degradation, various concepts of environment, promoting sustainability and innovations in business. To promote waste management and disaster management. To promote eco-friendly practices 	
Course Code: 9	Course Title: BUSINESS PLANNING AND ENTREPRENURSHIP
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● Entrepreneurship is one of the major focus areas of the discipline of Management. This course introduces Entrepreneurship to budding managers. ● To develop entrepreneurs & to prepare students to take the responsibility of full line of management function of a company with special reference to SME sector 	
Course Code: 10	Course Title: ACCOUNTING FOR MANAGERIAL DECISION
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To acquaint management learners with basic accounting fundamentals ● To develop financial analysis skills among learners. ● The course aims at explaining the core concepts of business finance and its 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

importance in managing a business.	
Course Code: 11	Course Title: STRATEGIC MANAGEMENT
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● The objective of this course is to learn the management policies and strategies at every Level to develop conceptual skills in this area as well as their application in the corporate world. ● The focus is to critically examine the management of the entire enterprise from the Top Management viewpoints. 	
Class: S.Y.B.M.S	
SEMESTER IV	
Course Code: 1	Course Title: AUDITING
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To ensure students understand and practice the various techniques of auditing while managing their finances. ● To enable students get acquaint with the various concepts of auditing. ● To enable students, understand vouching & its procedure. Also, to understand verification as a procedure. 	
Course Code: 2	Course Title: FINANCIAL INSTITUTION AND MARKETS
<p>Course outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To inculcate understanding relating to managing of financial system ● The Course aims at providing the students basic knowledge about the structure, role and functioning of financial institutions and markets in the financial system in India 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: 3	Course Title: INTEGRATED MARKETING COMMUNICATION
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the key concepts of planning and execution of an effective Integrated Marketing Communications (IMC) Program. ● To study the various tools of IMC and the importance of an effective marketing communications program. 	
Course Code: 4	Course Title: RURAL MARKETING
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● The students will understand the concepts and techniques of marketing and their application in rural marketing. 	
Course Code: 5	Course Title: TRAINING AND DEVELOPMENT IN HRM
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To identify how effective Training and Development contributes to organizational development & enables strategic Achievement of organizational Goals. ● To familiarize students with concepts and practices of Training and Development. ● To understand the process of designing a training Program and its Evaluation. 	
Course Code: 6	Course Title: CHANGE MANAGEMENT
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand foundational aspects of Change Management & the critical role that manager play in the change process. ● To understand that adapting to change is not technical but attitudinal. ● To provide leaders and managers with clear insight on how to effectively motivate Employee through organizational change. ● The objective is to prepare students as organizational change facilitators using the knowledge and techniques of behavioural Science. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: 7	Course Title: INFORMATION TECHNOLOGY – II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand managerial decision-making and to develop perceptive of major functional area of MIS ● To provide conceptual study of Enterprise Resource Planning, Supply Chain Management, Customer Relationship Management, Key issues in implementation. This module provides understanding about emerging MIS technologies like ERP, CRM, SCM and trends in enterprise applications. ● To learn and understand relationship between database management and data warehouse approaches, the requirements and applications of data warehouse ● To learn outsourcing concepts. BPO/KPO industries, their structures, Cloud computing 	
Course Code: 8	Course Title: FOUNDATION COURSE – IV
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand significance of ethics and ethical practices in businesses which are indispensable for progress of a country ● To learn the applicability of ethics in functional areas like marketing, finance and human resource management ● To understand the emerging need and growing importance of good governance and CSR by organizations ● To study the ethical business practices, CSR and Corporate Governance practiced by various organizations 	
Course Code: 9	Course Title: BUSINESS ECONOMICS – II
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To enable the students to understand concepts with regards to demand in business, supply and pricing from the point of view of the businesses, Understanding various types competitions in the market. 	
Course Code: 10	Course Title: BUSINESS RESEARCH METHODS



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> • The course is designed to inculcate the analytical abilities and research skills among the students. 	
Course Code: 11	Course Title: PRODUCTION AND TOTAL QUALITY MANAGEMENT
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> • To acquaint learners with the basic management decisions with respect to production and quality management • To make the learners understand the designing aspect of production systems • To enable the learners, apply what they have learnt theoretically. 	
Class: T.Y.B.M.S	
SEMESTER V	
Course Code: 1	Course Title: COMMODITY AND DERIVATIVES MARKET
Course Outcomes:	
The students would be able:	
<ul style="list-style-type: none"> • To understand concepts related to Commodity & Derivative Mkt. • This curriculum is designed to make students aware of different financial products such as forwards, futures and options and also how to hedge the portfolio against the price risk. 	
Course Code: 2	Course Title: WEALTH MANAGMENT
Course outcomes:	
The students would be able:	
<ul style="list-style-type: none"> • This curriculum is designed to make students understand various methods to create and manage wealth through investment planning, insurance planning, tax planning, retirement and estate planning 	
Course Code: 3	Course Title: RISK MANAGEMENT



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

Course outcomes:	
The students would be able:	
<ul style="list-style-type: none"> ● This curriculum is designed to familiarize with fundamental aspects of risk Management & control. ● To give comprehensive overview of risk governance & assurance. ● To understand risk management with reference to Insurance sector. 	
Course Code: 4	Course Title: INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT
Course Outcomes:	
The students would be able:	
<ul style="list-style-type: none"> ● This curriculum is designed to guide the students to select the right portfolio through security analysis and do the proper asset allocation. ● To understand various models and techniques of security and portfolio Analysis ● To understand Portfolio Mgt. 	
Course Code: 5	Course Title: E-COMMERCE& DIGITAL MARKETING
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● This curriculum will provide an understanding of how the digital economy works which will help develop the critical insights necessary to succeed in E-Commerce and Digital Marketing. 	
Course Code: 6	Course Title: SALES AND DISTRIBUTION MANAGEMENT
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● The course is designed to develop understanding and appreciation of the Sales & Distribution processes in organizations. It includes the familiarization of concepts, approaches and the practical aspects of the key decision making variables in sales force and distribution channel management 	
Course Code: 7	Course Title: SERVICES MARKETING



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> This curriculum is designed to help students learn the fundamentals of services marketing from a practical point of view focusing on the needs of the customers, who are to be kept satisfied and delighted for a business to prosper 	
Course Code: 8	Course Title: STRATEGIC MARKETING MANAGEMENT
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> This curriculum is designed to help students learn the fundamentals of Strategic Marketing from a practical point of view focusing on the needs of the company, and different strategies to be adopted in for different companies for different environment. 	
Course Code: 9	Course Title: PERFORMANCE MANAGEMENT
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> To understand the dynamics of performance Appraisal and performance Management to develop criteria and standards for performance Assessment. To familiarize students about the concepts of performance Management. To understand the importance of career planning and practices. 	
Course Code: 10	Course Title: STRESS MANAGEMENT
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> To identify common stressors. To understand the techniques to cope with stress. To define what stress is and start to recognize the signs of stress. To enable learners to adopt some personal stress management strategies & techniques to deal with stress. 	
Course Code: 11	Course Title: STRATEGIC HUMAN RESOURCE MANAGEMENT



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To understand the significance of Strategic Human Resource Management. To brief out the Emerging Roles of HR Professionals in Strategic Human Resource Management. ● To familiarize students about the theories, approaches & application of Strategic Human Resource Management ● To understand the purpose & process of developing HR Policy. 	
Course Code: 12	Course Title: FINANCE IN HUMAN RESOURCE MANAGEMENT
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To learn basic compensation concepts & context of compensation practices. ● To understand the various compensation plans. ● To learn some of the implication for strategic compensation & employer approaches to manage legal required benefits. 	
Course Code: 13	Course Title: LOGISTICS AND SUPPLY CHAIN MANAGEMENT
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● To provide students with basic understanding of concepts of logistics and supply chain management. ● To introduce students to the key activities performed by the logistics function ● To provide an insight in to the nature of supply chain, its functions and supply chain systems. ● To understand global trends in logistics and supply chain management. 	
Course Code: 14	Course Title: CORPORATE COMMUNICATION AND PUBLIC RELATION
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> ● The student will learn the role of effective communication strategies and public relations in the corporate environment 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

30. Subject: M.Com

Name of Department: Commerce	
Class: MCom - I	
<p>Program Outcomes:</p> <p>Specific core discipline knowledge</p> <ul style="list-style-type: none"> ● The program develops decision making skills through application of management and entrepreneurial development. ● To enable students in – depth understanding of all core areas. <p>Communication skills</p> <ul style="list-style-type: none"> ● Students are capable for well versed in national as well as international trends. Problem solving and other skills ● Students are able for conducting business, role of regulatory bodies in corporate and financial sectors of various financial instruments. ● Students can impart basic knowledge, principles and latest applications in business. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To create awareness in application-oriented research through business decisions. ● To enhance horizon of knowledge in various fields of commerce through strategic management, economics, business ethics, accounting, research and e – commerce. ● To inculcate the knowledge of business and the techniques of managing the business with special focus on marketing, banking theory law and practices, accounts. ● To develop knowledge on organizational dynamics. ● To develop the skills in application of research methods. 	
SEMESTER I	
Course Code: N.A.	Course Title: Strategic Management
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To acquaint with the basic concept of management. ● To understand the strategic formulations, implementation and evaluation. ● To understand the strategical concepts, importance of strategies in the global competition. ● To know the challenges faced by modern management and the strategies to overcome the industrial sickness in India. 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: N.A.	Course Title: Economics for Business Decisions
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the exposure of economics in business decisions ● To understand the importance of market forces. ● To know the importance of factors of production and its usage. <p>To analyze the various types of market such as perfect competition, monopoly, monopolistic competition and oligopoly.</p>	
Course Code: N.A.	Course Title: Cost and Management Accounting
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the concept of cost and management accounting and its importance. ● To learn the techniques of standard costing. ● To understand the types of budget. ● To enable the learners how to present financial reports. 	
Course Code: N.A.	Course Title: Business Ethics and Corporate Social Responsibility
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the concept of business ethics. ● To analyze the importance and the regulatory framework of corporate governance. ● To learn the importance of CSR and role of NGO. ● To understand CSR, its stakeholders, policy and the involvement of UNDP towards CSR. 	
SEMESTER II	
Course Code: N.A.	Course Title: Research Methodology for Business



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the meaning and objectives of research. ● To study the stages of research process. ● To learn data processing and various statistical analysis. ● To analyze the format of writing a report, layout and other details. 	
Course Code: N.A.	Course Title: Macro Economics Concepts and Applications
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To study the application of macroeconomics at corporate level. ● To analyze the importance of application of economic concepts in short run and long run. ● To understand the usage of economic policies to adjust the economy through IS-LM Models. ● To learn the importance of international aspects of macroeconomic policies to overcome the Balance of Payments (BOPs). 	
Course Code: N.A.	Course Title: Corporate Finance
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To understand the implications of financial management. ● To study value of money and its concepts. ● To acquire knowledge about the applications of ratios for taking financial decisions. ● To analyze and take financial decisions based on the financial statements to overcome business risk and financial risk. 	
Course Code: N.A.	Course Title: E-Commerce
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To learn the history of E – commerce, its benefits, models and significance. ● To understand the web-based commerce and how to assess the business. ● To obtain knowledge how to use the electronic payment system and E – marketing and its scope. 	



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none">● To study the legal and regulatory security issues of E – commerce.
Name of Department: Commerce
Class: M. Com. Part II (Accountancy Specialization) Group A
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none">● Students can acquire knowledge about Advance financial accounting, Financial Services, Advance cost accounting, Indirect taxation and Financial Management.● Students can understand application of financial accounting, cost accounting in business environment. Communication skills <ul style="list-style-type: none">● Students can express their thoughts through research project. Problem solving and research skills <ul style="list-style-type: none">● Students can analyze and examine data from research through testing of hypothesis. Program Specific Outcomes: <ul style="list-style-type: none">● To understand elements of advance financial accounting.● To explore the special accounting areas in advance financial accountancy.● To analyze different elements of advance cost accountancy.● To understand need and importance of Indirect Tax.● To explore different methods of calculating risk and return in financial management.● To acquire knowledge about financial Management.● To understand financial services in business environment.

SEMESTER III



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Bhaskar Waman Thakur College of Science
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Course Code: 1	Course Title: Advance Financial Accounting
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To gain knowledge about Foreign currency conversion. ● To understand final accounts and statutory requirements for banking companies. ● To analyze accounting and statutory requirement of Insurance Companies. ● To acquire knowledge about accounting and statutory requirements of co operative societies. 	
Course Code: 3	Course Title: Advance Cost Accounting
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To learn about process costing. ● To understand cost allocation and activity-based costing systems. ● To acquire knowledge about responsibility accounting. ● To understand strategic cost management. 	
Course Code: 5	Course Title: Financial Services
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To acquire knowledge about financial services and merchant Banking. ● To understand venture capital and securitization. ● To learn about hire purchase finance and housing finance. ● To get knowledge about stock broking and depository services. 	
Course Code: 4	Course Title: Project work – I
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand research design. ● To learn data collection. ● To analyze collected data with different statistical techniques. ● To know project writing skills. 	
SEMESTER IV	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: 1	Course Title: Corporate Financial Accounting
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To get knowledge about corporate financial reporting. ● To understand international financial reporting standards and Indian Accounting Standards. ● To learn about valuation of business for amalgamation and merger. ● To acquire knowledge about consolidated financial statement. 	
Course Code: 2	Course Title: Indirect Tax – Introduction of Goods and service tax
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To acquire knowledge about Goods and service tax. ● To understand registration process under GST. ● To learn about collection of tax under integrated Goods and Services tax Act 2017. ● To understand place of supply of goods or services under GST. ● To compute payment of GST. 	
Course Code: 3	Course Title: Financial Management
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand types of financing. ● To learn about investment decisions with help of capital budgeting. ● To acquire knowledge about management of working capital. ● To understand financial planning. ● To learn about financial planning and corporate strategy. 	
Course Code: 4	Course Title: Project work – II
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand research design. ● To learn data collection. ● To analyze collected data with different statistical techniques. ● To know project writing skills. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Class: M. Com –II (Business Management Specialization) Group B	
Program Outcomes:	
Specific core discipline knowledge	
<ul style="list-style-type: none"> ● To acquaint a student with conventional as well as contemporary areas in the discipline of Business Management ● To provide in-depth understanding of core areas of business management such as HR, Marketing, Advertising, Retail, Organization Behaviour, Relationship Management etc. 	
Communication skills	
<ul style="list-style-type: none"> ● To know and develop the process of carrying out research in commerce 	
Problem solving and research skills	
<ul style="list-style-type: none"> ● Students can analyze and examine data from research through testing of hypothesis. ● To inculcate the knowledge of business and the techniques of managing the business 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> ● For pursuing research in their chosen areas. ● To work as managers in the field of marketing, HR, Sales, Advertising, retail, PR ● To develop managerial skills, decision making skills and entrepreneurship skills. 	
SEMESTER III	
Course Code: 1	Course Title: Human Resource Management
Course Outcomes:	
The students would be able:	
<ul style="list-style-type: none"> ● To understand the concepts of Human Resource Management human resource planning recruitment and selection of managerial personnel ● To get the inside of training and development process performance appraisal career advancement and succession planning ● To understand latest development in HRM And Labour legislation ● To know the emerging issues in HRM related to health and safety work life balance and talent management 	
Course Code: 4	Course Title: Marketing Strategies and Practices



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand the basic concept of marketing and new marketing strategies ● To explore the ways in which marketing strategies and plans can be designed ● To get insight into market environmental Trends and building customer value ● To analyze recent trend in marketing strategies such as e marketing and social marketing 	
Course Code: 5	Course Title: Organizational Behaviour
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand the basic concept of organizational setting, organizational design and evolution of OB ● To gain insight into how the foundations of individual behaviour are laid ● To study the group dynamics and behavior, conflicts at workplace and workplace behaviour determinants ● To understand emerging challenges in stress management and workforce diversity management 	
Course Code:	Course Title: Project work – I
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand research design. ● To learn data collection. ● To analyze collected data with different statistical techniques. ● To know project writing skills. 	
SEMESTER IV	
Course Code: 2	Course Title: Advertising and Sales Management



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To know the basics of advertising ad agency and media management ● To know the concepts of creativity and understand the social and regulatory framework of advertising ● To analyze sales Management concept ● To have an insight into sales planning sales controlling and recent trends in sales management 	
Course Code: 3	Course Title: : Retail Management
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To study the concepts of retailing recent trends in retailing and retail sector in India ● To understand the Genesis of retail marketing strategy and consumer strategies ● To study the concept of retail location layout and merchandising ● To analyze the use of technology in retailing that is irritating and retailing as a career option 	
Course Code: 5	Course Title: Management of Business Relations
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand the need and importance of business relation role of business relation manager and principles of business relation ● To explore the Genesis of customer and channel relationship management ● To understand the concept of employee relationship management ● To analyze and study supplier relation, investor relation and stakeholder's relationship management 	
Course Code:	Course Title: Project work – II
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand research design. ● To learn data collection. ● To analyze collected data with different statistical techniques. ● To know project writing skills. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Class: M. COM PART II (Banking & Finance Specialization) Group C	
Program Outcomes:	
Specific core discipline knowledge	
<ul style="list-style-type: none">● The program develops commerce professionals with specialization skill and applied competencies in theoretical and practical knowledge of banking and finance.● Students can acquire various approaches towards banking and finance sector in modern globalized world.	
Communication skills	
<ul style="list-style-type: none">● Students are prepared for depth analysis of investment, portfolio management and liquidation in banking sector and financial institutions.	
Problem solving and other skills	
<ul style="list-style-type: none">● Students can evaluate business financial operations with conceptual requirement.● Students are prepared to appraise the structure and operations of banking system.	
Program Specific Outcomes	
<ul style="list-style-type: none">● To help the students to a clear idea of banking and finance sector.● To provide in-depth understand of core areas such as financial markets, commercial banks, investment management, international finance, financial services and accounts in banking sector.● To inculcate the knowledge of business with special focus on banking and financial institutions.● To prepare students for applying proficient use of tools for analysis of business data.● Impart the students with higher level of knowledge and understanding contemporary trends in banking sector.● To prepare the students for in depth analysis of banking industry.	
SEMESTER III	
Course Code: 1	Course Title: Commercial Bank Management



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To learn overview of commercial banks, their customer relationship management and services to different customers in India. ● To study banks credit management and investment policy. ● To acquire knowledge about human resource management in banks. ● To evolve trends in modern banking and financial inclusion. 	
Course Code: 2	Course Title: Financial Markets
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To learn an overview of financial system and its theories. ● To study about capital market, ownership and creditorship securities. ● To understand money market and its instruments. ● To analyze derivative markets and globalization of financial markets. 	
Course Code: 3	Course Title: Accounting of Banking Sector
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand about banking companies, types, its products services and cash management services. ● To study accounting systems and provisions in banking companies. ● To learn calculation of interest rates, instalment and annuities. ● To study preparation of final accounts, financial statements and reporting. 	
Course Code:	Course Title: Project Work - I
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand research design. ● To learn data collection. ● To analyze collected data with different statistical techniques. ● To know project writing skill. 	
SEMESTER IV	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: 1	Course Title: International Finance
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand about international finance with reference to Balance of Payments and global changes. ● To study IMF and its working. As well as various foreign exchange rates, ● To analyze currency futures and options. ● To learn about international instruments as well as multi development banks. 	
Course Code: 2	Course Title: Financial Services
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand about financial services and its regulatory framework. ● To acquire knowledge of various financial products and treasury management. ● To study about mutual fund concepts, UTI mutual fund scheme and merchant banking. ● To learn about portfolio management and other financial services. 	
Course Code: 4	Course Title: Investment Management
<p>Course outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To study about portfolio management, its analysis and selection. To understand portfolio revision, evaluation and bond valuation with practical problem. ● To learn fundamental analysis and technical analysis. ● To analyze efficient market theory and CAPM. 	
Course Code:	Course Title: Project Work - II
<p>Course outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand research design. ● To learn data collection. ● To analyze collected data with different statistical techniques. 	



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- To know project writing skill.





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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Program Outcomes - Program Specific Outcomes – Course Outcomes

Academic Year: 2023 - 24

FACULTY OF ART

31. BA - Culinary Arts

Name of Department: Hotel Management	
Class: FY BA Culinary Arts	
Program Outcomes: <ul style="list-style-type: none"> The curriculum offers students with opportunity to learn traits to develop future leaders in the hospitality and culinary industry. To provide adequate knowledge, skills & exposure in the field of Culinary Arts that commensurate with the requirements of the Industry. 	
Program Specific Outcomes: <ul style="list-style-type: none"> The degree helps you to explore the real aspects of a person's role in an industry kitchen through our advanced training kitchen - your exploratory space! You can also develop a strong foundation of food service operations, management skills and knowledge that gets transfer directly to day one in the field 	
SEMESTER - I	
Course Code: BACA	Course Title: BA in Culinary Arts
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Define aims of cooking, draw organization chart of classical kitchen brigade and equipment used in bakery, methods and list the methods of cooking food. sectors of Food and Beverage Industry, Organization chart of Food and Beverage Department of a hotel 	
Class: FY BA Culinary Arts	
Program Outcomes: <ul style="list-style-type: none"> The curriculum offers students with opportunity to learn traits to develop future leaders in the hospitality and culinary industry. To provide adequate knowledge, skills & exposure in the field of Culinary Arts that commensurate with the requirements of the Industry. 	



**Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science
 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

Program Specific Outcomes:

- The degree helps you to explore the real aspects of a person's role in an industry kitchen through our advanced training kitchen - your exploratory space! You can also develop a strong foundation of food service operations, management skills and knowledge that gets transfer directly to day one in the filed

SEMESTER - II

Course Code: BACA

Course Title: BA in Culinary Arts

Course Outcomes:

The students would be able :

- Furnish the basics of Food analysis, methods of preparation of soups and stocks.
- List various types of salads, cuts of Fish, cuts of meat, State basic principles of baking sponges and pastries
- Plan a five course menu of various F&B Outlet, French Classical menu ,various types tobacco, non-alcoholic beverage, KOT Control system

Class: SY

Program Outcomes:

- The curriculum offers students with opportunity to learn traits to develop future leaders in the hospitality and culinary industry.
- To provide adequate knowledge, skills & exposure in the field of Culinary Arts that commensurate with the requirements of the Industry.

Program Specific Outcomes:

- The degree helps you to explore the real aspects of a person's role in an industry kitchen through our advanced training kitchen - your exploratory space! You can also develop a strong foundation of food service operations, management skills and knowledge that gets transfer directly to day one in the filed

SEMESTER - III

Course Code: BACA

Course Title: BA in Culinary Arts

Course Outcomes:

The students would be able :

- Student will be able to define the features of French, Spanish, Italian cuisine, its History and modern development region wise. And will be able to state the preparation methods of Icing, Butter cream and meringue based sponge, as stated in the syllabus.
- The students will be able to describe and discuss the elements of effective management.
- Students will be able to cater new trends in diet

Name of Department: Hotel Management



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Class: SY	
Program Outcomes:	
<ul style="list-style-type: none"> • The curriculum offers students with opportunity to learn traits to develop future leaders in the hospitality and culinary industry. • To provide adequate knowledge, skills & exposure in the field of Culinary Arts that commensurate with the requirements of the Industry. 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> • The degree helps you to explore the real aspects of a person's role in an industry kitchen through our advanced training kitchen - your exploratory space! You can also develop a strong foundation of food service operations, management skills and knowledge that gets transfer directly to day one in the filed 	
SEMESTER - IV	
Course Code: BACA	Course Title: BA in Culinary Arts
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> • Student will be able to state the advance ladder preparation, edible and non-edible display products. • student will be able to state the different steps in final accounting • Industrial relation and how to manage the grievances within the organization. • History and growth of Indian Gastronomy. 	
Name of Department: Hotel Management	
Class: TY	
Program Outcomes:	
<ul style="list-style-type: none"> • The curriculum offers students with opportunity to learn traits to develop future leaders in the hospitality and culinary industry. • To provide adequate knowledge, skills & exposure in the field of Culinary Arts that commensurate with the requirements of the Industry. 	
Program Specific Outcomes:	
<ul style="list-style-type: none"> • The degree helps you to explore the real aspects of a person's role in an industry kitchen through our advanced training kitchen - your exploratory space! You can also develop a strong foundation of food service operations, management skills and knowledge that gets transfer directly to day one in the filed 	
SEMESTER - V	
Course Code: BACA	Course Title: BA in Culinary Arts



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:

The students would be able :

- To educate students on basic to advance culinary skills.
- Identify Food & Beverage setup and planning of various outlets in the department.
- Managerial skills development related to various hospitality department

Class: TY

Program Outcomes:

- The curriculum offers students with opportunity to learn traits to develop future leaders in the hospitality and culinary industry.
- To provide adequate knowledge, skills & exposure in the field of Culinary Arts that commensurate with the requirements of the Industry.

Program Specific Outcomes:

- The degree helps you to explore the real aspects of a person's role in an industry kitchen through our advanced training kitchen - your exploratory space! You can also develop a strong foundation of food service operations, management skills and knowledge that gets transfer directly to day one in the filed

SEMESTER - VI

Course Code: BACA

Course Title: BA in Culinary Arts

Course Outcomes:

The students would be able :

- The objective is to get students to attain expertise in their culinary skills to become independent entrepreneurs.
- Understand and apply cost dynamics as related to the Food & Beverage industry and the advance skills in the food & beverage
- To plan and evaluate budgets.
- Measurement of Yield for Management Decision Making.



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts

32. BA – Economics

Academic year: 2023-24
Name of Department: ECONOMICS
Class: F.Y.B.A., S.Y.B.A. AND T.Y.B.A.
<p>Program Outcomes:</p> <ul style="list-style-type: none">● Critical Thinking Skills: Students are expected to be able to apply economic analysis to everyday problems in real world situations, to understand current events and evaluate specific policy proposals and to evaluate the role played by assumptions in arguments that reach different conclusions to a specific economic or policy problem.● Quantitative Reasoning Skills: Students are expected to understand how to use empirical evidence to evaluate the validity of an economic argument, use statistical methodology, interpret statistical results and conduct appropriate statistical analysis of data.● Problem-Solving Skills: Students are expected to be able to solve problems that have clear solutions and to address problems that do not have clear answers and explain conditions under which these solutions may be correct.● Specialized Knowledge and Application of Skills: Students are expected to develop critical and quantitative thinking skills specific to business and accounting.● Communication Skills: Students are expected to be able to communicate effectively in written, oral and graphical form about specific issues and to formulate well-organized written arguments that state assumptions and hypotheses supported by evidence



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Program Specific Outcomes:	
<ul style="list-style-type: none"> ● Explain the function of market and prices as allocative mechanisms. ● Apply the concept of equilibrium to both microeconomics and macroeconomics. ● Identify key macroeconomic indicators and measures of economics change, growth, and development. ● Identify and discuss the key concepts underlying comparative advantage. ● Identify and explain major types of market failures. ● Discuss the application of marginal analysis. ● Explain the use of benefit/cost analysis. ● Explain the contribution of economics to the analysis of non-market social issues. ● Assess the role of domestic and international institutions and norms in shaping economies. ● Describe how economic trade-offs and social values impact public/private social policy, and the success or failure of policies to achieve intended outcomes. ● Distinguish between normative and positive economics. ● Identify the limits of economic analysis. ● Compare and contrast efficiency and equity. ● Recognize how to use scientific methods in economics. ● Formulate empirically testable hypotheses. 	
SEMESTER – I	
Course Code:	Course Title: MICROECONOMICS
Course Outcomes: The students would be able : 1.To Understand the basic principles of microeconomics theory. 2.The emphasis will be on the development of analytical thinking with the help of statistical tools among the students and develop the skill of application of microeconomics concepts to analyze real life situations. 3.To Understand the Principles of Economics.	
SEMESTER II	
Course Code: PAPER-I	Course Title: MICROECONOMICS
Course Outcomes: This paper is aimed at giving supply side knowledge of Economics to the learner which will enhance their knowledge about aspects of production, cost and revenue analysis, theories of distribution and understanding about the market structure.	
SEMESTER III	
Course Code: PAPER-II	Course Title: MACROECONOMICS



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes: This course is designed to provide an introduction to the students about the basic building blocks of Macro Economics which will serve as a foundation throughout their	
SEMESTER IV	
Course Code: PAPER-II	Course Title: MACROECONOMICS
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Identifying the basic concepts and theories of Macro economics. • This course is designed to make students aware of macroeconomic terminologies and make them familiar with macroeconomic terms and concepts in order to understand economics at an aggregate level. • Understanding various concepts such as; GDP, GNP NNP, Personal Income, Disposable Income, Per Capita Income, and National Income. 	
SEMESTER III	
Course Code: PAPER-III	Course Title: Public Finance
Course Outcomes: The students would be able : To understand the government policy from the point of economic efficiency and equity. To understand the role and functions of the government have been changing through time. To understand the existence of externalities, acceleration of economic growth, raising the level of employment, the need and concern for adjustment in the distribution of income and wealth etc. It exposes the student to the public budget through issues of taxation, expenditure, debt and concepts of deficit. The last Unit is related to topics concerning Indian Public Finance.	
SEMESTER IV	
Course Code: PAPER-III	Course Title: INDIAN ECONOMY
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand nature of Indian economy To understand economic planning in India To understand recent structural changes in economy To understand Demonetization, Fiscal policies. To understand the upcoming policy of Universal Basic Income 	
SEMESTER III	
Course Code:	Course Title: DEMOGRAPHY



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes	
<p>The students would be able to identify the basic concepts and theories of Macro economics.</p> <ul style="list-style-type: none"> This course is designed to make students aware of macroeconomic terminologies and make them familiar with macroeconomic terms and concepts in order to understand economics at an aggregate level. Understanding various concepts such as; GDP, GNP NNP, Personal Income, Disposable Income, Per Capita Income, and National Income. 	
SEMESTER IV	
Course Code:	Course Title: DEMOGRAPHY
<p>Course Outcomes:</p> <p>The students would be able to:</p> <ul style="list-style-type: none"> Central theoretical and practical concepts underpinning the study of demography including principles of research design and strategy, the choice of research method, and the impact of measurement, collection and analysis strategies on the validity and generalisability of research outputs. Application and evaluation of core demographic theory and understanding of population trends in both developed and developing countries. <ul style="list-style-type: none"> Modern methods for obtaining and analysing demographic data. The use of appropriate statistical modelling techniques, qualitative methods and population projections. 	
SEMESTER V	
Course Code: ECOAME501	Course Title: VII ADVANCED MICROECONOMICS – III
<p>Course Outcomes</p> <p>The students would be able to:</p> <ul style="list-style-type: none"> Enables students will get knowledge on new market structure, imperfect competition. Provides understanding on the welfare economics and economics of information. To able to understand general equilibrium & economic efficiency & welfare 	
Course Code: ECOGAD502	Course Title: ECONOMICS OF GROWTH AND DEVELOPMENT
<p>Course Outcomes:</p> <ul style="list-style-type: none"> Enable students to apply and analyse issues in the development process. Students will be able to identify the issues related to Growth and Development Students will be able to understand the policy options and analyze the Measures taken for the Development of an economy. To understand theories of economic development 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> To understand concept of poverty & development To understand population & human development 	
Course Code: ECOILEC503	Course Title: INDUSTRIAL AND LABOUR ECONOMICS :
Course Outcomes: <ul style="list-style-type: none"> Learners will study the different contemporary issues of the industrial sector. Learners will know the problems of industries. Learners will get the idea about productivity. Learners will get with new Policies and its impact on industries 	
Course Code ECOESSIC504	Course Title: ENTREPRENEURSHIP & SMALL SCALE INDUSTRIES 4
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Nurture the qualities of successful entrepreneurship • Provides them knowledge about various processors to register for small scale industries which results in successful maintenances of such industries 	
Course Code: ECOEIB505	Course Title: ECONOMICS OF INSURANCE - I
Course Outcomes: Identify and define basic terms and concepts of insurance • Describe the importance of insurance for an individual and the economy • Understand the concept of risk and its types, and the process of risk management.	
Course Code: ECOHET506	Course Title: HISTORY OF ECONOMIC THOUGHT
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Acquaintance with the economic thoughts of Classical, Nationalist and Socialist Thinkers. Judging the development of economic thoughts. Realizing the economic concepts and theories of Neo-classicals and Indian thinkers. Evaluating the development of Indian economic thoughts. 	
SEMESTER VI	
Course Code: ECOAME601	Course Title: ADVANCED MACROECONOMICS - III
Course Outcomes: <ul style="list-style-type: none"> To make student aware about Post Keynesian Synthesis and understand various aspects of Trade Cycles. 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> • Students will be able to describe the contemporary Exchange Rate Regimes and International Monetary System. 	
Course Code: ECOIE602	Course Title: INTERNATIONAL ECONOMICS
<p>Course Outcomes:</p> <ul style="list-style-type: none"> • Students will be able to understand the trade theories and determinants of trade which helps them to analyze the international trade policies. • Students will be able to understand the role of various international institutions and trade blocks and their approaches in framing the policies for trade. 	
Course Code: ECOILC603	Course Title: INDUSTRIAL AND LABOUR ECONOMICS-I
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • Learners become aware about different problems and policies a labour. • Learners will get intoned about trade unions and industrial relation in contemporary world. • Learned will know the different policies of labour welfare. 	
Course Code: ECORDC604	Course Title: RURAL DEVELOPMENT
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • On the completion of the course, the students will be able to understand the basic Concept of rural development. • Learners will also be understanding objectives and importance of rural development. • Learners will have good understanding of problems in relation of rural development. • Learners will come to know what rural development programmes have initiated by the government to overcome the problems of rural development 	
Course Code: ECOEIB605	Course Title: ECONOMICS OF INSURANCE - II
<p>● Course Outcomes: At the end of this course students will be able to:</p> <ul style="list-style-type: none"> • Identify and define basic terms and concepts of life, health & general insurance • Assess the role of Insurance Sector regulator • Understand risk classification, underwriting & premium calculation associated with insurance sector 	
Course Code: ECOHETB606	Course Title: HISTORY OF ECONOMIC THOUGHT-II
<p>● Course Outcomes:</p> <ul style="list-style-type: none"> • Students will get information about the genesis of Economics and its modern scenario. 	



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Vidhya Dayanand Patil College of Arts**

- Students get familiarized with the leading Indian economists who significantly contributed to the stream of Indian economic thought.

33. BA – English

Academic year : 2023-24
Name of Department: English
Class: FYBA
Program Outcomes: <ol style="list-style-type: none">1. To enhance English language proficiency of students by familiarizing them with the skills of Listening, Speaking, Reading and Writing (LSRW)2. To introduce learners to different perspectives of looking at a text or passage3. To equip learners in the functional aspects of English so that they use the acquired language skills correctly and confidently4. To guide learners in the effective use of the digital medium of communication<ul style="list-style-type: none">• To create interest and develop passion amongst learners towards English Literature• To familiarize learners with salient characteristics of literary genres like short story, prose, fiction and non-fiction• To introduce learners to various elements of selected short stories written in English and translated into English• To acquaint learners with different forms of prose and its importance through close reading of selected works• To understand that literature is an expression of human values and universal truths
Program Specific Outcomes: <ol style="list-style-type: none">1. The learners will learn to understand and interpret any text they are reading from different perspectives2. The interest of learners in listening to and watching good quality audio and visual media will be aroused.3. Learners will acquire proficiency in the skills of listening, speaking, reading and writing that will help them meet the challenges of the world.4. The learners will develop good oral and written skills of communication in the English language.<ul style="list-style-type: none">• To develop passion for reading literary works amongst students• To make learners at ease in the process of appreciation of literature• To enable learners to understand and analyze selected stories, prose, fiction and non-fiction masterpieces• To imbibe the underlying philosophy and values reflected in literature



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> To develop sensitivity to nature and understand the relationship between human beings and environment 	
SEMESTER - I	
Course Code: - :UACS101	Course Title: Communication Skills in English
Course Outcomes: 1. The learners will learn to understand and interpret any text they are reading from different perspectives 2. The interest of learners in listening to and watching good quality audio and visual media will be aroused. 3. Learners will acquire proficiency in the skills of listening, speaking, reading and writing that will help them meet the challenges of the world. 4. The learners will develop good oral and written skills of communication in the English language.	
Course Code: : UAENG 101	Course Title: : Introduction to Prose and Fiction Paper – I and II
Course outcomes: The students would be able : <ul style="list-style-type: none"> To develop passion for reading literary works amongst students To make learners at ease in the process of appreciation of literature To enable learners to understand and analyze selected stories, prose, fiction and non-fiction masterpieces To imbibe the underlying philosophy and values reflected in literature To develop sensitivity to nature and understand the relationship between human beings and environment 	
SEMESTER -II	
Course Code: UACS201	Course Title: Communication Skills in English
Course Outcomes: The students would be able : <ol style="list-style-type: none"> The learners will learn to understand and interpret any text they are reading from different perspectives The interest of learners in listening to and watching good quality audio and visual media will be aroused. Learners will acquire proficiency in the skills of listening, speaking, reading and writing that will help them meet the challenges of the world. The learners will develop good oral and written skills of communication in the English language. 	
Course Code: UAENG 201	Course Title: Introduction to Prose and Fiction Paper – I and II
Course Outcomes: The students would be able : To develop passion for reading literary works amongst students	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- To make learners at ease in the process of appreciation of literature
- To enable learners to understand and analyze selected stories, prose, fiction and non-fiction masterpieces
- To imbibe the underlying philosophy and values reflected in literature
- To develop sensitivity to nature and understand the relationship between human beings and environment

Academic year : 2023-24

Name of Department: English

Class: S.Y.B.A. English (Ancillary)

Program Outcomes:

- To create interest and develop passion amongst learners towards drama (and theatre)
- To familiarize learners with the salient elements and characteristics of drama
- To introduce learners to different forms and types of drama
- To introduce learners to the trends and characteristics of significant dramatic movements through representative dramas
- To equip the learners with the tools and techniques to critically appreciate drama
- To inculcate and propagate human values reflected in the plays among learners
- To demonstrate that drama is reflection / representation of life
- To Develop analytical skills and critical thinking through close reading of drama

- To introduce students to different genres and forms of poetry
- To sensitize them to the rhythmical and formal properties of poetry by introducing key elements of poetry
- To provide them with basic poetic devices for analyzing poems
- To introduce them to the trends and characteristics of significant poetic movements through representative poems
- To develop their skills in reading, writing and to critically appreciate poetry
- To introduce students to poetry produced in various social and cultural context

1. To introduce the students to some major aspects of communication and mass communication.
2. To develop among the students a broad perspective of the past and the present status of Mass Media in India.
3. To develop among the students a critical understanding of the Mass Media with regard to their presentation formats, roles and audiences in Indian context.
4. To develop among the students a critical understanding of some special roles of different Mass Media in India.
5. To help the students to assess the contribution of Indian mass media to national development.
6. To acquaint the students with some issues and laws related to mass media in India.
7. To introduce the students to various job and career opportunities in media industry.

Program Specific Outcomes:

- By the end of the course the students should be able to receive and analyse various media products critically and become interested in jobs or career in Media Industry.

SEMESTER - III

Course Code: - UAENG301

Course Title: Introduction to Drama Paper II



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Outcomes:	
<ul style="list-style-type: none"> • · develop interest and passion for drama (and theatre). • · be familiarized with the salient elements and characteristics of drama. • · be able to identify the different forms and types of drama. • · be capable to identify the various trends and characteristics of significant dramatic Movements through the representative dramas. • · be equipped with the tools and techniques to critically appreciate drama. • · imbibe human values reflected in the selected plays. • · justify that drama is reflection / representation of life. • · develop analytical skills and critical thinking through close reading of the representative dramas. 	
Course Code: UAENG302	Course Title: Introduction to Poetry Paper III
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> • Identify different genres and forms of poetry • Identify poetic technique, style and rhetorical devices used in poetry • Critically appreciate poems by separating various component parts and investigating the relationship of the parts to the whole • Demonstrate understanding of wide range of poems from different historical periods, written in a wide range of forms, styles and subject matter • Identify the major poets of world literature and define the importance of their works • Enhance their cultural sensitivity through reading of representative poems from divers cultural context 	
Course Code: UAMASSCOM301	Course Title: Mass Communication 1
Course outcomes:	
The students would be able :	
<ul style="list-style-type: none"> • To introduce the students to some major aspects of communication and mass communication. 2. To develop among the students a broad perspective of the past and the present status of Mass Media in India. • To develop among the students a critical understanding of the Mass Media with regard to their presentation formats, roles and audiences in Indian context. • To develop among the students a critical understanding of some special roles of different Mass Media in India. • To help the students to assess the contribution of Indian mass media to national development. 6. To acquaint the students with some issues and laws related to mass media in India. • To introduce the students to various job and career opportunities in media industry. 	
SEMESTER IV	
Course Code: UAENG401	Course Title: : Introduction to Drama Paper II Paper II
Course Outcomes:	
The students would be able :	
<ul style="list-style-type: none"> • · develop interest and passion for drama (and theatre). • · be familiarized with the salient elements and characteristics of drama. • · be able to identify the different forms and types of drama. • · be capable to identify the various trends and characteristics of significant dramatic movements through the representative dramas. 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> • · be equipped with the tools and techniques to critically appreciate drama. • · imbibe human values reflected in the selected plays. • · justify that drama is reflection / representation of life. • · develop analytical skills and critical thinking through close reading of the representative dramas. 	
Course Code: UAENG402	Course Title: Introduction to Poetry - Paper III
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> · Identify different genres and forms of poetry · Identify poetic technique, style and rhetorical devices used in poetry · Critically appreciate poems by separating various component parts and investigating the relationship of the parts to the whole · Demonstrate understanding of wide range of poems from different historical periods, written in a wide range of forms, styles and subject matter · Identify the major poets of world literature and define the importance of their works · Enhance their cultural sensitivity through reading of representative poems from diverse cultural context 	
Course Code: UAMASSCOM401	Course Title: Mass Communication
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • To introduce the students to some major aspects of communication and mass communication. • To develop among the students a broad perspective of the past and the present status of Mass Media in India. • To develop among the students a critical understanding of the Mass Media with regard to their presentation formats, roles and audiences in Indian context. • To develop among the students a critical understanding of some special roles of different Mass Media in India. • To help the students to assess the contribution of Indian mass media to national development. • To acquaint the students with some issues and laws related to mass media in India. • To introduce the students to various job and career opportunities in media industry. 	
Name of Department: English	
Class: TYBA	
<p>Program Outcomes:</p> <ul style="list-style-type: none"> • To introduce students to English Literature of the 16th, 17th and 18thcenturies. • To show them how background influences shaped the writer's thinking. • To present them to the literary masters who dominated the scene • To familiarize students with different writing styles that each age adopted. • To introduce the learners to important critical terms • To make them aware of the nature and function of literature and criticism • To impart the technique of close reading of literary texts • To enable them to understand various literary theories and critical approaches • To familiarize the learners with the tenets of practical criticism • To develop amongst learners an insight into the process of word formation and transformation • To develop amongst them an insight into the sounds, stress patterns and intonations in the English language to improve their speaking skills 	



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Yashvant Keshav Patil College of Commerce
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<ul style="list-style-type: none"> ● To develop among them an insight into the structure of the English language and to provide knowledge of the rules of grammar ● To help them learn grammatical analysis and description and the skills of sentence transformation ● To introduce the mechanics of writing for effective writing for various domains 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To understand the distinctive features of English literature of the 16th, 17th and 18th centuries ● To comprehend how background influences shaped the writer's thinking. ● To recognize and appreciate the literary masters who dominated the scene. ● To grasp the different writing styles that each age adopted. ● use some important critical terms ● become aware the nature and function of literature and criticism ● impart the technique of close reading of literary texts ● understand the various literary theories and critical approaches ● be familiar with the tenets of practical criticism ● Gain a basic understanding of phonetics, morphology and word transformation ● Have improved speaking skills ● Have developed adequate knowledge of the rules of grammar, grammatical analysis and sentence transformation ● Write effectively in various domains. 	
SEMESTER - V	
Course Code: - UAENG501	Course Title: Paper IV- 16th to 18 th Century English Literature –I
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand the distinctive features of English literature of the 16th, 17th and 18th centuries ● To comprehend how background influences shaped the writer's thinking. ● To recognize and appreciate the literary masters who dominated the scene. ● To grasp the different writing styles that each age adopted. 	
Course Code: UAENG502	Course Title: Paper V- Literary Criticism-I
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● use some important critical terms ● become aware the nature and function of literature and criticism ● impart the technique of close reading of literary texts ● understand the various literary theories and critical approaches ● be familiar with the tenets of practical criticism 	
Course Code: UAENG503A	Course Title: Paper VI -- Grammar and the Art of Writing-I
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Gain a basic understanding of phonetics, morphology and word transformation ● Have improved speaking skills 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> • Have developed adequate knowledge of the rules of grammar, grammatical analysis and sentence transformation • Write effectively in various domains. 	
SEMESTER VI	
Course Code: UAENG601	Course Title: Paper IV- 16th to 18th Century English Literature - II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand the distinctive features of English literature of the 16th, 17th and 18th centuries • To comprehend how background influences shaped the writer's thinking. • To recognize and appreciate the literary masters who dominated the scene. • To grasp the different writing styles that each age adopted. 	
Course Code: UAENG602	Course Title: Paper V- Literary Criticism - II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • use some important critical terms • become aware the nature and function of literature and criticism • impart the technique of close reading of literary texts • understand the various literary theories and critical approaches • be familiar with the tenets of practical criticism 	
Course Code: UAENG603A	Course Title: Paper VI -- Grammar and Art of writing – II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Gain a basic understanding of phonetics, morphology and word transformation • Have improved speaking skills • Have developed adequate knowledge of the rules of grammar, grammatical analysis and sentence transformation • Write effectively in various domains. 	

34. BA – History

Academic year: 2023-24
Name of Department: HISTORY
Class: F.Y.B.A., S.Y.B.A. & T.Y.B.A.
Program Outcomes: <ul style="list-style-type: none"> • To teach students basics in history with a view to promote historical research. • To understand the various kinds of sources of history and its interpretation. • To acquaint students with the new trends and approaches in history writing. • To teach students basics of research methodology in history. • To understand various resources of Heritage in India • To introduce students to the Cultural Heritage of Maharashtra



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- To develop an understanding of Heritage Tourism amongst students.
- To acquaint the students with the relevance and scope of Heritage Tourism
- To introduce the students to new trends in Heritage Tourism.

Program Specific Outcomes:

Degrees and Diplomas that can be pursued post Bachelor of Arts in History

M.A. History	Diploma in Archival Science
M.A. Museology	B.A. Library Science
M.A. Archaeology	Union Public Service Examinations (UPSC)
Diploma in Numismatics	Bachelor of Education (B.Ed.)
Diploma in Epigraphy	Bachelor of Laws (LLB)

Students can opt for the following careers after Bachelor of Arts in History

- Archaeologist
- Museum Curator
- Librarian
- Heritage Tourism
- Research Assistant
- Art Restorer
- Teacher
- Archivist
- Numismatcian
- Journalist
- Copywriter
- Civil Services
- Conservationist

SEMESTER I

Course Code: UAHIS 101	Course Title: History of Modern India (1857-1947)
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Course Outcomes:

The students would be able :

- The course is designed to make the student aware about the making of modern India
- To acquaint with the Political history of Modern India
- To learn India's freedom struggle.

SEMESTER II

Course Code: UAHIS 201	Course Title: History of Modern India: Society and Economy
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Course Outcomes:

The students would be able :

- The course is designed to make the student aware about the making of modern India
- To acquaint with the Social Economic history of Modern India.



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Vidhya Dayanand Patil College of Arts**

- To teach the students the positive & negative aspects of the British Empire.

SEMESTER III

Course Code: UAHIS 301

**Course Title: Landmarks in World History,
1300 A.D.-1919 A.D.**

Course Outcomes:

The students would be able :

- To comprehend the transition of Europe from medieval to modern times and Learn its impact on the world.
- To provide accurate knowledge of the most significant events and personalities of the period
- To encourage understanding of the making of the modern world

Course Code: UAHIS 302

Course Title: Ancient India from Earliest Times to 600 B.C.

Course Outcomes:

The students would be able :

- To acquaint with different sources of Ancient Indian History.
- To understand the political, socio-economic and cultural developments in the period under study
- To appreciate the rich cultural heritage in India

SEMESTER IV

Course Code: UAHIS 401

**Course Title: Landmarks in World History,
1919 A.D.-1945 A.D.**

Course Outcomes:

The students would be able :

- To acquaint with the major landmarks in World history
- Understand events that inspired India's Freedom Struggle
- To study the establishment of various governments such as Democracy, dictatorship, communism

Course Code: UAHIS 402

Course Title: Ancient India 300 B.C. to 1000 A.D.

Course Outcomes:

The students would be able :

- To acquaint with different sources of Ancient Indian History.
- To understand the political, socio-economic and cultural developments in the period under study
- To appreciate the rich cultural heritage in India

SEMESTER V

Course Code: UAHIS 501

**Course Title: History of Medieval India
(1000CE- 1526CE)**

Course Outcomes:

The students would be able :

- To acquaint with the history of early Medieval India that laid the foundation of the Sultanate in India.



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> To study the contribution of Vijaynagar and Bahamani kingdoms to Medieval Indian History. To examine the administrative, socio-economic and cultural aspects of Medieval India. 	
Course Code: UAHIS502	Course Title: History Of Modern Maharashtra (1818CE – 1960CE)
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> To acquaint with regional history of Maharashtra To understand political and socio-economic developments during the 19th and 20th centuries To create understanding of the movement that led to the formation of Maharashtra. 	
Course Code: UAHIS503A	Course Title: Introduction To Archaeology
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> To understand the basic facets of Archaeology. To evaluate the importance of Epigraphy. To study the importance of Numismatics as an important source of history. 	
SEMESTER VI	
Course Code: UAHIS 601	Course Title: History of Medieval India (1526CE- 1707CE)
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> To acquaint themselves with the history of India since the emergence of the Mughal rule. To understand administration of the Mughal Empire. To study the rise of the Maratha Power. 	
Course Code: UAHIS602	Course Title: History Of Contemporary India (1947-2000)
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> To understand the process of making the Constitution and the Integration and Reorganization of Indian States. To acquaint the students with the political developments in India after Independence. To comprehend the socio-economic changes and progress in science and technology in India. 	
Course Code: UAHIS603A	Course Title: Introduction To Museology and Archival Science
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> To understand the role of Museums in the preservation of Heritage. To recognize the importance of Archival Science in the study of History. To encourage students to pursue careers in various Museums and Archives in India and abroad. 	



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Vidhya Dayanand Patil College of Arts**

35. BA - Political Science

Name of Department: POLITICAL SCIENCE	
Class: FYBA	
Program Outcomes:	
BA in Political Science - Program Objectives	
<p>The Political Science undergraduate program was born out of a recognition of the increasing significance of cross-disciplinary studies in the social sciences. The program is organized around the combined perspectives and analytical tools of Sociology, Political Science, International Relations, and History. The Political Science degree furnishes the students with a unique multidisciplinary approach in social sciences and prepares them for further academic study and/or for careers in the public and the private sector.</p> <ol style="list-style-type: none"> 1. Understand the world, their country, their society, as well as themselves and have awareness of ethical problems, social rights, values and responsibility to the self and to others. 2. Understand different disciplines from natural and social sciences to mathematics and art, and develop interdisciplinary approaches in thinking and practice. 3. Develop knowledge of theories, concepts, and research methods in humanities and social sciences. 4. Assess how global, national and regional developments affect society. 5. Know how to access and evaluate data from various sources of information. 	
Program Specific Outcomes:	
<ol style="list-style-type: none"> 1. Understand and follow changes in patterns of political behavior, ideas and structures. 2. Develop the ability to make logical inferences about social and political issues on the basis of comparative and historical knowledge. 	
SEMESTER 1	
Course Code: UAPOL101	Course Title: Political science-1 Indian Political System (The Constitutional Framework)
Course outcomes:	
<p>The students would be able :</p> <ol style="list-style-type: none"> 1. Modules in this course are critical to the broad grasping of the subject. Sufficient time is planned to ensure that the learner has a critical look at the topics assigned for the Semester. 2. Learners should be found to be acquainted with the technical details of the topics therein. 3. Learners should understand the institutions better through case studies and relevant contemporary issues. 	
SEMESTER 2	
Course Code: UAPOL201	Course Title: Politics Paper I: Indian Political System Semester II: Indian Political Process
Course outcomes:	
<p>The students would be able :</p> <ul style="list-style-type: none"> • The students are presently started into an investigation of genuine working of the political framework in the nation. Notwithstanding sacred references and contextual investigations, a lot of similar viewpoint is likewise taken right now familiarize the students with the Indian 	



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political framework concerning other political frameworks over the world. The course examines the government structure, its working and difficulties lately. Ideological group framework in India, the races that have been led throughout the years and the slow move towards the alliance governmental issues is thought upon in detail. Quirks of the Indian financial and political framework counting station, locale, religion and sex which mean character legislative issues are different themes in thought in the course. Contemporary difficulties to the framework, for example, criminalisation of legislative issues, psychological oppression and Naxalism are concentrated in extraordinary profundity at this phase to comprehend the patterns in the framework

1. Intricacies of Centre-State relations should be found to be understood and looked at in a new light by the learners.
2. Learners should be found to be capable of analyzing significant variables shaping the Indian political system objectively.
3. Although basically known, these topics need theoretical attention for conceptual understanding.

Class: SYBA

Program Outcomes:

BA in Political Science - Program Objectives

The Political Science undergraduate program was born out of a recognition of the increasing significance of cross-disciplinary studies in the social sciences. The program is organized around the combined perspectives and analytical tools of Sociology, Political Science, International Relations, and History. The Political Science degree furnishes the students with a unique multidisciplinary approach in social sciences and prepares them for further academic study and/or for careers in the public and the private sector

- Providing opportunities to students to understand the knowledge about political system and functions of the government at International, National, State and local levels.
- Producing the next generation of leaders in research, teaching and in the applications of political science with special reference to Indian political system.

Program Specific Outcomes:

- It has assumed an inter-disciplinary character. The subject matter of Political science has been changing according to the need of the society. The proposed undergraduate course in Political Science is designed to fulfill the need of the society.
- understand the concepts and principles of Political Science and structure, powers and functions of the Government in India and other nations.
- Enlighten the students to understand basic rights and duties of the citizen and help in process of development of the nation

SEMESTER 3

Course Code: UAPOL301

Course Title: Politics Paper II: Political Theory (Principles and Concepts of Political Theory)

Course Outcomes:

The students would be able:

This course is fundamental since students are familiar with the working of political frameworks when all is said in done over their First Year and this course gives a reasonable establishing to the equivalent. How a state becomes makes, what separates a state from a country and why there develop difficulties to the equivalent are



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

a portion of the thoughts which are hypothetically talked about right now.

- Learners should have an improved understanding and new insight into the political concepts commonly referred to
- Conceptual base to the study of Politics should be laid

Course Code: UAPOL302

Course Title: Politics Paper III: Public Administration (Public Administration)

Course outcomes:

The students would be able :

- The Second Year Politics Paper III course familiarizes students with a field of study in Politics which manages organization. It deals with the speculations of organization and how administration can be molded better with the comprehension of organization and the board. Encounters of organization over the world towards authority, organization and inspiration are concentrated in this course. This course is naturally helpful for better faculty the board and for an unmistakable comprehension of the procedure of administration, advancement and arrangement making.
- This course chips away at the students' comprehension of open organization, hypotheses of the board, human relations, initiative and inspiration and the working of chain of importance, appointment also, decentralization. It likewise focuses on the contemporary strategies and practices of organization.
 - to set the tone towards learning administration
 - to understand the newer developments in the field of Public Administration
 - to create informed students of issues of administrative concern

SEMESTER IV

Course Code: UAMAPOL401

Course Title: Politics Paper II: Political Theory Semester IV: Political Values and Ideologies

Course outcomes:

The students would be able :

- Semester IV schedule for the Political Theory course covers significant political qualities and belief systems. Students study the idea of rights, their development, hypotheses and characterization of rights. They deal with political estimations of freedom, balance and equity. Students are acquainted with different types of government before the point by point investigation of popular government. Political belief systems, their significance and the impact they have all inclusive are taken a gander at in the last module which will cover a few philosophies, for example, Marxism, Fascism and Feminism.
- to ensure a nuanced study of the Political Theory and to make them relatable on the basis of contemporary issues.
- to equip the student with an understanding of why political systems across the world shape in certain ways over a period of time depending upon the choices they make and the effects they have.

Course Code: UAMAPOL402

Course Title: Politics Paper III: Public Administration Semester IV: Indian Administration

Course Outcomes:

The students would be able :



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- Semester IV prospectus for the Public Administration course investigates the Indian Administration. The rise of organization in India, its development, improvement, changes that it has experienced are fundamental for the students' comprehension of how India has functioned over the a long time. Work force organization in India, for example, enlistment and preparing of faculty, the procedure of money related organization in the nation as likewise the developing issues and difficulties to organization are a piece of the examination right now this course
- to have an incisive view of administration in India and its changing nature.
- to learn the nuances of personnel administration in India.
- to get acquainted with the budgetary and financial processes

Class: TYBA

Program Outcomes:

BA in Political Science - Program Objectives

- The Political Science undergrad program was conceived out of an acknowledgment of the expanding criticalness of cross-disciplinary investigations in the sociologies. The program is sorted out around the joined viewpoints and expository apparatuses of Sociology, Political Science, International Relations, and History. The Political Science certificate outfits the understudies with a one of a kind multidisciplinary approach in sociologies and sets them up for additional scholarly examination as well as for professions in people in general and the private part.
1. Educate students about political processes, theories, and governments in the United States and other countries and about international relations between those countries.
 2. Prepare students for a variety of careers or graduate and professional degree programs in fields such as law, government, education, politics, policy, and business.
 3. Offer students the analytical and research skills needed to understand and explain politics, government, and international relations.

Program Specific Outcomes:

1. Understanding of the institutions, processes, constitutional background, and policy outcomes of government and the ability to compare our government to other countries around the world
2. Knowledge of key theories and concepts, historical developments, organizations, and modern issues in international relations
3. Understanding of government institutions, electoral processes, and policies in a variety of countries around the world and the ability to compare the effectiveness or impact of differing political arrangements across countries
4. Knowledge of some of the philosophical underpinnings of modern politics and government and the legal principles by which political disputes are often settled
5. Ability to use the comparative case study method of analysis, quantitative forms of analysis, and legal analysis in oral communication and in written research

SEMESTER V

Course Code: UAPOL501

**Course Title: Politics Paper I V: International Relations Semester V:
World Politics**



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Course Outcomes:

The students would be able :

Global Relations (IR) stays one of the most famous and looked for after fields of study in Legislative issues. Students come to be familiar with all parts of how IR developed as a control, the ways to deal with IR and how power, clashes, harmony and security turn out in the evolving worldwide conditions throughout the years. The course additionally centers around universal political economy especially regarding the globalization procedure.

- to acquaint the students with the recent developments across the world and their impact
- to study the developments in the global scenario through new decisions & policies

Course Code: UAPOL502

**Course Title: Politics Paper V: Political Thought Semester V:
Western Political Thought**

Course outcomes:

The students would be able :

- Concentrating on explicit political ideas and philosophies with an understanding from crafted by explicit Western Political Thinkers makes for an extremely fascinating and viable examination. The ideas of State, thoughts on freedom and equity, insurgency and authority are both essential and amazingly valuable for the comprehension of the students. Women's activist and multicultural thoughts additionally contribute enormously to the field of study.
- to acquaint the learners with theoretical understanding of political concepts
- to understand existing, contemporary and emerging trends in Politics with reference to how thinkers viewed them in the context of their times.

Course Code: UAPOL503

**Course Title: Politics Paper VI: Political Process in Modern
Maharashtra Semester V: Politics of Modern Maharashtra**

Course outcomes:

The students would be able :

- Political Process in Modern Maharashtra begins with the study of the emergence of the linguistic State of Maharashtra and the role that the region has played in the nationalist and social reform movement. Inherent challenges of the State are discussed in this course. Political institutions of Maharashtra and the dynamics of caste politics also form an essential part of the study in this
- to acquaint students with the political backdrop in the State as a basis for further studies
- to study the regional disparities and the peoples' movements in the State
- to understand objectively the politics working on emotive issues

SEMESTER VI

Course Code: UAPOL601

**Course Title: Politics Paper IV: International Relations Semester VI:
India in World Politics**

Course Outcomes:

The students would be able :

- In continuation with Semester V, the course in International Relations (IR) finds India in worldwide legislative issues. India's relations with significant forces of the world, for example, the US, Russia and China as moreover with neighboring states, for example, Pakistan and Bangladesh with the changing measurements and conditions are



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>concentrated with enormous intrigue. Students likewise increase a knowledge into critical proportions of keeping up global relations through discretion. The forming of India's international strategy over the years and India's job in global and provincial associations, for example, the UN, SAARC and ASEAN are likewise different parts of study right now.</p> <ul style="list-style-type: none"> • to analyse India's standing in the international community • to help learners in Politics understand the contexts and developments and to take a clinical view towards the relations in the Indian sub-continent 	
Course Code: UAPOL602	Course Title: Politics Paper V: Political Thought Semester VI: Indian Political Thought
<p>Course outcomes: The students would be able :</p> <p>In continuation with Semester V, the Political Thought course in Semester VI introduces the learners to modern Indian political thought. Specificities of the Indian experiences and the relevance to the times that they lived in, come to be reflected through these thought processes.</p> <ul style="list-style-type: none"> • to make learners aware of the various strands of thoughts with Indian perspective • to recognise and analyse the relevance and applicability of these thought processes to the present times. 	
Course Code: UAPOL603	Course Title: Politics Paper IV: Political Process in Modern Maharashtra Semester VI: Determinants of Politics of Maharashtra
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> • In continuation with Semester V, the Political Process in Modern Maharashtra course in Semester VI works towards the learners' understanding of the specific political economy of the State of Maharashtra, land issues, political parties functioning in the State and emerging and contemporary issues. • to acquaint the learner with the emerging trends in a progressive state of Maharashtra and how the political economy of the region has defined it. • to recognise and analyse the present political scenario in the State. 	

36. BA- Psychology



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Name of Department: Psychology	
Class: FYBA	
<p>Program Outcomes:</p> <p>Specific core discipline knowledge :</p> <ul style="list-style-type: none"> ● Students have knowledge of the basic concepts and modern trends in Psychology. <p>Problem solving and research skills</p> <ul style="list-style-type: none"> ● Students have interest in the subject of Psychology and they are ready to create a foundation for further studies in Psychology. <p>Communication skills</p> <ul style="list-style-type: none"> ● Students are aware of the applications of Psychological concepts in different areas of day to day life and they can communicate about it with others. ● Students are able to understand the psychology of themselves and others and be able to realize, acknowledge and communicate their emotions in a socially acceptable manner. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● Students are aware about the history of Psychology. ● Students know the contribution of earlier researchers in the field of Psychology. ● The scientific methods of conducting research. ● Students are able to conduct research that is ethical in nature. ● Students have learned the biological basis of psychology - neuron, nervous system, brain and endocrine glands. ● Students know the classical and contemporary approaches to the process of learning. ● They know how to study the process of memory. ● Students know the reasons for forgetting. 	
SEMESTER - I	
Course Code: UAPS 101	Course Title: Fundamentals of Psychology (Part I)
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To know the history of Psychology. ● To be aware of the Fields of Psychology Today. <p>To learn the various methods of Scientific research in psychology.</p> <ul style="list-style-type: none"> ● To adhere to Ethics of Psychological Research. ● To learn the Biological basis of psychology - Neurons and Nerves and the Nervous System. ● Role of the Endocrine Glands. ● Role and function of Brain. ● To learn the process of Learning. 	



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- Two major ways of learning - Classical conditioning and Operant conditioning
- Newer methods that received recognition as theories of learning like Cognitive learning Theory, Observational Learning.
- What memory is.
- The Information Processing Model of memory.
- The reasons for forgetting.
- To learn the Neuroscience of memory.
- Applying Psychology to Everyday life.

SEMESTER - II

Course Code: UAPS201 Course Title: Fundamentals of Psychology (Part II)

Course Outcomes:

The students would be able :

- To Learn How People think
- Classical and contemporary approaches to Intelligence.
- To learn the process of learning Language.
- To learn approaches to understand motivation.
- To learn the psychology behind hunger
- To learn about Emotion.
- To know the relationship between Culture and Emotions.
- To know the Psychodynamic Perspective to personality
- To know the development of Psychoanalysis in the East .
- To study the Behavioural and Social Cognitive View of Personality.
- To learn about the Third Force :Humanism and Personality.
- To study the Trait Theories of personality. Like The Big Five and current thoughts on the trait Perspectives.
- To study the influence of Genetics and Culture on personality.
- To learn the various methods of Assessment of Personality.
- To know What Statistics are.
- To study and practice Descriptive Statistics and Inferential Statistics and its application in psychology.

Class: S. Y. B. A.



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Program Outcomes:

Specific core discipline knowledge :

- Students have knowledge of how an individual's behaviour, thinking and emotions are influenced by social exchange.
- Students are aware of the basic milestones of development of human beings from a physical, cognitive, social and physiological perspective.

Problem solving and research skills

- Students have information to create interest in the disciplines of Psychology and to create a foundation for further studies in Psychology.
- Students are aware of the applications of Psychological concepts in different areas of day to day life .

Communication skills

- Students are able to understand how others' behaviour influences their psychology and as a result they can avoid the unwanted influences.
- Students are able to realize, acknowledge and communicate their thoughts and emotions in a socially acceptable manner.
- Students are aware of the reasons behind behavioural patterns specific to a particular age group as they learn developmental psychology of individuals. As a result, they are more empathetic and understanding towards those age groups.

Program Specific Outcomes:

- Students have knowledge of the basic concepts and modern trends in Social Psychology.
- Students have interest in Social Psychology as a field of study and research.
- Students are aware of the applications of the various concepts in Social Psychology in the Indian context.
- Students have knowledge and understanding of the basic concepts, principles, perspectives and modern trends in the field of psychology of development.
- Students have interest in Developmental Psychology as a field of study and research.
- Students are aware of the implications and applications of the various concepts, principles and theories of Developmental Psychology in daily life in the Indian context.

SEMESTER - III



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Course Code: UAPS301	Course Title: Social Psychology: (Part I)
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To learn what Social Psychology is. ● To learn the research methods in Social Psychology. ● To learn the role of theory in Social Psychology. ● To address the dilemma of deception in research in Social Psychology. ● To understand different kinds of Nonverbal communication. ● To understand the causes of behavior - Attribution. ● To learn how Impression formation and management works by combining information about others. ● To study the role of nonverbal cues in job interviews. ● To learn the process of Attitude formation. ● To understand when and why attitudes influence behavior. ● To learn how attitudes guide behavior. ● To study how attitudes are changed. ● To understand different ways of resisting persuasion attempts. ● Concept of Cognitive dissonance. ● To study the relationship between culture and attitude processes. ● To study Internal sources of liking others like the role of needs and emotion. ● To learn External sources of attraction like effects of proximity, familiarity and physical beauty ● To understand Sources of liking based on social interaction ● To understand Close relationships as a foundation of social life. ● To study the factors that destroy love—jealousy and infidelity. 	
Course Code: UAPS302	Course Title: Developmental Psychology - A Focus on Adolescent and Adult Development: (Part I)
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To learn an overview of lifespan development and the Scope of the field (areas, age and individual differences). <ul style="list-style-type: none"> ● To understand the basic influences in development (history, age, sociocultural, life events) 	



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Yashvant Keshav Patil College of Commerce
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- To study Physical & Cognitive development at Adolescence Physical maturation and Cognitive development.
- To learn possible Threats to adolescent well being.
- To study Social and Personality Development in Adolescence
- To understand how Identity is formed during adolescence.
- To learn Relationships Pattern with Family and friends during adolescence.
- To study important aspects like Dating, sexual behaviour and teenage pregnancy.
- To study Physical and Cognitive Development in Early Adulthood.
- To understand issues faced while Pursuing Higher Education.
- To study Social and Personality Development in Early Adulthood.
- To learn Forging Relationships like Intimacy, Liking and Loving during Early Adulthood.
- To study issues at Work like Choosing & Embarking on a Career

SEMESTER - IV

Course Code: USPS 401 Course Title: Social Psychology (Part II)

Course Outcomes:

The students would be able :

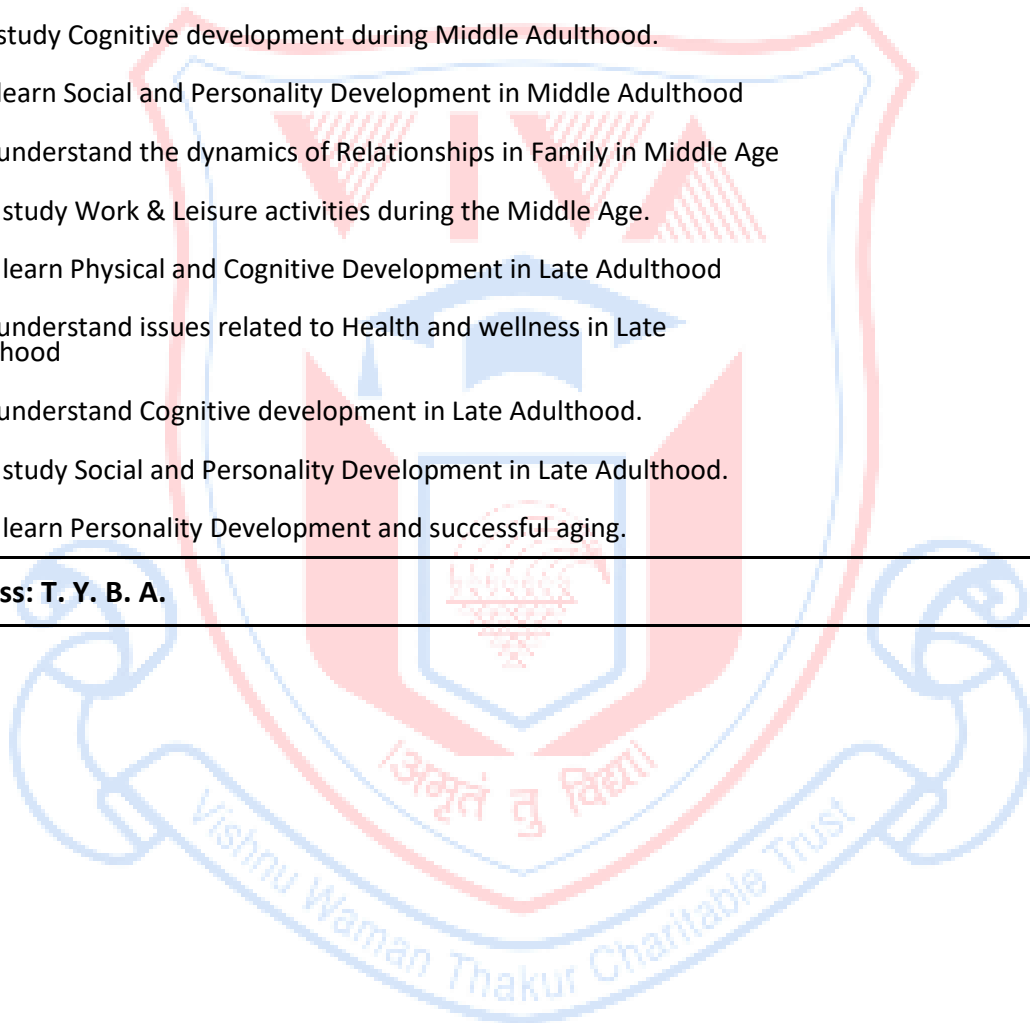
- To study the Causes and Cures of Stereotyping, Prejudice and Discrimination.
- To study the nature and origins of stereotyping.
- To understand the nature of Prejudice.
- To learn the development and effects of Discrimination.
- To learn Techniques for countering effects of discrimination.
- To study Conformity, Obedience and Compliance as a means of Social Influence.
- To learn concepts of Aggression and Its Nature, Causes and Control Methods.
- To understand the Causes of human aggression like Social, cultural, personal and situation.

- To understand Aggression in the classroom and workplace.
- To learn the techniques of prevention and control of violence.
- To study the role of emotions in aggression.
- To understand why people help and their Motives for prosocial behavior.
- To study the concept of bystanders helps.
- To learn the Factors that increase or decrease the tendency to help.
- To learn the concept of Crowdfunding: A new type of prosocial behavior.
- To study the tendency of Helping others because we have been helped.



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Course Code: UAPS402	Course Title: Developmental Psychology - A Focus on Adolescent and Adult Development: Part II
Course Outcomes: The students would be able : <ul style="list-style-type: none">● To learn Physical and Cognitive Development in Middle Adulthood.● To learn issues related to Health during Middle Adulthood.● To study Cognitive development during Middle Adulthood.● To learn Social and Personality Development in Middle Adulthood● To understand the dynamics of Relationships in Family in Middle Age● To study Work & Leisure activities during the Middle Age.● To learn Physical and Cognitive Development in Late Adulthood● To understand issues related to Health and wellness in Late Adulthood● To understand Cognitive development in Late Adulthood.● To study Social and Personality Development in Late Adulthood.● To learn Personality Development and successful aging.	
Class: T. Y. B. A.	





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Program Outcomes:

Specific core discipline knowledge :

- To impart knowledge and understanding of the nature, uses, technical features, and the process of construction of psychological tests
- To create awareness about measurement of intelligence and assessment of personality
- To impart knowledge and understanding of the concepts in Statistics and the various measures of Descriptive Statistics - their characteristics, uses, applications and methods of calculation
- To create a foundation for advanced learning of Psychological Testing, Assessment, and Statistics

Problem solving and research skills

- Students have information to develop a sound psychological test
- Students are aware of different types of psychological abnormalities in humans.
- students can apply principles of job selection, appraisal and performance in their real life.

Communication skills

- Students are able to understand the meaning of raw data and can interpret it..
- Students are able to realize, acknowledge and communicate different pattern of psychological abnormality
- Students are aware of the reasons behind behavioral patterns in industries and organizations.

Program Specific Outcomes:

- Students have knowledge of the basic concepts and modern trends in applied Psychology.
 - Students have interest in Psychology as a field of study and research.
 - Students are aware of the applications of the various concepts in Psychology in the Indian context.
 - Students have knowledge and understanding of the basic concepts, principles, perspectives and modern trends in the field of abnormal and industrial psychology.
 - Students have an interest in developing a psychological test.
- Students are aware of the implications and applications of the various concepts, principles and theories of industrial Psychology in daily life in the Indian context.

SEMESTER - V



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Course Code: UAPS501	Course Title: Psychological Testing and Statistics: (Part I)
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To impart knowledge and understanding of the nature, uses, technical features, and the process of construction of psychological tests ● To create awareness about measurement of intelligence and assessment of personality. ● To impart knowledge and understanding of the concepts in Statistics and the various measures of Descriptive Statistics - their characteristics, uses, applications and methods of calculation. ● To create a foundation for advanced learning of Psychological Testing, Assessment, and Statistics 	
Course Code: UAPS502	Course Title: Abnormal Psychology: (Part I)
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To impart knowledge and understanding of the basic concepts in Abnormal Psychology and the theories about Abnormality ● To impart knowledge and understanding of the different Psychological Disorders – their symptoms, diagnosis, causes and treatment ● To create awareness about Mental Health problems in society ● To create a foundation for higher education and a professional career in Clinical Psychology 	
Course Code: UAPS503	Course Title: Industrial and organizational Psychology: (Part I)
<p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To impart knowledge and understanding of the basic concepts in and various facets of Industrial and Organizational Psychology ● To create awareness about the role and importance of Psychological factors and processes in the world of work ● To create a foundation for higher education and a professional career in Industrial Psychology and Organizational Behavior 	
SEMESTER - VI	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: UAPS601	Course Title: Psychological Testing and Statistics: (Part II)
<p>Course Outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To impart knowledge and understanding of the nature, uses, technical features, and the process of construction of psychological tests ● To create awareness about measurement of intelligence and assessment of personality. ● To impart knowledge and understanding of the concepts in Statistics and the various measures of Descriptive Statistics - their characteristics, uses, applications and methods of calculation. ● To create a foundation for advanced learning of Psychological Testing, Assessment, and Statistics 	
<p>Course Code: UAPS602 Course Title: Abnormal Psychology: (Part II)</p> <p>Course outcomes:</p> <p>The students would be able :</p> <ul style="list-style-type: none"> ● To impart knowledge and understanding of the basic concepts in Abnormal Psychology and the theories about Abnormality ● To impart knowledge and understanding of the different Psychological Disorders – their symptoms, diagnosis, causes and treatment ● To create awareness about Mental Health problems in society ● To create a foundation for higher education and a professional career in Clinical Psychology 	
Course Code: UAPS603	Course Title: Industrial and organizational Psychology: (Part: II)
<p>Course outcomes:</p> <p>The students would be able :</p> <p>To impart knowledge and understanding of the basic concepts in and various facets of Industrial and Organizational Psychology</p> <ul style="list-style-type: none"> ● To create awareness about the role and importance of Psychological factors and processes in the world of work ● To create a foundation for higher education and a professional career in Industrial Psychology and Organizational Behavior 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

37. BAMMC

Name of Department: BAMMC
Class: FYBAMMC
<p>Program Outcomes:</p> <ul style="list-style-type: none"> ● The program considers media industries and their relationship to culture and society, and the understanding of how communication works. The program emphasizes the development of critical thinking, professional writing skills and effective oral communication. ● The Communication and Media Studies major prepares students for a wide variety of careers in business and industry, advertising, public relations and journalism, or advanced study. ● This program will equip the learners with professional skills essential for making a career in the Entertainment industry, Cinema, Television, OTT Platforms, social media platforms etc. ● Students will be able to grasp the complex relationship between communication / media theories and a diverse set of Individual, social, professional practices. ● Students will be able to conceptualize, design and produce more works in media based on effective principles and practices of media aesthetics for target audience. ● This programmed will also give them an improved sense of self-confidence and self-efficacy and an awareness of their responsibilities as professionals in their field.
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● Students would demonstrate the ability to apply rhetorical principles in a variety of creative, cinematic, organizational, professional and journalistic venues. ● Knowledge, skills, and values that prepare them for future careers in our interconnected society, whether in mass media or advanced study. ● Learners would develop a global awareness of political, social and corporate issues influenced by communication sensitivity and skills. ● Learners will understand mass media as a system of interrelated forces, including historical foundations, technological advances, economic dynamics, regulatory constraints, and ethical concerns. ● Learners will be able to create and design emerging media products, including blogs, digital audio, digital video, social media, digital photography, and multimedia. ● They will be better equipped to grasp the complex relationship between communication/media theories and a diverse set of Individual, social, and professional practices. ● Learners will understand the underlying philosophical assumptions of, and be able to apply, communication research methods to address a range of media texts and audiences, production and technological practices, and relevant social issues. ● Learners will comprehend the foundations, process, and practices of writing for and about the media, and demonstrate proficiency in writing across platforms. ● Learners will be able to conceptualize, design, and produce one or more works in media based on effective principles and practices of media aesthetics for a target audience. ● Learners will acquire the knowledge and skills required to pursue a career in the specialization of their choice.
SEMESTER I



**Vishnu Waman Thakur Charitable Trust's
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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: BAMMEC-1-101	Course Title: Effective Communication-I
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● To make the students aware of functional and operational use of language in media. ● To equip or enhance students with structural and analytical reading, writing and thinking skills. ● To introduce key concepts of communication. 	
Course Code: BAMMFC-101	Course Title: Foundation Course –I
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To introduce students to the overview of the Indian Society. ● To help them understand the constitution of India. ● To acquaint them with the socio-political problems of India. 	
Course Code: BAMMVC 103	Course Title: Visual Communication
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To provide students with tools that would help them visualize and communicate. ● Understanding Visual communication as part of Mass Communication. ● To acquire basic knowledge to be able to carry out a project in the field of visual communication ● To acquire basic knowledge in theories and languages of Visual Communication. ● The ability to understand and analyze visual communication from a critical perspective. 	
Course Code: BAMMFMC 104	Course Title: Fundamentals of Mass Communication
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To introduce students to the history, evolution and the development of Mass Communication in the world with special reference to India. ● To study the evolution of Mass Media as an important social institution. ● To understand the development of Mass Communication models. ● To develop a critical understanding of Mass Media. ● To understand the concept of New Media and Media Convergence and its implications. 	
Course Code: BAMMCA 105	Course Title: Current Affairs
Course outcomes: <ul style="list-style-type: none"> ● To provide learners with overview on current developments in various fields. ● To generate interest among the learners about burning issues covered in the media. ● To equip them with basic understanding of politics, economics, environment and technology so that students can grasp the relevance of related news. ● Twenty minutes of newspaper reading and discussion is mandatory in every lecture. 	
Course Code: BAMMHM 106	Course Title: History of Media
Course outcomes: <ul style="list-style-type: none"> ● To understand Media history through key events in the cultural history ● To enable the learner to understand the major developments in media history. ● To understand the history and role of professionals in shaping communications. ● To understand the values that shaped and continues to influence Indian mass media. 	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- To develop the ability to think and analyze about media, its contemporary scenario & background

SEMESTER II	
Course Code: BAMMEC-201	Course Title: Effective Communication-II
Course Outcomes: The students would be able: <ul style="list-style-type: none"> • To make students aware of use of language in media and organization. • To equip or enhance students with structural and analytical reading, writing and thinking. • To introduce key concepts of communication. 	
Course Code: BAMMFC 202	Course Title: Foundation Course –II
Course outcomes: The students would be able: <ul style="list-style-type: none"> • To introduce students to the overview of the Indian Society. • To help them understand the constitution of India. • To acquaint them with the socio-political problems of India. 	
Course Code: BAMMCW 203	Course Title: Content Writing
Course outcomes: The students would be able: <ul style="list-style-type: none"> • Enhances Vocabulary in order to convey thoughts well • Content writing gives a chance to experiment with language and also different ways of expressing. • The beauty of content writing is not in creating something new but to modify what has already exists • Students learns to write crisp and concise • Understanding the difference between writing for main stream media and social media 	
Course Code: BAMMID 204	Course Title: Introduction to Advertising
Course Outcomes: The students would be able: <ul style="list-style-type: none"> • To provide the students with the basic understanding of advertising, growth, importance and types • To understand an effective advertisement campaign, tools, model etc. • To comprehend the role of advertising agency, it's department. • To provide student with various advertising trends, future and careers 	
Course Code: BAMMIJ 205	Course Title: Introduction to Journalism
Course outcomes: The students would be able: <ul style="list-style-type: none"> • To help media students to acquaint themselves with an influential medium of journalism that holds the key to opinion formation & to create awareness. 	
Course Code: BAMMMGC 206	Course Title: Media Gender & Culture



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course outcomes:

The students would be able:

- To make pupils, understand the significance of culture and media industry
- To create outspokenness and open-minded attitude among the students about gender issues and cultural diversities.
- to stress on the changing perspectives of media Gender and culture in the globalized era
- To understand the association between the media Gender and culture in the society

Class: SYBAMMC

Program Outcomes:

Core Subject learning

- Students get to learn media specific subject.
- Students get inside of media subject with specification to media industry.

Communication skills

- Students get to learn and understanding of writing skills required for journalistic writing.
- Students get to learn about the various aspect of writing style with specific subject like creative writing, journalism, understanding cinema, R&T.

Research skills

- Students get the knowledge about the media research and its impact on society.

Students also learn through various past theory to understand the working of media industry and ideology.

Program Specific Outcomes:

- To learn about the working of media industry as in whole with specific subject which cater the different part of media industry.
- To empower themselves by communication, professional and life skills required specially for public relation, advertising, journalism.
- To make them knowledgeable about advance software required specifically in media industry for online marketing, animation, website designing, audio video editing.
- To make them learn jargons of media industry to develop the professional language in students
- To make them understand how to read newspaper, how to analysis the advertisement.
- To make them understand difference between the various news based on real stories, paid advertisement (advertorials), PR stories.
- To acquire them with basics of photography skills, parts of camera, photography development in print and production.
- To impart knowledge of organizational working and culture in the media industry and develop management skills, decision making, leadership, and handling of stress.
- To help students understand the structure of ad agency, Role of advertising in marketing, advertising budget, Client servicing.
- To introduce students to research approaches and its application in mass media industry with reference to data collection, designing questionnaire, measurement technique, sampling process, content analysis.
- To understand the difference of writing, reading, understanding between print electronic, new media and citizen journalism with reference to history of journalism, writing style, coverage, principles, process, criteria, role, trends.
- To provide an overview of broadcast industry with orientation to radio format, television format, script writing, AIR, satellite, story board, broadcast production.



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<ul style="list-style-type: none"> • To create mindfulness on various cultural and media theories and its significance in the media • To adopt analytical skills to view media critically by understanding the notions of globalization, Diaspora, political culture, racism, popular culture. • To expose students to world, Indian regional cinema, and its facet, genres film making process 	
SEMESTER III	
Course Code: BAMMC EM-3011	Course Title: Electronic Media-I
Course outcomes: The students would be able: <ul style="list-style-type: none"> • To understand the role of electronic media • To identify different Radio and TV Programmes and formats • To understand the production of Radio and TV Programmes • To Identify the conventions of the electronic media 	
Course Code: BAMMC CCPR-302	Course Title: Corporate Communication and Public Relations
Course outcomes: The students would be able: <ul style="list-style-type: none"> • To provide the students with basic understanding of the concepts of corporate communication and public relations. • To introduce the various elements of corporate communication and consider their roles in managing media organizations. • To examine how various elements of corporate communication must be coordinated to communicate effectively in today's competitive world. • To develop critical understanding of the different practices associated with corporate communication with the latest trends and social media tools. 	
Course Code: BAMMC MS-303	Course Title: Media Studies
Course outcomes The students would be able: <ul style="list-style-type: none"> • To provide an understanding of media theories • To understand the relationship of media with culture and society • To understand Media Studies in the context of trends in Global Media 	
Course Code: BAMMC IP-304	Course Title: Introduction to Photography
Course Outcomes: The students would be able: <ul style="list-style-type: none"> • To introduce to media learner the ability of image into effective communication. • To help the learner understand that media photography is a language of visual Communication and is far beyond just point and shoot fun moments. • To practice how picture speaks thousand words by enlightening the learner on how. • To develop the base of visualization among learners in using pictures in practical projects. • To help learner work on given theme or the subject into making a relevant picture or Photo feature. 	
Course Code: BAMMC FCO-305	Course Title: Film Communication-I
Course outcomes: The students would be able:	



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Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
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<ul style="list-style-type: none"> ● To inculcate liking and understanding of good cinema. ● To make students aware with a brief history of movies; the major cinema movements. ● Understanding the power of visuals and sound and the ability to make use of them in effective communication. ● Insight into film techniques and aesthetics. 	
Course Code: BAMMC CMM-306	Course Title: Computers and Multimedia-I
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> ● To help learners make media industry ready. This will help learners to be aware of the minimum requirement of the software when stepping out in the industry. ● To introduce the media software's to make the learners understand what goes behind the scene and help them choose their stream. ● To prepare learners skilled enough for independency during project papers in TY Sem VI. ● To help learners work on small scale projects during the academic period. 	
SEMESTER IV	
Course Code: BAMMC EM-4011	Course Title: ELECTRONIC MEDIA-II
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Write basic scripts to augment and customize procedural technical processes. ● Student is able to implement the processes, strategies, and protocols required for the production and creation of filmed media content, from entry level (production assistant) to advanced (producer and production manager), based on standard industry practices. ● Student can carry out applied learning activities focused on the post production process for digital media productions (documentaries, narrative, short format and corporate industrial). 	
Course Code: BAMMC WEM-402	Course Title: Writing and Editing for Media
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Provide the ability to understand writing styles that fit various media platforms. ● It would help the learner acquire information gathering skills and techniques. ● On completion of this course, students will be able to understand similarities and differences in writing for all forms of media including internet and digital. ● The learner will gather knowledge of different news and copy formats along with appropriate style-sheets and layout. ● The learner will imbibe the importance of writing clearly, precisely and accurately for different types of audiences ● Provide acquire basic proficiency in proof-reading and editing. 	
Course Code: BAMMC MLE-403	Course Title: Media Laws and Ethics
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To provide the learners with an understanding of laws those impact the media. ● To sensitize them towards social and ethical responsibility of media. 	
Course Code: BAMMC MMR-404	Course Title: Mass Media Research



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Vidhya Dayanand Patil College of Arts**

<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To introduce students to debates in Research approaches and equip them with tools to carry on research ● To understand the scope and techniques of media research, their utility and limitations 	
Course Code: BAMMC FCO-405	Course Title: Film Communication II
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● Awareness of cinema of different regions. ● Understand the contribution of cinema in society. ● How to make technically and grammatically good films. ● From making to marketing of films. ● Economic aspects of film. ● Careers in films. 	
Course Code: BAMMC CMM-406	Course Title: Computer Multimedia II
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To help learner be media industry ready. This will help learners to be aware of the minimum requirement of the software when stepping in the industry. ● To introduce the media soft ware's to make the learner understand what goes behind the scene and help them choose their stream. ● To prepare learner skilled enough for independency during project papers in TY sem.VI. ● To help learners work on small scale projects during the academic period. 	
Class: TYBAMMC (ADVERTISING)	
<p>Program Outcomes:</p> <ul style="list-style-type: none"> ● Students can identify and respond to clients' advertising and marketing needs by applying principles of marketing and advertising ethics. ● Students can prepare and perform various industry related faucets ● Students can identify the brand's target market/audience and define the consumer Behavior of each segment. ● Students can develop potent communication skills to construct understanding of clients and consumer needs. ● Students can undertake research activities to evaluate pre and post testing research in advertising. ● Students can understand the contemporary advertising environment and its impact on the economy. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● To develop an integrated advertising and marketing communications plan and persuasively present, modify and defend it. ● To provide analytical tools for evaluation of financial implications of marketing decisions. ● To develop advertising and marketing communications material in compliance with current Indian legislation, industry standards and business practices. ● To construct creative solutions to address advertising and marketing communications challenges. ● To analyze accurately the stand of liberalization, privatization and globalization in advertising and its importance. 	



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- To complete all work in a professional, ethical and timely manner.
- To contribute in evaluating the effectiveness of advertising and marketing communications initiatives.
- To implement contemporary methods of communication and modern solutions in the area of consumer reach and brand building respectively.
- To update themselves as an advertising personality and adapt to on-going trends and practices.
- To obtain recent information and knowledge in the area of advertising and use it effectively for individual and industry growth.

SEMESTER V

Course Code: BAMMC DRGA-501

Course Title: COPY WRITING

Course outcomes:

The students would be able:

- To familiarize the students with the concept of copywriting as selling through writing
- To learn the process of creating original, strategic, compelling copy for various mediums
- To train students to generate, develop and express ideas effectively
- To learn the rudimentary techniques of advertising headline and body copywriting, the economy of words and thought peculiar to this type of writing, and the necessity of creative thinking in written expression.
- In an ad agency, as a copywriter, one cannot "Just be creative and express self" – here one is in a 'creative professional', and have to be able to use the power of creativity for a commercial/business reason – as someone is paying you to get a problem solved, using your creativity.
- There are two basic disciplines through which we make our communication - verbal/written and visual, and both need different skills-sets to master them. The structure of the syllabus is designed to hone the necessary skills required for these two diverse disciplines.

Course Code: BAMMC DRGA-502

Course Title: ADVERTISING & MARKETING RESEARCH

Course outcomes:

The students would be able:

- The course is designed to inculcate the analytical abilities and research skills among the students.
- To understand research methodologies – Qualitative Vs Quantitative
- To discuss the foundations of Research and audience analysis that is imperative to successful advertising.
- To understand the scope and techniques of Advertising and Marketing research, and their utility.

Course Code: BAMMC EABB 1502

Course Title: BRAND BUILDING

Course outcomes:

The students would be able:

- To understand the awareness and growing importance of Brand Building
- To know how to build, sustain and grow brands
- To know the various new way of building brands
- To know about the global perspective of brand building.



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Course Code: BAMMC EAMM 1503	Course Title: AGENCY MANAGEMENT
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● To acquaint the students with concepts, techniques and give experience in the application of concepts for developing an effective advertising campaign. ● How an ad agency works and what opportunities exist ● To familiarize students with the different aspects of running an ad agency ● To inculcate competencies thereby enabling to undertake professional work with advertising industry. 	
Course Code: BAMMC EASM 1505	Course Title: SOCIAL MEDIA MARKETING
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● Students learn real-world skills from leading designers, artists, and entrepreneurs. ● The primary goal is to create problem solvers who strike a balance between traditional art and technology, and between individual vision and teamwork. ● With a fundamental understanding of digital tools and their creative applications, graduates meet the demands of a diverse and expanding job market in visual story telling. ● Identify and apply strategies to improve and succeed no matter what their initial skills. ● Solve problems and learn from creative risks by using people skills, design principles, and processes. ● Build a strong foundation in all aspects of design and production for storytelling in motion. ● Use inspiration in fields outside of digital media such as poetry, science, music, astronomy, history, dance, and more. ● Develop a professional commitment to their field, their work, and themselves; preparing them to be members and leaders in their profession, as well as learning how to act both as individuals and as team members to support the whole. 	
Course Code: BAMMC EADF 1508	Course Title: DOCUMENTARY & AD FILM MAKING
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● Understanding the planning involved in making audio visual communication effectively. ● To prepare students for effective and ethical public communication. ● To help students acquire basic skills in the practical aspects of Documentary and Ad Film making. ● Equip students with skills to write and shoot effective Documentary and Ad film. 	
SEMESTER VI	
Course Code: BAMMC DRGA-601	Course Title: DIGITAL MEDIA
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● Understand digital marketing platform ● Understand the key goals and stages of digital campaigns ● Understand the of use key digital marketing tools ● Learn to develop digital marketing plans 	
Course Code: BAMMC DRGA-602	Course Title: ADVERTISING DESIGN
Course outcomes:	



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Vidhya Dayanand Patil College of Arts**

<p>The students would be able:</p> <ul style="list-style-type: none"> • Learner shall understand the process of planning & production of the advertisement. • To highlight the importance of visual language as effective way of communication. • To provide practical training in the field of advertising & make learner industry ready. 	
Course Code: BAMMC EAAC 2601	Course Title: ADVERTISING IN CONTEMPORARY SOCIETY
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> • To understand the environment of Advertising in Contemporary Society • To understand Liberalization and its impact on the economy and other areas of Indian society • To compare and analyse the advertising environment of different countries 	
Course Code: BAMMC EAMP 2603	Course Title: MEDIA PLANNING & BUYING
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> • To develop knowledge of major media characteristics • To understand procedures, requirements, and techniques of media planning and buying. • To learn the various media mix and its implementation • To understand budget allocation for a Media plan and fundamentals 	
Course Code: BAMMC EAAS 2604	Course Title: ADVERTISING & SALES PROMOTION
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> • Students should be able to demonstrate a thorough understanding of the major sales promotion concepts, • Use a framework to make effective sales promotion decisions, and • Adopt the necessary skills and point of view of an effective sales promotion campaign 	
Course Code: BAMMC EAEM 2607	Course Title: ENTERTAINMENT & MEDIA MARKETING
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> • To equip students with an understanding of marketing practices, frameworks, and trends in the Entertainment Sector • Introducing the students to television industry and film industry. • Will make students go through different case studies regarding radio marketing skills, Social media marketing skills etc. • Will help to know the impact of media industry on the viewers, understanding its characteristics 	
Class: TYBAMMC (JOURNALISM)	
<p>Program Outcomes: Specific core discipline knowledge</p> <ul style="list-style-type: none"> • The program considers media industries and their relationship to culture and society, and the understanding of how communication works. The program emphasizes the development of critical thinking, professional writing skills and effective oral communication. • The Communication and Media Studies major prepares students for a wide variety of careers in business and industry, advertising, public relations and journalism, or advanced study. • This program will equip the learners with professional skills essential for making career in Entertainment industry, Cinema, Television, OTT Platforms, social media platforms etc. 	



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 Yashvant Keshav Patil College of Commerce
 Vidhya Dayanand Patil College of Arts**

- Students would demonstrate the ability to apply rhetorical principles in a variety of creative, cinematic, organizational, professional and journalistic venues.
- Knowledge, skills, and values that prepare them for future careers in our interconnected society, whether in mass media or advanced study.
- Learners would develop a global awareness of political, social and corporate issues influenced by communication sensitivity and skills.
- Learners will understand mass media as a system of interrelated forces, including historical foundations, technological advances, economic dynamics, regulatory constraints, and ethical concerns.
- This program will also give them an improved sense of self-confidence and self-efficacy and an awareness of their responsibilities as professionals in their field.
- Learners will be able to create and design emerging media products, including blogs, digital audio, digital video, social media, digital photography, and multimedia.
- Learners will acquire the knowledge and skills required to pursue a career in the specialization of their choice.

Program Specific Outcomes:

- This program will equip the learners with fundamental knowledge of Journalism in Mass Media
- Specialization major prepares students for a wide variety of careers in business and industry, of journalism, Public relations, News channels or advanced study in these areas.
- Exhibit knowledge of various types of media including traditional and digital media and be equipped with essential communication skills.
- Students apply knowledge and expertise to real-world situations and/or research questions.
- The learner will have acquired competency and skills for increased employability in the media sector and be adequately motivated to contribute to the development of society.
- Students develop an understanding of diversity and cultural perspectives in local, regional, and global society.
- Learners can excel in their choice of specialization and excel in a write a variety of mass media products, including news stories, press releases, writing content for media, blogs etc.
- Students will be able to create and design emerging media products, including blogs, digital audio, digital video, social media, digital photography, and multimedia.

SEMESTER V

Course Code: BAMMC DRG-501

Course Title: REPORTING

Course Outcomes:

The students would be able:

- To enable students to become Reporters which is supposed to be a prerequisite while entering into the field of Journalism.
- To make them understand basic ethos of the news and news-gathering.
- To prepare them to write or present the copy in the format of news.
- To develop nose for news.
- To train them to acquire the skills of news-gathering with traditional as well as modern tools.
- To inculcate the skills for investigative journalism.
- To make them understand the basic structure/ essential knowledge for various beats.
- To make them responsible reporters and the face of media.



**Vishnu Waman Thakur Charitable Trust's
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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: BAMMC DRG-502	Course Title: INVESTIGATIVE JOURNALISM
Course outcomes: The students would be able: <ul style="list-style-type: none"> • Understand the role of investigative reporting in modern journalism • To learn to conduct investigative research in an ethical manner. • To create and write excellent investigative stories for media. • To acquire advanced investigative journalistic skills • Learner will acquire the ability to understand and analyse the key areas of investigative journalism even with limited resources. 	
Course Code: BAMMC EJFW 1B501	Course Title: FEATURES AND WRITING FOR SOCIAL JUSTICE
Course outcomes: The students would be able: <ul style="list-style-type: none"> • To provide students with technique of narration and story telling • To share the art of developing a story idea • To acquaint and sensitize them through assignments to the issues of deprivation around us and using writing as a tool for social justice 	
Course Code: BAMMC EJWS 1B502	Course Title: WRITING and EDITING SKILLS
Course outcomes: The students would be able: <ul style="list-style-type: none"> • To provide learners with tools and techniques of editing and writing. • To acquaint learners with the art of narration and storytelling strictly within the contours of journalistic principles. 	
Course Code: BAMMC EJGM 1B503	Course Title: GLOBAL MEDIA and CONFLICT RESOLUTION
Course Outcomes: The students would be able: <ul style="list-style-type: none"> • To help students understand the difference in the role and structure of the media across the globe. • To develop an understanding of the hold of media conglomerates and the issues of cultural differences • To help students appreciate the potential of media in resolving conflicts. 	
Course Code: BAMMC EJMJ 1B505	Course Title: MOBILE JOURNALISM and NEW MEDIA
Course outcomes: The students would be able: <ul style="list-style-type: none"> • This course was arranged as a preparation program for Media Students, having an enthusiasm for finding out about the nuts and bolts of versatile news-casting. You needn't bother with any past involvement with the ideas, apparatuses or assets of portable news coverage. Towards the end of the course, you will leave away with information about: <ul style="list-style-type: none"> • Global adoption of mobile and its versatility has influenced and changed journalism in New Age Media. M-Learning, in the Era of New Media is the most effective method to get ready for the eventual fate of the media and life in a portable first world. • Step by step instructions to report and connect with crowds utilizing cell phones. • Step by step instructions to utilize the accepted procedures for ease of use and item plan when constructing your portable encounters in Journalism. • The most effective method to settle on educated choices about structure portable news items crosswise over stages. The most effective method to get ready for the eventual fate 	



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Yashvant Keshav Patil College of Commerce
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of wearable's different patterns that may change the course of portable media and news-casting.	
SEMESTER VI	
Course Code: BAMMC DRG-601	Course Title: DIGITAL MEDIA
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● Understand digital marketing platform ● Understand the key goals and stages of digital campaigns ● Understand the of use key digital marketing tools ● Learn to develop digital marketing plans 	
Course Code: BAMMC DRG-602	Course Title: NEWSPAPER and MAGAZINE DESIGN
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● The learner is required to understand the process of print media production since the content collection to the final print ready layout. ● This includes news weightage as well as article relevancy and the visual treatment to the text block. The appearance of the various text blocks matters in layout. ● Learner should be able to reconstruct headlines suitable for the space keeping the core meaning and intensity intact. ● Learners are expected to develop software skills to be employable in industry. ● Learners shall develop the aesthetic vision and understand the discipline behind a layout. 	
Course Code: BAMMC EJI 2B602	Course Title: LIFESTYLE JOURNALISM
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● Acquire a conceptual overview of lifestyle journalism and its function in the media industry. ● Acquire an ability to report on lifestyle journalism stories or events in a clear, concise, factual and meaningful way. ● It is a combination of practical skills and conceptual understanding of how this form of journalism is increasingly relevant for the 21st century. This course will help the learner acquire an ability to understand audiences and markets in which the lifestyle journalists provide information. ● It will teach students how to do lifestyle journalism with integrity, exploring the broader lifestyle field while focusing on a variety of sub-fields such as travel, music, movies, arts and food, along with students' special interests 	
Course Code: BAMMC EJMJ2B601	Course Title: MAGAZINE JOURNALISM
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● This course introduces the students to the nuances of magazine journalism, feature writing and Reviews. 	
Course Code: BAMMC EJNF 2B 607	Course Title: FAKE NEWS and FACT CHECKING
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● To give media students the understanding of the differentiation between real news and fake news. ● To make media students aware of information disorder. ● To give students a thorough knowledge of information literacy and media. 	



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Yashvant Keshav Patil College of Commerce
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<ul style="list-style-type: none"> • To give students a hand on knowledge on fact checking. • To give students a practical overview of social media verification. 	
Course Code: BAMMC EJTJ 2B 608	Course Title: TELEVISION JOURNALISM
Course outcomes: The students would be able: <ul style="list-style-type: none"> • To provide students with technique of narration and story telling • To share the art of developing a story idea • To acquaint and sensitize them through assignments to the issues of deprivation around us and using writing as a tool for social justice 	

38. BA - Film TV and New Media Production

Name of Department: BA FTNMP
Class: F.Y.B.A., S.Y.B.A. AND T.Y.B.A.
Program Outcomes: <ul style="list-style-type: none"> • To prepare students in the production aspects of Film Television & New Media, as required by the present media environment all across the globe. • To empower the students in the production & managerial aspects of the media business with due emphasis on latest production techniques, along with marketing and branding management of various media products and associated services. • To develop creative temperament and mindset needed in the content production segment of the media industry. • To inculcate competencies thereby enabling to undertake professional work. • To provide an active industry interface by way of co-learning. • To take the students through the entire pipeline of production process with regards to the content creation for various media pads, providing the students an insight in to the correlation that exists between content creation and associated commercial aspects of media business.
Program Specific Outcomes: <ul style="list-style-type: none"> • Students would demonstrate the ability of Effective Communication Skills • Students will be Introduced to History of Art/Storytelling through other forms of Art and Initiation to Literature & Creative Writing • Students will develop the sense of Music through Introduction to Contemporary Music (Hindi, Regional & POP), Music Directors & Composers, Use of Folk music in Indian Cinema • The learners are exposed to the industry of graphic design. The domain of skills and tools is largely devoted to learning graphic reproduction methods using both modern, that is electronic, as well as old school techniques. These inputs enable learners to solve simple problems of visual communication related to corporate identity or social communication. • The students will undergo the process of 25 mins Television series. The students will be exposed to professional HD cameras & software and will work on projects ranging from 5 Mins-25Mins. • The module is intended to provide an introduction to the process of digital short film production for the purpose of making works of drama and fiction.



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Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

SEMESTER I	
Course Code: BAFTNMP-101	Course Title: Effective Communication Skills
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● To understand the Fundamentals of Communication: Developing reading & writing skills ● To Enhance the Communication Skills Development ● To understand the Psychology of communication ● Personality Development 	
Course Code: BAFTNMP - 102	Course Title: Introduction to History of Art/ Storytelling through other forms of Art
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To understand the basics and genres of Music, dance and theatre. ● To learn the basics of various acting schools and the art of drama. ● To learn the evolution of visual techniques from painting to cinema. ● To learn the basic relationship between music and dance in relation to Film making. Students should be exposed to the canonical text of Natya shastra from where all the traditional performing arts have emerged. 	
Course Code: BAFTNMP - 103	Course Title: Initiation to Literature & Creative Writing
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To introduce basic tenets of Indian literature including regional literature ● To introduce and appreciate various forms of literature (Novel, Poetry, Drama, Essay) ● To help build skills for creative writing ● To help understand the structure of Story, poetry and drama ● To introduce writing for internet 	
Course Code: BAFTNMP - 104	Course Title: Basics of Photography
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To learn the basics of the art of Photography. ● To understand the basic intricacies involved in taking a photograph. ● To understand what makes a good picture. ● To develop basic photographic sense and knowledge. 	
Course Code: BAFTNMP-105	Course Title: Film Appreciation – Genres
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To understand What is cinema and Film theory ● To help the students learn the form and function, Film analysis, Auteur Theory, effect of auteur, Contributions of D W, Griffith, Alfred Hitchcock, Jean Du Godard, Digital Aesthetics, Music and choreography, film genre 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: BAFTNMP-106	Course Title: Graphic Designing
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● The learners are exposed to the industry of graphic design. ● The domain of skills and tools is largely devoted to learning graphic reproduction methods using both modern, that is electronic, as well as old school techniques. ● These inputs enable learners to solve simple problems of visual communication related to corporate identity or social communication. ● Learners use software like Adobe Photoshop and Adobe Illustrator. 	
SEMESTER II	
Course Code: BAFTNMP 207	Course Title: Basics of Post Production
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● To understand the Introduction to the history of film editing. ● To help students understand and practice Premiere Pro interface features and functions and how to import and organize footage, basic editing techniques 	
Course Code: BAFTNMP 208	Course Title: History of Non- fiction Film
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To help students explore the history and theory of non-fiction film and video, with an emphasis on work that falls under the rubric of “documentary.” ● Understanding How “real” are documentary representations, and how much does it matter? ● Understanding How do people watch documentaries, and what is the impact of these films on the world they aim to represent? ● Learn how to watch earlier films both as an audience THEN (with understanding of the film’s social, cultural, historical context), and NOW (with understanding of your own future goals and with critical, analytical eyes to study history). ● To be able to think – and write — critically about non-fiction media. 	
Course Code: BAFTNMP 209	Course Title: Writing for Visual Media
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To understand the basic structure of screenplay ● To introduce to the basic skills for screenwriting ● To understand the intricacies of screenwriting ● To learn the build characters and write meaning full dialogues 	
Course Code: BAFTNMP 210	Course Title: Importance of Sound and Sound SFX
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● To learn about the basic of sound ● To understand the nature of sound and recording devices ● To learn the basics of sync sound, mixing console, analog v/s digital workflow ● To understand the need for sound and importance of sound in film ● To learn to record a song 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course Code: BAFTNMP 211	Course Title: Basics of Cinematography-1
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To understand the importance of cinematography in film making ● To enhance the basic knowledge about lighting and its use ● To understand various equipments required for various form of lighting ● To understand the basics of various camera, lenses and digital cinematography 	
Course Code: BAFTNMP 212	Course Title: Practical Film Making 1 (Only non-fiction film)
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To understand the film making process for multiple locations in non fiction films ● To understand the entire workflow To gain exposure on various cameras and software used for production The students will undergo the process of making a non-fiction film. ● The students will be exposed to Semi professional camera cameras & software. ● The students will also undergo same basic exercises such as 3 shot and 6 shot to give them a basic sense of framing, composition, movement and editing. The final project will be a non-fiction film with the duration of 5-10 minutes. 	
SEMESTER III	
Course Code: BAFTNMP 313	Course Title: Introduction to Direction for Television
Course Outcomes: The students would be able: <ul style="list-style-type: none"> ● The course aims to develop the sensibilities and sensitivities of the taught to comprehend the process of direction for television that entails understanding and analysis of different genres of television. ● The learning includes understanding the television medium vis-à-vis the film, ideating, plotting and writing for different genres followed by inspecting the Director's role. Analyzing the present day scenario. Experimenting by devising short versions. ● The sessions could be designed to give a thorough understanding of both – theory as well as practicals. All lectures will be in the form of interactive sessions and it is expected that the student reads/watches television as directed before attending lectures. 	
Course Code: BAFTNMP 314	Course Title: Basics of Cinematography-2
Course outcomes: The students would be able: <ul style="list-style-type: none"> ● To understand the basic structure of film and digital camera ● To enhance the basic knowledge about lighting and its use ● To understand various equipments required for various form of mood lighting ● To understand basics of various digital cameras, lenses and digital 	
Course Code: BAFTNMP 315	Course Title: Understanding TV formats & Genres



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> ● To understand how television programming works ● To learn about TRPs and drama creation ● To study the impact of niche programming ● To learn about various genres of television programming 	
Course Code: BAFTNMP 316	Course Title: Concepts of Story Boarding
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> ● .To understand the need for storyboarding ● To learn the fundamentals of shoot taking and division ● To understand various storyboarding techniques ● To understand the importance of perspective and lighting while storyboarding 	
Course Code: BAFTNMP -317	Course Title: Graphics and Post production
<p>Course outcomes:</p> <ul style="list-style-type: none"> ● To understand the Basics of 2D animation, Vector and Raster Graphics, Basic Animation in Flash, Advanced editing using Flash Elements in the film, Using After Effects, The interface of After Effects, Importing graphics and film, Keyframes, After effects and timeline, Animating using after effects, Compositing 	
Course Code: BAFTNMP -318	Course Title: Production / Ad film making
<p>Course outcomes:</p> <ul style="list-style-type: none"> ● To introduce the process of 25 mins Television series making ● To understand the production pipeline of 25 mins Television series making process ● To understand the entire workflow 25 mins Television series making process ● To gain exposure on various cameras and software used for production of 25 mins Television series making 	
SEMESTER IV	
Course Code: BAFTNMP 419	Course Title: Introduction to Direction for Film
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> ● To understand the need for direction in films ● To understand the role played by a director ● To understand the Qualities required to be a director ● To learn how to manage creativity and creative team ● To learn about drama and continuity for films ● To learn the details involved in the production of a feature films 	
Course Code: BAFTNMP 420	Course Title: Basics of Visual Communication



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> • To understand Aesthetics, Perception, Representation, Visual Rhetoric, Cognition, Semiotics, Reception Theory, Narrative, Media Aesthetics, Ethics, Visual Literacy, Cultural Studies. • Concept of Convergence, Internet Key Terms, New Media. Web Designing, HTML programming, Basic Java Script, Designing your own website, uploading the website, links and navigation • To understand the basics of visual effects • To understand the basic process of visual effects • To learn about GUI and CG • To understand the basics of 3D and creating real world in the digital world • To learn about compositing and camera tracking • To understand the process of vfx and final rendering 	
<p>Course Code: BAFTNMP 421</p>	<p>Course Title: Drama Production</p>
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> • To enable the development of the practical and theoretical skills in pitching, planning, writing, shooting and editing necessary to produce a coherent and competent fictional moving image project. • 	
<p>Course Code: BAFTNMP 422</p>	<p>Course Title: Intermediate Practical Filmmaking (Ad and Short Fiction Film)</p>
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> • To understand the production pipeline of film making process in advertising film making • To introduce the process of Advertisement Film (product as well as PSU) Corporate AV and In-depth Multiple Characters Single Multiple Location Short Film making • To understand the entire workflow in Advertisement Film (product as well as PSU) Corporate AV and In-depth Multiple Characters Single Multiple Location Short Film • To gain exposure on various cameras and software used for production of Advertisement Film (product as well as PSU) Corporate AV and In-depth Multiple Characters Single Multiple Location Short Film 	
<p>SEMESTER V</p>	
<p>Course Code: BAFTNMP 525</p>	<p>Course Title: Laws related to Films, TV and Internet</p>
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> • To understand the various laws pertaining to media • To understand the need and importance of Copyright • To learn about intellectual property rights • To understand about media business ethics and issues pertaining to it 	
<p>Course Code: BAFTNMP 526</p>	<p>Course Title: 6 New Media Theory and Practice</p>



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> To understand Web Designing – Adobe Dreamweaver, Designing a web page without the graphic user interface (HTML using notepad), Frames, Layers, Search Engine Optimization, HTML and DHTML, Using JavaScript, Embedding Java Applets, Using Activex Controls, Embedding Video and Audio into web pages, Streaming media, Using YouTube, Creating Forms, To Learn basic PHP and MYSQL, Creating Database and using it in the web design, Creating a website for Mobile phones, Creating a news site, creating a brochure site, designing a portal interface, using vernacular language in web sites, dynamic fonts, creating a vernacular medium website, New media and popular culture, social networking, emerging identities, games as advanced new media, mobile journalism, new media as a pedagogical tool. 	
Course Code: BAFTNMP 527	Course Title: Understanding Indian Contemporary Cinema
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> Exploring the changing trends in Hindi Popular cinema in terms of storytelling, performances, technological and production aspects. Understanding the Emergence of Film Festivals as a mode of exhibition and the kind of films selected for such prestigious film festivals. Focus on the changing aesthetic trends of regional films, popular films and festival films. Looking at the emergence of digital media and the internet being a source of exhibition for films. 	
Course Code: BAFTNMP 528	Course Title: Introduction to Media Project Management
<p>Course Outcomes: The students would be able:</p> <ul style="list-style-type: none"> To educate about the basics involved in a media project management To educate about the basic project production workflow and management To educate about the role of a project manager To help understand the details involving a new business project or proposal 	
Course Code: BAFTNMP 529	Course Title: Basics of Marketing and Publicity
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> To introduce the basics of marketing and publicity design To educate about the importance of marketing in today's world To help understand the various tools needed for marketing and publicity design To learn about the marketing plan and market research To help get insight into consumer consumption behavior 	
Course Code: BAFTNMP 530	Course Title: Advanced Practical Film Making - Music Videos



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

Course outcomes:

The students would be able:

- To introduce the process of Music Video
- To understand the production pipeline of Music Video
- To understand the entire workflow in Music Video making process
- To gain exposure on various cameras and software used for production of Music Video
- The students will undergo the process of Music Video. The students will be exposed to professional HD cameras & software and will work on projects ranging from 5Mins-8mins. The students will be exposed to the production workflow in music Video.

SEMESTER VI

Course Code: BAFTNMP 631

Course Title: Final Project- Short Film (30 minutes)

Course Outcomes:

The students would be able:

- Comprehensive, which will include writing an original story to production and distribution of film in the national and international circuit.
- It will also involve creating a blog, FB page, website for the film.
- To write a report on the roles performed by each student. The students will have to make a 30 minute short fiction project.

39.MA Economics

Academic Year: 2023-24

Name of Department: Economics

Class: M.A. Economics Part-1

Program Outcome:

Specific core discipline Knowledge:

- The program provides well versed manpower requirement in the area of banking, insurance, finance and taxation, co-operative sector, Junior/ Senior lectureship etc.
- Students can acquire M. Phil. & Ph.D in the subject of economics or applied economics which decide road map for future studies and career.

Communication Skills:

- Students are capable to undertake applied work and research projects in economics.

problem Solving Skills:

- Students acquire skills regarding various aspects economic activities of planning budgeting human resources and overall administration abilities.

- It enable the students to take decisions at professional and personal level.

Program specific outcomes:

- To understand the basic concept of macroeconomics, microeconomics, agricultural economics, economics of labour market, agricultural and development & policy and industrial relation in India.
- To analyze how markets for goods and services function and how income is generated and distributed.



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> To enable students to gain systematic and subject skills within various disciplines of microeconomics, macroeconomics, agricultural economics, economics of labour market, agricultural and development & policy and industrial relation in India. To make students to learn relevant basic skills & knowledge to their future careers. To enable students to develop confidence in self-employment opportunities. To enable students to purchase their education and can make research in the fields in social science. 	
SEMESTER- I	
COURSE CODE: ECOME101	COURSE TITLE: MICROECONOMICS-I
COURSE OUTCOME: The students would be able: <ul style="list-style-type: none"> Develop a nuanced understanding of consumer and firm behaviour along with general equilibrium theory. To study production , cost and supply, profit function. Provide students with the necessary theoretical and analytical tools to study problems of economic policy. To study General Equilibrium and Welfare Economics. 	
COURSE CODE: ECOME102	COURSE TITLE: MACROECONOMICS-I
COURSE OUTCOME: The students would be able: <ul style="list-style-type: none"> The learners can enhance their understanding on the concepts like national income and social accounting, consumption expenditure and investment analysis. Students acquire knowledge on issues like inflation, trade cycle as well as money supply and demand for money. To study Consumption Expenditure and Investment. To study Supply and Demand for Money. 	
COURSE CODE: ECOAE103	COURSE TITLE: AGRICULTURAL ECONOMICS
COURSE OUTCOME: The students would be able: <ul style="list-style-type: none"> This paper enhances Knowledge on the process of development of agriculture in an emerging economy. It throws light on the role and the policies as well as the competitiveness of the agricultural sector. To study recent Agriculture Trade Policy, Promotion and Logistics Development 	
COURSE CODE: ECOAE103	COURSE TITLE: ECONOMICS OF LABOUR MARKET
COURSE OUTCOME: The students would be able: <ul style="list-style-type: none"> The analysis of case studies would help the student to understand real world issues pertaining to labour markets and also to assess related public policy measures. The course sheds light on a range of new developments and a host of issues studied by generations of labour market experts thereby students are equipped with the skill of getting assimilated with the labour markets in real life as well. 	
SEMESTER- II	
COURSE CODE: ECOME201	COURSE TITLE: MICROECONOMICS-II
COURSE OUTCOME: The students would be able: <ul style="list-style-type: none"> Create an understanding of strategic behaviour under oligopoly. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<ul style="list-style-type: none"> • Provide students with the necessary theoretical and conceptual underpinnings to real world concepts and issues using illustrations and case studies. • To provide knowledge of Economics of Information • To study Case Studies and Applications 	
COURSE CODE: ECOME202	COURSE TITLE: MACROECONOMICS-II
COURSE OUTCOME: The students would be able: <ul style="list-style-type: none"> • To study Imperfectly Flexible Prices, Price-setting under imperfect competition. Menu costs, real rigidity and neutrality, Quadratic price adjustments. • To study Theories of Business Cycles. • To learn New Keynesian Economics, Disequilibrium, multiple equilibria, Hysteresis Reconstructing the Keynesian multiplier, The New Keynesian model of inflation. • To study Macroeconomic Policy, Rules versus Discretion, Credibility & Reputation, Dynamic Inconsistency Banks, Financial Intermediaries and Unconventional Monetary Policy Inflation Targeting and Exchange Rates. 	
COURSE CODE: ECOADP203	COURSE TITLE: AGRICULTURAL DEVELOPMENT AND POLICY
COURSE OUTCOME: The students would be able: <ul style="list-style-type: none"> • Aims to improve awareness on agricultural development. • To study Sustainable Agricultural Development and Diversification of Agriculture in India. • Promotes students awareness on contemporary debates in the area of agricultural products and market. • History and Policies for Agricultural Development in India 	
COURSE CODE: ECOTUIR204	COURSE TITLE: INDUSTRIAL RELATIONS IN INDIA
COURSE OUTCOME: The students would be able: <ul style="list-style-type: none"> • To study Approaches to Industrial Relations: Macro Approaches-System Approach and Class Conflict Approach, Micro Approaches-Taylorism, Fordism and Post-Fordism, Neo-Fordism, Pluralism. • To learn Evolution and Role of Trade Unions. Approaches to the Origin of Trade Unions. Bargaining Theory of Wages, Impact of unions on productivity and wages, Employment Security and Efficiency. • To study History, growth and structure of trade unions, Independent and whitecollar unions in India, Trade Unions and Contract Workers. Employer's Organisations: Role of managerial class in industrial relations. Industrial conflict: Forms of conflict, strikes, lockouts, absenteeism, employee turnover, causes and consequences and trends in industrial disputes, Industrial Relation in Gig economy. • To learn Impact of Globalisation, Tripartism, Labour Legislation affecting industrial relations: Statutory and Non-Statutory measures to settle industrial disputes, Workers Participation in Management, Voluntary Retirement Scheme and other retrenchment measures. 	
SEMESTER- III	
COURSE CODE: ECOIE302	COURSE TITLE: INDUSTRIAL ECONOMICS
COURSE OUTCOME:	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

<p>The students would be able:</p> <ul style="list-style-type: none"> • Enable to empower students about the historical background of industrial development and financial institutions. • It provides understanding on market structure and best theories to fix the location of industries. 	
COURSE CODE: ECOPFPC303	COURSE TITLE: PUBLIC FINANCE AND PUBLIC CHOICE
<p>COURSE OUTCOME: The students would be able:</p> <ul style="list-style-type: none"> • Provides in-depth knowledge on range of issues related to public finance and public choice. • This enables the students to analysed the budgets of government of India 	
COURSE CODE: ECOITTP304	COURSE TITLE: INTERNATIONAL TRADE: THEORY AND POLICY
<p>COURSE OUTCOME: The students would be able</p> <ul style="list-style-type: none"> • To understand the flow of international trade • Awareness on varied trade policies 	
COURSE CODE: ECOIE306	COURSE TITLE: INDIAN ECONOMY
<p>COURSE OUTCOME: The students would be able:</p> <ul style="list-style-type: none"> • Students get familiarized with the sectoral issues to be tackled with the Indian perspective. • Generate awareness on the solutions to deal with the development challenges of the Indian economy in the 21st century globalised world. 	
COURSE CODE: ECOED307	COURSE TITLE: ECONOMICS OF DEVELOPMENT
<p>COURSE OUTCOME: The students would be able:</p> <ul style="list-style-type: none"> • To familiarize students with the developmental aspects of nations • To acquaint with different theories on growth and development 	
SEMESTER- IV	
COURSE CODE: ECOMB404	COURSE TITLE: MONEY AND BANKING
<p>COURSE OUTCOME: The students would be able:</p> <ul style="list-style-type: none"> • The learners will get an information and understanding about banking system, theories of banks and non-banks, developments of central bank and commercial banks, development banking, reforms in banking sector and Basel norms. • The learners will learn in detail about the operating of monetary forces through multitude of channels - market, non-market, institutional etc. 	



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science
Yashvant Keshav Patil College of Commerce
Vidhya Dayanand Patil College of Arts**

- The learners will be able to understand an evolution of money, developments of commercial banks, central banks, theory relating to banking and banking practices in India and other countries.

COURSE CODE: **ECODTP406**

COURSE TITLE: **DEMOGRAPHY: THEORY AND POLICY**

COURSE OUTCOME:

The students would be able:

- Provides knowledge on the interrelationship between population and economic development
- Equip students with the knowledge on fertility, mortality and migration

