

Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year : 2022-2023
Name of Department: Information Technology
Class: F.Y.B.Sc.
Program Outcomes: Software development knowledge <ul style="list-style-type: none">● Student can learn to develop software, website, programming and assembly languages.● Student learns process of specifying, designing, programming, documentation, testing etc. Communication skills <ul style="list-style-type: none">● Student can communicate effectively using oral and written communication skills.● Student can able to speak wide variety of people.● Students can be able to share information effectively and clearly. Mathematic skills <ul style="list-style-type: none">● Student can learn to solve discrete and engineering mathematics problems.● Different methods from mathematic are performed by the students.● Green computing● Student can learn to develop 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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:

The students would be able :

- 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.
- 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 Applications

Course outcomes:

The students would be able :

- To apply number conversion techniques in real digital systems

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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 Systems

Course outcomes:

The students would be able :

- 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

Course Outcomes:

The students would be able :

- 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

Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<ul style="list-style-type: none"> ● To Define sets and Relations ● 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 with C++
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand the concept of OOPs, feature of C++ language. ● To understand and apply various types of Datatypes, Operators, Conversions while designing the program. ● To understand and apply the concepts of Classes & Objects, friend function, constructors & destructors in program design. ● To design & implement various forms of inheritance, String class, calling base class constructors. ● To apply & Analyze operator overloading, runtime polymorphism, Generic 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Programming. <ul style="list-style-type: none"> To analyze and explore various Stream classes, I/O operations and exception handling. 	
Course Code: USIT202	Course Title: Fundamentals of Micro Processor and Microcontrollers
Course Outcomes: 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. 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
Course Outcomes: The students would be able : <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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- To understand numerical differentiation and integration and numerical solutions of ordinary and partial differential equations.

Course Code: USIT205

Course Title: Green IT

Course Outcomes:

The students would be able :

- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2022-2023
Name of Department: Information Technology
Class: S.Y.B.Sc
<p>Program Outcomes:</p> <p>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</p> <p>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.
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none">● 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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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 :

- To acquire programming skills in core Python.
- To acquire Object Oriented Skills in Python.
- To develop the skill of designing Graphical user Interfaces in Python.
- To develop the ability to write database applications in Python

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

Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

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: Database Management Systems
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand database system and purpose of database system. ● To acquire knowledge of Database Design,ER Diagram and Unified Modeling Language. ● To gain proficiency in the Relational Database design: features of good relational database design, atomic domain and Normalization (1NF, 2NF, 3NF, BCNF). ● To acquire knowledge about Constraints, Views and SQL. ● To understand Transaction management ,Concurrencyand PL-SQL. 	
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 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<p>first order of a degree higher than the first and Linear Differential Equations with Constant Coefficients.</p> <ul style="list-style-type: none"> ● 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: Core Java
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To acquire knowledge of programming language java. ● To understand data types, control flow statements, iterations and classes. ● To gain proficiency in inheritance and packages. ● To understand enumeration, arrays, exceptions and byte stream. ● To acquire knowledge of event handling and layouts. 	
Course Code: USIT402	Course Title: Introduction to Embedded Systems
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To make familiar with the basic concepts and terminology of the target area, the embedded systems design flow. ● To give an understanding of the embedded system architecture. ● To acquaint students with methods of executive device control and to give them opportunity to apply and test those methods in practice. ● To teach students to make measurements with the specified accuracy. 	
Course Code:USIT403	Course Title: Computer Oriented Statistical

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

	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 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

them.

- To learn the basic principles of 2- dimensional and 3- dimensional computer graphics.
- 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.

Academic year : 2022-23

Name of Department: Information Technology

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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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.
- To assures 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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: USIT501	Course Title: Software Project Management
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none">● 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.● To learn the different types of contracts.● To acquire knowledge about managing people involved in software project.	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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 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.
- 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 application, security requirements using forms and windows authentication.
- To understand partial web page refreshment using ajax control tool.

Course Code: USIT505

Course Title: Linux System Administration

Course Outcomes:

The students would be able :

- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.

Course Code: USIT506

Course Title: Enterprise Java

Course Outcomes:

The students would be able :

- To understand Java Enterprise edition with its different technologies.
- To understand Java EE architectural server and contains.
- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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 bean, architectural and its bean.
- 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 :

- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.
- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
 BhaskarWaman Thakur College of Science,
 YashvantKeshavPatil College of Commerce,
 VidhyaDayanandPatil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.
- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.
- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.

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

Academic year : 2022-2023
Name of Department: POLITICAL SCIENCE
Class: TYBA
<p>Program Outcomes:</p> <p>BA in Political Science - Program Objectives</p> <ul style="list-style-type: none"> ● 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. <ol style="list-style-type: none"> 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.
<p>Program Specific Outcomes:</p> <ol style="list-style-type: none"> 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
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. <ul style="list-style-type: none"> 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 : <ul style="list-style-type: none"> 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 : <ul style="list-style-type: none"> 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 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.
- 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

Course outcomes:

The students would be able :

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.

- 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

Course outcomes:

The students would be able :

- 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.

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

Academic year : 2022-2023	
Name of Department: POLITICAL SCIENCE	
Class: SYBA	
Program Outcomes: <u>BA in Political Science - Program Objectives</u>	
<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> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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	

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 :

- 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

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

Academic year : 2022-2023

Name of Department: POLITICAL SCIENCE

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
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. <ul style="list-style-type: none"> ● 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 : <ul style="list-style-type: none"> ● 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 : <ul style="list-style-type: none"> ● 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 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.
- 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

Course outcomes:

The students would be able :

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.

- 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

Course outcomes:

The students would be able :

- 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.

Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year : 2023-24	
Name of Department: Mathematics	
Class: FYBSc(PCM and PMS)	
Program Outcomes: Specific core discipline knowledge <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. Communication skills <ul style="list-style-type: none"> Students will be able to productively discuss mathematics and able to write detailed solutions using appropriate mathematical language. Problem solving and research skills <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 	
Program Specific Outcomes: <ul style="list-style-type: none"> Compute limits and derivatives of algebraic, trigonometric, inverse trigonometric, exponential, logarithmic, and piece-wise 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. 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:	

Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<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 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 about polynomial 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 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. • 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: DISCRETE MATHEMATICS
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 set with example. • To study about arrangement, selection, derangement, example of standard identities. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year: 2023-24
Name of Department: Statistics
Class: FYBSc(PMS)
<p>Program Outcomes:</p> <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 and other fields where study of statistics is useful <p>Communication skills</p> <ul style="list-style-type: none"> ● 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, <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 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
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● Students learn to design data collection plans and basic tools of descriptive statistics ● Student learn to identify the relationship between two variables using scatter plot 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 parameter and statistic ● 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 formulate and solve LPP, Assignment problems, Transportation problems.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- Students will demonstrate an understanding of the common body of knowledge in Statistics.
- Determine the continuity and differentiability of a function at a point of different distributions
- 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 I

Course Code: USST101

Course Title: DESCRIPTIVE STATISTICS-I

Course Outcomes:

The students would be able:

- to understand and recall basic facts about population and sample, data and types of data
- to identify and classify data with concept of discrete and continuous variables.
- to identify and apply the knowledge on measures of central tendency.
- to understand the concept of averages and its different types and calculate mean, median and mode.
- to learn and understand concept of measure of dispersion, Skewness and Kurtosis.
- to understand how to calculate the values of coefficient of dispersion, skewness and kurtosis

Course Code: USST102

Course Title: STATISTICAL METHODS-I

Course outcomes:

The students would be able:

- To study concept of elementary probability theory and terms related to the probability theory.
- To study the concept of discrete random variable and properties of its probability distribution.
- To study about some standard discrete distributions like discrete uniform, binomial and Poisson distribution.

SEMESTER II

Course Code: USMT201

Course Title: DESCRIPTIVE STATISTICS-II

Course Outcomes:

The students would be able:

- to study the concept of correlation and regression analysis
- to find the values of correlation coefficient, rank correlation.
- to define concept of linear regression and fitting of quadratic curves by least square method.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- to understand and define Time series and also learn the estimation of trend by different methods
- to define index numbers and stages in the construction of index numbers.
- to understand the concept cost of living index number and concept of real income based on wholesale price index number.

Course Code: USST202

Course Title: STATISTICAL METHODS-II

Course outcomes:

The students would be able to:

- to study the concept of continuous random variables
- to understand and learn some standard continuous distributions like uniform, exponential and normal distributions.
- to define concept hypothesis, null and alternate hypothesis.
- to understand and define types of errors, critical region and level of significance.
- to understand the central limit theorem.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year: 2023-24
Name of Department: Statistics
Class: SYBSc
Program Outcomes: <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 and other fields where study of statistics is useful
Communication skills <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• Students learn to design data collection and univariate random variables.• Student learn to identify the relationship between Sampling and concept of simple random sampling.• 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 parameter and statistic

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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 formulate and solve LPP, Assignment problems, Transportation problems.
- Students will demonstrate an understanding of the common body of knowledge in Statistics.
- Determine the continuity and differentiability of a function at a point of different distributions
- 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 III

Course Code: USST301

Course Title: PROBABILITY DISTRIBUTIONS

Course Outcomes:

The students would be able:

- to understand and recall basic facts about univariate random variables for both discrete and continuous.
- to identify and classify data with concept of discrete and continuous variables for standard distributions.
- to identify and apply the knowledge on measures of central tendency.
- to understand the concept of averages and its different types and calculate mean, median and mode for different distributions.
- to learn and understand concept of measure of dispersion, Skewness and Kurtosis.
- to understand the concept of bivariate probability distributions.

Course Code: USST302

Course Title: THEORY OF SAMPLING

Course outcomes:

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

The students would be able:

- To study concept of sampling theory and terms related to the sampling theory.
- To study the concept of simple random sampling
- To study about Stratified sampling and stratified random sampling.
- To study about ratio and regression estimation assuming SRSWOR.

Course Code: USST303

Course Title: OPERATIONS RESEARCH-1

Course Outcomes:

The students would be able:

- to understand and recall basic facts about Linear programming problem (L.P.P)
- to identify and classify data with concept related to L.P.P.
- to identify and apply the knowledge on Transportation Problems.
- to understand the concept of North west corner rule etc and learn variants in transportation problems.
- to learn and understand concept of Assignment Problems.
- to understand how to calculate the values in sequencing and processing in jobs through 2 and 3 machines.

SEMESTER IV

Course Code: USST401

**Course Title: PROBABILITY AND SAMPLING
DISTRIBUTIONS**

Course outcomes:

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<p>The students would be able to:</p> <ul style="list-style-type: none"> • to study the concept of Standard continuous probability distributions along with its mean, median, mode, S.D, m.g.f, c.g.f, skewness and kurtosis. • to understand and learn in detail about normal distribution. • to define and study the concept of Exact sampling distribution. •to understand Chi-square distribution and its applications. •to understand t-distribution and F-distribution and its applications. 	
Course Code: USMT402	Course Title: ANALYSIS OF VARIANCE & DESIGN OF EXPERIMENTS
<p>Course Outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> • to study the concept of analysis of variance. • to understand and study design of experiments. • to define concept of Completely randomized design (CRD) & Randomized block design (RBD). •to understand and define Latin Square design (LSD). •to define and study Factorial experiments. • to understand the concept of factorial experiment and its purpose and advantages. 	
Course Code: USST403	Course Title: PROJECT MANAGEMENT AND INDUSTRIAL STATISTICS
<p>Course outcomes:</p> <p>The students would be able to:</p> <ul style="list-style-type: none"> • to study the concept of CPM and PERT along with the objective and outline of the techniques. • to understand and learn Control charts, its principles and the process. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- to define concept of Lot acceptance sampling plans by attributes.
- to understand and define about Double sampling plan and OC functions and OC curves.
- to understand introduction to Six sigma limits.

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year: 2023-24
Name of Department: Statistics
Class: TYBSc(Statistics)
Program Outcomes: <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 and other fields where study of statistics is useful
Communication skills <ul style="list-style-type: none">● 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 <ul style="list-style-type: none">● 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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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.
- 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 Title: PROBABILITY AND DISTRIBUTION THEORY

Course Outcomes:

The students would be able:

- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code:USST502	Course Title: THEORY OF ESTIMATION
Course outcomes: The students would be able: <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, GaussMarkoff theorem for full rank model 	
Course Code:USST503	Course Title: BIOSTATISTICS
Course Outcomes: The students would be able: <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
Course outcomes: The students would be able to: <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 understandmultiple linear regression model, procedure of testing significance. •to understand validity of assumptions, autocorrelation, Ridge regression. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: USACOR501	Course Title: ELEMENTS OF OPERATIONS RESEARCH – I
Course Outcomes: The students would be able: <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 Title: DISTRIBUTION THEORY AND STOCHASTIC PROCESS
Course Outcomes: The students would be able: <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. • 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 Title: TESTING OF HYPOTHESIS
Course outcomes: The students would be able: <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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: USST603	Course Title: OPERATIONS RESEARCH TECHNIQUES
Course Outcomes: The students would be able: <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 Title: ACTURIAL SCIENCE
Course outcomes: The students would be able to: <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. 	
Course Code: USACOR601	Course Title: ELEMENTS OF OPERATIONS RESEARCH-II
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. 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year : 2022-23
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
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> ● Explain the function of market and prices as allocative mechanisms. <ul style="list-style-type: none"> ● Apply the concept of equilibrium to both microeconomics and macroeconomics. ● Identify key macroeconomic indicators and measures of economics change, growth, and development. <ul style="list-style-type: none"> ● 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.

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- 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

Course Outcomes:

This course is designed to provide an introduction to the students about the basic buildinblocks of Macro Economics which will serve as a foundation throughout their

SEMESTER IV	
Course Code: PAPER-II	Course Title: MACROECONOMICS
Course Outcomes:	

Page 2 of 7

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

The students would be able to identify 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 : 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 :

- 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**

Page 3 of 7 **Course Outcomes**

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- Understand the basics of demography.
- Understand the core social demographic variables, and how these variables influence population growth, composition, and structure
- Use demographic tools in understanding public health issues Knowledge attitude and practices. ●
Discuss global demographic regimes and impact on public health.
- Identify appropriate sources of data, perform basic demographic analyses using various techniques and ensure their comparability across populations.

SEMESTER IV**Course Code:****Course Title: DEMOGRAPHY**

Course Outcomes:

The students would be able :

- 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.
- 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
Course Outcomes The students would be able : <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
Course Outcomes: <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. 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- | | |
|--|--|
| <ul style="list-style-type: none"> • To understand theories of economic development • 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. • Students will be able to describe the contemporary Exchange Rate Regimes and International Monetary System. 	
Course Code: ECOIE602	Course Title: INTERNATIONAL ECONOMICS
Course Outcomes: <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
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: ECOEIB605	Course Title: ECONOMICS OF INSURANCE - II
<ul style="list-style-type: none"> • Course Outcomes: At the end of this course students will be able to: <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
<ul style="list-style-type: none"> • Course Outcomes: <ul style="list-style-type: none"> • Students will get information about the genesis of Economics and its modern scenario. • Students get familiarized with the leading Indian economists who significantly contributed to the stream of Indian economic thought. 	

Late Shir. Vishnu Waman Thakur Charitable Trustr's

Bhaskar Waman Thakur College of science

Yashwant Keshev Patil College College of Commerce

Vidya Dayanand Patil college of Arts,

(VIVA COLLEGE)

(NAAC ACCREDITED – 'B' Grade, CGPA 2.69)

Academic Year: 2021-22
Name of Department: Economics
Class: M.A. Economics Part-1
<p>Program Outcome:</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, 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. <p>Communication Skills:</p> <ul style="list-style-type: none">• Students are capable to undertake applied work and research projects in economics. <p>problem Solving Skills:</p> <ul style="list-style-type: none">• 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.
<p>Program specific outcomes:</p> <ul style="list-style-type: none">• 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.• 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
<p>COURSE OUTCOME: The students would be able:</p> <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
<p>COURSE OUTCOME: The students would be able:</p> <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
<p>COURSE OUTCOME: The students would be able:</p> <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
<p>COURSE OUTCOME: The students would be able:</p> <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. • 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:

- 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.

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year: 2022-2023	
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 ● 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 <ul style="list-style-type: none"> ● Archaeologist ● Museum Curator ● Librarian ● Heritage Tourism ● Research Assistant 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- Art Restorer
- Teacher
- Archivist
- Numismatician
- Journalist
- Copywriter
- Civil Services
- Conservationist

SEMESTER I

Course Code: UAHIS 101

**Course Title: History of Modern India
(1857-1947)**

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**

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.
- 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:

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<p>The students would be able :</p> <ul style="list-style-type: none"> • 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.
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • 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.
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • 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.
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • To acquaint with different sources of Ancient Indian History. • To understand the political, socio-economic and cultural developments in the period under 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

study <ul style="list-style-type: none"> 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 : <ul style="list-style-type: none"> To acquaint with the history of early Medieval India that laid the foundation of the Sultanate in India. 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)
Course outcomes: The students would be able : <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
Course outcomes: The students would be able : <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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashvant Keshav Patil College of Commerce,
 Vidhya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

	(1526CE- 1707CE)
Course Outcomes: The students would be able : <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)
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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. 	



Vishnu Waman Thakur Charitable Trust's

**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)**

Academic year : 2022_23
Name of Department: Psychology
Class: FYBA
Program Outcomes: Specific core discipline knowledge : <ul style="list-style-type: none">• Students have knowledge of the basic concepts and modern trends in Psychology. Problem solving and research skills <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. Communication skills <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.
<ul style="list-style-type: none">• Program Specific Outcomes:<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)

Course Outcomes:

The students would be able :

- To know the history of Psychology.
- To be aware of the Fields of Psychology Today.
- To learn the various methods of Scientific research in psychology.
- 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.
- 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.

Academic year : 2022_23
Name of Department: Psychology
Class: S. Y. B. A.
<p>Program Outcomes:</p> <p>Specific core discipline knowledge :</p> <ul style="list-style-type: none"> • 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. <p>Problem solving and research skills</p> <ul style="list-style-type: none"> • 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 . <p>Communication skills</p> <ul style="list-style-type: none"> • 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.
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> • 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

Course Code: UAPS301

Course Title: Social Psychology: (Part I)

Course Outcomes:

The students would be able :

- 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)

Course outcomes:

The students would be able :

- To learn an overview of lifespan development and the Scope of the field (areas, age and individual differences).
- To understand the basic influences in development (history, age, sociocultural, life events)
- 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: UAPS401

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 behaviour.
- 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 behaviour.
- To study the tendency of Helping others because we have been helped.

Course Code: UAPS402

Course Title: Developmental Psychology - A Focus on Adolescent and Adult Development: Part II

Course Outcomes:

The students would be able :

- 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.

Academic year : 2022_23
Name of Department: Psychology
Class: T. Y. B. A.
<p>Program Outcomes:</p> <p>Specific core discipline knowledge :</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>Problem solving and research skills</p> <ul style="list-style-type: none"> • 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. <p>Communication skills</p> <ul style="list-style-type: none"> • 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 behavioural patterns in industries and organizations.
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> • 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

Course Code: UAPS501

**Course Title: Psychological Testing and Statistics:
(Part I)**

Course Outcomes:

The students would be able :

- 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)

Course outcomes:

The students would be able :

- 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)
Course outcomes: The students would be able : <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 Behaviour 	
SEMESTER - VI	
Course Code: UAPS601	Course Title: Psychological Testing and Statistics: (Part II)
Course Outcomes: The students would be able : <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: UAPS602	Course Title: Abnormal Psychology: (Part II)
Course outcomes: The students would be able : <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)

Course outcomes:

The students would be able :

- 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 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,
(VIVA College)**

Academic Year: 2022-2023
Name of Department: BAMMC
Class: FYBAMMC
Program Outcomes: <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.• 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.
Program Specific Outcomes: <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.

<ul style="list-style-type: none"> • 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	
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. 	

<ul style="list-style-type: none"> ● 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: BAMMHHM 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. ● To develop the ability to think and analyze about media, its contemporary scenario & background 	

SEMESTER II	
Course Code: BAMMEEC-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: BAMMFCC 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
Course outcomes: The students would be able: <ul style="list-style-type: none"> • 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 	

Name of Department: BAMMC
Class: SYBAMMC
Program Outcomes: Core Subject learning <ul style="list-style-type: none"> ● Students get to learn media specific subject. ● Students get inside of media subject with specification to media industry. Communication skills <ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● Students get the knowledge about the media research and its impact on society. <p>Students also learn through various past theory to understand the working of media industry and ideology.</p>
Program Specific Outcomes: <ul style="list-style-type: none"> ● 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. ● 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: <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
Course outcomes: The students would be able: <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
Course Outcomes: The students would be able : <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
Course outcomes: The students would be able : <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
Course outcomes: The students would be able : <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
Course outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
Course outcomes: The students would be able : <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. 	

Academic Year: 2021- 2022
Name of the Department: BAMMC
Class: TYBAMMC (ADVERTISING)
Program Outcomes: <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.

Program Specific Outcomes:

- 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.
- 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.

Course Code: BAMMC EAAM 1503

Course Title: AGENCY MANAGEMENT

Course Outcomes:

The students would be able:

- 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:

- 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

<p>processes.</p> <ul style="list-style-type: none"> ● 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
<p>Course outcomes: The students would be able:</p> <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
<p>Course outcomes: The students would be able:</p> <ul style="list-style-type: none"> ● Understand digital marketing platform ● Understand the key goals and stages of digital campaigns ● Understand the use of key digital marketing tools ● Learn to develop digital marketing plans 	
Course Code: BAMMC DRGA-602	Course Title: ADVERTISING DESIGN
<p>Course outcomes: 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
Course Outcomes:	

<p>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:</p> <p>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:</p> <p>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 	

Academic Year: 2021 – 2022
Name of Department: BAMMC
Class: TYBAMMC (JOURNALISM)
<p>Program Outcomes:</p> <p>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. ● 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.

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 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:

- 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:

- 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 EJLJ 2B602

Course Title: LIFESTYLE JOURNALISM

Course outcomes:

The students would be able:

- 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 EJM2B601

Course Title: MAGAZINE JOURNALISM

Course outcomes:

The students would be able:

- This course introduces the students to the nuances of magazine journalism, feature writing and

Reviews.	
Course Code: BAMMC EJFN 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. ● 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 	

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

Academic year : 2022-23	
Name of Department: Commerce	
Class: FYBCom	
Program Outcomes: 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; <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 	
Program Specific Outcomes: <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	
Course Code:	Course Title: Financial Accounting & Auditing I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To develop conceptual understanding of fundamentals of financialAccounting 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 	

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

- To gain insight into the accounting aspects of hire purchase system And Stock valuation methods

Course Code:

Course Title: Business Communication-I

Course outcomes:

The students would be able :

- 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

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

Course Code:	Course Title: Commerce I
Course outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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 ● To explore the production a function 	
Course Code:	Course Title: Environmental studies-I
Course outcomes: The students would be able : 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: Mathametical 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

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

Course Outcomes:

The students would be able :

- 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.

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

<ul style="list-style-type: none"> To understand factual aspects of Indian society. 	
SEMESTER II	
Course Code:	Course Title: Financial Accounting and auditing –II
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 aspects of accounting. To understand how consignment account and branch accounts are prepared To explore the concept of fire insurance claims 	
Course Code:	Course Title: Business Communication –II
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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

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

Course Outcomes:

The students would be able :

- 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

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

Course Code:	Course Title: Mathematical and Statistical Techniques –II
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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 	

Academic year : 2021-2022
Name of Department: Commerce
Class: S.Y.Bcom
Program Outcomes: <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.

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

Program Specific Outcomes:

- 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

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

<p>when confronted with critical decision making.</p> <ul style="list-style-type: none"> • 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: 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 Company 	
Course Code:	Course Title: Financial accounting & Auditing IV Management Accounting
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> • Students understand the significanceofbasic concept, importance &Functionsof Management Accounting • To help the students analyze and interpret the financial statements. • To make students understand the variousratios 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 	

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

Course Code:	Course Title: Advertising –I
Course outcomes: The students would be able : <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	

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

<p>students will get acquainted with the different services provided by an ad agency and the strategies executed by them</p> <ul style="list-style-type: none"> ● 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: 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: 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 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

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

Course outcomes:

The students would be able :

- 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

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

Course Outcomes:

The students would be able :

- 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 :

- 1. 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,
(VIVA College)**

Course Outcomes:

The students would be able :

- 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

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

<p>techniques like audit sampling, test check, materiality as well as understand the basic concepts related to internal audit.</p> <ul style="list-style-type: none"> 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: 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
<p>Course Outcomes: 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

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

Course Outcomes:

The students would be able :

- 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.

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

Course Code:	Course Title: Advertising –II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● 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 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 : <ul style="list-style-type: none"> ● 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. 	

Academic year : 2021-2022
Name of Department: Commerce
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,
(VIVA College)**

Program Outcomes:

Specific core discipline knowledge

- 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

Communication skills

- Students can communicate effectively using oral and written communication skills

Problem solving and other skills

- 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.

Program Specific Outcomes:

**Late Shri. Vishnu Waman Thakur Charitable
Trust's Bhaskar Waman Thakur College of
Science, Yashvant Keshav Patil College of
Commerce, Vidhya Dayanand Patil College of
Arts,
(VIVA College)**

- 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 pursue their higher education and can make research in the field of finance and commerce

SEMESTER V

Course Code:

Course Title: Financial Accounting and Auditing VII
Financial Accounting

Course Outcomes:

The students would be able :

- 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 :

- 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.

**Late Shri. Vishnu Waman Thakur Charitable
Trust's Bhaskar Waman Thakur College of
Science, Yashvant Keshav Patil College of
Commerce, Vidhya Dayanand Patil College of
Arts,
(VIVA College)**

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.	

**Late Shri. Vishnu Waman Thakur Charitable
Trust's Bhaskar Waman Thakur College of
Science, Yashvant Keshav Patil College of
Commerce, Vidhya Dayanand Patil College of
Arts,
(VIVA College)**

<ul style="list-style-type: none"> 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 macro economic 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 – I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand concept of data communication, networking basics and infrastructure and internet. To know the concept of data base and MySQL basics, 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: Export Marketing- I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To study the basic concept of Export marketing To understand the global framework of export marketing, trade barriers, economic groupings and overseas marketing research ,to gain insight into Indias Foreign Trade Policy To know various types of Export incentives and Assistance available to Indian exporters 	
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 	

**Late Shri. Vishnu Waman Thakur Charitable
Trust's Bhaskar Waman Thakur College of
Science, Yashvant Keshav Patil College of
Commerce, Vidhya Dayanand Patil College of
Arts,
(VIVA College)**

SEMESTER VI	
Course Code:	Course Title: Financial Accounting and Auditing- IX Financial accounting

**Late Shri. Vishnu Waman Thakur Charitable
Trust's Bhaskar Waman Thakur College of
Science, Yashvant Keshav Patil College of
Commerce, Vidhya Dayanand Patil College of
Arts,
(VIVA College)**

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: The students would be able : <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
Course outcomes: The students would be able : <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

**Late Shri. Vishnu Waman Thakur Charitable
Trust's Bhaskar Waman Thakur College of
Science, Yashvant Keshav Patil College of
Commerce, Vidhya Dayanand Patil College of
Arts,
(VIVA College)**

Course outcomes:

The students would be able :

- 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

**Late Shri. Vishnu Waman Thakur Charitable
Trust's Bhaskar Waman Thakur College of
Science, Yashvant Keshav Patil College of
Commerce, Vidhya Dayanand Patil College of
Arts,
(VIVA College)**

Course outcomes: The students would be able : <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: Export Marketing- II
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To study product planning and pricing decision for expoft marketing ● To understand the techniques in Export distribution and promotion ● To to explore the concept of Export finance viz method of payment i.e., pre-shipment and post shipment and role of EXIM bank ● To know the export procedure related to registration, shipment and documentation 	
Course Code	Course Title: Indirect Taxation
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To acquire knowledge about indirect taxation and GST ● Ton 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 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2022-23
Name of Department: B. Com. [Accounting and Finance]
Class: F. Y. B. C. A. F.
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, 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. Communication skills Students can communicate effectively using oral and written communication skills. Problem solving and research skills <ul style="list-style-type: none"> Students can analytically solve and record transactions in different accounting systems.
Program Specific Outcomes: <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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

risk.	
<ul style="list-style-type: none"> To aware about human values and responsibility towards society. 	
SEMESTER I	
Course Code: 1	Course Title: Financial Accounting (Elements of Financial Accounting) - I
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> ● To acquire knowledge about business correspondence. ● To apply the language and writing skills. 	
Course Code: 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: 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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

	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
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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> • 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. 	

Academic year : 2021-2022
Name of Department: B. Com. [Accounting and Finance]
Class: S. Y. B. C. A. F.
Program Outcomes: Specific core discipline knowledge <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. • Communication skills Students can communicate effectively using medium of information technology. Problem solving and research skills <ul style="list-style-type: none"> • Students can understand basics of research methodology.
Program Specific Outcomes: <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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> ● 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 1	Course Title: Financial Accounting (Special Accounting areas) – III
Course Outcomes: The students would be able : <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 – 1 2	Course Title: Cost Accounting (Methods of costing) – II
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 – 1 4	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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: AEC 2A 4	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 2B 5	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
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	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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 Code: EC 1 2	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)
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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: AEC 2A 4	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 2B 5	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. 	
Course Code: CC 3 7	Course Title : Research Methodology in accounting and finance
Course Outcomes: The students would be able : <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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2021-2022	
Name of Department: B. Com. [Accounting and Finance]	
Class: T. Y. B. C. A. F.	
Program Outcomes: Specific core discipline knowledge <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 . Communication skills Students can express their thoughts through research project. Problem solving and research skills <ul style="list-style-type: none"> Students can analyse and examine data from research through testing of hypothesis. 	
Program Specific Outcomes: <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
Course Outcomes: The students would be able : <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. To understand process costing equivalent production and inter-process profit. To learn about activity based costing system. 	
Course Code: EC 1 2	Course Title : Financial Management – II
Course Outcomes:	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<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: EC 1 3	Course Title : Taxation – IV (Indirect Taxes – II)
<p>Course Outcomes: 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: 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
<p>Course Outcomes: The students would be able :</p> <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
<p>Course Outcomes: The students would be able :</p>	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<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: EC 1 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: EC 1 2	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. ● To study about Working capital financing. 	
Course Code: EC 1 3	Course Title : Taxation – Paper V (Indirect Taxes – III)
Course Outcomes: The students would be able : <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)
Course Outcomes: The students would be able :	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<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: CC 2 5	Course Title : Financial Accounting – VII
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understand research design. ● To learn data collection. ● To analyse collected data with different statistical techniques. ● To know project writing skills. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2018-2019
Name of Department: B. Com. [Banking and Insurance]
Class: F. Y. B. B. I.
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Students can analytically solve and record transactions in different accounting systems.
Program Specific Outcomes: <ul style="list-style-type: none"> 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. 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

SEMESTER I	
Course Code: EC 1	Course Title: Environment and Management of Financial Services
Course Outcomes: The students would be able : <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
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: 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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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. 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
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 	

Academic year : 2018-2019
Name of Department: B. Com. [Banking and Insurance]
Class: S. Y. B. B. I.
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> Students can understand the organizational behavior with respect to power, politics, individual behavior, organization dynamics and the role of behavior in banks and insurance organization.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> students can acquire knowledge about management accounting, methods of costing, Direct Taxation, financial Management. Students can understand Financial Market, corporate and securities law, entrepreneurship management and business economics. Communication skills Students can learn the medium of information technology used in banks and insurance companies. <p>Problem solving and research skills</p> <ul style="list-style-type: none"> Students can understand the general role of banks and insurance in current scenario. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> To understand the role of individual and organizational behaviour. To understand special areas of financial management. To know different methods of cost accounting. To acquire knowledge of direct taxation system of India. To analyse usefulness of information technology in bank and insurance sector. To understand corporate and securities law. To study business economics for better understanding of business environment. To understand the financial market in detail. To acquire knowledge of management accounting. To understand direct tax system related to different persons in India. To understand need of entrepreneur and its management aspect. To know overall function of banks and insurance companies with respect to current scenario. 	
SEMESTER III	
Course Code: EC – 1 1	Course Title: Financial Management
<p>Course Outcomes: 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 	
Course Code: EC – 1 2	Course Title: Management Accounting
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> Understanding the role of management accounting in decision making. Understanding analysis of financial statements and ratio analysis. Understanding cash flow, fund flow and working capital management 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: EC – 1 3	Course Title: Organizational Behaviour
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand personality, perception and group dynamics. • To study application of the above in banking and insurance companies. 	
Course Code: AECC 2A 4	Course Title: Information technology in Banking and Insurance
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Knowledge and understanding of e-commerce and cyber security • Learn MS- Excel and MS-Word • To acquire knowledge about computers. • To understand office productivity tools. 	
Course Code: SEC 2B 5	Course Title: Foundation Course (An overview in Banking sector) – III
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To Understand banking industry • To Learn aspects and areas of banking like rural banking, retail banking and corporate banking and universal banking. • To Study contemporary developments like technological innovations, micro finance and financial inclusion. 	
Course Code: CC 3 6	Course Title: Financial Markets.
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To get Knowledge and understand of financial markets • To get Knowledge and understand of commodity markets • To get Knowledge and understand of derivative markets 	
Course Code: CC 3 7	Course Title: Direct Taxation
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To get Knowledge and understand of basic terms and residential status. • Knowledge and understanding of heads of income and deductions. • Computation of taxable income of individuals. 	
SEMESTER IV	
Course Code: EC 1 1	Course Title: Financial Management- II

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Outcomes: The students would be able : <ul style="list-style-type: none"> To Understand Working capital management and its components. Knowledge and understanding of financial planning, To Study of strategic financial management. 	
Course Code: EC 1 2	Course Title: Cost Accounting
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Knowledge and understanding the concept and classification of cost Understanding and use of Standard costing Application of Marginal costing 	
Course Code: EC 1 3	Course Title: Entrepreneurship 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 	
Course Code: AECC 2A 4	Course Title : Information Technology in Banking and Insurance– II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand e-business and techno management. Application of I.T in banking. Knowledge of MS-Office packages for institutional automation. 	
Course Code: SEC 2B 5	Course Title : Foundation Course (An Overview of Insurance sector)– IV
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Knowledge and understanding of life, health, home and motor insurance. Knowledge and understanding the role of insurance in logistics and fire insurance 	
Course Code: CC 3 6	Course Title : Corporate and Securities Law
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Understanding and overview of Company law. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> • Study the regulatory framework of SEBI and Securities contract regulation Act, 1956. • Knowledge of Depositories Act, 1996. 	
Course Code: CC 3 7	Course Title : Business Economics - II
Course Outcomes: The students would be able : <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. 	

Academic year : 2018-2019
Name of Department: B. Com. [Banking and Insurance]
Class: T. Y. B. B. I
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> • Students can acquire knowledge about financial reporting analysis, security analysis and portfolio management, basics of auditing in banking and insurance • Students can understand the international finance operations in banking and role of central banks in India and abroad. • Students can get acquainted with the human recourse management in banks services of banks in detail, conversion of sick units. • Communication skills Students can express their ideas through research project. Problem solving and research skills <ul style="list-style-type: none"> • Students can analyses and examine data from research through testing of hypothesis.
Program Specific Outcomes: <ul style="list-style-type: none"> • To understand accounting in banks and insurance companies. • To study the revival of sick units. • To study the role of international banking operations. • To study the financial services in detail

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> • To study central bank role abroad and in India. • 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. 	
SEMESTER V	
Course Code: EC 1 1	Course Title : Financial Reporting and Analysis(Corporate Banking & Insurance)
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To Prepare financial statements of banking and insurance company. • Knowledge and understanding of cash flow in banking and insurance companies. • To Study the ethical aspects of accountancy. 	
Course Code: EC 1 2	Course Title : Auditing -I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To get Knowledge and understand of various users of financial information. • Preparation of audit plan, Programme, notebook and working papers. • To Enable vouching of income and expenses and verification of assets and liabilities. 	
Course Code: EC 1 3	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 : Financial Services Management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Have Knowledge and understanding of various financial services. • Have Knowledge and understanding of various non-banking services. 	
Course Code: CC 2 5	Course Title : International Banking and Finance
Course Outcomes:	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<p>The students would be able :</p> <ul style="list-style-type: none"> • To get Knowledge and understand of international banking operations. • Knowledge and understanding of international financial markets and its operations. 	
Course Code: AEC 6	Course Title : Research Methodology
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • To understand the research methods. • Collection and interpretation of data • Testing of hypothesis and use of statistical techniques 	
SEMESTER VI	
Course Code: EC 1 1	Course Title : Security Analysis and Portfolio Management
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • Have Knowledge to understand valuation of portfolio management. • Knowledge and understanding of fundamental and technical analysis. • Understanding of efficient market theory and CAPM 	
Course Code: EC 1 2	Course Title : Auditing –II
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • To study audit of limited companies, banking companies and insurance companies • Introduction to different types of audit • Understanding professional ethics in profession of chartered accounts. 	
Course Code: EC 1 3	Course Title : Human Resource Management
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • To understand framework of HRM in banks and insurance companies. • To study role of HR procurement, planning and recruitment. • To analysis the role of training, development and Voluntary schemes 	
Course Code: EC 1 4	Course Title : Turnaround Management
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> • Have Knowledge and understanding of Business and industrial sickness. • Development of turnaround management and application of those strategies. • To learn Concept of corporate restructuring. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> To get Exposing to contemporary business scenarios. 	
Course Code: CC 2 5	Course Title : Central Banking
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To gain Knowledge and understanding of central banking. To understand role of RBI as central bank. Comparative study of Central banks in other countries. 	
Course Code: AEC3 6	Course Title : Project work in Banking and Insurance
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. 	

Late Shri. Vishnu Waman Thakur Charitable Trust's

Bhaskar Waman Thakur College of Science,

Yashvant Keshav Patil College of Commerce,

Vidhya Dayanand Patil College of Arts,

(VIVA College)

(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year: 2020-2021

Name of Department: B. Com. [Financial Markets]

Program Outcomes:

- After completing the three years Bachelor of Commerce (Financial Markets) program the students will be able to understand the fundamental & operations of the financial market, to apply & evaluate the financial & investment theories.
- To focus deep in the basics of trading & its regulations market forces etc.
- To gain knowledge about risk, wealth, economics as well as the legal framework of the financial market.
- To pursue master's 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 Coordinator, wealth manager etc.

Program Specific Outcomes:

- To give an idea about fundamentals of financial services and players in financial sectors.
- To understand the key concept from environment studies, political, and social analysis as they pertain to the design.
- To study different trade policies on export and import.
- Preparing financial statements in accordance with appropriate standards.
- To understand the law of demand, supply forecasting, consumer durable.
- To 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 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.

Academic year : 2020-2021**Name of Department: B. Com. [Financial Markets]****Class: S. Y. B. F. M.****SEMESTER III****Course Code: CC 5****Course Title: Management
Accounting**

Course Outcomes: <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 ideas on financial statement analysis from a 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 problems. 	
Course Code: CC 7	Course Title: Foundation Course Money Market
Course Outcomes: <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 	
Course Code: CC 6	Course Title: Business Law
Course Outcomes: <ul style="list-style-type: none"> • Make the students understand about business and corporate law Develop knowledge on contracts and various types of contracts. • To help the students to understand the concept of sale of. • Make the students understand about Negotiable Instruments. 	
Course Code: AECC 2-4	Course Title: Computer Skills

Course Outcomes:

- Basic computer literacy.
- The ability to back-up
- Experience of online project work.
- The ability to nurture creativity – and mark it.
- Social networking skills.

Course Code: EC 3**Course Title: Commodity Markets****Course Outcomes:**

- Identify the various types of commodities.
- Characteristics.
- Price Calculations.
- Trading Techniques

Course Code: EC 2**Course Title: Equity Markets I****Course Outcomes:**

- 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.

Course Code: CC 3**Course Title: Portfolio
Management****Course Outcomes:**

- 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

SEMESTER IV

Course Code: CC 5

Course Title: Corporate Finance

Course Outcomes:

- 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.

Course Code: CC 7

**Course Title: Foundation Course
IV (Foreign Exchange Markets)**

Course Outcomes:

- 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.

Course Code: CC 6

Course Title: Business Law II

Course Outcomes:

- To 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

Course Code: AECC 2-4	Course Title : Business Economics-II
Course Outcomes: <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. 	
Course Code: EC 2	Course Title : Equity Market II
Course Outcomes: <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. 	
Course Code: CC 3	Course Title : Commodity Derivatives

Course Outcomes:

- Student learn asset class and structure.
- Manage commodity price expense.
- Hedging techniques.
- Various Derivatives Instruments.

Course Code: CC 4**Course Title : Merchant Banking****Course Outcomes:**

- 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

Academic year : 2019-20	
Name of Department: DEPARTMENT OF MANAGEMENT STUDIES (BMS)	
Class: F.Y.B.M.S	
Program Outcomes:	
•	
Program Specific Outcomes:	
•	
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
Course outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
Course outcomes: The students would be able : <ul style="list-style-type: none"> • This course is designed to enable the students to understand the process for conflict 	

<p>resolution in a team</p> <ul style="list-style-type: none"> 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: 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. 	
Course Code: 7	Course Title: BUSINESS ECONOMICS – I
<p>Course Outcomes: 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: 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: 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: BUSNIESS MATHEMATICS
<p>Course Outcomes: 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
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
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. 	

Academic year : 2019-20	
Name of Department: DEPARTMENT OF MANAGEMENT STUDIES	
Class: S.Y.B.M.S	
Program Outcomes	
Program Specific Outcomes	
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
<div style="border: 1px solid black; padding: 10px;"> 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. </div>	
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
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 discuss 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
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 importance in managing a business. 	
Course Code: 11	Course Title: STRATEGIC MANAGEMENT
Course Outcomes: The students would be able : <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. 	

Academic year : 2019-20	
Name of Department: DEPARTMENT OF MANAGEMENT STUDIES	
Class: S.Y.B.M.S	
Program Outcomes:	
Program Specific Outcomes:	
SEMESTER IV	
Course Code: 1	Course Title: AUDITING
Course Outcomes: The students would be able: <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 acquainted 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

Course outcomes: The students would be able: <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. 	
Course Code: 3	Course Title: INTEGRATED MARKETING COMMUNICATION
Course outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
Course outcomes: The students would be able : <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 Programme and it's Evaluation. 	
Course Code: 6	Course Title: CHANGE MANAGEMENT
Course outcomes: The students would be able : <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. 	

Course Code: 7	Course Title: INFORMATION TECHNOLOGY – II
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
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. 	

Academic year : 2019-20	
Name of Department: DEPARTMENT OF MANAGEMENT STUDIES	
Class: T.Y.B.M.S	
Program Outcomes:	
•	
Program Specific Outcomes:	
•	
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
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
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
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 	

Academic year : 2019-20	
Name of Department: DEPARTMENT OF MANAGEMENT STUDIES	
Class: T.Y.B.M.S	
Program Outcomes: •	
Program Specific Outcomes: •	
SEMESTER VI	
Course Code: 1	Course Title: INNOVATIVE FINANCIAL SERVICES
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To familiarize the learners with the fundamental aspects and various issues associated with Financial Services • To give a comprehensive overview of emerging financial services in the light of globalization • To introduce the basic concepts, functions, process, techniques and create an awareness of the role, functions and functioning of financial services • 	
Course Code: 2	Course Title: PROJECT MANAGEMENT
Course outcomes: The students would be able: <ul style="list-style-type: none"> • To familiarize the learners with the fundamental aspects of various issues associated with Project Management. • To understand various feasibility Analysis Studies & to know budgeting & cost estimation of Project. • To understand new dimensions in Project Mgt. 	
Course Code: 3	Course Title: INTERNATIONAL FINANCE
Course outcomes: The students would be able: <ul style="list-style-type: none"> • To familiarize the learner with the fundamental aspects of various issues associated with International Finance. • To introduce the basic concepts, functions, process, techniques and create an awareness of the role, functions and functioning of International Finance in this globalized market. 	
Course Code: 4	Course Title: STRATEGIC FINANCIAL MANAGEMENT
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Understand basic concepts of Strategic financial management and their application in investment, financing and dividend decisions. • Understand Risk evaluation in capital budgeting and capital ratioing as a technique for appraisal of projects. 	

<ul style="list-style-type: none"> • Understand NPA & provisions regarding NPAs, management of working capital and estimate the same for an organization. 	
Course Code: 5	Course Title: BRAND MANAGEMENT
Course outcomes: The students would be able : <ul style="list-style-type: none"> • The student will understand the value of the organization which is created by building a brand and generating equity out of that brand 	
Course Code: 6	Course Title: MEDIA PLANNING & MANAGEMENT
Course outcomes: The students would be able : <ul style="list-style-type: none"> • The students understand consumers' media usage and attitudes towards media 	
Course Code: 7	Course Title: RETAIL MANAGEMENT
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • It enables students develop decision making skills related to retailing including merchandise and expense planning, store layout, product line and resource determination, pricing, promotional strategies. 	
Course Code: 8	Course Title: INTERNATIONAL MARKETING
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • The student will acquire an in-depth knowledge and understanding of international marketing - the processes, current challenges of all types of firms 	
Course Code: 9	Course Title: ORGANIZATIONAL DEVELOPMENT
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To define various terms relating to organizational development and change. • To identify organizational situations that would benefit from OD intervention. • To analyze activities within an organization and recommend suitable OD intervention. • To understand the future of OD as Emerging trends. 	
Course Code: 10	Course Title: INDIAN ETHOS IN MANAGEMENT
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand towards the Indian Ethos and its relevancy today. • To discuss the steps involved in bringing work Ethos at work place. • To understand the techniques of stress Management • To identify the Evolution of Learning systems in India. 	
Course Code: 11	Course Title: HUMAN RESOURCE MANAGEMENT

	IN GLOBAL PERSPECTIVE
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand the concepts, theoretical framework & issues of HRM IN Global perspectives. • To get insights of the concepts of Expatriates and Repatriates. • To provide information about Global workforce Management. • To study International HRM trends & Challenges 	
Course Code: 12	Course Title: HUMAN RESOURCE MANAGEMENT IN SERVICE SECTOR
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand the meaning & growing importance of HRM in Service Sectors. • To understand the managing & Empowering Human Resources in Service sectors. • To familiarize students with issues & challenges of HR in Service Sectors. 	
Course Code: 13	Course Title: OPERATIONS RESEARCH
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To help students to understand operations research methodologies. • To help students to solve various quantitative problems practically. 	
Course Code: 14	Course Title: PROJECT WORK
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • The students will be carrying out a project work which involves practical understanding of the theoretical aspects. 	

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

Academic year : 2020-2021	
Name of Department: B. Com. (Environmental Management & Economics)	
Class: F. .Y.E.M.E	
Program Outcomes: Specific core discipline knowledge <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 Communication skills Students can acquire knowledge related to oral and written communication skills. Problem solving and research skills <ul style="list-style-type: none"> Students can analytically solve and record transactions in different accounting systems. 	
Program Specific Outcomes: <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 Mangement & Economics

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

	-I
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 concerns 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 . To Understand the techniques of organizational behaviour . 	
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, 	

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

<p>break even analysis and economies of scale.</p> <ul style="list-style-type: none"> 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: 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: 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: 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
<p>Course Outcomes: 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

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

Course Outcomes:

The students would be able :

- 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

Course Outcomes:

The students would be able :

- 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.

Academic year : 2020-2021

Name of Department: B. Com. [Environmental Mangement and Economics]

Class: S. Y. E.M.E

Program Outcomes:

Specific core discipline knowledge

- Students can understand the organizational behavior with respect to power, politics, individual behavior, organization dynamics and the role of behavior in banks and insurance organization.
- students can acquire knowledge about management accounting, methods of costing, Direct Taxation, financial Management.
- Students can understand and acquire knowledge, values for environmental management.

Problem solving and research skills

- Students can understand the general role of environment and its sustainability.

Program Specific Outcomes:

- To understand the role of individual and organizational behaviour.
- To understand special areas of financial management.
- To analyse usefulness of information technology in management.
- To understand corporate and securities law.
- To study business economics for better understanding of business environment.
- To understand need of entrepreneur and its management aspect.
-

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

SEMESTER III	
Course Code: EC – 1 1	Course Title: Financial Management
Course Outcomes: The students would be able : <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 	
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:	

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

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	
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. ledge and understanding 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. 	

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

Course Code: CC 3 5	Course Title : Management Information System
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Understanding information & information system in an organization. • Study the strategic use of information & IS. • Knowledge of information system. 	
Course Code: CC 3 6	Course Title : Business Economics - II
Course Outcomes: The students would be able : <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. 	

Academic year : 2020-2021
Name of Department: B. Com. [Environmental Management & Economics]
Class: T. Y. E.M.E
Program Outcomes: Specific core discipline knowledge <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 . • Communication skills Students can express their ideas through research project. Problem solving and research skills <ul style="list-style-type: none"> • Students can analyses and examine data from research through testing of hypothesis.
Program Specific Outcomes: <ul style="list-style-type: none"> • To understand sustanbility towards environment. • To study different key environment management 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,
(VIVA College)**

<ul style="list-style-type: none"> • 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. 	
SEMESTER V	
Course Code: EC 1 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: EC 1 2	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 entrepreneur. 	
Course Code: EC 1 3	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. • Knowledge and understanding of network techniques , planning & 	

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

coordination..	
Course Code: AEC 6	Course Title : Corporate Social Responsibility
Course Outcomes: The students would be able : <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 • To understand stakeholders concepts. 	
SEMESTER VI	
Course Code: EC 1 1	Course Title : Solid & Hazardous Waste Management
Course Outcomes: The students would be able : <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: EC 1 2	Course Title : Environment & Eco tourism
Course Outcomes: The students would be able : <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: EC 1 3	Course Title : Disaster Management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand different types of disaster. • To study management of disaster. 	
Course Code: EC 1 4	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. 	

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

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. 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashwant Keshav Patil College of Commerce,
 Vidya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year : 2022-2023
Name of Department: B. Com. [Financial Management]
Class: F. Y. F. M. G.
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> • Students can understand the Indian financial system and its functions, regulatory mechanism and business environment. • Students can understand the principles of finance and essential environmental science, business economics, basics of statistics. • Communication skills Students can acquire knowledge related to oral and written communication skills. Problem solving and research skills <ul style="list-style-type: none"> • Students can analytically solve and record transactions in different accounting systems.
Program Specific Outcomes: <ul style="list-style-type: none"> • To understand the financial system and science of the environment. • To understand principles of finance and business environment. • To study the role of Regulatory bodies. • To make aware about new changes in the financial sector. • To study the significant role of risk in the financial sector. • 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 the financial system. • To develop communication skills. • To learn the basis of society. • To get knowledge about the Indian constitution and their rights. • To be aware about human values and responsibility towards society.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashwant Keshav Patil College of Commerce,
Vidya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> • To study the accounting standards. • To understand the financial structure and services. • To understand the importance of financial management and methods of cost accounting. 	
SEMESTER I	
Course Code: EC 1	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: EC 2	Course Title: Business Mathematics
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand index numbers and application to the financial sector. • To provide fundamental basic knowledge of statistical techniques as applicable to business. • To Develop graphical presentation 	
Course Code: EC 3	Course Title: Indian Financial System
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Subjects give overview of the financial system to students such as flow of funds in financial system, financial system and economic development. • Students learn different financial systems and their framework. • Students study non-banking financial institutions, their role in the financial system, sources of finance and RBI guidelines. • Students learn the concept of micro finance and its importance in rural economy. 	
Course Code: AECC 2A 4	Course Title: Business Communication – I
Course Outcomes:	

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashwant Keshav Patil College of Commerce,
 Vidya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

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 the multi-cultural diversity of Indian society. • To Understand 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 market 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: Business Environment
<ul style="list-style-type: none"> • Students learn different types of business environments and its types. Different methods of analysis such as SWOT and PESTLE analysis are discussed. • Students learn the concept of business ethics and entrepreneurship. Students learn MSED Act, 2006 and Consumer protection act. • Students learn the concept of corporate social responsibility, corporate governance and Social audit. • Students learn strategies for globalization for MNCs and TNCs, Foreign trade in India, Balance of trade. 	
SEMESTER II	
Course Code: EC 1	Course Title: Principles of Finance
Course Outcomes: The students would be able :	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashwant Keshav Patil College of Commerce,
Vidya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> Students study the concept of financial planning and financial management. Students learn the meaning of capital structure and capitalization. Students study different sources of external finance such as shares, debentures, public deposits etc. Students learn different internal sources of finance such as reserves surplus, bonus shares etc. 	
Course Code: EC 2	Course Title: Business Statistics
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Students learn the scope of statistics in management, sampling methods, data condensation and graphical methods. Students learn the concept of measure of central tendency. Students learn the concept of dispersion, correlation and regression. 	
Course Code: EC 3	Course Title :Financial Accounting -II
Course Outcomes: The students would be able : <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
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. To understand presentation skills and make powerpoint presentations. 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
Course Outcomes: The students would be able :	

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashwant Keshav Patil College of Commerce,
 Vidya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<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: Environmental Science
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students understand the concept of environment, ecology and biodiversity. Students study the importance of natural resources and their classification. • Students study various economic activities, their pattern and environmental problems associated with economic activities. • Students learn the concept of environmental management and the role of technology in environment management. 	
Course Code: CC 7	Course Title: Computer Skills -I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn concepts of computer hardware, RAM, ROM and different storage devices. Students learn the operating systems. • Students study MS- WORD, MS-Excel and internet services. Semester III 	

Academic year : 2022-2023
Name of Department: B. Com. [Financial Management]
Class: S. Y. F. M. G.
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> • Students can understand the fundamentals of Entrepreneurial development and office management. • Students can acquire knowledge about management accounting, methods of

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashwant Keshav Patil College of Commerce,
Vidya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

costing, Direct Taxation, financial Management.

- Students can understand financial management, corporate and securities law, corporate accounting and business economics.
- **Communication skills**
Students can learn the medium of information technology used in the financial sector.

Problem solving and research skills

- Students can understand the general aspects of the financial sector in the current scenario.

Program Specific Outcomes:

- To understand entrepreneurial development and office management.
- To understand special areas of financial management.
- To know different methods of cost accounting.
- To acquire knowledge of the direct taxation system of India.
- To analyze the usefulness of information technology in the financial sector.
- To understand corporate and securities law.
- To study business economics for better understanding of the business environment.
- To understand the business regulatory framework in detail.
- To acquire knowledge of management accounting.
- To understand the direct tax system related to different persons in India.
- To understand the need of entrepreneurial development and its management aspect.
- To know the overall function of the financial sector with respect to the current scenario.

SEMESTER III

Course Code: EC – 1 1

Course Title: Corporate Accounts -I

Course Outcomes:

The students would be able :

- Students learn the final accounts of partnership.
- Students study the concept of piecemeal distribution of cash, insolvency of partner and maximum loss method.

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashwant Keshav Patil College of Commerce,
 Vidya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<ul style="list-style-type: none"> Students learn the amalgamation of firms. Students learn the realization method for conversion of sale of partnership firms into ltd. Company. 	
Course Code: EC – 1 2	Course Title: Cost Accounting -I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To create knowledge in the field of cost accounting. To study about the various methods of costing that are used in business. To work out the various cost concepts. 	
Course Code: EC – 1 3	Course Title: Direct Tax-I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To get Knowledge and understand basic terms and residential status. Knowledge and understanding of heads of income and deductions. Computation of taxable income of individuals. 	
Course Code: AEC 4	Course Title: Entrepreneurial Development
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Students learn the concept of entrepreneur and entrepreneurship. Students study entrepreneurial project development. Students learn the cultural and environmental Issues in setting up a business enterprise. Students learn different Entrepreneurship Development Programme and Risk Management. 	
Course Code: CC 5	Course Title: Management Accounting
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Students learn features, Scope, Importance, Functions, role of Management Accounting. Students learn Vertical Forms of Balance Sheet and Profit and Loss Account, Trend Analysis, Comparative Statement, Common Size Statement. Students learn ratio analysis and different balance sheet ratios. Students learn Preparation of Cash Flow Statement. Students learn the concept, nature of Working Capital and Planning of Working Capital. 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashwant Keshav Patil College of Commerce,
 Vidya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code: CC 6	Course Title: Business Law
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn Indian Contract Act, 1872. Students law of indemnity, law of bailment, law of pledge and law of agency. • Students learn The Sale of Goods Act, 1930. Students learn Negotiable Instruments Act, 2015 	
Course Code: CC 3 7	Course Title: Business Regulatory Framework
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Student study Industrial Disputes Act, 1947 and The Trade Union Act, 1926. • Students study The Factory Act 1948, The Workmen's Compensation Act, 1923 and Rules as to Compensation. • Students learn the Payment of Wages Act 1948, Payment of Bonus Act, 1965 and The Payment of Gratuity Act, 1972. • Students learn Employee State Insurance Act 1948. 	
SEMESTER IV	
Course Code: EC 1 1	Course Title: Direct Tax-II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn clubbing for income. Students learn the treatment for sets and carry forward of losses. • Students learn Computation of Tax liability of Individual & HUF. Students study Computation of Income of Partnership Firm. • Students learn basic aspects of Deduction of Taxes at Source and advance tax. 	
Course Code: EC 1 2	Course Title: Cost Accounting -II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Knowledge and understanding the concept and classification of cost • Understanding and use of Standard costing • Application of Marginal costing 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashwant Keshav Patil College of Commerce,
 Vidya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code: EC 1 3	Course Title: Corporate Accounts -II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn to prepare final accounts of companies. Students learn the provisions related to the Companies Act for redemption of Preference Shares. • Students learn the provisions related to the Companies Act for Creation and investment of DRR. • Students study Principles for ascertainment Preparation of separate, combined and columnar Profit and Loss Account. 	
Course Code: AECC 2A 4	Course Title : Information Technology in Management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn the concept of business process, classification of process and flow of business process. • Students learn advantages and limitations of E Commerce, the role of Strategy in E Commerce, Value chains in E Commerce etc. • Students learn Concept of MIS, need for MIS, characteristic of MIS, outputs of MIS , role of MIS. • Students learn the role & Need and requirements of computerized accounting and basic requirements of computerized accounting system. 	
Course Code: CC 5	Course Title : Corporate Law
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn Companies Act, 2013 and concepts like promoters, prospectus, MO, AOA etc. • Students learn Indian Partnership Act, 1932 and concepts like Essentials, True Test of Partnership, Partnership Deed, Types of Partnership, Rights and Duties of Partners, etc. Students learn Consumer Protection Act, 1986 & Competition Act 2002. • Students study Concept, Nature, Introduction & background of Intellectual Property Rights in India. 	
Course Code: CC 6	Course Title : Corporate Finance
Course Outcomes:	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashwant Keshav Patil College of Commerce,
Vidya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

The students would be able :

- Students learn Function of Finance in a business enterprise, emergence of corporate finance, need for professional approach in managing corporate finance.
- Students learn theories of capitalization and break even analysis. Students learn the meaning of capital structure, Factors affecting Capital structure trading on equity , Watered Capital, over capitalization and under capitalization
- Students learn the Sources and Methods of raising Corporate Finance.

Course Code: CC 7

Course Title : Office Management

Course Outcomes:

The students would be able :

- Students learn the concept of Office Accommodation and Environment, size, layout, safety and security measures related to office building.
- Students learn Kind of office machines used in the office, Objectives and advantages of office manuals charts, preparation and play of manuals and charts.
- Students learn the aspects related to Recruitment, selection, training and development of office staff.
- Students learn the concepts like Office routine, flow of work and office manual, Importance of correspondence in business and Govt. offices, Essentials of good business and official correspondence.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashwant Keshav Patil College of Commerce,
Vidya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2022-2023
Name of Department: B. Com. [Financial Management]
Class: T. Y. F. M. G.
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> • Students can acquire knowledge about financial analysis and business valuation, security analysis and portfolio management, and the basics of auditing in financial management. • Students can understand the business ethics and organizational behavior. • Students can get acquainted with corporate and management accounting. • Communication skills Students can express their ideas through research projects. Problem solving and research skills <ul style="list-style-type: none"> • Students can analyze and examine data from research through testing of hypotheses.
Program Specific Outcomes: <ul style="list-style-type: none"> • To understand corporate accounting in the financial sector. • To study business ethics. • To study the role of individuals in the organization.

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashwant Keshav Patil College of Commerce,
 Vidya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<ul style="list-style-type: none"> • To study financial management accounting. • To acquire research techniques through projects. • To understand management and its strategic importance. • To understand security analysis. • To understand portfolio management. 	
SEMESTER V	
Course Code: EC 1	Course Title : Corporate Accounting -III
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn legal provisions related to banking regulation Act, 1949 related to accounts. Students learn final accounts of Insurance accounts. • Students learn investment accounting related to debentures and preference shares. Students learn the accounting treatment for foreign current transactions. 	
Course Code: EC 2	Course Title : Auditing -I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To get Knowledge and understand various users of financial information. • Preparation of audit plan, Programmed, notebook and working papers. • To enable vouching of income and expenses and verification of assets and liabilities. 	
Course Code: EC 1 3	Course Title : Business Ethics
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn the meaning, importance, theories and types of ethics. Students study business ethics in the global economy. • Students learn the concept of Corporate Social Responsibility, Various CSR practices etc. • Students learn the meaning and types of functional ethics. 	
Course Code: EC 1 4	Course Title : Financial Analysis & Business Valuation
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn the meaning of financial plan, components of financial plan and 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashwant Keshav Patil College of Commerce,
 Vidya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

budgeting. Students study aspects related to money management. <ul style="list-style-type: none"> Students learn various types of investments, risk return, active and passive investment strategies. Students learn different salary components and retirement planning. 	
Course Code: CC 2 5	Course Title : Financial Management -I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Students learn meaning, importance, scope and objectives of Financial Management. Students learn the capital budgeting process and types of capital investment decisions. Students learn different sources of finance. Students learn the importance and measurement of cost of capital. 	
Course Code: CC 6	Course Title : Research Methodology in Financial management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Students learn objective, importance and types of research. Students learn different methods of primary data collection. Students learn types of data analysis, measures of dispersion, and measures of central tendency, correlation and regression. Students learn the aspects related to research report writing. 	
SEMESTER VI	
Course Code: EC 1 1	Course Title : Security Analysis and Portfolio Management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Have Knowledge to understand valuation of portfolio management. Knowledge and understanding of fundamental and technical analysis. Understanding of efficient market theory and CAPM 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashwant Keshav Patil College of Commerce,
 Vidya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code: EC 2	Course Title : Auditing –II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn the basic concepts of Auditing, principles of audit integrity, types of Audit etc. • Students study audit planning procedures and documentation. • Students learn auditing techniques such as audit sampling, test check, internal control. Students learn the objectives and basic principles of internal audit. 	
Course Code: EC 3	Course Title : Organizational Behavior
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn the concept and different models of organization behavior. • Students study the concept of conflict management, sources of conflicts and process of conflict management. • Students learn types of group, group dynamics, team building, measure factors affecting team etc. • Students learn the concept of stress management, different approaches to stress management, changes in organization and its effects and transformational leadership. 	
Course Code: EC 4	Course Title : Corporate Accounting -IV
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn the stand alone and consolidated financial statements. • Students study the need for internal reconstruction and related company law provisions. • Students learn AS- 14 related to amalgamation and absorption. • Students learn the need for external reconstruction, difference between internal and external reconstruction, preparation of balance sheet. 	
Course Code: CC 5	Course Title : Financial Management -II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn the concepts like risk and return analysis, annualized returns, types 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashwant Keshav Patil College of Commerce,
Vidya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

of risk and expected returns.

- Students study the concept of optimal capital structure and types of leverages. Students learn the concept of cash management and strategies of cash management.
- Students learn the various aspects related to receivable management.

Course Code: CC 6

Course Title : Project work in Financial Management

Course Outcomes:

The students would be able :

- To analyze 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..

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashvant Keshav Patil College of Commerce,
 Vidhya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year : 2022 - 2023	
Name of Department: B. Com. (Investment Management)	
Class: F. Y.BIM	
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> Students can acquire knowledge about capital market, equity market, wealth Management, basics of investment and wealth creation. Students can understand primary details of the Accounting, Indian financial system, financial market and investment banking. Students can understand business economics terms and financial intermediaries. 	
Program Specific Outcomes: <ul style="list-style-type: none"> Investment Analysis Skills: Graduates will have a strong foundation in investment analysis techniques and tools. They will be adept at evaluating financial statements, analyzing market trends, conducting risk assessments, and making informed investment decisions. Market Awareness: Students will develop a keen awareness of global financial markets, including stocks, bonds, derivatives, commodities, and foreign exchange. They will understand how economic factors, geopolitical events, and regulatory changes impact investment decisions and market dynamics. Ethical and Legal Considerations: Graduates will be well-versed in the ethical and legal considerations involved in the investment management field. They will understand the importance of adhering to industry regulations and maintaining high ethical standards while managing client investments. Communication and Interpersonal Skills: The program will emphasize the development of effective communication and interpersonal skills. Graduates will be able to clearly articulate investment strategies, present financial recommendations, and build relationships with clients, colleagues, and industry professionals. 	
SEMESTER I	
Course Code: EC 1	Course Title: Basic of Investment & Wealth Creation
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To understand of investment fundamentals, including the time value of money, risk and return, diversification, asset allocation, and investment vehicles such as stocks, bonds, mutual funds, and real estate. To evaluate financial statements, assess investment risks, and use various analytical tools to measure investment performance. To understand about the power of compound interest, the benefits of long-term investing, and strategies for building a diversified investment portfolio. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: EC 2	Course Title: Introduction to Accounting -I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To understanding of fundamental accounting concepts, such as the accounting equation, double-entry bookkeeping, accrual accounting, and the principles of revenue recognition ● Students will learn how to analyze and interpret financial statements. ● To understand foundational understanding of accounting principles and practices. 	
Course Code: EC 3	Course Title: Introduction to Financial System
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To learn about the financial intermediaries, such as financial markets, including stock exchanges, bond markets, and derivatives markets. ● To understand the different participants in the financial markets, including individual investors, institutional investors, corporations, governments, and regulatory bodies. ● To understand risk management techniques used by financial institutions and investors. 	
Course Code: AECC 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 5	Course Title: Foundation Course –I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> ● To Improved comprehension of the problems and challenges facing Indian society today. ● Ability to address social issues afflicting Indian society requires a sensitive attitude. ● A greater understanding of environmental challenges. 	
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 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: CC 7	Course Title: Quantitative Techniques
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Students will be able to use fundamental mathematical concepts in everyday situations. Students will be able to comprehend how basic calculations are done in the banking industry. Students will gain knowledge of the basics of statistics and how averages are used to calculate variables. 	
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"> The learners will be able to recollect the concepts of wealth planning. The learners will be able to discuss the concepts of different types of insurance. The learners will be able to explain the different types of retirement planning and superannuation benefits. 	
Course Code: EC 2	Course Title: Introduction to Accounting-II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> The learners will be able to describe the accounting procedures of investment accounting The learners will be able to discuss the accounting of foreign exchange transactions The learners will be able to write the accounting procedures related to issue of shares 	
Course Code: EC 3	Course Title: Introduction to Financial Markets
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Learners will be able to explain the different Accounting Standards. Learners will be able to classify income, expenses and prepare income and expenditure statement. Learners will be able to prepare the Final Accounts for manufacturing entities. 	
Course Code: AECC 2A 4	Course Title: Business Communication-II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> Learners will be able to enhance their proficiency with respect to corporate communication. Learners will be able to acquire and demonstrate Ethics and Professionalism in Corporate Communication. Learners will be well equipped with effective writing skills within a professional space. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: SEC 2B 5	Course Title: Foundation Course -II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Learners will be able to appraise the LPG model and explain the impact of the same on contemporary society. • Learners will develop a better understanding of the Human Rights as per UDHR as well as of those enshrined in the Indian Constitution. 	
Course Code: CC 6	Course Title: Introduction to Financial Intermediaries
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • The learners will be able to outline the concept of financial intermediaries. • The learners will be able to explain the different types of financial intermediaries. 	
Course Code: CC 7	Course Title: Investment Banking
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students learn about financial markets, stock evaluation, risk management, and financial capital. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2022 - 2023	
Name of Department: B. Com. (Investment Management)	
Class: S.Y.BIM	
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> Students can acquire knowledge about fundamentals of equity market, cost accounting and direct taxation. Students can understand primary details of financial management, fundamentals of capital market and fundamentals of equity market. Students can understand security analysis and portfolio management and business economics. Students can acquire knowledge about mutual fund management. Problem solving and research skills <ul style="list-style-type: none"> Students can understand the financial market terms and can apply practically. 	
Program Specific Outcomes: <ul style="list-style-type: none"> To understand special areas of financial management. To know different methods of cost accounting. To acquire knowledge of direct taxation system of India. To study business economics for better understanding of business environment. To understand the financial market, equity market and capital market in detail. To acquire knowledge of management accounting. To understand direct tax system related to financial market. To understand security analysis and portfolio management strategies. 	
SEMESTER III	
Course Code: EC – 1	Course Title: Financial Management -II
Course Outcomes: The students would be able : <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 	
Course Code: EC – 2	Course Title: Cost Accounting
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To increase knowledge of leverage and working capital management. To educating students in the analysis of cash flow statements. To understand the costing concepts and its usages. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: EC – 3	Course Title: Fundamentals of Capital Markets
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand the fundamentals of the capital market. • To know the roles that capital markets play. • Describe the traits of institutions in the capital markets. 	
Course Code: AEC 4	Course Title: Information Technology in Investment Management –I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • We are transforming them into professionals so that one might become literate in information technology. • The student will learn the fundamentals of hardware, software, and Microsoft Office. • We have a module to learn more about cyber security and technology with relation to handling internet usage since we want our students to be market-oriented nowadays. 	
Course Code: SEC 5	Course Title: Foundation Course –III
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • A more thorough understanding of India's emergence as a major economic force. • Developed understanding of India's advantages and skills both at home and abroad. • Relevance of cultural, political, and international policy wisdom for better relations 	
Course Code: CC 6	Course Title: Security Analysis & Portfolio Management –I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Analyze the types of investment possibilities and decisions. • Assess the security markets' operational challenges and the investing environment. • Select a framework of risk and return to help you comprehend the concepts behind investment analysis. • On the portfolio analysis, arrange the various instruments and their regulatory frameworks. 	
Course Code: CC 7	Course Title: Mutual Fund Management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Understand the fundamentals of mutual funds, including their purpose, structure, and various types and characteristics of mutual fund schemes. • Understand the mutual fund distribution routes • Understand the distribution of mutual funds and the legal, accounting, valuation, and tax issues involved. • 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

SEMESTER IV	
Course Code: EC 1	Course Title: Fundamentals of equity market
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Learners will be able to understand the basic concepts of capital markets. • Learners will be able to explain the management, governance and assurance of risk and identify stakeholder's expectations. 	
Course Code: EC 2	Course Title: Financial Management –II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Learners will be able to understand the concept of working capital management and maximum permissible banking finance. • Learners will be able to understand various concepts relating to cash management; receivable management; inventory management. 	
Course Code: CC 7	Course Title: Business Economics II
Course Outcomes: The students would be able : <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. 	
Course Code: AECC 4	Course Title : Information Technology in Investment Management – II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students will be able to study in detail various tools and techniques in the areas of finance. • Students will learn to use information technology to gain competitive advantage in Investment management. 	
Course Code: CC 6	Course Title : Security Analysis and Portfolio Management – II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Have Knowledge to understand valuation of portfolio management. • Knowledge and understanding of fundamental and technical analysis. • Understanding of efficient market theory and CAPM. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: EC 3	Course Title : Direct Taxation
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. 	
Course Code: SEC 5	Course Title :Foundation Course III
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Learners will be able to understand the basic concepts of capital markets • Learners will be able to explain the management, governance and assurance of risk and identify stakeholder's expectations • Learners will be able to define investment and classify the sources and avenues of investment. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2022 - 2023	
Name of Department: B. Com. (Investment Management)	
Class: T. Y.BIM	
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> Students can acquire knowledge of Equity market, capital market, financial market, risk and risk management tools. Students can understand the framework of national and international finance. Students can get acquainted with the Investment management strategies. A Bachelor's degree in Investment Management prepares graduates for careers in the financial industry with a focus on investment analysis, portfolio management, and financial planning. Communication skills <ul style="list-style-type: none"> Students can express their ideas through research project. Problem solving and research skills <ul style="list-style-type: none"> Students can analyses and examine data from research through testing of hypothesis. 	
Program Specific Outcomes: <ul style="list-style-type: none"> Portfolio Management Knowledge: Students will gain a deep understanding of portfolio management principles and strategies. They will be equipped with the knowledge to construct and manage investment portfolios tailored to the needs and goals of individual and institutional clients. Financial Planning Knowledge: The program will provide students with comprehensive knowledge of financial planning concepts and techniques. Graduates will be capable of assisting clients in setting financial goals, developing investment plans, and providing guidance on retirement planning, tax strategies, and wealth management. Technological Proficiency: Students will gain proficiency in utilizing financial software, data analysis tools, and industry-specific technology platforms. They will be familiar with quantitative modeling techniques, data visualization tools, and algorithmic trading systems commonly used in investment management. Career Opportunities: Graduates of a Bachelor's program in Investment Management can pursue various career paths in the financial industry. They may find employment as investment analysts, portfolio managers, financial planners, wealth managers, or risk managers in investment firms, banks, insurance companies, and other financial institutions. It's important to note that specific outcomes may vary depending on the curriculum and focus of the program, as well as individual experiences and professional development. 	
SEMESTER V	
Course Code: CC 6	Course Title : International finance -I
Course Outcomes: The students would be able : <ul style="list-style-type: none"> To get Knowledge and understand of international financial framework. Knowledge and understanding of international financial markets and its operations. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: AEC 5	Course Title : Research Methodology
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand the research methods. • Collection and interpretation of data . • Testing of hypothesis and use of statistical techniques. 	
Course Code: EC 1	Course Title : Operations in Equity market
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Learners will be able to define the market terminology and outline the investment procedures in the Indian Stock Market. • Learners will be able to categorize the primary and secondary equity markets and relate the relevant operational procedures. • Learners will be able to apply valuation techniques based on quantitative and qualitative factors. 	
Course Code: EC 2	Course Title: Corporate Accounting
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Learners will be able to outline recent trends in corporate accounting, accounting treatment with respect to issue of shares and debentures. • Learners will be to explain and apply the valuation techniques to find values of shares. 	
Course Code: EC 3	Course Title: Business Ethics
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Learners will be able to explain the application of ethics in decision making. • Learners will be able to analyze the implications by individual, professional and corporate ethics. • Learners will be able to relate the C o r p o r a t e Social Responsibility & Business Ethics. 	
Course Code: EC 4	Course Title : Risk Management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Learners will be able to discuss the basic concepts and importance of Risk Management. • Learners will be able to employ the derivative tools for hedging capital market risk. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

SEMESTER VI	
Course Code: EC 1	Course Title : Commodity Markets and Derivatives
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Learners will be able to outline the emergence and features of commodity markets. • Learners will be able to discuss the functioning of commodity exchanges and relate the regulatory practices. 	
Course Code: EC 2	Course Title : Auditing
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To study audit of Private Limited companies, Financial companies. • Introduction to different types of audit • Understanding professional ethics in profession of chartered accounts. 	
Course Code: EC 3	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: CC 5	Course Title: International Finance - II
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Learners will be able to Interpret the trading and settlement of Currency Futures. • Learners will be able to discuss the functioning of Options and Swaps. 	
Course Code: EC 4	Course Title: Project Management
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • Students can learn to have cleared focused and objective. • To know how to manage Risk. • To understand Quality control. 	
Course Code: AEC 6	Course Title : Project work
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To analyze 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. 	

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



DEPARTMENT: HOTEL MANAGEMENT

Academic year : 2022-2023	
Name of Department: Hotel Management	
Class: F.Y.BSc.HS	
SEMESTER-I	
Course Code: (USHO 101)	Course Title: Food Production & Patisserie-I
Program Outcomes: <ul style="list-style-type: none"> To inculcate a right attitude and the required basic knowledge and technical skills in the art of culinary and the food production department. To introduce the various equipment's and utensils used in the kitchen. 	
Course Code: USHO102	Course Title: Food & Beverage Service-I
Program Outcomes: <ul style="list-style-type: none"> Identify the role of the Food and Beverage Service department and explain its organization structure and importance. Explain how "moments of truth" affect guests, staff members, and managers, and describe the value of guests and staff members to a food service operation. Describe the duties and responsibilities of beverage service staff members and summarize techniques and procedures for responsibly selling and serving cocktails, beer, and wine. Identify the operational and Auxiliary areas as well as equipment's used in the Food and Beverage department. Understand the various service methods and procedures followed in the department. 	
Course Code: USHO103	Course Title: Front Office-I
Program Outcomes: <ul style="list-style-type: none"> Introduce the students to the Hotel & Tourism Industry Understand the appropriate organization structures and duties in the Front Office and related departments. Develop, prepare guest relations, and evaluate practical aspect with guests. Understand the role of public relations with hotel industry. Develop skills required as an efficient and effective receptionist in any hotel (large or Small) and to handle situations and types of guests in the job. Understanding the functioning of the Telecommunication department. 	
Course Code: USHO104	Course Title: Housekeeping-I
Program Outcomes: <ul style="list-style-type: none"> The student will be able to identify the role of the housekeeping department and explain its organization structure and importance. The student will be able to list the basic cleaning equipment's, cleaning agents and explain their use. Will be able to perform basic cleaning procedures of various surfaces. 	
Course Code: USHO105	Course Title: Rooms Division Management (Practical's)-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,
(VIVA College)**



Program Outcomes: <ul style="list-style-type: none"> • The student will be able to list the basic cleaning equipment's, cleaning agents and explain their use, • The student will be able to perform cleaning procedures on different. • Understand the role of public relations with hotel industry. • Develop skills required as an efficient and effective receptionist in any hotel (large or Small) and to handle situations and types of guests in the job. • Understanding the functioning of the Telecommunication department. 	
Course Code: USHO106	Course Title: Communication Skill I (English & French)
Program Outcomes: <ul style="list-style-type: none"> • Developing and adapting speaking and achieve listening skills and strategies. • Generating, planning, and drafting ideas • Improving vocabulary for precision and impact • Using grammar (French & English) accurately and appropriately. • Structuring, organizing, and presenting texts in variety of formats. • To be able to understand and speak basic French. 	
Course Code: USHO107	Course Title: Information Technology
Program Outcomes: <ul style="list-style-type: none"> • To equip the student with the theory inputs with respect to understanding the fundamentals of computers and necessary skills to operate the generic applications and standard operating systems 	
Course Code: USHO108	Course Title: Food Safety & Nutrition
Program Outcomes: <ul style="list-style-type: none"> • To learn about the importance of hygiene & sanitation in the catering industry • To get acquainted with the food standards. • To learn about ways to minimize food poisoning and infections. • To understand function, sources & deficiency of nutrients. • To gain basic knowledge of nutrition • To gain knowledge about maintenance of good health. • To understand the changes brought about in food nutrients during processing 	

Academic year : 2021-2022
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,
(VIVA College)**



Class: F. Y. BSc. HS	
SEMESTER-II	
Course Code: USHO 201	Course Title: Food Production & Patisserie-II
Program Outcomes: <ul style="list-style-type: none"> To develop a keen interest in food production and to enable students to experiment, innovate and progressively produce a variety of preparation / dishes. To gain confidence to adapt to the technical skills and the art of preparing different menus, Indian as well as Continental. 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 of bulk cookery in the third and fourth semester 	
Course Code: USHO202	Course Title: Food & Beverage Service-II
Program Outcomes: <ul style="list-style-type: none"> The different types of Menus and principles of menu planning. 	
Course Code: USHO203	Course Title: Front Office-II
Program Outcomes: <ul style="list-style-type: none"> The student should be able to understand the concept and functioning of room reservations, Reception and Guest services. 	
Course Code: USHO204	Course Title: Housekeeping-II
Program Outcomes: <ul style="list-style-type: none"> The student will be able to list and explain the various operational areas, procedures, and formats of the housekeeping department. The student will be able to enlist and implement Standard Operating Procedures (SOP's) for routine cleaning procedures of various guest areas. 	
Course Code: USHO205	Course Title: Rooms Division Management (Practical's)-II
Program Outcomes: <ul style="list-style-type: none"> The student will be able to list the basic cleaning equipment's, cleaning agents and explain their use, The student will be able to perform cleaning procedures on different. Understand the role of public relations with hotel industry. Develop skills required as an efficient and effective receptionist in any hotel (large or Small) and to handle situations and types of guests in the job. Understanding the functioning of the Telecommunication department. 	
Course Code: USHO206	Course Title: Communication Skill II (English & French)
Program Outcomes:	
Course Code: USHO207	Course Title: Principles of Hotel Accountancy
Program Outcomes:	
Course Code: USHO208	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,
(VIVA College)



Program Outcomes:

- Programme activities and lecture to learn about emerging Indian Corporate World and Global Phenomenon with stress upon hospitality industry.
- To train the student as future managers and make them understand the working of an organisation.
- Teaching through PowerPoint presentations, case studies, activities, brain storming sessions, SWOT/PEST analysis etc.
- Trying to bridge the gap between management studies and real corporate world through real time stories from newspapers, journals and business magazines, books.
- Encouraging students to read more so as to refine their analytical power and sharpen business sense and become more aware of the business environment.
- Opportunity to participate in business discussions, article/book reviews and presentations

Academic year : 2022-2023

Name of Department: Hotel Management

Class: S.Y. BSc. HS

SEMESTER-III/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,
(VIVA College)**



Course Code: USHO301	Course Title: Food Production & Patisserie-III
Program Outcomes:	
<ul style="list-style-type: none"> To get trained on various aspects of regional Indian cuisine – Quantity Food Production (QFP) 	
Course Code: USHO302	Course Title: Food & Beverage Service-III
Program Outcomes:	
<ul style="list-style-type: none"> Describe the duties and responsibilities of beverage service staff members, and summarize techniques and procedures for responsibly selling and serving cocktails, beer, and wine. Understanding the production process of Beer, Wine and Spirits. Making of cocktails with use of ingredients such as liqueurs and bitters. 	
Course Code: USHO303	Course Title: Front Office-III
Program Outcomes:	
<ul style="list-style-type: none"> The student is expected to possess knowledge and skills with respect to handling Group Reservations, Assigning Rooms, Check-in, Cashiering and Security Systems. 	
Course Code: USHO304	Course Title: Housekeeping-III
Program Outcomes:	
<ul style="list-style-type: none"> The student will be able to explain various operational procedures and formats pertaining to linen, uniforms, and laundry. The student will be able to create formats and design layouts of linen room, uniform room and laundry. The student will be able to create Flower Arrangements for various occasions and locations. The student will be able to plan and implement décor for special occasions. 	
Course Code: USHO305	Course Title: Rooms Division Management (Practical's)-III
Course Code: USHO306	Course Title: Hotel Accountancy & Cost Control
Course Code: USHO307	Course Title: Hospitality Law & Human Resource Management
Course Code: USHO308	Course Title: Management Information System in Hospitality Industry
Program Outcomes:	
<ul style="list-style-type: none"> To equip the student with the required knowledge to understand the theory and practical aspects of the functioning of the systems department of a hotel with focus on skills development in handling Property Management Systems software. 	
Course Code: USHO401	Course Title: Industrial Training
Program Outcomes:	
Exposure to Industrial Training is an integral part of the 4 th semester. The class would be divided into two groups or as the case may be. The 20 weeks industrial training would be divided into all the major departments of the hotel.	

Academic year : 2022-2023	
Name of Department: Hotel Management	
Class: T.Y.BSc.HS	
SEMESTER-V	
Course Code: USHO501	Course Title: Food Production & Patisserie

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



Program Outcomes: <ul style="list-style-type: none"> To educate students on basic to advance culinary skills. To give an overview of culinary specialties across the globe. To educate students on latest food trends. To highlight the importance of food safety. To train students for better employment prospects. 	
Course Code: USHO502	Course Title: Food & Beverage Service
Program Outcomes: <ul style="list-style-type: none"> To understand the formulas that are applied in the front office for forecasting and evaluating. Decision making through statistical data in Front office operations. Understand the rules & acceptance of foreign exchange. 	
Course Code: USHO503	Course Title: Front Office
Program Outcomes: <ul style="list-style-type: none"> To understand the formulas that are applied in the front office for forecasting and evaluating. Decision making through statistical data in Front office operations. Understand the rules & acceptance of foreign exchange. 	
Course Code: USHO504	Course Title: Housekeeping
Program Outcomes: <ul style="list-style-type: none"> Explain and apply the guidelines for hiring various housekeeping contract services. Manage the manpower planning in the housekeeping department in different category of hotels. Apply the elements and concept of interior decorations & elevations. 	
Course Code: USHO505	Course Title: Rooms Division Management (Practical's)
Program Outcomes: <ul style="list-style-type: none"> 	
Course Code: USHO506	Course Title: Corporate English
Course Code: USHO507	Course Title: Environmental & Sustainable Tourism
Program Outcomes: <ul style="list-style-type: none"> The student will be able to understand and explain the importance of Environmental and Sustainable Tourism. • The student will be able to identify and explain Environmental changes due to Tourism. • The student will comprehend Sustainability of Tourism for future generations. • The student will be able to understand about the World's fastest growing Travel & Tourism industry 	

Academic year : 2022-2023	
Name of Department: Hotel Management	
Class: T.Y. BSc. HS	
SEMESTER-VI	
Course Code: USHO601	Course Title: Organizational 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,
(VIVA College)**



Course Code: USHO602	Course Title: Strategic Management
Program Outcomes: <ul style="list-style-type: none"> The students will identify the operating strategy of the organization. Develop skills in decision making Students will be able to strategize and participate in policy making. 	
Course Code: USHO603	Course Title: Event Planning, Marketing & Management
Program Outcomes: <ul style="list-style-type: none"> Apply Management Theories & Principles for Event management. Develop an ability to plan for conventions, seminars & events. Prepare financial reports and establish source of funding for a new operation. Plan events creatively and think strategically. Understand the financial, marketing, operational and strategic issues in setting up an event. Integrate approaches of time, money (capital), people and other resources. Understand the concept of Event Management. 	
Course Code: USHO604	Course Title: Core Elective (Any TWO)
Course Code: USHO604A	Course Title: Advanced Food Production
Program Outcomes: <ul style="list-style-type: none"> The objective is to get students to attain expertise in their culinary skills. To familiarize students on various aspects of kitchen management. To encourage and develop students to become independent entrepreneurs. 	
Course Code: USHO604B	Course Title: Advanced Food & Beverage Operations Management
Program Outcomes: <ul style="list-style-type: none"> Identify factors to create impulse buying; prepare, fillet, carve, flambé & finish food items from a Gueridon trolley. Plan & operate a Bar operation, manage inventory and maintain records pertaining to beverage control. Understand and apply cost dynamics as related to the Food & Beverage industry. Demonstrate a detailed understanding of the various facets of the Food & Beverage cycle of control in the operational & post operational phase. 	
Course Code: USHO604C	Course Title: Advanced Housekeeping
Program Outcomes: <ul style="list-style-type: none"> Identify factors to create impulse buying; prepare, fillet, carve, flambé & finish food items from a Gueridon trolley. Plan & operate a Bar operation, manage inventory and maintain records pertaining to beverage control. Understand and apply cost dynamics as related to the Food & Beverage industry. Demonstrate a detailed understanding of the various facets of the Food & Beverage cycle of control in the operational & post operational phase. 	
Course Code: USHO604D	Course Title: Advanced Front Office
Program 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,
(VIVA College)**



<ul style="list-style-type: none"> • Yield management and its application in the Hotel Industry. • Measurement of Yield for Management Decision Making. • Passport & Visa regulations. 	
Course Code: USHO604E	Course Title: Advanced Bakery & Confectionery
Program Outcomes: <ul style="list-style-type: none"> • To familiarize students on various aspects of bakery and confectionery management. • To develop skilled professionals in bakery and confectionery for the hospitality industry. • To develop students to become independent entrepreneurs. 	
Course Code: USHO605	Course Title: Advanced Bakery & Confectionery
Course Code: USHO605A	Course Title: Revenue Management
Program Outcomes: <ul style="list-style-type: none"> • To sensitize hospitality students on the concept of Hospitality Revenue Management. • Strategically think to increase occupancy levels, maximize yield and revenues in the Service Industry. 	
Course Code: USHO605B	Course Title: Foreign Language (French)
Program Outcomes: <ul style="list-style-type: none"> • The objective of this course is to enable the students to read, write, comprehend, and converse in basic French. • To develop communication skills in various departments of Hospitality Industry. • To enhance the French Vocabulary of the students in various domains such as culinary, front office, accommodations as well as food and beverage service. • To increase the knowledge of the culinary terms and recipes in French 	
Course Code: USHO605C	Course Title: Service Marketing
Program Outcomes: <ul style="list-style-type: none"> • To familiarize students with marketing fundamentals • To explain the importance of services marketing to a Hospitality Management student & to fit the subject into his or her understanding of Hospitality. 	
Course Code: USHO605D	Course Title: Financial Management
Program Outcomes: <ul style="list-style-type: none"> • This subject will enhance the knowledge of financial management of the hospitality students. • It will emphasize on the students to enhance the uses of finance in various segments in hospitality industry. • This subject will help the students in establishing their own business and also will help them in their further studies. 	
Course Code: USHO605E	Course Title: Strategic Human Resource Management
Program Outcomes: <ul style="list-style-type: none"> • To make the students aware of human resource functions in coordination with the strategic objectives of the organizations so as to enhance performance & service quality. 	

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



Department of Hotel & Tourism Management Studies

Objective :

The objective of industrial training at a 5-star hotel is to provide students or trainees with practical exposure and experience in the hospitality industry. This type of training is often a crucial component of hospitality studies, as it allows participants to apply theoretical knowledge gained in the classroom to real-world scenarios within a luxury hospitality setting.

Overall, the objective of industrial training at a 5-star hotel is to bridge the gap between academic learning and practical implementation, preparing students for successful careers in the dynamic and demanding field of hospitality.

Outcome :

1. **Skill Development:** Trainees have the opportunity to develop and enhance their practical skills in various aspects of the hospitality industry, such as front office operations, food and beverage service, housekeeping, culinary arts, event management, and more.
2. **Exposure to Industry Standards:** Students get to observe and experience the high standards and practices followed in a 5-star hotel, which is known for its exceptional service, attention to detail, and top-notch facilities. This exposure helps them understand the level of quality expected in the industry.
3. **Time Management:** Working in a fast-paced environment like a 5-star hotel teaches trainees the importance of time management and the ability to handle multiple tasks simultaneously.
4. **Adaptability and Resilience:** The hotel industry often presents unexpected challenges. Trainees learn to adapt quickly to changing situations and remain composed under pressure.
5. **Industry Networking:** During the training period, Students have the chance to interact with professionals and build a network of contacts within the industry, which can be beneficial for future job opportunities.
6. **Understanding of Operational Processes:** Trainees gain insights into the operational processes of a 5-star hotel, from reservations and check-in procedures to food preparation and event management. This practical knowledge is valuable for anyone considering a career in hospitality management.
7. **Application of Theoretical Knowledge:** Students can apply the theoretical concepts they've learned in their academic studies to real-world situations. This practical experience enhances their understanding and retention of the material.
8. **Career Prospects:** Completing industrial training at a reputable 5-star hotel enhances a trainee's resume and increases their chances of securing employment within the hospitality industry after degree or be an entrepreneur.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)**

Academic year : 2022-23	
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	
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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)**

<ul style="list-style-type: none"> ● 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 : <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, 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)**

different culture media, generation time, the techniques of sterilization and disinfection and the physical agent of sterilization.

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

Academic year : 2022-23	
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 physiocochemical 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 	

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

Course Code: US BCH 302	Course Title: Fundamentals of Genetics and Physiology
Course outcomes: The students would be able : <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: USBCH 303	Course Title: Applied Biochemistry I
Course outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
Course outcomes: The students would be able : <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 about various types of movements in plants and process of muscle contraction for locomotion. To understand neurophysiology by studying classification of nervous system, impulse transmission and neurotransmitters. 	

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

Course Code: US BCH 403	Course Title: Applied Biochemistry II
Course outcomes: The students would be able : <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.	

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

Academic year : 2022-23	
Name of Department: Biochemistry	
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 Title: 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. 	

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

<ul style="list-style-type: none"> ● 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 Title: Environmental Science
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 Title: 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 Title: Immunology & 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 inborn 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 Title: Metabolism & Analytical techniques - 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,
(VIVA College)**

Course Outcomes:

The students would be able :

- 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, electrophoresis and radioisotopes) as tools in understanding the structure and function of biomolecules.

Course Code: USBCH602

Course Title: Nutrition & Pharmacology

Course Outcomes:

The students would be able :

- 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 Title: Biostatistics and Bioinformatics

Course Outcomes:

The students would be able :

- 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.

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

Course Code: USBCH604	Course Title: 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.	

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

All HODs/ coordinators are instructed to fill the following as per the academic year. Each subject's program outcome/ Course outcome has to be filled. The new syllabus of all subjects has it which can be used for reference. Please fill for the following academic years and mention it correctly, even if the same syllabus was followed for subsequent academic year you will have to fill it. Following is the example for your reference:

Class: M.Sc. – Bioanalytical Sciences

Objectives of the Course

- 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

Academic year : 2022-23
Name of Department: Bioanalytical Sciences
Class: M.Sc.
Program Outcomes: Specific core discipline knowledge <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● 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 <ul style="list-style-type: none">● Students can communicate effectively using oral and written communication skills as well as presentation skills Problem solving and research skills <ul style="list-style-type: none">● Students can generate and test hypotheses, make observations, collect data, analyze and

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

<p>interpret results, derive conclusions, and evaluate their significance within a broad scientific context</p> <ul style="list-style-type: none"> 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. 	
<p>Program Specific Outcomes:</p> <ul style="list-style-type: none"> 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 Code: PSBN101	Course Title: Different Medicinal Systems, Pharmacognosy & Extraction Techniques
<p>Course Outcomes:</p> <p>The students would be able to :</p> <ul style="list-style-type: none"> Classify and compare different medicinal systems. 	

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

- Understand the Principle and practices of the traditional system of medicine viz. Ayurveda, Siddha, Unani and also modern medicine.
- Identify the sources of drugs used for drug formulation, types of Drug formulation
- get aware about the how ASU drugs are manufactures with respect to Raw material to finished product
- Differentiate between Excipient and API and understand the importance of the excipient in various dosage forms.
- Compare disease management with respect to ASU and Modern drugs.
- Define Pharmacognosy and explore plants for its medicinal uses
- Define ethnobotany, pharmacology and also understand concepts like ethno medicines
- Describe herbaria and prepare their own herbaria for selected plants
- Know the importance of Authentication, Storage and drying techniques in preparation of drugs derived from biological sources
- Identify Phytogeographical regions of India.
- Evaluate raw material for adulterants.
- Explain the concepts of GAP and GHP for medicinal plants.
- Describe Physico-chemical properties of drugs and solvents.
- Discuss the concept of partition & Partition Coefficient.
- Write Solvent properties.
- Recall classic and modern methods of extraction and compare between both the methods of extraction.
- Explain the applications of extraction.
- Describe Microwave assisted extraction and compare advantages and disadvantages of the same.
- Explain Ionization and its effect on the extraction of drugs
- Memorize 'First law of drug metabolism'.
- Describe Matrix components & analyte isolation.
- Analyse the importance of Concentration of extracts.
- Discuss Isolations of fractions and Purification of isolate.
- Experiment the concept of Liquid - liquid extraction of moderna drug from plasma and formulations
- Evaluate Microscopic characters to identify adulteration in drug formulations by comparing with plant powders.
- Experiment and separate plant pigments using paper chromatography
- Determine the sugars experimentally using descending paper chromatography.

Course Code: PSBN102

Course Title: GLP, Drug Act and Quality Management

Course outcomes:

The students would be able to :

- Describe GLP and its guidelines and demonstrate GLP practicing
- Explain Documentation of laboratory work and preparation of SOPs

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

- Discuss Calibration records
- Understand the significance of validation in GLP
- Describe Transfer of methods
- Explain Documentation of results
- write about WHO guidelines, Pharmacopoeia, specified test in monographs w.r.t liquid formulation (injectable) and solid dosage form
- Discuss Indian Drugs and Cosmetics Act w.r.t Schedule Y, M, H. Schedule A, S; foreign guidelines w.r.t US, EU, Australia & Japan; CFR 21 part 11.
- Define and differentiate QC and QA
- Discuss requirements for implementing QC & QA
- Conceptualize QC and QA in ASU drugs
- Write and discuss the standardizing analytical methods and factors for standardization, validation, Audit requirements,
- Describe audits and audit reports.
- Understand the importance of personnel responsibility in QA.
- Experiment dissolution, disintegration, hardness and friability of tablets.

Course Code: PSBN103

Course Title: Chromatography & Spectroscopy-I

Course outcomes:

The students would be able to :

- Describe and discuss the principles of chromatographic separation.
- Enlist uses of TLC.
- Recommend Solvent systems for TLC for detection of compounds.
- Describe and discuss the principles and instrumentation of HPLC.
- Understand the chromatographic process.
- Read Chromatogram.
- Explain separation mode, column chemistry and Reverse phase HPLC.
- Enlist and explain in brief various HPLC techniques.
- Tell about recent advances in HPLC.
- Describe and discuss the principles and instrumentation of GC.
- Analyse factors that affect chromatographic separation.
- Explain GC techniques and recommend selection of Liquid stationary phases.
- Discuss in detail about GC hardware.
- Describe principle and instrumentation of UV-Visible, fluorescence, Nephelometry, Turbidimetry and IR.
- Enlist applications of UV, Visible, fluorescence, Nephelometry, Turbidimetry and IR
- Summarize basic concepts of NMR spectroscopy
- Determine caffeine by UV and HPLC
- Analyse modern drug by IR
- Separate herbal raw material from its formulation; Separate modern drug from plasma;

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

Separate modern drug from formulation using HPLC <ul style="list-style-type: none"> • Separate mixture of solvent by GC • Write about derivatization in GC 	
Course Code: PSBN104	Course Title: Proteomics, Bioinformatics & Environmental Issues
Course outcomes: The students would be able to: <ul style="list-style-type: none"> • Define Omics and explain Genomics, Metabolomics, Lipidomics and Proteomics • Signify proteome and discuss on Methods for cell disruption/protein extraction, Protein purification/ Fractionation, Protein identification and characterization • Illustrate on invitro and invivo modifications of proteins. • Describe basic protein chemistry • Define electrophoresis, describe the principle of electrophoretic separation • Identify and label the equipment's used in electrophoresis • Demonstrate process of electrophoretic separation using 2-D gel electrophoresis • Identify, describe and differentiate between AGE, PAGE, Native. SDS and 2DGE • Analyse protein profile by SDS page • Recall Extensions of Electrophoresis-Immuno electrophoresis/pulsefield • Summarize Standardization of electrophoretic technique, Detection techniques • Enlist different Applications of electrophoresis • Understand and apply tools of Bioinformatics for drug discovery and protein. • Define and describe chemi-informatics. • Identify the types and sources of laboratory waste • Describe the hazards and safe handling of chemical and biological materials in a Bioanalytical laboratory. • Explain Regulations of Pollution Control Board for Laboratories. • Experiment on Separation of human serum / plasma proteins / egg white using PAGE • Evaluate protein and Nucleic acid sequence using global search engine / software like BIOEDIT and analyze the findings. • Use Clustal W, omega, BLAST A, BLAST O, FASTA, PROSITE, Alignment, SCOP, Rasmol, CATH and identify protein with the said bioinformatics tools. 	
SEMESTER II	
Course Code: PSBN201	Course Title: Indian Pharmaceutical Industry, Phytochemistry & Extraction Techniques
Course Outcomes: The students would be able to : <ul style="list-style-type: none"> • Describe historical background, market trends and activities of R&D. • Describe the Govt. initiatives and public sector in the pharma industry. • Explain the role of Drug Pricing policy in India and its impact on the Indian Pharmaceutical 	

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

Industry.

- Explain the role of Analytical chemist in Pharmaceutical Industry.
- Write about the R&D strategies of Indian Pharma, Bulk Drug manufacturing & its R&D and Varied Dosage forms and its R&D.
- Explain principle of SPE, Enlist and discuss general properties of bonded silica sorbents.
- Describe Sorbent/analyte interactions.
- Illustrate on Sample pretreatment of different biological matrices and developing SPE methods.
- Explain Disc cartridges, 96-Well Format and Direct injection of plasma and tell about Other new developments
- Describe and distinguish between primary and secondary metabolites
- Classify secondary metabolites
- Draw integrated pathway for secondary metabolite production
- Enlist and describe extraction techniques
- Describe the concept of SCFE and SCFC
- Discuss the instrumentation, Factors affecting, benefits, Applications of SCFE and SCFC.
- Perform experiment on SPE of a modern drug from formulation and modern drug from plasma
- Prepare specific reagents and conduct qualitative test for the presence of alkaloids, tannins, lignans, steroids and glycosides using TLC.
- Prepare calibration graphs for Li, Na, and K by flame Photometry
- Determine percentage purity of $\text{CaCO}_3/\text{MgCO}_3$ by Titrimetry, Complexometry and IE chromatography
- Compare classical and modern method of extraction of phytoconstituent of medicinal plants
- Analyse effect of drying on phytoconstituents
- Study phytochemical variation within a species using HPLC/HPTLC

Course Code: PSBN202

Course Title: IPR and Patenting, Stability Studies and Packaging

Course outcomes:

The students would be able to :

- Describe the concept of IPR and identify its types
- Talk about Global Harmonization and International Agreements related to IPR & patents
- Study about stability chambers and describe the factors that influence stability of drug formulations
- Identify types of Stability chambers and their design considerations
- Identify Stability issues of ASU raw materials and finished products
- Explain Guidelines on Stability evaluations
- Tell Approaches to stability studies of ASU formulations
- Describe Indian Patent Act
- Explain IPR as a strategic tool
- Discuss IP clearance

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

- Define Packaging
- Explain the fundamentals of Distribution
- Describe Packaging Forms & discuss their Significance
- Identify Packaging Materials and Ancillary Mats
- Explain Package Material Testing
- Discuss Compatibility & Migration Studies
- Explain theory and Solve problems related to Accelerated Shelf Life Testing.
- Explain the concept of Packaging Validation
- Discuss Packaging Laws and regulatory compliance
- Draft patent claim
- Test for degradation of compounds using TLC
- Perform Stability testing of solution and solid dosage forms for photo degradation.
- Analyse the effect of hydrogen peroxide, hydrochloric acid and sodium hydroxide solutions on the stability of drugs in solution at elevated temperatures and room temperature.
- Analyse Stability of drugs in dosage forms at 25°C, 60% RH and 40°C, 75% RH and at different Pressures.

Course Code: PSBN203

Course Title: Chromatography & Spectroscopy-II

Course outcomes:

The students would be able :

- Describe and discuss the principles and instrumentation of HPTLC.
- Compare between HPTLC and TLC
- Explain the relationship between Densitometry & quantitation in HPTLC
- Explain the relationship between HPTLC in fingerprinting & QC
- Troubleshoot HPTLC
- Write down applications of HPTLC
- Explain Chiral HPLC
- Explain Column switching in HPLC
- Describe Gradient reverse-phase HPLC
- Summarize Column conditions
- Write about automation in HPLC
- Enlist and describe detectors in HPLC
- Recall Manual and Electronic data Processing
- Troubleshoot HPLC
- Write down applications of HPLC
- Differentiate between Universal and specific Detectors in GC
- Explain Derivatization for GC
- Enlist and discuss GC strategies for analysis involving biological matrices
- Troubleshoot GC
- Write down applications of GC

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

- Explain theory and write applications of CD and ORD
- Describe Emission spectroscopy
- Describe Principles, instrumentation and applications of Flame photometry, Atomic Emission Spectroscopy, AAS, ICP and X-ray diffraction
- Perform HPTLC separation of a modern drug from plasma and its formulations
- Perform HPTLC fingerprinting of Herbal raw material
- Detect of herbal raw material from its formulations by using HPTLC
- Separate solutes from their matrix using GC
- Determine Caffeine by HPTLC, HPLC and UV

Course Code: PSBN204

Course Title: New Drug Development, Immunoassays, Pharmacokinetics, Laboratory Safety Measures

Course outcomes:

The students would be able :

- Define NCE and describe stages in the development of NCE
- Discuss about Preclinical studies on NCE
- Write enzyme as Therapeutics agents, as diagnostics, as catalyst in processes as drug target
- Define Immunoassay and explain its theory
- Enlist the requirements for immunoassay
- Write the advantages of immunoassay
- Describe and discuss the principles and instrumentation in ELISA and write down its application
- Explain the types of Detection systems
- Describe Basic concepts of Pharmacokinetics & pharmacodynamics
- Enlist different pharmacokinetic & pharmacodynamics parameters and their meanings.
- identify basic techniques of evaluating Pharmacokinetic & pharmacodynamics parameters
- Describe basic types of models in pharmacokinetics & pharmacodynamics
- Classify drugs and their formulations
- Explain Route of entry, Absorption and Distribution of drugs with examples
- Explain the Concepts of Drug Metabolism & elimination with examples
- Define and describe Adverse Drug reactions(ADRs) and Serious Adverse Events(SAEs)
- Enlist and explain Laboratory Safety Measures w.r.t handling of chemicals and biological materials
- Perform Immunoassay of HEPALISA in serum.
- Perform Immunoassay for HCG in urine
- Perform Immunoassay of T3 and T4 by RIA/IRMA
- Calculate different Pharmacokinetic parameters like Ka, Ke, t_{1/2}, C max, Tmax and AUC.

SEMESTER III

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

Course Code: PSBN301	Course Title: Basic Microbiology, Genomics, Capillary Electrophoresis and Toxicology - I
Course Outcomes: The students would be able to : <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
Course outcomes: The students would be able to : <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 	

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

- 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:

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.

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

<ul style="list-style-type: none"> ● 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 : <ul style="list-style-type: none"> ● 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 ● 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
Course outcomes: The students would be able to: <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
Course outcomes: The students would be able : <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 	

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

- 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

Course outcomes:

The students would be able to :

- 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.
- Study the application of herbal pharmacopoeia and Ayurvedic formulary of India.
- Understand the importance of QA/QC for finished 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
(VIVA College)**

(2022-23)

Syllabus File

7.1) Updated by University (If applicable) - **Available as pdf.**

7.2) Syllabus Copy (Course wise) with PO/PSO/CO of each course

M.Sc Environmental Science Semester I,II,III,IV

Program Objective

- 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.
- 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.

Course Objective

The course is divided into four semesters (4 papers).

SEMESTER I

Paper I: Ecology and Ecosystem

Course Objective

- 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 Out comes

At the end of course student should be able:-

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

- Students will be able to understand different types of ecology and types of interactions in ecosystem.

Paper II: Biodiversity

Course Objective

- 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

- Students will be able to understand the status related to importance of biodiversity and its conservation.

Paper III: Environment and Natural Resources

Course Objective

- To realize and understand relationships between man, earth, environment, mass and energy transfer.
- To contribute to the sustainable development of ecosystem by which humans could use natural and energy resources.

Course Outcomes

- Students will be able to understand overall concept and role of an individual in conservation of Natural Resources.

Paper IV: Environmental Pollution

Course Objective

- 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

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

- Students will be able to acquire knowledge about various sources and causes of pollution.

SEMESTER II

Paper I: Environmental Monitoring and Assessment

Course Objective

- 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

- 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

Paper II: Pollution Control Technology

Course Objective

- To understand about pollution control technologies and devices.

Course Outcomes

- 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.

Paper III: Green Technology

Course Objective

- To know about concept and tools of green chemistry.
- To understand green synthetic methods, design, green nanotechnology and its applications.

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

Course Outcomes

- 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

Paper IV: Environmental Policies and Regulations

Course Objectives

- 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

- 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

Paper 1: Advanced Pollution Control Technology

Course Objectives

- To orient the students about the methods to control and prevent pollution and also to reduce the generation of toxic substances.

Course Outcomes

- Student will be able to understand water and waste water Pollution Control aspects.
- Student can gain knowledge about air pollution control techniques.
- Student will be able to understand the concept of Hazardous, Radioactive, Biomedical and Electronic waste management

Paper II: Instrumentation and Biostatistics

Course Objectives

- To understand the application of instrumentation and biostatistics to a extensive range in the subject of 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
(VIVA College)**

Course Outcomes

- 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.

Paper III: Environmental Toxicology

Course Objective

- To become familiar with the basic concepts of eco-toxicology, including aspects of exposures and toxicity of chemicals.

Course Outcomes

- 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.

Paper IV: Industrial Hygiene and Chemical Safety

Course Objective

- To know about occupational environmental stress, industrial work environment, disaster management, risk assessment and safety in industry.

Course Outcome

- 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

Paper 1: Ecotechnology

Course Objective

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

- To understand the application of ecotechnology, phytosanitation, green inhibitors, climate change mitigation, carbon sequestration, and restoration ecology and remediation technology.

Course Outcome

- **Student will be able to understand the overall concept of ecotechnology.**

Paper II: Environmental Biotechnology and Nanotechnology

Course Objective

- 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

- Student will be able to understand the scope, role and recent status of biotechnology and Nanotechnology.

Paper III: Sustainable Management

Course Objective

- To understand the basic concept of sustainable development, business strategies and sustainability, sustainable urban development and sustainability in practice.

Course outcome

- **Student will gain knowledge about the concept of Sustainable Management**

Paper IV: Environmental Management

Course Objective

- 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.

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

Course Outcome

- 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.

Students appearing for M.Sc Environmental Sciences shall work on self research project in a appropriate field, during fourth semester, by taking views and suggestions from the concerned faculty –in-charge and will submit a dissertation which will be evaluated for 50 marks.

Programme Outcome

- 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

Programme Specific Out come

- 100% result
- Conducts regular lectures and practicals
- College has well equipped environmental science laboratory
- Teachers are interactive, supportive and update students regarding job vacancies

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

DEPARTMENT OF BOTANY

Academic year : 2022-23	
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:	

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

<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. 	

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

Academic year : 2020 - 2021	
Class: S.Y.B.Sc.	
Program Outcomes: Specific core discipline knowledge <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. Students can recall details of the unique ecological and evolutionary features of the local and Indian flora. Communication skills <ul style="list-style-type: none"> Students can communicate effectively using oral and written communication skills Involvement of students towards interactive section in class 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 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: USB0301	Course Title: PLANT DIVERSITY
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,
(VIVA College)**

<p>The students would be able :</p> <ul style="list-style-type: none"> ● 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: USB0302	Course Title: FORM AND FUNCTION II
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● 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. ● 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: USB0303	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 pants in to industries like medicine, cosmetics and notional, ● Also to understand the sustainable practice such as Biofuel production form plants. 	
SEMESTER IV	
Course Code: USB0401	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. 	

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

<ul style="list-style-type: none"> ● 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: USB0402	Course Title: FORM AND FUNCTION II
Course Outcomes: The students would be able : <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 adaphic factors and the relation between the community flourishing in it. 	
Course Code: USB0403	Course Title: CURRENT TRENDS IN PLANT SCIENCES I
Course Outcomes: The students would be able : <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. 	

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

Academic year : 2020 - 2021
Class: TYBSc
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none">• Students can recall details and information about the evolution, anatomy, morphology, systematics, genetics, physiology, ecology, and conservation of plants and all other forms of life.• Students can recall details of the unique ecological and evolutionary features of the local and Indian flora. 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 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.

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

<ul style="list-style-type: none"> ● 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 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 IV
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 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 	

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

<p>knowledge to manage mineral nutrition and survival in challenging abiotic stresses.</p> <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: USBO502	Course Title: Current Trends in Plant Sciences - II
<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 molecular biology 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 one example 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 understand the different aspects and importance of Biodiversity and utilize them for conservation of species so as to prevent further loss or extinction 	
Course Code: USBO503	Course Title: Form and Functions - II
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,
(VIVA College)**

The students would be able :

- 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 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: USB0502

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 and apply tools of Bioinformatics for data retrieval and phylogenetic analysis.
- 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.

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

DEPARTMENT OF BOTANY

Academic year : 2022-23	
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:	

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

<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. 	

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

Academic year : 2020 - 2021	
Class: S.Y.B.Sc.	
Program Outcomes: Specific core discipline knowledge <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. Students can recall details of the unique ecological and evolutionary features of the local and Indian flora. Communication skills <ul style="list-style-type: none"> Students can communicate effectively using oral and written communication skills Involvement of students towards interactive section in class 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 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: USB0301	Course Title: PLANT DIVERSITY
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,
(VIVA College)**

<p>The students would be able :</p> <ul style="list-style-type: none"> ● 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: USB0302	Course Title: FORM AND FUNCTION II
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● 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. ● 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: USB0303	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 pants in to industries like medicine, cosmetics and notional, ● Also to understand the sustainable practice such as Biofuel production form plants. 	
SEMESTER IV	
Course Code: USB0401	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. 	

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

<ul style="list-style-type: none"> ● 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: USB0402	Course Title: FORM AND FUNCTION II
Course Outcomes: The students would be able : <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 adaphic factors and the relation between the community flourishing in it. 	
Course Code: USB0403	Course Title: CURRENT TRENDS IN PLANT SCIENCES I
Course Outcomes: The students would be able : <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. 	

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

Academic year : 2020 - 2021
Class: TYBSc
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none">• Students can recall details and information about the evolution, anatomy, morphology, systematics, genetics, physiology, ecology, and conservation of plants and all other forms of life.• Students can recall details of the unique ecological and evolutionary features of the local and Indian flora. 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 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.

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

<ul style="list-style-type: none"> ● 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 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 IV
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 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 	

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

<p>knowledge to manage mineral nutrition and survival in challenging abiotic stresses.</p> <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: USB0502	Course Title: Current Trends in Plant Sciences - II
<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 molecular biology 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: USB0601	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 one example 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: USB0602	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 understand the different aspects and importance of Biodiversity and utilize them for conservation of species so as to prevent further loss or extinction 	
Course Code: USB0503	Course Title: Form and Functions - II
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,
(VIVA College)**

The students would be able :

- 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 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: USB0502

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 and apply tools of Bioinformatics for data retrieval and phylogenetic analysis.
- 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.



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2022-2023
Name of Department: Chemistry
Class: F.Y.B.Sc.
Program Outcomes: <ul style="list-style-type: none">❖ 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.❖ Lifelong learner: The course curriculum is designed to inculcate a habit of learning continuously through the use of advanced ICT techniques and other available techniques/books/journals for personal academic growth as well as for increasing employability opportunity.
Program Specific Outcomes: <p>This program gives understanding of:</p> <ul style="list-style-type: none">● Common laboratory techniques including pH measurement, acid/base titrations and colorimetry.● The use of the techniques mentioned above to solve chemical problems.



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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, Equipments 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,



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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.
- 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.



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- To carry out quantitative analysis of salt mixture and redox titration in chemistry lab.

Academic year : 2022-2023

Name of Department: chemistry

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

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



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: USCH201	Course Title: General Chemistry
Course Outcomes: The students would be able : <ul style="list-style-type: none">● 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 ,Electrochemical concept and 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 .	



Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code: USCH202	Course Title: General chemistry
Course outcomes: The students would be able to : <ul style="list-style-type: none">• To acquire knowledge about basic concepts of physical chemistry , Inorganic chemistry as well as organic chemistry• To able to understand Ionic Equilibria with strong , moderate and weak electrolyte . 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 molecule is studied .• 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 .	

Academic year : 2022-2023
Name of Department: Chemistry
Class: S.Y.B.ScSem III
Program Outcomes: Specific core discipline knowledge In the first two semesters 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 made inquisitive about why and how should atoms combine to give molecules or ions. The non-orbital approach to appreciating the shapes of polyatomic species in general and molecules in particular. This program contains theory 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



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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.

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
- ☐ To arouse the interest to pursue higher levels of learning in chemistry,

This course is expected to introduce the learner to this interesting field of Analytical Chemistry. It is expected to provide the learner an overview of this very important branch of chemistry. After successful completion of this course the learner is expected to be familiar with the question of what is analysis, why it is required and the methods, techniques, procedures and protocols that may be used or required in the course of a given problem of analysis. The learner is also expected to appreciate the role of an Analytical Chemist and a Chemical Analyst.

Correctness or acceptability of the results of a given analysis and how to deal with wrong or erroneous results: when to reject them and when and how to retain them to be meaningful and/or acceptable are some other attributes expected as outcomes of learning this paper.

Goal:

To introduce the learner to an area of learning that is vital for the inherent nature of the subject itself but also is important and irreplaceable irrespective of the long term interest of specialisation or subject of interest of the learner.

SEMESTER - III

Course Code:

USCH301

Course Title: (General Chemistry)

Unit-I Physical Chemistry

Unit-II Inorganic Chemistry



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

	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 the 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. 	



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- ☐ To gain knowledge about the Keto-enol tautomerism.
- ☐ To study the Active methylene compounds.

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

- ☐ 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

- ☐ 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

- ☐ 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



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- ☐ Appreciate the basic terms in spectrometry
- ☐ Use the relationship between absorbance (and its variations) and concentration of the analyte.
- ☐ Chose a suitable method for photometric titrations.

Academic year : 2022-2023

Name of Department: Chemistry

Class: SYBSc

Program Outcomes:

- 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 learner capable of analysing and interpreting results of the experiments he conducts or performs

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.



Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

SEMESTER IV	
Course Code: USCH401	Course Title: Chemistry paper 1
Course Outcomes: The students would be able to : <ul style="list-style-type: none">• To setup electrochemical cells, to analyze cell reactions, study spectrochemical series, study various types of electrodes.• To study phase rule, apply phase rule, study various phase diagram, condensed phase rule.• To study comparative chemistry of transition metals• To study carboxylic acids and their derivatives.	
Course Code: USCH402	Course Title: Chemistry paper 2
Course outcomes: The students would be able to : <ul style="list-style-type: none">• To study various catalytic reactions• Predominance diagrams of various ions• Categories of acids and bases.• Uses and environmental chemistry of volatile oxides and oxo acids• Study reactions of amines, diazonium salts and heterocyclic compounds	
Course Code: USCH403	Course Title: Chemistry paper 3
Course outcomes: The students would be able to : <ul style="list-style-type: none">• Study separation techniques in analytical chemistry• To study uses of pH metry, conductometry and potentiometry.• To study statistical treatment of analytical data	
Academic year : 2022-2023	
Name of Department: Chemistry	



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Class: TYBSc	
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Students can communicate effectively using oral and written communication skills 	
Program Specific Outcomes: <ul style="list-style-type: none"> 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 : <ul style="list-style-type: none"> 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 : <ul style="list-style-type: none"> To understand importance of symmetry elements and operations, molecular orbital theory 	



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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, cummulenesquinolones,isoquinolines.
- To write multicomponent synthesis, green chemistry, and planning of organic synthesis.
- 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 :

- 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 soectroscopy,molecular fluorescence and phosphorescence spectroscopy ,tnstrumentation and application of turbidimetry and nephelometry.



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> 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 antinflammatory ,antihistaminicdrug,cardiovascular ,antidiabetic, antiparkinsonism drug To understand Dyestuff industry. Natural and synthetic drug, classification of dyes based on application and dying method, applicability on substrate . To learn about unit process like nitration,sulphonation , halogenation etc. To study preparation of benzene ,naphthalene ,anthracene derivative 	

Academic year : 2021-2022
Name of Department: Chemistry
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 equipments and chemistry software.
Program Specific Outcomes: <ul style="list-style-type: none"> Gain the knowledge of Chemistry through theory and practical's.



Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- To explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions.
- 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/equipments.

SEMESTER VI

Course Code: USCH 601

Course Title: Physical Chemistry

Course Outcomes:

The students would be able :

- To understand concept of activity and activity coefficient.
- To classify cells and derive expression for cells.
- To understand method of preparation and applications of light emitting polymers.
- To explain meaning of polymers, their classification.
- To calculate molar mass of polymers.
- To understand 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 stability of metal complexes.
- To know about electronic spectra
- To gain depth knowledge of reactivity of metal complexes.



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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 and non essential elements in biological system.
- To understand 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.
- 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 learn different electro analytical techniques and 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 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:



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

The students would be able to :

- To know drug discovery, design and development.
- To learn about drug metabolism and chemotherapeutic agents.
- To get 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 growth and development of Indian dyestuff industry.

Academic year : 2022-2023

Name of Department: Chemistry

Class: M.Sc. Part- I

Program Outcomes:

- The purpose of the postgraduate chemistry program is provide the key knowledge base and laboratory resources to prepare students for careers as professionals in the field of chemistry'

Program Specific Outcomes:

- Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Physical, Inorganic, Organic and Analytical chemistry
- Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problem.
- Students will be able to design and carry out scientific experiment as well as accurate record and analyze the results of such experiment.
- Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats.
- Students will able to explore new areas of research in chemistry
- Students will be able to explain why chemistry is an integral activity for addressing social, economic and environmental problems.

SEMESTER -I



Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code: PSCH101	Course Title: PHYSICAL CHEMISTRY
Course Outcomes: The students would be able to : <ul style="list-style-type: none">• Understand the concept of thermodynamics, different thermodynamic quantities such as heat and work how they are measured, related or transformed from one to other• Chemical Dynamics ; how reaction rates are measured and represented in rate laws and kinetics of polymerization• Limitation of classical mechanics, also understand the differences between classical and quantum mechanics.• Understand the concept of electrochemistry, explain the Debye-Huckel theory of activity coefficient	
Course Code: PSCH102	Course Title: INORGANIC CHEMISTRY
Course outcomes: The students would be able to : <ul style="list-style-type: none">• Understand the bonding including weak force of attraction i.e. van der Waals Force, ion-dipole, dipole-dipole and London forces• concept of VBT and MOT• Group theory; explain the symmetry and symmetry operations, representation of groups and applications of group theory.• Understand the concept of solid state chemistry; structure and preparation and applications.• Understand the tools behind the nanomaterials.• The bonding models, structure, reactivity and application of coordination complexes.	
Course Code: PSCH103	Course Title: ORGANIC CHEMISTRY
Course outcomes: The students would be able to : <ul style="list-style-type: none">• Understand the concept of physical organic chemistry; thermodynamic and kinetics requirement of reaction, determine the mechanism of reaction and concept of acid and bases.• Understand the aliphatic and aromatic nucleophile substitution reactions.	



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- Understand the Huckel rule for aromaticity.
- Understand the concept of Stereochemistry; concept of chirality, molecules with two or three chiral centers, axial and planner chirality, prochirality
- Understand the concept of oxidation and reduction, oxidizing and reducing agents.

Course Code: PSCH104

Course Title: ANALYTICAL CHEMISTRY

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.

Academic year : 2021-2022

Name of Department: Chemistry

Class: M.Sc. Part 1

Program Outcomes:

Specific core discipline knowledge

- Students can recall details and information about the various reactions, spectroscopic techniques, instrumentation, chromatography, inorganic compounds in various biological processes.

Laboratory skills

- Students can synthesizedifferent complexes effectively using various organic reactions.

Characterization and research skills

- Students can characterize complexes with the help of various spectroscopic techniques.
- Students can apply Schrödinger wave equation, Huckel molecular orbital theory to different molecules.



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Program Specific Outcomes:

- To recognize and identify various instrumentation techniques.
- To understand the basics of spectroscopy and its applications.
- To understand structure and bonding of various organometallic chemistry of transition metals.
- To provide knowledge about various biological oxygen carriers, nitrogen fixation, copper containing enzymes, metal ion transport and storage and their importance in sustainable development.
- To understand medicinal applications of cis-platin and related compounds.
- To be able to deal with all heavy metals and its toxicity, interaction of radiation in context with the environment.
- To explain how different octahedral and square planar complexes undergo reactions.
- 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: PSCH 201

Course Title: Physical Chemistry

Course Outcomes:

The students would be able :

- To understand the concept of fugacity of real gases, its determination, equilibrium constant, Gibbs energy, entropy, chemical potential of real solutions, thermodynamics of surfaces and bioenergetics.
- To understand the basics of Schrödinger wave equation and its applications, hydrogen atom, introduction of four quantum numbers and Huckel molecular orbital theory.
- To learn the chemical kinetics of reactions in the solid state and the reactions catalyzed by enzymes, inhibition of enzyme action and elementary reactions in solution.
- To understand the two and three component system, introduction of phase rule, structures and defects in solids.

Course Code: PSCH 202

Course Title: Inorganic Chemistry

Course outcomes:



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

The students would be able :

- To acquire knowledge of different inorganic reaction mechanisms and stereochemistry of octahedral and square planar complexes.
- To understand the preparation, properties, structure and bonding of various organometallic chemistry of transition metals.
- To know about heavy metals and its toxicity, interaction of radiation in context with the environment.
- To study various biological oxygen carriers, nitrogen fixation, copper containing enzymes, metal ion transport and storage and medicinal applications of cis-platin and related compounds.

Course Code: PSCH 203

Course Title: Organic Chemistry

Course outcomes:

The students would be able :

- 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: PSCH 204

Course Title: Analytical Chemistry

Course outcomes:

The students would be able :

- To get exposure to the basic concepts, instrumentation and techniques of chromatography (Gas and High Performance Liquid Chromatography).
- To acquire knowledge about various electro analytical methods (electrogravimetry, coulometry, ion selective potentiometry).
- To gain knowledge about the principle, instrumentation and applications of latest surface analytical techniques.



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- To learn principles and applications of X-ray spectroscopy, Mass spectrometry and radioanalytical methods.

Academic year : 2022-2023

Name of Department: Chemistry

Class: M.Sc part-2 organic chemistry

Program Outcomes:

Specific core discipline knowledge

- 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.

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



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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 anisotropic 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.
- To Study the photochemistry of Carbonyl compounds, alkenes, dienes, polyenes and aromatic compounds.
- To Study photo rearrangement Barton reaction, application of photochemical reaction.



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> 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 : <ul style="list-style-type: none"> 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- Stevens'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 : <ul style="list-style-type: none"> 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 	



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.
- 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 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



Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- 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 finofibrate
- 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 .

Academic year: 2022-2023

Name of Department: Chemistry

Class: M.Sc. Part II Organic Chemistry

Program Outcomes:

Core discipline knowledge

- 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.



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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 Monsanto process].
 - Asymmetric reactions with mechanism.

Course Code: PSCHO402

Course Title: Synthetic organic chemistry-II



Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

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-**



**Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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).
 - 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: PSCHOOC-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,



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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.
- 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.

Academic year : 2022-2023
Name of Department: Chemistry
Class: MSC II (Analytical chemistry)
Program Outcomes:



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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**

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.



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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 .



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.
- 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



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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.

Academic year : 2022-2023

Name of Department: Chemistry

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

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 various separation science like filtration, ultrafiltration and reverse osmosis dialysis



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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:

- 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:

- To study the principle, instrumentation and application of NMR spectroscopy.
- To acquire knowledge about the principle, instrumentation and application of Mass



**Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<p>spectroscopy.</p> <ul style="list-style-type: none"> ● 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
<p>Course outcomes:</p> <p>The students would be able:</p> <ul style="list-style-type: none"> ● To understand about the effluent treatment, treatment and disposal of sewage, effluent parameters, permissible limits for metals. ● 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
<p>Course Outcomes:</p> <p>The students would be able:</p> <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 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year : 2022-2023
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.● 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: <ul style="list-style-type: none">● 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,

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<p>Infrastructure Services as specializations.</p> <ul style="list-style-type: none"> ● 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: Research In Computing
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To be able to conduct business research with an understanding of all the latest theories. ● To develop the ability to explore research techniques used for solving any real world or innovate problem. ● To solve real world problems with scientific approach. ● To develop analytical skill by applying scientific methods. ● To identify, model and solve decision problems in different settings. ● To understand and typically apply the concepts and methods of business problems. ● To create viable solutions to decision, making problems. 	
Course Code: PSIT102	Course Title: Data Science
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To practice problem analysis and decision making. ● To apply Quantitative modeling and analysis techniques to the solution of real world business problem, communicate finding and effectively present results using data visualization techniques. ● To recognize ang analysis ethical issues in business related to intellectual property, data 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<p>security, integrity and privacy.</p> <ul style="list-style-type: none"> ● To apply principles of data science to the analysis of business problems. ● To demonstrate use of team work, leadership skill, decision making and organization theory. ● To apply algorithms to build machine intelligence. 	
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. 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<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
Course Outcomes: The students would be able : <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
Course outcomes: The students would be able : <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
Course outcomes: The students would be able : <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 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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:

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.

Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year : 2022-2023
Name of Department: Information Technology
Class: MSC IT Part II
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none">● 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 <ul style="list-style-type: none">● Students appear for viva voce. They 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Program Specific Outcomes:	
<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
Course Outcomes: The students would be able : <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
Course outcomes: The students would be able :	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.
- 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

Course outcomes:

The students would be able :

- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: PSIT304a	Course Title: Robotic Process Automation
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
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 ● 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. 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code: PSIT402d	Course Title: Cyber Forensics
Course outcomes: The students would be able : <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
Course outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
BhaskarWaman Thakur College of Science,
YashvantKeshavPatil College of Commerce,
VidhyaDayanandPatil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- To understand how to manage the system resources and do the task analysis.
- To design and implement a complete system.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2022-2023
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 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 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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 a 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.
- 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

Course Outcomes:

The students would be able :

- 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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: USCS104	Course Title: Open Source Technologies
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand the difference between open-source software and commercial software. • To understand the policies, licensing procedures and ethics of FOSS. • To understand open-source philosophy, methodology and ecosystem. 	
Course Code: USCS105	Course Title: Discrete Mathematics
Course outcomes: The students would be able : <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
Course outcomes: The students would be able : <ul style="list-style-type: none"> • To organize, manage and present data. • To analyze Statistical data using measures of central tendency and dispersion. • 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 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<ul style="list-style-type: none"> 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: 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 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
Course outcomes: The students would be able : <ul style="list-style-type: none"> To develop mathematical skills and enhance thinking power of learners. To understand mathematical concepts like limit, continuity, derivative, integration of functions, 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

partial derivatives. <ul style="list-style-type: none"> To appreciate real world applications which uses the learned concepts. To formulate a problem through Mathematical modelling and simulation. 	
Course Code: USCS206	Course Title: Statistical Methods
Course outcomes: The students would be able : <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
Course outcomes: <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 	
Academic Year:2022-23	
Name of Department: Computer Science	
Class: S.Y.B.Sc.	
Program Outcomes: Specific core discipline knowledge <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. Communication skills <ul style="list-style-type: none"> Students can communicate effectively using oral and written communication skills. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> ● 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 : <ul style="list-style-type: none"> ● 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. ● 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 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> ● 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	
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 :	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<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 : <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
Course outcomes: The students would be able : <ul style="list-style-type: none"> ● To define research, formulate problems and describe the research process and research methods. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.

Academic year : 2022-2023

Name of Department: Computer Science

Class: T.Y.B.Sc.

Program Outcomes:

Specific core discipline knowledge

- 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.

Skill Enhancement

- 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.

Communication skills

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

Problem solving and research skills

- Students can collect data, test hypothesis, prepare a model, train the model, test the model and predict its accuracy for further use.

Program Specific Outcomes:

- 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
- Security and cryptography.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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 :

- To get a clear understanding of AI and different search algorithms used for solving problems.
- To get acquainted with different learning algorithms and models used in machine learning.

Course Code: USCS503

Course Title: Software Testing and Quality Assurance

Course outcomes:

The students would be able :

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> • To understand various software testing methods and strategies. • To understand a variety of software metrics, and identify defects and managing those defects for improvement in quality for given software. • To design SQA activities, SQA strategy, formal technical review report for software equality control and assurance. 	
Course Code: USCS504	Course Title: Information and Network Security
Course outcomes: The students would be able : <ul style="list-style-type: none"> • To understand the principles and practices of cryptographic techniques. • To understand a variety of generic security threats and vulnerabilities, and identify & analyze particular security problems for a given application. • To understand various protocols for network security to protect against the threats in a network. 	
Course Code: USCS506	Course Title: Web Services
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To emphasis on SOAP based web services and associated standards such as WSDL. • To design SOAP based / RESTful / WCF services Deal with Security and QoS issues of Web Services. 	
Course Code: USCS507	Course Title: Game Programming
Course outcomes: The students would be able : <ul style="list-style-type: none"> • To study Graphics and gaming concepts with present working style of developers where everything remains on internet and they need to review it, understand it, be a part of community and learn. 	
SEMESTER VI	
Course Code: USCS601	Course Title: Wireless Sensor Networks & Communication
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To learn various application of wireless sensor network. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> • To describe different networks. • To learn various protocols and designing of wireless network. • To implement and evaluate new ideas for solving wireless sensor network design and issue. 	
Course Code: USCS603	Course Title: Cyber Forensics
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To plan and prepare for all stages of an investigation. Stages: detection, initial response and management interaction. • To investigate various media to collect evidences and report them in a way that would be acceptable in the court of law. 	
Course Code: USCS604	Course Title: Information Retrieval
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To get an understanding of the field of information retrieval and its relationship to search engine. • To learn how to apply different information retrieval models. 	
Course Code: USCS606	Course Title: Data Science
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To understand concept of Data Science. • To understand and comprehend the problem. • To define suitable statistical method to be adopted. 	
Course Code: USCS607	Course Title: Ethical Hacking
Course Outcomes: The students would be able : <ul style="list-style-type: none"> • To identify security vulnerability and weakness in target application. • To test and exploit systems using various tool. • To understand the impact of hacking in real time machines. 	

Aims and Objectives:

१. विद्यार्थियों को कविता और कहानी विधाओं के अतिरिक्त हिन्दी के प्रमुख साहित्यकारों से परिचित कराना ।
 २. अनुवाद और पत्र लेखन की कला का ज्ञान देना ।
 ३. विद्यार्थियों की भाषा को समृद्ध करना ।
-

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2022-2023	
Name of Department: Computer Science	
Class: M.Sc.(Part 1)	
<p>Program Outcomes: In order to give an impetus to research among students, the course gives an overview on how to do research in Computer Science.</p> <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 in a chosen area. ● Create a research temper among students in the whole process. ● Prepare a student community for the demands of the ICT industry. <p>Problem solving skills</p> <ul style="list-style-type: none"> ● Identify, analyse, and synthesize scholarly literature relating to the field of computer science 	
<p>Program Specific Outcomes:</p> <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: PSCS101	Course Title: Algorithm for Optimization
<p>Course Outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To effectively implement optimization techniques to the existing algorithm to improve 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<p>its performance.</p> <ul style="list-style-type: none"> ● To work in the areas of Machine Learning and Data Sciences Algorithms ● To learn a wide variety of optimization topics, introducing the underlying mathematical problem formulations and the algorithms for solving them. 	
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: Applied Signal and Image Processing
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To understand the concepts of signal processing terms and relate them to image processing ● To learn about basic image processing techniques (e.g., noise removal and image enhancement). ● To develop skills to design and implement algorithms for advanced image analysis ● To apply image processing to design solutions to real-life problems 	
Course Code: PSCS104	Course Title: Advanced Database Techniques
<p>Course outcomes: The students would be able :</p> <ul style="list-style-type: none"> ● To explore XML, and Mobile databases. ● To deal with methods used for dealing with spatial and Temporal Databases. ● To grasp on business intelligence tools and XML. ● To understand professional competencies related to design and implementation of non-relational databases, including object-oriented, parallel and Distributed. 	
SEMESTER II	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course Code: PSCS201	Course Title: Applied Machine and Deep 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: Web Mining
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: PSCS204	Course Title: Embedded and IoT Technology
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. 	
Academic year : 2021-2022	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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 a strong army of building computer science researchers.● Communicate computer science concepts, designs, and solutions effectively and professionally.● Apply knowledge of computing to produce effective designs and solutions for specific problems.● Students can research 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 <ul style="list-style-type: none">● Students can communicate effectively by using ICT. Problem solving skills <ul style="list-style-type: none">● 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: <ul style="list-style-type: none">● 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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 decisions.
- 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, understand 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.
- 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 :

- 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

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<ul style="list-style-type: none"> ● 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: The students would be able : <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 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2022-2023
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. ● 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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

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

Course Outcomes:

The students would be able :

- 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

Course Outcomes:

The students would be able :

- 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.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> To get knowledge of data Science Tools and plot data using appropriate Python visualization libraries 	
Course Code: USDS103	Course Title: Web Technology
Course Outcomes: The students would be able : <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
Course Outcomes: The students would be able : <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
Course outcomes: The students would be able : <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	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code: USDS201	Course Title: : Probability and Distributions
Course Outcomes: The students would be able : <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 ● 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 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<ul style="list-style-type: none"> ● 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. 	
Academic year : 2022-2023	
Name of Department: Data Science	
Class: S.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 Data Warehousing Research Methodology 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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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.
- 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 III

Course Code: USDS301

Course Title: Research Methods and Ethics

Course outcomes:

The students would be able :

- To import 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

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

under study.	
Course Code: USDS302	Course Title: : Data Structures and Algorithms Using Python
Course outcomes: The students would be able : <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
Course outcomes: The students would be able : <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
Course outcomes: The students would be able : <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. 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code: USDS305	Course Title: Linear Algebra and Discrete Mathematics
Course outcomes: The students would be able : <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 Title: Testing of Hypothesis
Course outcomes: The students would be able : <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
Course outcomes: The students would be able : <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
Course outcomes: The students would be able : <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

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Course outcomes:

The students would be able :

- 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

Course Code: USDS405

Course Title: Numerical Methods

Course outcomes:

The students would be able :

- 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

Late Shri. Vishnu Waman Thakur Charitable Trust's
 Bhaskar Waman Thakur College of Science,
 Yashvant Keshav Patil College of Commerce,
 Vidhya Dayanand Patil College of Arts,
 (VIVA College)
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year : 2021-2022	
Name of Department: Mathematics	
Class: SYBSc (PM and MS)	
Program Outcomes: Specific core discipline knowledge <ul style="list-style-type: none"> ● To develop problem solving abilities. ● Using result and definition student can proofs related to differentiation, determinant, matrices, Vector Spaces, inner product space, counting and advance counting. ● Using result and definition student 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. <p>Further it is use in master study as prerequisites and research works</p>	
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 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: <ul style="list-style-type: none"> ● 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 idea behind partition of an interval and Riemann integration. ● To find Upper and Lower sums for a bounded real valued function. 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<ul style="list-style-type: none"> ● 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 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: <ul style="list-style-type: none"> ● 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 Notion 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: <ul style="list-style-type: none"> ● 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: <ul style="list-style-type: none"> ● 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 ● To understand Partial and Directional Derivatives of scalar fields ● To gain knowledge about Gradient. Relation between total derivative and gradient

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<p>of a function. Chain rule. Geometric properties of gradient. Tangent planes.</p> <ul style="list-style-type: none"> • 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 to:</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. • 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 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 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year : 2022-2023	
Name of Department: Mathematics	
Class: TYBSc(Mathematics)	
Program Outcomes: Specific core discipline knowledge <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. Communication skills <ul style="list-style-type: none"> ● It develops communication skill with new symbols, sign and concept 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. <p>Further it is use in master study as prerequisites and research works.</p>	
Program Specific Outcomes: <ul style="list-style-type: none"> ● 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 : <ul style="list-style-type: none"> ● 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 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

theorem. <ul style="list-style-type: none"> 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: Group Theory
Course outcomes: The students would be able : <ul style="list-style-type: none"> To have a working knowledge of important mathematical concepts in abstract algebra such as definition of a group order of a finite group and order of an element Students will also understand the connection and transition between previously studied mathematics and more advanced mathematics. The students will actively participate in the transition of important concepts such as homomorphisms & isomorphisms from discrete mathematics to advanced abstract mathematics. Student will demonstrate competence with basic ideas of linear algebra. Compose clear and accurate proofs using the concepts of linear algebra. 	
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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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:

- 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 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.
- 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: Ring Theory

Course outcomes:

The students would be able :

- Students will have a working knowledge of important mathematical concepts in abstract algebra such as definition of a rings.
- Euclidean domain, Principal ideal domain and Unique factorization domain.
- Students will also understand the connection and transition between previously studied mathematics and more advanced mathematics.
- demonstrate and understanding of idea of ring,integral domain.

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<ul style="list-style-type: none"> ● Appreciate and to be able to prove basic result of ring theory. ● 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
Course outcomes: The students would be able : <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)
Course outcomes: The students would be able : <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. 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year : 2022-2023	
Name of Department: Mathematics	
Class: TYBSc(Mathematics)	
Program Outcomes: Specific core discipline knowledge <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. Communication skills <ul style="list-style-type: none"> • It develops communication skill with new symbols, sign and concept 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. <p>Further it is use in master study as prerequisites and research works.</p>	
Program Specific Outcomes: <ul style="list-style-type: none"> • 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 : <ul style="list-style-type: none"> • 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 	

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

theorem. <ul style="list-style-type: none"> 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: Group Theory
Course outcomes: The students would be able : <ul style="list-style-type: none"> To have a working knowledge of important mathematical concepts in abstract algebra such as definition of a group order of a finite group and order of an element Students will also understand the connection and transition between previously studied mathematics and more advanced mathematics. The students will actively participate in the transition of important concepts such homo- morphisms & isomorphisms from discrete mathematics to advanced abstract mathematics. Student will demonstrate competence with basic ideas of linear algebra. Compose clear and accurate proofs using the concepts of linear algebra. 	
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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

- 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:

- 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 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.
- 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: Ring Theory

Course outcomes:

The students would be able :

- Students will have a working knowledge of important mathematical concepts in abstract algebra such as definition of a rings.
- Euclidean domain, Principal ideal domain and Unique factorization domain.
- Students will also understand the connection and transition between previously studied mathematics and more advanced mathematics.
- demonstrate and understanding of idea of ring,integral domain.

Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

<ul style="list-style-type: none"> ● Appreciate and to be able to prove basic result of ring theory. ● 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
Course outcomes: The students would be able : <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)
Course outcomes: The students would be able : <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. 	

B.Sc. Physics (Theory & Practical) OUTCOMES

F.Y.B.Sc.2022-23

Semester –I

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	I	Physics
Course Code	Title	Credits	
USPH101	Classical physics	2 for USPH101	

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand Newton's laws and apply them in calculations of the motion of simple systems.
2. Use the free body diagrams to analyze the forces on the object.
3. Understand the concepts of friction and the concepts of elasticity, fluid mechanics and be able to perform calculations using them.
4. Understand the concepts of lens system and interference.
5. Apply the laws of thermodynamics to formulate the relations necessary to analyze a thermodynamic process.
6. Demonstrate quantitative problem solving skills in all the topics covered

Semester –I

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	I	Physics
Course Code	Title	Credits	
USPH102	Modern Physics	2 for USPH102	

Learning Outcomes:

After successful completion of this course students will be able to

1. Understand nuclear properties and nuclear behavior.
2. Understand the type isotopes and their applications.

3. Demonstrate and understand the quantum mechanical concepts.
4. Demonstrate quantitative problem solving skills in all the topics covered.

Semester –I

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	I	Physics
Course Code	Title	Credits	
USPHP1	Practical-I	2 for USPHP1	

Learning Outcome:

On successful completion of this course students will be able to:

- i) To demonstrate their practical skills.
- ii) To understand and practice the skills while doing physics practical.
- iii) To understand the use of apparatus and their use without fear.
- iv) To correlate their physics theory concepts through practical.
- v) Understand the concepts of errors and their estimation.

Semester –II

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	II	Physics
Course Code	Title	Credits	
USPH201	Mathematical Physics	2 for USPH201	

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand the basic mathematical concepts and applications of them in physical situations.
2. Demonstrate quantitative problem solving skills in all the topics covered.

Semester –II

Name of the Programme	Duration	Semester	Subject

B.Sc.in Physics	Six semesters	II	Physics
Course Code	Title	Credits	
USPH202	Electricity and Electronics	2 for USPH202	

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand the basic mathematical concepts and applications of them in physical situations.
2. Demonstrate quantitative problem solving skills in all the topics covered.

Semester –II

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	II	Physics
Course Code	Title	Credits	
USPHP2	Practical-II	2 for USPHP2	

Learning Outcome:

- i) To understand and practice the skills while doing physics practical.
- ii) To understand the use of apparatus and their use without fear.
- iii) To correlate their physics theory concepts through practical.
- iv) Understand the concepts of errors and their estimation.

B.Sc. Physics (Theory &Practical)OUTCOMES

S.Y.B.Sc.2022-23

Semester –III

Name of the	Duration	Semester	Subject
--------------------	-----------------	-----------------	----------------

Programme			
B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPH301	Mechanics and thermodynamics	2 for USPH301	

Learning Outcomes :

On successful completion of this course, students will be able to :

- i) Understand the concepts of mechanics & properties of matter & to apply them to problems.
- ii) Comprehend the basic concepts of thermodynamics & its applications in physical situation.
- iii) Learn about situations in low temperature. iv) Demonstrate tentative problem solving skills in all above areas.

Semester –III

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPH302	Vector calculus, Analog Electronics	2 for USPH302	

Learning Outcomes:

On successful completion of this course students will be able to :

- 1) Understand the basic concepts of mathematical physics and their applications in physical situations.
- 2) Understand the basic laws of electrodynamics and be able to perform calculations using them.
- 3) Understand the basics of transistor biasing, operational amplifiers, their applications
- 4) Understand the basic concepts of oscillators and be able to perform calculations using them.
- 5) Demonstrate quantitative problem solving skill in all the topics covered.

Semester –III

Name of the Programme	Duration	Semester	Subject

B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPH303	Applied Physics - I	2 for USPH303	

Learning Outcomes :

On completion of this, it is expected that

- i) Students will be exposed to contextual real life situations.
- ii) Students will appreciate the role of Physics in 'interdisciplinary areas related to materials, Bio Physics, Acoustics etc.
- iii) The learner will understand the scope of the subject in Industry & Research.
- iv) Experimental learning opportunities will foster creative thinking & a spirit of inquiry.

Semester –III

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPHP3	Practical-III	3 for USPHP3	

Learning outcomes :

On successful completion of this course students will be able to

- i) Understand & practice the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate the physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPH401	Optics and Digital	2 for USPH401	

	Electronics		
--	--------------------	--	--

Learning Outcomes:

On successful completion of this course students will be able to :

- 1) Understand the diffraction and polarization processes and applications of them in physical situations.
- 2) Understand the applications of interference in design and working of interferometers.
- 3) Understand the resolving power of different optical instruments.
- 4) Understand the working of digital circuits
- 5) Use IC 555 timer for various timing applications.
- 6) Demonstrate quantitative problem solving skills in all the topics covered.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPH402	QUANTUM PHYSICS	2 for USPH402	

Learning Outcomes :

On successful completion of this course students will be able to :

- 1) Understand the postulates of quantum mechanics and to understand its importance in explaining significant phenomena in Physics.
- 2) Demonstrate quantitative problem solving skills in all the topics covered.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPH403	Applied Physics II	2 for USPH403	

--	--	--	--

Learning Outcomes :

On successful completion of this course, students will be able to :

- i) Understand the concepts of mechanics & properties of matter & to apply them to problems.
- ii) Comprehend the basic concepts of thermodynamics & its applications in physical situation.
- iii) Learn about situations in low temperature.
- iv) Demonstrate tentative problem solving skills in all above areas.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPHP4	Practical-IV	3 for USPHP4	

Learning Outcomes :

On successful completion of this course students will be able to :

- i) Understand & practise the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate their physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

B.Sc. Physics (Theory & Practical) OUTCOMES

T.Y.B.Sc.2022-23

SEMESTER -V

Theory Course - USPH501: Mathematical, Thermal and Statistical Physics

Learning outcomes:

From this course, the students are expected to learn some mathematical techniques required to understand the physical phenomena at the undergraduate level and get exposure to important ideas of statistical mechanics.

The students are expected to be able to solve simple problems in probability, understand the concept of independent events and work with standard continuous distributions. The students will have idea of the functions of complex variables; solve nonhomogeneous differential equations and partial differential equations using simple methods. The units on statistical mechanics would introduce the students to the concept of microstates, Boltzmann distribution and statistical origins of entropy. It is also expected that the student will understand the difference between different statistics, classical as well as quantum.

Theory Course - USPH502: Solid State Physics

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand the basics of crystallography, Electrical properties of metals, Band Theory of solids, demarcation among the types of materials, Semiconductor Physics and Superconductivity.
2. Understand the basic concepts of Fermi probability distribution function, Density of states, conduction in semiconductors and BCS theory of superconductivity.
3. Demonstrate quantitative problem solving skills in all the topics covered.

Theory Course - USPH503: Atomic and Molecular Physics

Learning Outcome:

Upon successful completion of this course, the student will understand

1. The application of quantum mechanics in atomic physics
2. The importance of electron spin, symmetric and anti symmetric wave functions and vector atom model
3. Effect of magnetic field on atoms and its application
4. Learn Molecular physics and its applications.
5. This course will be useful to get an insight into spectroscopy

Theory Course - USPH504: Electrodynamics

Learning outcomes:

On successful completion of this course students will be able to:

- 1) Understand the laws of electrodynamics and be able to perform calculations using them.
- 2) Understand Maxwell's electrodynamics and its relation to relativity.
- 3) Understand how optical laws can be derived from electromagnetic principles.
- 4) Develop quantitative problem solving skills.

PRACTICALS – SEMESTER-V

Learning Outcomes :

On successful completion of this course students will be able to :

- i) Understand & practise the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate their physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

SEMESTER-VI**Theory Course – USPH601: Classical Mechanics****Learning outcomes:**

This course will introduce the students to different aspects of classical mechanics. They would 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. Finally, 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.

Theory Course – USPH602: Electronics**Learning Outcome:**

On successful completion of this course students will be able to:

1. Understand the basics of semiconductor devices and their applications.
2. Understand the basic concepts of operational amplifier: its prototype and applications as instrumentation amplifier, active filters, comparators and waveform generation.
3. Understand the basic concepts of timing pulse generation and regulated power supplies .
4. Understand the basic electronic circuits for universal logic building blocks and basic concepts of digital communication.
5. Develop quantitative problem solving skills in all the topics covered.

Theory Course – USPH603: Nuclear Physics**Learning Outcomes:**

1. Upon successful completion of this course, the student will be able 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.

2. 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.

Theory Course – USPH604: Special Theory of Relativity

Learning outcomes:

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. After the completion of the course the student should be able to

1. Understand the significance of Michelson Morley experiment and failure of the existing theories to explain the null result
2. 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.
3. Understand the transformation equations for: Space and time, velocity, frequency, mass, momentum, force, Energy, Charge and current density, electric and magnetic fields.
4. Solve problems based on length contraction, time dilation, velocity addition, Doppler effect, mass energy relation and resolve paradoxes in relativity like twin paradox etc.

PRACTICALS – SEMESTER-VI

Learning Outcomes :

On successful completion of this course students will be able to :

- i) Understand & practise the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate their physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

B.Sc. Physics (Theory & Practical) OUTCOMES

F.Y.B.Sc.2022-23

Semester –I

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	I	Physics
Course Code	Title	Credits	
USPH101	Classical physics	2 for USPH101	

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand Newton's laws and apply them in calculations of the motion of simple systems.
2. Use the free body diagrams to analyze the forces on the object.
3. Understand the concepts of friction and the concepts of elasticity, fluid mechanics and be able to perform calculations using them.
4. Understand the concepts of lens system and interference.
5. Apply the laws of thermodynamics to formulate the relations necessary to analyze a thermodynamic process.
6. Demonstrate quantitative problem solving skills in all the topics covered

Semester –I

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	I	Physics
Course Code	Title	Credits	
USPH102	Modern Physics	2 for USPH102	

Learning Outcomes:

After successful completion of this course students will be able to

1. Understand nuclear properties and nuclear behavior.
2. Understand the type isotopes and their applications.

3. Demonstrate and understand the quantum mechanical concepts.
4. Demonstrate quantitative problem solving skills in all the topics covered.

Semester –I

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	I	Physics
Course Code	Title	Credits	
USPHP1	Practical-I	2 for USPHP1	

Learning Outcome:

On successful completion of this course students will be able to:

- i) To demonstrate their practical skills.
- ii) To understand and practice the skills while doing physics practical.
- iii) To understand the use of apparatus and their use without fear.
- iv) To correlate their physics theory concepts through practical.
- v) Understand the concepts of errors and their estimation.

Semester –II

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	II	Physics
Course Code	Title	Credits	
USPH201	Mathematical Physics	2 for USPH201	

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand the basic mathematical concepts and applications of them in physical situations.
2. Demonstrate quantitative problem solving skills in all the topics covered.

Semester –II

Name of the Programme	Duration	Semester	Subject

B.Sc.in Physics	Six semesters	II	Physics
Course Code	Title	Credits	
USPH202	Electricity and Electronics	2 for USPH202	

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand the basic mathematical concepts and applications of them in physical situations.
2. Demonstrate quantitative problem solving skills in all the topics covered.

Semester –II

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	II	Physics
Course Code	Title	Credits	
USPHP2	Practical-II	2 for USPHP2	

Learning Outcome:

- i) To understand and practice the skills while doing physics practical.
- ii) To understand the use of apparatus and their use without fear.
- iii) To correlate their physics theory concepts through practical.
- iv) Understand the concepts of errors and their estimation.

B.Sc. Physics (Theory &Practical)OUTCOMES

S.Y.B.Sc.2022-23

Semester –III

Name of the	Duration	Semester	Subject
--------------------	-----------------	-----------------	----------------

Programme			
B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPH301	Mechanics and thermodynamics	2 for USPH301	

Learning Outcomes :

On successful completion of this course, students will be able to :

- i) Understand the concepts of mechanics & properties of matter & to apply them to problems.
- ii) Comprehend the basic concepts of thermodynamics & its applications in physical situation.
- iii) Learn about situations in low temperature. iv) Demonstrate tentative problem solving skills in all above areas.

Semester –III

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPH302	Vector calculus, Analog Electronics	2 for USPH302	

Learning Outcomes:

On successful completion of this course students will be able to :

- 1) Understand the basic concepts of mathematical physics and their applications in physical situations.
- 2) Understand the basic laws of electrodynamics and be able to perform calculations using them.
- 3) Understand the basics of transistor biasing, operational amplifiers, their applications
- 4) Understand the basic concepts of oscillators and be able to perform calculations using them.
- 5) Demonstrate quantitative problem solving skill in all the topics covered.

Semester –III

Name of the Programme	Duration	Semester	Subject

B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPH303	Applied Physics - I	2 for USPH303	

Learning Outcomes :

On completion of this, it is expected that

- i) Students will be exposed to contextual real life situations.
- ii) Students will appreciate the role of Physics in 'interdisciplinary areas related to materials, Bio Physics, Acoustics etc.
- iii) The learner will understand the scope of the subject in Industry & Research.
- iv) Experimental learning opportunities will foster creative thinking & a spirit of inquiry.

Semester –III

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPHP3	Practical-III	3 for USPHP3	

Learning outcomes :

On successful completion of this course students will be able to

- i) Understand & practice the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate the physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPH401	Optics and Digital	2 for USPH401	

	Electronics		
--	--------------------	--	--

Learning Outcomes:

On successful completion of this course students will be able to :

- 1) Understand the diffraction and polarization processes and applications of them in physical situations.
- 2) Understand the applications of interference in design and working of interferometers.
- 3) Understand the resolving power of different optical instruments.
- 4) Understand the working of digital circuits
- 5) Use IC 555 timer for various timing applications.
- 6) Demonstrate quantitative problem solving skills in all the topics covered.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPH402	QUANTUM PHYSICS	2 for USPH402	

Learning Outcomes :

On successful completion of this course students will be able to :

- 1) Understand the postulates of quantum mechanics and to understand its importance in explaining significant phenomena in Physics.
- 2) Demonstrate quantitative problem solving skills in all the topics covered.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPH403	Applied Physics II	2 for USPH403	

--	--	--	--

Learning Outcomes :

On successful completion of this course, students will be able to :

- i) Understand the concepts of mechanics & properties of matter & to apply them to problems.
- ii) Comprehend the basic concepts of thermodynamics & its applications in physical situation.
- iii) Learn about situations in low temperature.
- iv) Demonstrate tentative problem solving skills in all above areas.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPHP4	Practical-IV	3 for USPHP4	

Learning Outcomes :

On successful completion of this course students will be able to :

- i) Understand & practise the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate their physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

B.Sc. Physics (Theory &Practical)OUTCOMES

T.Y.B.Sc.2022-23

SEMESTER -V

Theory Course - USPH501: Mathematical, Thermal and Statistical Physics

Learning outcomes:

From this course, the students are expected to learn some mathematical techniques required to understand the physical phenomena at the undergraduate level and get exposure to important ideas of statistical mechanics.

The students are expected to be able to solve simple problems in probability, understand the concept of independent events and work with standard continuous distributions. The students will have idea of the functions of complex variables; solve nonhomogeneous differential equations and partial differential equations using simple methods. The units on statistical mechanics would introduce the students to the concept of microstates, Boltzmann distribution and statistical origins of entropy. It is also expected that the student will understand the difference between different statistics, classical as well as quantum.

Theory Course - USPH502: Solid State Physics

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand the basics of crystallography, Electrical properties of metals, Band Theory of solids, demarcation among the types of materials, Semiconductor Physics and Superconductivity.
2. Understand the basic concepts of Fermi probability distribution function, Density of states, conduction in semiconductors and BCS theory of superconductivity.
3. Demonstrate quantitative problem solving skills in all the topics covered.

Theory Course - USPH503: Atomic and Molecular Physics

Learning Outcome:

Upon successful completion of this course, the student will understand

1. The application of quantum mechanics in atomic physics
2. The importance of electron spin, symmetric and anti symmetric wave functions and vector atom model
3. Effect of magnetic field on atoms and its application
4. Learn Molecular physics and its applications.
5. This course will be useful to get an insight into spectroscopy

Theory Course - USPH504: Electrodynamics

Learning outcomes:

On successful completion of this course students will be able to:

- 1) Understand the laws of electrodynamics and be able to perform calculations using them.
- 2) Understand Maxwell's electrodynamics and its relation to relativity.
- 3) Understand how optical laws can be derived from electromagnetic principles.
- 4) Develop quantitative problem solving skills.

PRACTICALS – SEMESTER-V

Learning Outcomes :

On successful completion of this course students will be able to :

- i) Understand & practise the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate their physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

SEMESTER-VI**Theory Course – USPH601: Classical Mechanics****Learning outcomes:**

This course will introduce the students to different aspects of classical mechanics. They would 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. Finally, 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.

Theory Course – USPH602: Electronics**Learning Outcome:**

On successful completion of this course students will be able to:

1. Understand the basics of semiconductor devices and their applications.
2. Understand the basic concepts of operational amplifier: its prototype and applications as instrumentation amplifier, active filters, comparators and waveform generation.
3. Understand the basic concepts of timing pulse generation and regulated power supplies .
4. Understand the basic electronic circuits for universal logic building blocks and basic concepts of digital communication.
5. Develop quantitative problem solving skills in all the topics covered.

Theory Course – USPH603: Nuclear Physics**Learning Outcomes:**

1. Upon successful completion of this course, the student will be able 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.

2. 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.

Theory Course – USPH604: Special Theory of Relativity

Learning outcomes:

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. After the completion of the course the student should be able to

1. Understand the significance of Michelson Morley experiment and failure of the existing theories to explain the null result
2. 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.
3. Understand the transformation equations for: Space and time, velocity, frequency, mass, momentum, force, Energy, Charge and current density, electric and magnetic fields.
4. Solve problems based on length contraction, time dilation, velocity addition, Doppler effect, mass energy relation and resolve paradoxes in relativity like twin paradox etc.

PRACTICALS – SEMESTER-VI

Learning Outcomes :

On successful completion of this course students will be able to :

- i) Understand & practise the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate their physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

FY BSC STUDENT OUTCOME

- To take learners through a captivating journey of hoarded wealth of marvelous animal world.
- To orient learners about rich heritage of Biodiversity of India and make them understand significance of its conservation
- To teach learners about innovative and novel work of scientists/philosopher/entrepreneurs in the field of biological sciences
- To make learners aware of risks involved in handling of different hazardous chemicals, sensitive (electrical/electronic) instruments and infectious biological specimens especially during practical sessions in the laboratory and to train them to avoid mishap.
- To acquaint learners to the modern developments and concepts of Zoology highlighting their applications aiming for the benefit of human being
- To provide all learners a complete insight about the structure and train them with operational skills of different instruments required in Zoology.
- To facilitate the learning of population ecology, its dynamics and regulatory factors are important for its sustenance.
- To impart knowledge of different components of the ecosystem and educate about the essentials of coexistence of human beings with all other living organisms.
- To enlighten learners about the current status of wildlife conservation in India in the light of guidelines from different relevant governing agencies vis-à-vis the adversity of poaching and biopiracy.
- To make learners understand the importance of a balanced diet and essential nutrients of food at different stages of life.
- To impart knowledge about source, quantum and need for conservation of fast depleting water resources and essentials of maintaining proper sanitation, hygiene and optimizing use of electronic gadgets.
- To educate learners about causes, symptoms and impact of stress related disorders and infectious diseases.



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year: 2022-23
Name of Department: Statistics
Class: TYBSc(Statistics)
Program Outcomes: <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 and other fields where study of statistics is useful
Communication skills <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

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.
- 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 Title: PROBABILITY AND DISTRIBUTION THEORY

Course Outcomes:

The students would be able:

- to understand and recall basic facts about random experiment, outcomes, events and different types of events.



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- 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.



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
 Yashvant Keshav Patil College of Commerce,
 Vidhya Dayanand Patil College of Arts,**
VIVA College
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code:USST502	Course Title: THEORY OF ESTIMATION
Course outcomes: The students would be able: <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, GaussMarkoff theorem for full rank model 	
Course Code:USST503	Course Title: BIOSTATISTICS
Course Outcomes: The students would be able: <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



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

--	--

Course outcomes:

The students would be able to:

- 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.



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code: USACOR501	Course Title: ELEMENTS OF OPERATIONS RESEARCH – I
Course Outcomes: The students would be able: <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 Title: DISTRIBUTION THEORY AND STOCHASTIC PROCESS
Course Outcomes: The students would be able: <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.• to learn the generating function of a convolution.• to understand the relation between Bernoulli and Binomial distributions, Geometric and Negative Binomial distribution using convolutions.	



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- 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 Title: TESTING OF HYPOTHESIS
-----------------------------	--

Course outcomes:

The students would be able:

- 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.



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course Code: USST603	Course Title: OPERATIONS RESEARCH TECHNIQUES
Course Outcomes: The students would be able: <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 Title: ACTUARIAL 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,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Course outcomes:

The students would be able to:

- 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.

Course Code: USACOR601	Course Title: ELEMENTS OF OPERATIONS RESEARCH-II
-------------------------------	---

Course outcomes:

The students would be able to:

- 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.



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
 Yashvant Keshav Patil College of Commerce,
 Vidhya Dayanand Patil College of Arts,**
VIVA College
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year: 2022-23
Name of Department: Statistics
Class: SYBSc
Program Outcomes: <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 and other fields where study of statistics is useful
Communication skills <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Students learn to design data collection and univariate random variables. • Student learn to identify the relationship between Sampling and concept of simple random sampling. • 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 parameter and statistic



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
 Yashvant Keshav Patil College of Commerce,
 Vidhya Dayanand Patil College of Arts,
 VIVA College**
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- 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 formulate and solve LPP, Assignment problems, Transportation problems.
- Students will demonstrate an understanding of the common body of knowledge in Statistics.
- Determine the continuity and differentiability of a function at a point of different distributions
- 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 III

Course Code: USST301

Course Title: PROBABILITY DISTRIBUTIONS

Course Outcomes:

The students would be able:

- to understand and recall basic facts about univariate random variables for both discrete and continuous.
- to identify and classify data with concept of discrete and continuous variables for standard distributions.
- to identify and apply the knowledge on measures of central tendency.
- to understand the concept of averages and its different types and calculate mean, median and mode for different distributions.
- to learn and understand concept of measure of dispersion, Skewness and Kurtosis.
- to understand the concept of bivariate probability distributions.

Course Code: USST302

Course Title: THEORY OF SAMPLING

Course outcomes:

The students would be able:

- To study concept of sampling theory and terms related to the sampling theory.
- To study the concept of simple random sampling



Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- To study about Stratified sampling and stratified random sampling.
- To study about ratio and regression estimation assuming SRSWOR.

Course Code: USST303	Course Title: OPERATIONS RESEARCH-1
Course Outcomes: The students would be able: <ul style="list-style-type: none"> • to understand and recall basic facts about Linear programming problem (L.P.P) • to identify and classify data with concept related to L.P.P. • to identify and apply the knowledge on Transportation Problems. • to understand the concept of North west corner rule etc and learn variants in transportation problems. • to learn and understand concept of Assignment Problems. • to understand how to calculate the values in sequencing and processing in jobs through 2 and 3 machines. 	
SEMESTER IV	
Course Code: USST401	Course Title: PROBABILITY AND SAMPLING DISTRIBUTIONS
Course outcomes: The students would be able to: <ul style="list-style-type: none"> • to study the concept of Standard continuous probability distributions along with its mean, median, mode, S.D, m.g.f, c.g.f, skewness and kurtosis. • to understand and learn in detail about normal distribution. • to define and study the concept of Exact sampling distribution. • to understand Chi-square distribution and its applications. • to understand t-distribution and F-distribution and its applications. 	
Course Code: USMT402	Course Title: ANALYSIS OF VARIANCE & DESIGN OF EXPERIMENTS
Course Outcomes: The students would be able: <ul style="list-style-type: none"> • to study the concept of analysis of variance. 	



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- to understand and study design of experiments.
- to define concept of Completely randomized design (CRD) & Randomized block design (RBD).
- to understand and define Latin Square design (LSD).
- to define and study Factorial experiments.
- to understand the concept of factorial experiment and its purpose and advantages.

Course Code: USST403

**Course Title: PROJECT
MANAGEMENT AND INDUSTRIAL STATISTICS**

Course outcomes:

The students would be able to:

- to study the concept of CPM and PERT along with the objective and outline of the techniques.
- to understand and learn Control charts, its principles and the process.
- to define concept of Lot acceptance sampling plans by attributes.
- to understand and define about Double sampling plan and OC functions and OC curves.
- to understand introduction to Six sigma limits.



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

Academic year: 2022-23
Name of Department: Statistics
Class: FYBSc(PMS)
Program Outcomes: <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 and other fields where study of statistics is useful
Communication skills <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• Students learn to design data collection plans and basic tools of descriptive 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,
 VIVA College**
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- Student learn to identify the relationship between two variables using scatter plot 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 parameter and statistic
- 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 formulate and solve LPP, Assignment problems, Transportation problems.
- Students will demonstrate an understanding of the common body of knowledge in Statistics.
- Determine the continuity and differentiability of a function at a point of different distributions
- 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 I

Course Code: USST101

Course Title: DESCRIPTIVE STATISTICS-I

Course Outcomes:

The students would be able:

- to understand and recall basic facts about population and sample, data and types of data
- to identify and classify data with concept of discrete and continuous variables.
- to identify and apply the knowledge on measures of central tendency.



Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College
 (NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- to understand the concept of averages and its different types and calculate mean, median and mode.
- to learn and understand concept of measure of dispersion, Skewness and Kurtosis.
- to understand how to calculate the values of coefficient of dispersion, skewness and kurtosis

Course Code: USST102

Course Title: STATISTICAL METHODS-I

Course outcomes:

The students would be able:

- To study concept of elementary probability theory and terms related to the probability theory.
- To study the concept of discrete random variable and properties of its probability distribution.
- To study about some standard discrete distributions like discrete uniform, binomial and Poisson distribution.

SEMESTER II

Course Code: USMT201

Course Title: DESCRIPTIVE STATISTICS-II

Course Outcomes:

The students would be able:

- to study the concept of correlation and regression analysis
- to find the values of correlation coefficient, rank correlation.
- to define concept of linear regression and fitting of quadratic curves by least square method.
- to understand and define Time series and also learn the estimation of trend by different methods
- to define index numbers and stages in the construction of index numbers.



Vishnu Waman Thakur Charitable Trust's
**Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
VIVA College**
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

- to understand the concept cost of living index number and concept of real income based on wholesale price index number.

Course Code: USST202

Course Title: STATISTICAL METHODS-II

Course outcomes:

The students would be able to:

- to study the concept of continuous random variables
- to understand and learn some standard continuous distributions like uniform, exponential and normal distributions.
- to define concept hypothesis, null and alternate hypothesis.
- to understand and define types of errors, critical region and level of significance.
- to understand the central limit theorem.

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic Year : 2022-2023	
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, Direct tax, Advance cost accounting, Indirect taxation and Financial Management. Students can understand application of financial accounting, cost accounting in business environment. Communication skills 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 Direct tax and Indirect Tax. To explore different methods of calculating risk and return in financial management. To acquire knowledge about financial Management. 	
SEMESTER III	
Course Code: 1	Course Title: Advance Financial Accounting
Course Outcomes: The students would be able: <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: 2	Course Title: Direct Tax
Course Outcomes: The students would be able: <ul style="list-style-type: none"> To acquire knowledge about basis of charge. To understand different heads of income like salary, house property, business profession, capital gain, other sources. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> To learn about deduction under section 80 and exclusion from the total income. To compute income and tax liability for individual, firm, company. To learn about filling return of Income. 	
Course Code: 3	Course Title: Advance Cost Accounting
Course Outcomes: The students would be able: <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: 4	Course Title: Project work – I
Course Outcomes: The students would be able: <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: 1	Course Title: Corporate Financial Accounting
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <ul style="list-style-type: none"> To understand types of financing. To learn about investment decisions with help of capital budgeting. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

<ul style="list-style-type: none"> • 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
Course Outcomes: The students would be able: <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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic year : 2022 - 2023	
Name of Department: Commerce	
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
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <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	
Course Code: 1	Course Title: International Finance
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <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
Course outcomes: The students would be able: <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
Course outcomes: The students would be able: <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. 	

**Late Shri. Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(VIVA College)
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)**

Academic Year : 2022-2023	
Name of Department: Commerce	
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
Course Outcomes: The students would be able: <ul style="list-style-type: none"> To understand the basic concept of marketing and new marketing strategies 	

<ul style="list-style-type: none"> • 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
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <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
Course Outcomes: The students would be able: <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. 	

B.Sc. Physics (Theory & Practical) OUTCOMES

F.Y.B.Sc.2022-23

Semester –I

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	I	Physics
Course Code	Title	Credits	
USPH101	Classical physics	2 for USPH101	

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand Newton's laws and apply them in calculations of the motion of simple systems.
2. Use the free body diagrams to analyze the forces on the object.
3. Understand the concepts of friction and the concepts of elasticity, fluid mechanics and be able to perform calculations using them.
4. Understand the concepts of lens system and interference.
5. Apply the laws of thermodynamics to formulate the relations necessary to analyze a thermodynamic process.
6. Demonstrate quantitative problem solving skills in all the topics covered

Semester –I

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	I	Physics
Course Code	Title	Credits	
USPH102	Modern Physics	2 for USPH102	

Learning Outcomes:

After successful completion of this course students will be able to

1. Understand nuclear properties and nuclear behavior.
2. Understand the type isotopes and their applications.

3. Demonstrate and understand the quantum mechanical concepts.
4. Demonstrate quantitative problem solving skills in all the topics covered.

Semester –I

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	I	Physics
Course Code	Title	Credits	
USPHP1	Practical-I	2 for USPHP1	

Learning Outcome:

On successful completion of this course students will be able to:

- i) To demonstrate their practical skills.
- ii) To understand and practice the skills while doing physics practical.
- iii) To understand the use of apparatus and their use without fear.
- iv) To correlate their physics theory concepts through practical.
- v) Understand the concepts of errors and their estimation.

Semester –II

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	II	Physics
Course Code	Title	Credits	
USPH201	Mathematical Physics	2 for USPH201	

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand the basic mathematical concepts and applications of them in physical situations.
2. Demonstrate quantitative problem solving skills in all the topics covered.

Semester –II

Name of the Programme	Duration	Semester	Subject

B.Sc.in Physics	Six semesters	II	Physics
Course Code	Title	Credits	
USPH202	Electricity and Electronics	2 for USPH202	

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand the basic mathematical concepts and applications of them in physical situations.
2. Demonstrate quantitative problem solving skills in all the topics covered.

Semester –II

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	II	Physics
Course Code	Title	Credits	
USPHP2	Practical-II	2 for USPHP2	

Learning Outcome:

- i) To understand and practice the skills while doing physics practical.
- ii) To understand the use of apparatus and their use without fear.
- iii) To correlate their physics theory concepts through practical.
- iv) Understand the concepts of errors and their estimation.

B.Sc. Physics (Theory &Practical)OUTCOMES

S.Y.B.Sc.2022-23

Semester –III

Name of the	Duration	Semester	Subject
--------------------	-----------------	-----------------	----------------

Programme			
B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPH301	Mechanics and thermodynamics	2 for USPH301	

Learning Outcomes :

On successful completion of this course, students will be able to :

- i) Understand the concepts of mechanics & properties of matter & to apply them to problems.
- ii) Comprehend the basic concepts of thermodynamics & its applications in physical situation.
- iii) Learn about situations in low temperature. iv) Demonstrate tentative problem solving skills in all above areas.

Semester –III

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPH302	Vector calculus, Analog Electronics	2 for USPH302	

Learning Outcomes:

On successful completion of this course students will be able to :

- 1) Understand the basic concepts of mathematical physics and their applications in physical situations.
- 2) Understand the basic laws of electrodynamics and be able to perform calculations using them.
- 3) Understand the basics of transistor biasing, operational amplifiers, their applications
- 4) Understand the basic concepts of oscillators and be able to perform calculations using them.
- 5) Demonstrate quantitative problem solving skill in all the topics covered.

Semester –III

Name of the Programme	Duration	Semester	Subject

B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPH303	Applied Physics - I	2 for USPH303	

Learning Outcomes :

On completion of this, it is expected that

- i) Students will be exposed to contextual real life situations.
- ii) Students will appreciate the role of Physics in 'interdisciplinary areas related to materials, Bio Physics, Acoustics etc.
- iii) The learner will understand the scope of the subject in Industry & Research.
- iv) Experimental learning opportunities will foster creative thinking & a spirit of inquiry.

Semester –III

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	III	Physics
Course Code	Title	Credits	
USPHP3	Practical-III	3 for USPHP3	

Learning outcomes :

On successful completion of this course students will be able to

- i) Understand & practice the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate the physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPH401	Optics and Digital	2 for USPH401	

	Electronics		
--	--------------------	--	--

Learning Outcomes:

On successful completion of this course students will be able to :

- 1) Understand the diffraction and polarization processes and applications of them in physical situations.
- 2) Understand the applications of interference in design and working of interferometers.
- 3) Understand the resolving power of different optical instruments.
- 4) Understand the working of digital circuits
- 5) Use IC 555 timer for various timing applications.
- 6) Demonstrate quantitative problem solving skills in all the topics covered.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPH402	QUANTUM PHYSICS	2 for USPH402	

Learning Outcomes :

On successful completion of this course students will be able to :

- 1) Understand the postulates of quantum mechanics and to understand its importance in explaining significant phenomena in Physics.
- 2) Demonstrate quantitative problem solving skills in all the topics covered.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPH403	Applied Physics II	2 for USPH403	

--	--	--	--

Learning Outcomes :

On successful completion of this course, students will be able to :

- i) Understand the concepts of mechanics & properties of matter & to apply them to problems.
- ii) Comprehend the basic concepts of thermodynamics & its applications in physical situation.
- iii) Learn about situations in low temperature.
- iv) Demonstrate tentative problem solving skills in all above areas.

Semester –IV

Name of the Programme	Duration	Semester	Subject
B.Sc.in Physics	Six semesters	IV	Physics
Course Code	Title	Credits	
USPHP4	Practical-IV	3 for USPHP4	

Learning Outcomes :

On successful completion of this course students will be able to :

- i) Understand & practise the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate their physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

B.Sc. Physics (Theory &Practical)OUTCOMES

T.Y.B.Sc.2022-23

SEMESTER -V

Theory Course - USPH501: Mathematical, Thermal and Statistical Physics

Learning outcomes:

From this course, the students are expected to learn some mathematical techniques required to understand the physical phenomena at the undergraduate level and get exposure to important ideas of statistical mechanics.

The students are expected to be able to solve simple problems in probability, understand the concept of independent events and work with standard continuous distributions. The students will have idea of the functions of complex variables; solve nonhomogeneous differential equations and partial differential equations using simple methods. The units on statistical mechanics would introduce the students to the concept of microstates, Boltzmann distribution and statistical origins of entropy. It is also expected that the student will understand the difference between different statistics, classical as well as quantum.

Theory Course - USPH502: Solid State Physics

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand the basics of crystallography, Electrical properties of metals, Band Theory of solids, demarcation among the types of materials, Semiconductor Physics and Superconductivity.
2. Understand the basic concepts of Fermi probability distribution function, Density of states, conduction in semiconductors and BCS theory of superconductivity.
3. Demonstrate quantitative problem solving skills in all the topics covered.

Theory Course - USPH503: Atomic and Molecular Physics

Learning Outcome:

Upon successful completion of this course, the student will understand

1. The application of quantum mechanics in atomic physics
2. The importance of electron spin, symmetric and anti symmetric wave functions and vector atom model
3. Effect of magnetic field on atoms and its application
4. Learn Molecular physics and its applications.
5. This course will be useful to get an insight into spectroscopy

Theory Course - USPH504: Electrodynamics

Learning outcomes:

On successful completion of this course students will be able to:

- 1) Understand the laws of electrodynamics and be able to perform calculations using them.
- 2) Understand Maxwell's electrodynamics and its relation to relativity.
- 3) Understand how optical laws can be derived from electromagnetic principles.
- 4) Develop quantitative problem solving skills.

PRACTICALS – SEMESTER-V

Learning Outcomes :

On successful completion of this course students will be able to :

- i) Understand & practise the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate their physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

SEMESTER-VI**Theory Course – USPH601: Classical Mechanics****Learning outcomes:**

This course will introduce the students to different aspects of classical mechanics. They would 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. Finally, 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.

Theory Course – USPH602: Electronics**Learning Outcome:**

On successful completion of this course students will be able to:

1. Understand the basics of semiconductor devices and their applications.
2. Understand the basic concepts of operational amplifier: its prototype and applications as instrumentation amplifier, active filters, comparators and waveform generation.
3. Understand the basic concepts of timing pulse generation and regulated power supplies .
4. Understand the basic electronic circuits for universal logic building blocks and basic concepts of digital communication.
5. Develop quantitative problem solving skills in all the topics covered.

Theory Course – USPH603: Nuclear Physics**Learning Outcomes:**

1. Upon successful completion of this course, the student will be able 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.

2. 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.

Theory Course – USPH604: Special Theory of Relativity

Learning outcomes:

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. After the completion of the course the student should be able to

1. Understand the significance of Michelson Morley experiment and failure of the existing theories to explain the null result
2. 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.
3. Understand the transformation equations for: Space and time, velocity, frequency, mass, momentum, force, Energy, Charge and current density, electric and magnetic fields.
4. Solve problems based on length contraction, time dilation, velocity addition, Doppler effect, mass energy relation and resolve paradoxes in relativity like twin paradox etc.

PRACTICALS – SEMESTER-VI

Learning Outcomes :

On successful completion of this course students will be able to :

- i) Understand & practise the skills while performing experiments.
- ii) Understand the use of apparatus and their use without fear & hesitation.
- iii) Correlate their physics theory concepts to practical application.
- iv) Understand the concept of errors and their estimation.

