The People's Education Society's

JAMKHED MAHAVIDYALAYA, JAMKHED

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Department of Commerce

(UG and PG)

Programme Outcomes (PO)

PROGRAMME SPECIFIC OUTCOMES (PSO)

COURSE OUTCOMES (CO)

Program Outcomes, Program Specific Outcomes and Course Outcomes

Bachelor of Commerce (B.Com)

Introduction

For Commerce stream, broad expectations listed by the university as well as Institution. The goal of creating an academic program assessment plan is to facilitate continuous program level improvement. A program assessment plan should be developed collaboratively among faculty who teach the program. A program level outcome assessment plan provide faculty with a clear understanding of how their program is assessed.

Program Outcomes (POs) is a systematic method for collecting, analyzing, and using information to answer questions about projects, policies and programs particularly about their effectiveness and efficiency. In both the public and private sectors, stakeholders often want to know whether the programs they are funding, implementing, voting for, receiving or objecting to are producing the intended effect. While program evaluation first focuses around this definition, important considerations often include how much the program costs per participant, how the program could be improved, whether the program is worthwhile, whether there are better alternatives, if there are unintended outcomes, and whether the program goals are appropriate and useful. Evaluators help to answer these questions, but the best way to answer the questions is for the evaluation to be a joint project between evaluators and stakeholders.

Programme Specific Outcomes (PSOs) are narrow statements that describe what the students are expected to know and would be able to do upon the graduation. Program outcomes represent broad statements that incorporate many areas of inter-related knowledge and skills developed over the duration of the program through a wide range of courses and experiences. They represent the big picture, describe broad aspects of behavior, and encompass multiple learning experiences.

Course outcomes (Cos) also referred as learning outcomes are measurable statements that concretely formally state what students are expected to learn in a course. While goals or objectives can be written more broadly, learning outcomes describe specifically how learners will achieve the goals.

FACULTY OF COMMERCE

Program	Program Outcomes
Program Outcomes	**After successfully Completing B.Com. programme, students will able to-** 1. In depth knowledge, understanding and skills in commerce. 2. Build a strong foundation of knowledge in different areas of Commerce. 3. Develop the skill of applying concepts and techniques used in Commerce for real life problems. 4. Inculcate reading, writing, speaking skills and Business correspondence. 5. Creates awareness among society about Law and Legislations related to commerce and business. 6. Use effectively recent Trends in Business, Organizations and Industries. 7. Communicate effectively about Economic Environment of Country as well as World. 8. Use effectively practical skills in real life related to banking and corporate world. 9. Provides a platform for overall development and develop knowledge level and awareness about Recent Trends of World 10. Use new technologies effectively to communicate ideas in the area of commerce. 11. Critically evaluate new research findings, ideas, methodologies and theoretical frame work in specialized study. 12. Work collaboratively and productively in groups.

Program	Program Specific Outcome
Program Specific Outcomes	1. Students will be able to apply basic skills learnt in commerce necessary for analysis of various problems in accounting, marketing, business economics, management and finance. 2. Students will demonstrate progressive affective domain development of values, the role of accounting in society and business. 3. Students will able to demonstrate quantitative and qualitative knowledge in key areas of organization behavior. 4. Students will able to evaluate national and international issue and discussion on economic, commercial and business related topics

Course Outcomes

F.Y. B.Com		
Semester I		
Subject Code	**Subject Name**	**Outcome**
111	**Compulsory English – I**	After completing this course, students will be able 1. Get insight to modern English and communication skills. 2. Get ready to communicate basic English. 3. Syllabus will be confidence builder for students.
112	**Financial Accounting – I**	After completing this course, students will be able - 1. Get basic knowledge of basic accounting concepts. 2. Understand process of dissolution of partnership firm. 3. Understand the process of conversion of single entry into double entry system. 4. Get knowledge about GST.
113	**Business Economics – I**	After completing this course, students will be able - 1. Be aware of concepts in micro economics and difference between micro and macro economics. 2. Get knowledge of cardinal and ordinal approach and concept of consumer surplus. 3. Get knowledge of law of supply and the determinants of law of supply 4. Understand the relation between revenue concepts
114	**Business Mathematics and Statistics**	After completing this course, students will be able - 1. To build good reasoning ability. 2. Calculate and solve basic Maths functions. 3. Use maths in day to day life.

115 (A)	**Organization Skill and Development**	After completing this course, students will be able - 1. Understand the concept of modern office, office organization, communication and time management 2. Get knowledge records, classification of files, Different types of forms and digitization of records 3. Understand the meaning of Office Environment, Office Location and its Layout 4. Understand meaning and the role of Scientific Office Management
115 (B)	**Banking and Finance**	After completing this course, students will be able – 1. To understand knowledge of evolution of banking & structure of Indian Banking 2. To understand the primary and secondary functions of a bank 3. To know the process of opening and operating procedure of bank accounts. 4. To understand various methods of remittance.
116	**Business Environment and Entrepreneurship**	After completing this course, students will be able – 1. To understand knowledge of evolution of Businesses in India 2. To understand environment around business 3. To know the process of managing external factors in business 4. To understand business better.
117	**Marathi**	After completing this course, students will be able – 1. To understand various methods of letter writing. 2. To help students to communicate better. 3. Regional language poetry and stories will help students to make aware about environment.

F. Y. B.Com

Semester II

Subject Code	Subject Name	Outcome
121	Compulsory English	After completing this course, students will be able to – 1. Get ready to communicate basic English. 2. Use proper grammar in every sentence. 3. It will build self confidence among students.
122	Financial Accounting – II	After completing this course, students will be able - 1. To classify the types, uses and installation of Accounting Software. 2. To maintain Accounting Records of Charitable Trusts, Clubs, Hospitals and Libraries etc, and to prepare the Income and Expenditure Account, Balance Sheet, etc. 3. To the concept of intangible assets and the methods of their valuation. 4. To understand the process and methods of leasing.
123	Business Economics (Micro) – II	After completing this course, students will be able - 1. To understand the concept and types of cost and to get knowledge about types of revenue 2. To gain the knowledge about Pure and Perfect Competition as well as equilibrium of firm and 3. To understand industry in short and long run and to understand the market structures under imperfect competition. 4. To gain knowledge about the Ricardian Theory of Rent, Theory of Marginal Productivity and Concept of Quasi Rent. And to to understand meaning and types of Wages.
124	Business Mathematics and Statistics – II	After completing this course, students will be able - 1. To build good reasoning ability. 2. Calculate and solve basic Maths functions. 3. Use maths in day to day life.
125(A)	Organizational Skills Development – II	After completing this course, students will be able - 1. Get the necessary skills of good Manager. 2. Develop knowledge of communication skills and latest tools in communication

		3. Acquire knowledge about the writing, presentation,interpersonal skills for effective formal corporate reporting. 4. Develop knowledge about the recent trends in communication technology and tools of office automation
125(B)	**Banking and finance**	After completing this course, students will be able - 1. To learn about Lending Principles and Balance Sheetof a Bank 2. To learn about Negotiable instruments 3. To learn about Endorsement. 4. To acquire knowledge about current trends in Banking Technology
126	**Business Environment and Entrepreneurship**	After completing this course, students will be able – 5. To understand knowledge of evolution of Businesses in India 6. To understand environment around business 7. To know the process of managing external factors in business 8. To understand business better.
117	**Marathi**	After completing this course, students will be able – 1. To understand various methods of letter writing. 2. To help students to communicate better. 3. Regional language poetry and stories will help students to make aware about environment.

S. Y. B.Com Semester III		
Subject Code	**Subject Name**	**Outcome**
231	**Business Communication – I**	After completing this course, students will be able - 1. To Study Meaning, Characteristics, Importance, Principles and Process of Communication and Barriers of Communication details 2. To understand importance of Business letters and its essential qualities 3. To acquire the fundamental knowledge about soft skills and understand elements of soft skills 4. To understand Resume writing and Job application letter
232	**Corporate Accounting – I**	After completing this course, students will be able - 1. To develop Conceptual understanding about various accounting standards and its applicability in corporate accounting 2. To develop Conceptual understanding about pre and Post – Incorporation Period and develop analytical skills about its accounting 3. To understand Practical Application of financial statements along with various adjustment and understand revised format of company final accounts 4. To understand the concept, need and methods of valuation of shares
233	**Business Economics – I**	After completing this course, students will be able - 1. To understand the concepts of macro economics 2. To understand the basic concepts in National Income 3. To understand the concept of employment and theory of output 4. To impart the knowledge of Consumption function, Saving and Investment
234	**Business Management – I**	After completing this course, students will be able – 1. To acquire knowledge about the importance of management and various management principles and thoughts 2. To develop knowledge of planning decision making. 3. To get acquainted with process of organizing & staffing. 4. To develop knowledge of Direction &communication skills.

235	**Elements of Company Law – I**	After completing this course, students will be able - 1. To understand the meaning of Company and Types ofCompanies. 2. To acquire the Knowledge of various stages in theFormation and Incorporation of a Company. 3. To understand the role and importance of variousdocuments like Memorandum 4. To have Comprehensive insight about the capital ofCompany and various aspects of shares.
236 (A)	**Business Entrepreneurship - I**	After completing this course, students will be able - 1. To understand the basics of business entrepreneurshipconcepts, Meaning Commerce, functions of entrepreneurship. 2. To understand the various forms of businessorganizations. 3. To understand the concept of Business Environment, itsvarious aspects and its impact on business 4. To study the various stages in business promotion andimportant factors to be emphasized for Business Development.
236 (H)	**Marketing Management – I**	After completing this course, students will be able - 1. To get the basic knowledge of Marketing Management. 2. To understand how marketing strategy plays a vital rolein making today's customers want to buy the products and services. 3. To plan and make the best possible utilization of all thehuman and physical resources so that predetermined marketing objectives of the firm can be achieved. 4. To explain value of Market Research and its impact in decision making.

S. Y. B.Com Semester IV		
Subject Code	**Subject Name**	**Outcome**
241	**Business Communication – II**	After completing this course, students will be able - 1. To understand the Report Writing and Internal Correspondence, Office Correspondence, and Trade correspondence 2. To understand the Recent Trends in Business Communication 3. To acquire the fundamental knowledge about types of Business Letters and create ability among the students for Drafting of Business Letters 4. To understand the Writing Formal Mails and Blog writing.
242	**Corporate Accounting – II**	After completing this course, students will be able - 1. To develop Conceptual Understanding of Holding Company Accounts and its practical application 2. To Understand on the concept of Absorption of companies and its Practical application skills in the process of accounting for Absorption 3. To gain practical knowledge of Liquidation process of Companies 4. To acquire knowledge about forensic accounting and its implication
243	**Business Economics(Macro) – II**	After completing this course, students will be able - 1. To gain knowledge about Demand, Supply and Value of Money 2. To understand the concept Inflation
		3. To understand the concept and phases of trade cycle. 4. To understand Public Finance.
244	**Business Management – II**	After completing this course, students will be able - 1. To understand the importance of Motivation & Motivation theories and develop skills regarding retaining motivation 2. To learn the meaning of Leadership, Qualities of leader & Understanding followers and their views on various organizational matters 3. To understand the meaning of Co-ordination& steps in the process of control. 4. To acquire knowledge about the recent trends in Business Management i.e. Business Ethics, Corporate Governance, CSR.

245	**Elements of Company Law – II**	After completing this course, students will be able - 1. To acquire the Knowledge of Management of Company and Types of Directors. 2. To have Comprehensive understanding about the Key Managerial Persons and CSR 3. To understand about different types of Company meetings and their different procedure 4. To be able to appreciate the emerging E Governance and E- filing under the Companies Act, 2013. Learn the winding up of company.
246 (A)	**Business Entrepreneurship – II**	After completing this course, students will be able - 1. To develop a better understanding of the legal compliances in business 2. To understand the term productivity and its importance in business administration 3. To develop an understanding of the various forms of Liaoning required in business administration 4. To get acquainted with the growth strategies of business
246 (H)	**Marketing Management – II**	After completing this course, students will be able - 1. To understand the core principles required to create competitive advantage in the marketplace by implementing innovative green marketing strategies. 2. To understand Professionals working in E-Marketing to design and implement Internet marketing plans. 3. To understand how and why to use digital marketing for multiple goals within a larger organization 4. To expand student's knowledge of significant strategic marketing techniques this will give them great advantage to develop their career in marketing.

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Semester V

Subject Code	Subject Name	Outcome
351	**Business Regulatory Framework – I**	After completing this course, students will be able - 1. To understand the concept of Contract and its contents, nature and performance and breach of Contracts. 2. To understand the nature of partnership, Rights and duties of Partner, handling the registration and dissolution of the partnership and get basic knowledge about LLP 3. To get Compressive understanding about the sale of Goods Act and get knowledge about ownership and delivery of goods. 4. To get Comprehensive insight about the emerging trend of Arbitration and conciliation and its regulatory mechanism
352	**Advanced Accounting- I**	After completing this course, students will be able - 1. To develop conceptual understanding about various Accounting Standards and its applicability and basic introduction to IFRS – Fair Value Accounting. 2. To get conceptual understanding about accounting for capital restructuring in the form of internal reconstruction.
		3. To understand the various legal provisions regarding banking companies and the procedure regarding preparation of final accounts of banking companies. 4. To understand the meaning of different costs incurred in investment business and get the knowledge and skill regarding Investment Accounting.
353	**Indian and Global Economic Development**	After completing this course, students will be able - 1. To become aware of concept of Development and also compare Indian Economy with other developed and competitive economies 2. To get the knowledge about varied aspects of agricultural sector in India. 3. To get idea about importance and status of Industrial Development in Indian Economy and the latest policies for Industrial development in India. 4. To get the knowledge about importance and status of Service Sector and Infrastructure Development in Indian Economy

354	**Auditing and Taxation I**	After completing this course, students will be able - 1. To understand the concept of Auditing, Various type of Audit, to find out Errors frauds and help to improve internal control system in business organization 2. To know the procedure of vouching, Verification, and Valuation use for audit and to know the terms used in Audit Report, Certificate and Auditing Assurance Standard. 3. To understand work as Company Auditor as per Companies Act 2013 and provisions of audit under Income Tax Act 1961 used for Conduct Tax Audit. 4. To get knowledge of Computerized Systems and Forensic Audit used for new techniques applicable for new business trends
355(G)	**Business Entrepreneurship – II**	After completing this course, students will be able - 1. To develop Conceptual understanding and Conceptual Clarity Learning of the Latest development in Human Resource 2. To contribute to the development, implementation, and evaluation of employee recruitment, selection, and retention plans and processes. 3. To understand the basics of career development and succession planning 4. To understand the basics of performance appraisal
355(H)	**Marketing Management – II**	After completing this course, students will be able - 1. Get a comprehensive understanding of the key factors in demand and sales forecast. 2. To familiarize with application of the concept & need of marketing in Non-profit organization. 3. To understand marketing organization and its changing role. 4. To understand the concept and importance of Building Brand Strategy, as well as its relationship in reviewing to competitive advantage.
356 (G)	**Business Entrepreneurship – III**	After completing this course, students will be able - 1. To get knowledge of corporate finance and basic knowledge Indian Financial System 2. To understand meaning, nature characteristics, scope steps and importance of financial planning 3. To get knowledge about capitalization, its concepts and capital structure and factors affecting capital structure 4. To understand the different sources of capital and the concept of risk and return

356 (H)	**Marketing Management - III**	After completing this course, students will be able - 1. To get conceptual clarity of the meaning of advertising and get the knowledge about Advertising Media 2. To get knowledge about the appeals and approaches in Advertisement and to acquaint themselves with direct and indirect appeals 3. To understand the Effects of Advertising on Production Cost, Distribution Costs and Consumer Prices and develop the knowledge of Economic and Social and Regulatory Aspects of Advertising. 4. To get Conceptual clarity of meaning of brand and impart knowledge about Brand identity, Brand Extension and Brand loyalty.

T. Y. B.Com		
Semester VI		
Subject Code	**Subject Name**	**Outcome**
361	**Business Regulatory Framework II**	After completing this course, students will be able - 1. To understand meaning, concept and importanceof negotiable instrument. 2. To get comprehensive understanding about the E Contracts, E-Commerce and their legal aspects. 3. To understand consumer rights, unfair trade, waysand means to seek justice under Consumer Protection Act 2019. 4. To understand Meaning, Importance of IntellectualProperty Rights and understand Definition, Concept of various types of IPRs like Patents, Copyright, Trademark, Designs etc.
362	**Advanced Accounting – II**	After completing this course, students will be able - 1. To develop the skill regarding preparation & presentation of final accounts of Credit Co-op.Societies & Consumer Co-op. Societies. 2. To develop conceptual understanding aboutaccounting for different branches.
		3. To develop conceptual understanding about forensic accounting, corporate social responsibility, derivative contracts and artificialintelligence in accounting. 4. To develop analytical skills & decision makingskills of students through analysis of financial Statements.

363	**Indian and Global Economic Development**	After completing this course, students will be able - 1. To understand about concept of Human ResourcesDevelopment and HDI 2. To get the knowledge about Foreign Capital andissues related to Foreign capital in India. 3. To become aware about the situation of ForeignTrade and Balance of Payments. 4. To get the knowledge about International FinancialInstitutions and Regional Economic Cooperation
364	**Auditing and Taxation – II**	After completing this course, students will be able - 1. To understand the concept of Income and tax on Income, Income tax provision and tax payable forthe development of the country 2. To know the procedure of computation of income under different heads of income and tax payable onthe income. 3. To understand the calculation of total income andtax payable by individual person. 4. To know the e-filing due dates, recent changes inincome tax provisions.
365 (G)	**Business Entrepreneurship –II**	After completing this course, students will be able - 1. To develop the understanding of marketing type ofmarket & evolution of marketing concept amongstthe students to update students with the knowledgeof varied dimensions of branding & price management 2. To inculcate the knowledge amongst the studentson various aspects of promotion, distribution & recent trends in the field of marketing. 3. To get knowledge on the various elements ofmarketing mix & market segmentation. 4. To get conceptual understanding amongst the on the topic of core product basic product, expected product & product life cycle.
365 (H)	**Marketing Management – II**	After completing this course, students will be able - 1. To understand meaning of agricultural marketing,identify its problems and find solutions for the same 2. To familiarize the students with the differentmarketing regulations in India. 3. To understand the factors that has led to thegrowth of global marketing. 4. To get an insight on cyber security marketing intoday's digital world.
366 (G)	**Business Entrepreneurship – III**	After completing this course, students will be able - 1. To get acquainted with knowledge of ProductionManagement and Production Functions. 2. To get equipped with knowledge for efficient Inventory Management and the recent development in the area Inventory.

		3. To get introduced to the concept of Quality Management and get motivated to adopt quality management even in the regular lifestyle. 4. To get updated with the knowledge of Logistics Management.
366 (H)	**Marketing Management – III**	After completing this course, students will be able - 1. To get knowledge about the concept Service Marketing. 2. To understand the art and craft of creating advertisements for various media. 3. To get introduced various Social Media Marketing. 4. To get Conceptual Clarity of Marketing Control and get knowledge about Marketing Audit.

Master of Commerce (M.Com)

Program Outcomes, Program Specific Outcomes and Course Outcomes

Program	Program Outcomes
Program Outcomes	After successfully completing M.com course, student will be able to – 1. Aware the internal and external effects in developing business strategy. 2. Express an understanding of the tools and techniques necessary for research in Business. 3. Trained the students' well-acquainted regarding current financial structure. 4. Versatile the nature of HRM and the study of linkage between labour and management. 5. Inculcated students to acquire sound knowledge, concept and structure of capital market and financial services. 6. Develop competence with their usage in managerial decision making and control. 7. Identify the role of production and operation functions in business. 8. Illustrate the implications of various financial ratios in decision making. 9. Correlate the manufacturing technology and its role in developing business. 10. Criticize the business ethics and professional values in running business. 11. Gain ability to solve problems relating to Company Accounts, Valuations and special types of situations. 12. Equip with the advanced knowledge of techniques and

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Program	Program Specific Outcomes
Program Specific Outcomes	1. Students will be able to apply basic skills learnt in commerce necessary for analysis of various problems in management accounting, strategic management and Production & Operation Management. 2. Students will demonstrate progressive affective domain development of values, the role of advanced accounting in society and business. 3. Students will able to demonstrate quantitative and qualitative knowledge in key areas of Industrial Economics and Human resource management. 4. Students will able to evaluate national and international issue and discussion on income tax, business tax and corporate related topics.

Course Outcomes

M.Com Part I		
Semester I		
Subject Code	**Subject Name**	**Outcome**
101	**Management Accounting**	After successfully completing this course, student will be able to 1. Explain the concepts of Management Accounting in organizational business environment. 2. Demonstrate various tools of financial statements of organizational financial performance 3. Illustrate methods of financial statement analysis of an organization. 4. Assess different types of ratios of organizational financial performance. 5. Estimate the cash flow of liquidity capacity of firm. 6. Assess minimum working capital required for running organization. 7. Describe concept and types of responsibility centre accounting for management controlling. 8. Calculate sources and applications of funds of organization
102	**Strategic Management**	After successfully completing this course, student will be able to – 1. Describe different approaches of strategic decision making in corporate environment. 2. Describe various strategies of business and factors affecting on it.

		3. Analyze techniques of organizational strengths, weakness, opportunities and threats (SWOT). 4. Analyze effectiveness and its utilization in corporate strategic planning. 5. Illustrate the different alternatives of corporate strategies. 6. Develop allocation of resources for defining corporate strategy of business. 7. Describe the different functional strategies for organizational effectiveness. 8. Evaluating the Strategic Performance with actual performance.
113	**Productions and Operations Management(Sp –I)**	After successfully completing this course, student will be able to – 1. Describe recent trends in production and service system. 2. Describe different plant layout of production and operation management 3. Discuss process of product design of production function. 4. Illustrate techniques and tools of product development. 5. Identify production planning in production management. 6. Describe different concept of product control. 7. Illustrate role of Total Quality Management in production and operation management. 8. Summarize concepts of Quality circle, TQM, & GMP as a Quality management.
114	**Financial Management (Sp – II)**	After successfully completing this course, student will be able to – 1. Identify financial system in India & recent changes. 2. Illustrate role of RBI & SEBI in Indian financial system. 3. Discuss capital budgeting techniques for financial decision making. 4. Illustrate capital budgeting methods of investment decisions. 5. Interpret financial statement & its utility of business firm. 6. Describe limitations of financial statements in financial analysis. 7. Explain concept of working capital management. 8. Identify concept of inventory management & receivable management.

M.Com Part I		
Semester II		
Subject Code	**Subject Name**	**Outcome**
201	**Financial Analysis and Control**	After successfully completing this course, student will be able to – 1. Describe concepts of capital budgeting. 2. Compute different tools and techniques to identify capital budgeting. 3. Explain Tabulated measurement of cost of capital. 4. Interpret expression view of marginal costing. 5. Evaluate practical problems on marginal costing which correlates to BEP and P/V analysis. 6. Illustrate short run managerial decision analysis. 7. Distinguish concept of budget and budgetary control. 8. Comparative study of different variance analysis.
202	**Industrial Economics**	After successfully completing this course, student will be able to – 1. Explain concepts of industrial economics.
		2. Describe relationship between industrial and economic development. 3. Classify factors influencing industrial location. 4. Explain major factors affecting industrial efficiency. 5. Compare private and public industrial profile and their problems. 6. Describe structure of Indian industries. 7. Explain role of Micro, Small and Medium Enterprises. 8. Summarize concept of industrial imbalance.

213	**Business Ethics and Professional Values (SP – III)**	After successfully completing this course, student will be able to – 1. Identify concept of business ethics, profession and values. 2. Define factors affecting on social ethics. 3. Describe Indian Ethical Practices in marketing, advertising and Employment. 4. Illustrate unethical practices in Gender discrimination and accounting disclosures. 5. Describe concept of corporate governance in business. 6. Summarize concept of Corporate Social Responsibility in business ethics. 7. Illustrate Indian approaches to business ethics. 8. Examine new values in Indian industries after economic reform 1991.
214	**Elements of Knowledge Management (SP – IV)**	After successfully completing this course, student will be able to – 1. Demonstrate concepts of knowledge management. 2. Describe evolution of knowledge management. 3. Summarize drives of organizational learning. 4. Illustrate organizational learning frame work. 5. Illustrate knowledge management tools. 6. Describe cultural change management. 7. Examine organizational culture for organization development. 8. Criticize measuring organizational cultural and climate Norms.

M.Com Part – II

Semester III

Subject Code	Subject Name	Outcome
301	**Business Finance**	After successfully completing this course, student will be able to - 1. Define concepts of business finance in Indian Financial System. 2. Identify categories of business finance. 3. Illustrate role of strategic financial planning in business finance. 4. Distinguish comparison between over Capitalization & under capitalization. 5. Discuss companies Act 2013. 6. Classify sources of long term finance. 7. Define concept of short term finance. 8. Illustrate role of working capital in the business organization.
302	**Research Methodology for Business**	After successfully completing this course, student will be able to – 1. Define concepts of Research in business. 2. Interpret different steps in business research process. 3. Rewrite formulation of research problem in writing of research report. 4. Illustrate various sample and sampling methods in business research. 5. Distinguish primary and secondary methods of data collection for research. 6. Describe various techniques of data processing in research. 7. Explain writing skill for research project report in business. 8. Describe various ways of citation & bibliography for writing of report in business.

313	**Human Resource Management (SP –V)**	After successfully completing this course, student will be able to - 1. Describe concept, approaches, and functions of HRM in Indian business context. 2. Identify concept of HR environment in organization. 3. Illustrate different methods of recruitment of organization. 4. Interpret training process in business organization. 5. Classify methods of performance appraisal. 6. Explain concept of merit rating in Human Resource Management. 7. Classify different kinds of retirement. 8. Differentiate new trends in customer service management.
314	**Organizational Behavior (SP – VI)**	After successfully completing this course, student will be able to – 1. Define concepts of organizational behaviour. 2. Illustrate role of information technology in an organization. 3. Identify concept of Horizontal network and virtual design of organization. 4. Describe Attributes of personality & dimensions of attitude. 5. Classify theories of motivation. 6. Define concept of emotional intelligence in the workplace. 7. Differentiate various types concept of stress, conflict and groups. 8. Classify different types of teams & team building.

M.Com Part – II

Semester IV

Subject Code	Subject Name	Outcome
401	**Capital market and Financial Services**	After successfully completing this course, student will be able to –
		1. Elaborate and define capital market instruments. 2. Differentiate forward, future and option contracts. 3. Explain stock market in detail. 4. Illustrate functions of primary and secondary market in financial market. 5. Classify different types of mutual funds. 6. Describe concept of portfolio management and credit rating. 7. Illustrate role of SEBI in financial intermediaries. 8. Demonstrate recent trends in Securities and Exchange Board of India.
402 A	**Industrial Economic Environment**	After successfully completing this course, student will be able to – 1. Define concept of industrial finance. 2. Explain new industrial policy 1991. 3. Demonstrate effects of new industrial policy on industry. 4. Illustrate industrial development & environmental problems. 5. Explain different issues in information technology. 6. Describe present position of IT industries in India. 7. Interpret concept of industrial relations. 8. Assess causes of industrial disputes.

413	**Recent Advances in Business Administration (SP – VII)**	After successfully completing this course, student will be able to – 1. Define concepts of change management. 2. Describe dimensions and approaches of change management. 3. Demonstrate concept of Total quality management. 4. Define six sigma techniques in quality management. 5. Describe Global management system and its significance. 6. Illustrate role of merger and acquisition in corporate organization. 7. Interpret techniques of turnaround management strategies. 8. Analyse key steps in innovation management.
414	**Project Work (Business Administration)**	After successfully completing this course, student will be able to – 1. Describe concepts of Research in business. 2. Prepare synopsis for project report. 3. Construct formulation of research problem. 4. Modify sample and sampling methods. 5. Classify primary and secondary methods of data collection. 6. Describe analysis and interpretation of data. 7. Rewrite report in different areas. 8. Summarize modes of citation & bibliography.

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Departments of Arts

(UG and PG)

Programme Outcomes (PO)

PROGRAMME SPECIFIC OUTCOMES (PSO)

COURSE OUTCOMES (CO)

DEPARTMENT OF HISTORY (UG)

Programme Outcomes: B.A. HISTORY

Department of History	After successful completion of three year degree program in History a student should be able to;
Program Outcomes	1. Student enables to Evaluate, analyze and synthesize historical materials (primary and secondarysources). 2. Student enables to Recognize and explain the historical development ofcultures. 3. Student understands to Evaluate and recognize different Empire in Indianhistory. 4. Student Identify the role of theory and methodology in the production ofhistorical knowledge. 5. Student Identify and critique basic historicalconcepts.
Program Specific Outcomes	1. A history graduate can find employment with Archaeological Survey of Indiaor with private Firms related toarchaeology. 2. For History graduates, the option of public service is alwaysopen. 3. Work as a teacher in schools and highschools 4. Serve as conservator and tourist guide in historicalmonuments. 5. NGOs and Social Welfare Organizations also employ BA Historygraduates. 6. Writer/Subject MatterExpert

Course Outcomes B.A. HISTORY

Course	Outcomes	
	After completion of these courses students should be able to;	
FYBA	**Early India: From Prehistory to the Age of the Mauryas**	1. Students got knowledge of concept of Prehistory. 2. Student to understand the history of early India from the prehistoric time to the age of Mauryas. . 3. Student to understand the contribution of early Indians to polity, art, literature, philosophy, religion, science and technology. 4. Students to highlight the factors and forces behind the rise, growth and spread of civilazation and culture of India along with the dynastic history.
SYBA	**Mediaval India - (1206-1707) (S-1)**	1. The students surveyed the sources of History of medievalIndia. 2. The students understood the social, economic, religious basesof medievalIndia. 3. The students learned about the medieval Indian art &architecture. 4. Students to learn foundation of Delhi Sultanate and administration. 5. To learn Mughal rular and incidents regarding Deccan policies.
SYBA	**Glimpses of Modern World (S-2)**	1. It will enable students to develop the overall understanding of the Modern world. 2. The students will get acquainted with the renaissance, major political, socio-religious and economic developments during the modern world. 3. It will enhance their perception of the history of modern world. 4. It will enable students to understand the significance of the strategic political developments in the modern world.
SYBA	**History of Marathas (1630-1818) (G-2)**	1. Students will develop the ability to analys sorces forMaratha History. 2. Students will learn significanse of regional history and political foundation of the region. 3. It will enhance their perception of 17th century Maharashtra and India in context of Maratha history. 4. Appreciate the skill of leadership and the administrative system of the Marathas. 5. Students will be able to analyze the maratha policy of expansionism and its consequences. 6. They will understand the role played by the Marathas in the Deccan region.
TYBA	**Introduction to Historiography (S-3)**	1. The students learned about how history is studied, writtenand understood. 2. The students explained the methods and tools of datacollection 3. The students understood the meaning of Evolution of Historiography. 4. The students learned the Various Views ofHistoriography. 5. The students learned the approaches toHistoriography. 6. The students learned the types of IndianHistoriography. 7. The students learned to describe importance of inter-disciplinary research.

		8. The students learned the basics ofresearch.
TYBA	**Maharashtra in 19th century (S-4)**	1. Students will develop the ability to analyse sources for 19th century Maharashtra history. 2. Students will learn significance of regional history and socio-religious reformism foundation of the region. 3. It will enhance their perception of 19th century Maharashtra. 4. Appriciate the skills of leadership and the socio-religious system of the Maharashtra.
TYBA	**Indian National Movement (1885-1947) (G-3)**	1. It will enable students to develop an overall understanding of Modern India. 2. It will increase the spirit of healthy Nationalism, Democratic value and secularism among the students. 3. Students will understand various aspects of the Indian Independence Movement and the creation of modern India. 4. The students explain the basic concepts/ concerns/ frame workof Indian History. 5. The students are acquainted with fundamental aspects of Modern Indian History.

DEPARTMENT OF HISTORY (PG)

Programme Outcomes: M.A. HISTORY

Department of History	After successful completion of two year post graduate degree program in History a student should be able to;
Programme Outcomes	Students enable to adequateconceptualbase of history and better understanding of history and itsforces, 1. Students enable to research in terms of form formulating hypotheses and develop broad frames of interaction with other social sciences and attaincertain level of interdisciplinaryapproach. 2. Students understanding the social, economic and institutional bases of Ancient India. 3. Students enable to understanding the Ancient Indianhistory. 4. Students enable to understand historical materials efficiently andeffectively integrate and use of historical information to accomplish a specificpurpose. 5. Students understand cultural, ethical, social, legal, and economic issueshistory.
Programme Specific Outcomes	1. **Jobs in Government:**policyanalysts, government historians, intelligence analysts, museum curators, administrative and programs specialists, communication specialists, and corporateCommunicationmanagers. 2. **Travel and Tourism Expert:** Work as a tourist guide at historical andreligious places. 3. **School Teacher:** Work as a teacher in schools and highschools 4. **College Teacher:** Work as a assistant professor incolleges 5. **Archivist:** A history graduate can find employment with Archaeological Survey of India or with private firms related toarchaeology. 6. **Researcher:** Many Government and non-government institutes alongwith research center offer several career options for qualified geographers with umerous specializations. 7. **Competitive Examinations**: For History graduates, the option of publicservice andNET/SET is alwaysopen. 8. **Social Work:** NGOs and Social Welfare Organizations also employ BA History graduates. 9. **Exhibit Designer / ContentCreator** 10. **Writer/Subject MatterExpert** 11. **Journalist:** Journalism is a common career for Historygraduates.

Course Outcomes M.A. HISTORY

Course	Outcomes After completion of these courses students should be able to;
SEMESTER-I	
History : Theory and Method	1. The students developed adequate conceptual base, bringing better understanding of history and its forces, to help interrogate existing paradigms and challenge the outdated. 2. The students learned about developing critique, research in termsof formulating hypotheses and developing broad frames of interaction with other social sciences and attain certain level ofinterdisciplinary approach.
Evolution of Ideas and Institutions in Early India	1. The students understood the social, economic and institutional bases of Early India. 2. The students learned that understanding of early Indian historyis crucial to understand Indian history as awhole.
Maratha Polity	1. The students learned about the administrative system of theMarathas in an analytical way and are acquainted with the nature of Maratha Polity. 2. 2. The students understood basic components of the Maratha administrative structure enabling them to understand thebasic concepts of the Marathapolity.
Social background of Dalit Movement in Maharashtra	1. The students understand the various concepts, further explaines the caste system and evil practices like untouched ability and its rigidification in ancient and medieval times. 2. Students to know forms of protest by Buddhism, Jainism and later by Bhakti movement, in the medieval period especially in Maharashtra.
SEMESTER-II	
Approches to History	1. The students acquired adequate conceptual base, bringing better understanding of history and its forces, to help interrogate existing paradigms and challenge the outdated, also helping in developing critique and research in terms of formulating hypotheses and develop broad frames of interaction with other social sciences and attain certain level of Interdisciplinary approach.
Evolution of Ideas and Institutions in Medieval India	1. The students learned about the nature of medieval Indian society, economy, state formations, and the main religious currents of the time. 2. The students learned further about ancient India. The students also understood that it is crucial to an understanding of the nature of society, and the problems of the challenge to that society, through Colonialism.

Socio-Economic History of the Marathas	**1.** The students learned about socio-economic history of the Marathas in an analytical way and are acquainted with the components of social structure and their functions while understanding the relationship between religion, caste, customs, traditions, class in 17th and 18th century Maratha Society, enabling them to understand aspects of economic life, to trace the determinants of changes in social and Economic life.
Nature of Dalit Movement in Maharashtra	**1.** The students analyze the ideology and organization of the Dalit Movement in Maharashtra. **2.** Students to understand the details of the most important and neglected socio-religious reform movement in Maharashtra with its root cause. **3.** Students to understand the ideology of Dr. Babasaheb Ambedkar who was the unchallenged leader of the Dalit Movement.
SEMESTER-III	
Cultural History of Maharashtra	**1.** This paper is designed to help the students situate and interpret the cultural manifestations across historical memory which have contributed to the creation of the geopolitical region of Maharashtra.
Intellectual History of the Modern World	1. The paper is seen as a prerequisite for understanding the concepts that are used in history, to acquaint the student with the intellectual activity that played an important role in shaping events: the transition from medieval to modern time.
Economic History of Modern India	**1.** The students learned about structural and conceptual changes in Indian economy after coming of the British, making them aware of the exploitative nature of the British rule, to help them understandthe process of internalization by Indians of new economicideas, principles and practices.
Peasant Movements in India (Medieval and Modern)	**1.** This course attempts to study various approaches to peasant revolts and movements, so as to help the students to understand characteristics of peasant movements.
SEMESTER-IV	
Modern Maharashtra : History of Idea	**1.** The paper aims to let the students explore the ideas which have given Maharashtra its unique character. It also hopes to offer a specialised knowledge of the intellectual history of Maharashtra based on a critical reading of the original textual sources.
Debates in Indian History	**1.** The students learned about some of the issues that have been debated by historians and introduced to some perspectives with reference to Indian History.
World after World War II - 1945-2000	**1.** The students are acquainted with the post-World War II scenario enabling them to understand contemporary world from the historical perspective.

Modern India	**1.** The students are enabled to study the history of Modern India froman analyticalperspective. **2.** The students are aware of the multi-dimensionality of ModernIndia. **3.** The students highlight the ideas, institutions, forces andmovements that contributed to the shaping of Indianmodernity. **4.** The students are acquainted with various interpretativeperspectives.

The Peoples Education Society's

Jamkhed Mahavidyalaya, Jamkhed

Dist.- Ahmednagar

Department of Geography

Programme and Course Outcome

F.Y.B.A. Geography

SEMESTER I

Name of Subject: Gg- 110 (A) Physical Geography (CC-1A)

Objectives:

1. To introduce the students to the basic concepts in Physical geography.
2. To introduce latest concept in Physical geography
3. To acquaint the students with the utility and application of Physical geography in different regions and environment.
4. To make the students aware about Earth system (Lithosphere, Atmosphere, Biosphere and Hydrosphere)

Course Outcome:

Upon successful completion of this course, the student will be able to:

i) The geographical maturity of students in their current and future courses shall develop.

ii) ii) The student develops theoretical, applied and computational skills.

SEMESTER – II

Name of Subject: Gg- 110 (B) Human Geography (CC-1B)

Objectives:

1. To introduce the students to the basic concepts in Human Geography.
2. To introduce latest concept in Human geography
3. To make the students aware about population and settlement.

S.Y.B.A. Geography

Semester III

Name of Subject: Economic Geography- I, Subject Code: Gg.210 (A) (CC-1C)

Objectives:

1. To introduce students to the basic principles and concepts of economic geography
2. To acquaint students with the applications to economic geography for development in different areas
3. The students should be able to integrate various factors of economic development and dynamic aspect of economic geography.

Name of Subject: Geography of Maharashtra-I Subject Code: Gg.220 (A) (DSE 1A)

Objectives:

1. To acquaint students with Geography of our State.
2. To make students aware of the magnitude of problems and prospects in Maharashtra.
3. To help students understand the inter relationship between the subject and the society.
4. To help students understand the recent trends in regional studies

Name of the Subject: Scale and Map Projection, Subject Code: Gg. 201 (A)Practical Geography-I (DSE 2A)

Objectives:

1. To introduce the basic concepts in Practical Geography
2. To enable students to use various Scales and Projection Techniques in Geography.
3. To acquaint students with the utility of various Projections in Geographical knowledge.
4. To explain the elementary and essential principles of practical work in Geography.

Course Outcome:

After the successful completion of the course, the students will be able to:

1. Develop practical skill and use of map scale and projection.
2. To make students aware of the new techniques, accuracy and skills of map making.

Semester IV

Name of Subject: Economic Geography- II, Subject Code: Gg.210 (B) (CC-1D)

Objectives:

1. To acquaint students with the basic principles and concepts of economic geography
2. To acquaint the students with the applications to economic geography for development in different areas.
3. The main aims are to integrate the various factors of economic development and to acquaint the students with this dynamic aspect of economic geography.

Name of Subject: Geography of Maharashtra-2 Subject Code: Gg.220 (B) (DSE 1B)

Objective:

1. To make students aware about the agriculture problems and prospects of Maharashtra.
2. To understand the population distribution and settlement pattern in Maharashtra.
3. To understand the concept of rural development.
4. To understand the prospectus in Tourism activity in Maharashtra and the role of MTDC and Role of MIDC in industrial development in rural area of Maharashtra

Name of the Subject: Cartographic Techniques, Surveying and Excursion / Village / Project Report subject Code: Gg. 201 (B) Practical Geography-II (DSE 2B)

Objectives of Course:

1. To introduce the students to the basic and contemporary concepts in Cartography.
2. To acquaint the students with the utility and applications of various Cartographic Techniques.
3. To introduce the latest concepts regarding the modern cartography in the field of Geography.
4. To explain the elementary and essential principles of practical work in Geography.

Course Outcome:

After the successful completion of the course, the students will be able to:

1. Develop practical knowledge and application of cartographical techniques.
2. To make students aware of the new techniques, accuracy and skills of Map Making.

T.Y.B.A. Geography

Semester V

Name of the Subject: Geography of Tourism- I (CC 1E)

Objectives:

1) To understand the history of Tourism
2) To introduce the students to the basic concepts in Tourism Geography.
3) To understand the types of Tourism
4) To gain knowledge different aspects of Tourism Geography.

Name of the Subject: Geography of India -I (DSE 1C)

Objective:

1. To acquaint the students with geography of our Nation.
2. To make the student aware of the magnitude of problems and Prospects at National level.
3. To help the students to understand the inter relationship between the subject and the society.
4. To help the students to understand the recent trends in regional studied

Name of the Subject: Practical Geography- I (Techniques of Spatial Analysis) (DSE 2C)

Objective:

1. To introduce the basic concepts and techniques of Geographical Analysis.
2. To introduce the students with SOI Toposheets and acquire the Knowledge of Toposheet interpretation.
3. To introduce the students with Weather Maps and acquire the Knowledge of its interpretation.
4. To introduce the students with Aerial Photographs and Satellite Images and acquire knowledge to interpret it
5. To acquaint students with the spatial and structural characteristics of Practical Geography.
6. To explain the elementary and essential principles on field of practical work.

Semester VI

Name of the Subject: Geography of Tourism- II (DSE 1F)

Objectives:

1. To understand the history of Tourism
2. To introduce the students to the basic concepts in Tourism Geography.
3. To understand the types of Tourism
4. To gain knowledge different aspects of Tourism Geography.

Name of the Subject: Geography of India –II (DSE 1D)

Objective:

1. To acquaint the students with geography of our Nation.
2. To make the student aware of the magnitude of problems and Prospects at National level.
3. To help the students to understand the inter relationship between the subject and the society.
4. To help the students to understand the recent trends in regional studied

Name of the Subject: Practical Geography- II (Techniques of Spatial Analysis, Surveying and Excursion /Village/ Project Report) (DSE 2D)

Objective:

1. To introduce the basic concepts in statistical techniques
2. To introduce the students with Geographical Data & its Basic Analysis
3. To introduce the students with Calculation of Central Tendency, & Dispersion
4. To introduce the students with Testing and Application of Hypothesis

B.Sc. Geography
FYBSc

Semester I

Paper I Introduction to Physical Geography–I (Geomorphology) Course No :Gg111

Course Outcome:

1. Students will understand the basic concepts of Physical Geography.
2. Students will understand the applications of Geomorphology.
3. Students will understand the theories regarding Origin of Continents and oceans.
4. Students will be sensitizing with urgent need of protection and conservation of different aspects of Earth and its environment.
5. Students will be able to understand various geographical phenomenon, their origin, distribution and effect on life.

Paper II Introduction to Physical Geography II (Geography of Atmosphere and Hydrosphere) Course No :Gg112

Course Outcome:

1. Students will gain knowledge of the fundamentals of the Atmosphere so that they will be able to understand its uniqueness in among the planets in the galaxy.
2. Students will understand insolation and heat budget of the Earth. This is essential to understand causes and effects of global warming.
3. Students will be acquainted with atmospheric pressure and wind system. With this scientific knowledge they would understand intricacies of monsoon system that affects on Indian economy and polity.
4. Students will gain knowledge of hydrosphere to appreciate how water resource is precious

Paper III Practicals in Physical Geography Course No. Gg. 113

Course Outcome:

1. Students will get acquainted with basics of maps.
2. Students will understand map scales and its types.
3. Students will acquire skills of drawing various map projections with their advantages and limitations.
4. The students would develop the skills of representing geographical, meaning thereby spatial and temporal, data.
5. Exposure will be given to students about the field-based studies and data collection.

Semester II

Paper No-IV Introduction to Human Geography Course no : Gg121

Course Outcome:

1. The students' understanding of basic concepts of Human Geography would help them for application of the same to local issues.
2. Students will acquire knowledge of the history and evolution of humans and their races.
3. Students will learn and respect cultural diversity through various theories.
4. Students will explore man-environment relationship or man within environment in different geographical regions.
5. Students will acquire knowledge of various economic activities.

Paper -V Population and Settlement Geography Course no : Gg 122

Course Outcome:

1. With a knowledge base of Population Geography students would be able to understand issues related to population growth and related issues.
2. Students would understand the applications and sources of Population data.
3. Students would familiarize with the different types of Man-Environment relationship.
4. Students would be able to understand the issues and solutions related to settlements using concepts in Settlement Geography.

Paper VI - Practicals in Human Geography CourseNo.Gg:123

Course Outcome:

1. Students would understand the Population Indices and Projection with appropriate examples.
2. Students would be able to understand and apply notions of Population Geography in various field.
3. Students would develop their skills for using techniques used in Agriculture Geography.
3. Students would acquire the skills of computer aided presentation techniques.
4. They would get the idea of conducting social survey project which could surface the issues of particular social and economic sections of the society.

SYBSc

Semester-III

Environmental Geography –I (Paper-I) Course No: GG 231

Objectives:

i. To create environmental awareness amongst the students.

ii. To familiarize the students with fundamentals concepts of Environmental Geography.

iii. To acquaint the students to past, present, and future utility and potentials of resources at regional, national and global levels.

iv. To enable the students to understand dynamics of man–environment relationship in various region of the world.

Geography of Maharashtra (Physical)-I (Paper II) Course No: GG 232

Objectives:

i. To appraise the students with salient features of the Maharashtra State.

ii. To familiarize the students with the climatic characteristics of the State.

iii. To make the students aware of the geographic problems of Maharashtra in the view of sustainable development.

Surveying –I (Paper III) Course No. Gg. 233

Objectives:

i. To acquaint the students with the principles of surveying, its importance, and its utility in the Geographical study
ii. To familiarize the students with the basic aspects of linear, vertical and angular measurements of surveying.
iii. To understand the importance, basic principles and uses of GPS in surveying.
iv. To identify sources and types of errors occurs during surveys.

Semester-IV

Environmental Geography- II (Paper-I) Course No: GG-241

Objectives:

i. To introduce the methods and assessments of the impact on the environment amongst the students.

ii. To acquaint the students with environmental protection laws, acts, planning, and management.

iii. To appraise the students with various indigenous environmental conservation measures.

iv. To make aware the students about various programs and policies carried out in the regional and global scale.

Geography of Maharashtra (Human)-II (Paper-II) Course No: GG-242

Objectives:

i. To acquaint the students with the relationship between man and environment in Maharashtra State.

ii. To familiarize the students with the agricultural pattern, problems and prospects in the state.

iii. To study and understand the industrial sector, spatial distribution, development and problems faced within the state.

iv. To know the status of transport and communication in Maharashtra state.

Surveying – II (Paper-III) Course No. GG-243

Objectives:

i. To acquaint the students with the principles of surveying, its importance and utility in the Geographical study.
ii. To familiarize the students with the basic aspects of linear, vertical, and angular measurements of surveying.
iii. To introduce the importance, basic principles, and uses of GPS in surveying.
iv. To identify sources and types of errors occurs during surveys.

JAMKHED MAHAVIDYALAYA, JAMKHED

DEPARTMENT OF POLITICAL SCIENCE

PO, PSO, CO.

CLASS	SUBJECT	OUTCOMES
B.A.	PROGRAM OUTCOMES	1) Students are enabled to understand, to analyze society. 2) Explain the relation between society and politics. 3) Get knowledge of the present political theory and applications in written and oral form. 4) be well trained about the philosophical thought and recent changes in the world as well as India. 5) Understand the legal aspects of constitution and its implications as a power politics.
	PROGRAM SPECIFIC OUTCOMES	1) Take the note of new economic, political and social scenario. 2) Equip and enable our young graduate to accept the challenges 21 centuries. 3) Accommodate latest happenings, researches, modules, and information and technologies in subject of the faculty of political science. 4) Develop student's communication skills.

		5) Get advanced knowledge in special subject as well as the allied subject. 6) Develop appropriate skills in the students so as to make them self – reliant, competent and motivate them for self-employment.

CLASS	COURSE NAME	OUTCOMES
F.Y.B.A.	1) AN INTRODUCTION TO INDIAN CONSTITUTIONS G-1	1) It consists of political processes and the actual functioning of the political system. 2) Too aware of political structure both constitutional and administrative. 3) It emphasizes on local influences that derive from social stratification of castes and jatis, from language, religion, ethic and economic determinants and critically assesses its impact on the political processes. 4) it is consist of major contradictions of the Indian political process are to be critically analyzed along with an assessment of its relative success and failure in a comparative perspective with other developing countries in particular those belonging to the south Asian region.
F.Y.B.A.	2) DEMOCRACY, ELECTION AND GOVERNANCE (EXTRA CREDITS)	1) Students will analyses the democratic framework with the help of its standards of governance. Framework 2) Students will critically examine election process in the country. 3) Students will enhance their understanding of good governance.
S.Y.B.A.	1)BASIC OF INDIAN CONSTITUTION (SEC2)	1) To realize the significance of constitution of India to students from all walks of life and help them to understand the basic concepts of Indian constitution. 2) To identify the importance of fundamental rights as well as fundamental duties. 3) To understand the functioning of union, state and local governments in Indian federal system. 4) to learn procedure and effects of emergency, composition and activities of election commission and amendment procedure

S.Y.B.A.	**1)AN INTRODUCTION TO POLITICAL IDEOLOGY G-2**	1) It studies the role of different political ideologies and their impact in politics. 2) In course of its evolution and development, the different streams and subtle nuances within each ideology, the changes and continuities in its doctrine and its relevance to contemporary times are highlighted. 3) The close link between an idea and its actual realization in public policy needs to be explained as well.
	2)WESTERN POLITICAL THOUGHT S-1	1) It included the classical tradition in political theory from Plato to Marx with the view to understand how the great masters explained and analyzed political events and problems of their time and prescribed solutions. 2) To interpret both in the historical and philosophical perspectives to understand the universality of the enterprise of political theorizing. 3) The limitations of the classical tradition, namely its neglect of women's concerns and issues and the non-European world are critically examined. 4) The legacy of the thinkers is explained with the view to establish the continuity and change within the western

		political tradition.
	3)POLITICAL JOURNALISM **S- 2**	1) Students are enabled to understand, to analyze society. 2) Explain the relation between society and politics. 3) Get knowledge of the present political theory and applications in written and oral form. 4) Be well trained about the philosophical thought and recent changes in the world as well as India. 5) Understand the legal aspects of constitution and its implications as a power politics.

Class	Course Name	Outcomes
T.Y.B.A.	1) Local Self Government In Maharashtra G-3	1) Develop a local leadership. 2) Exhibit the efforts for rural development. 3) Apply the management and theory at local level. 4) Awareness of the basic governing system as well as development measures. 5) Conceptualization of the developmental process at the top to bottom and also in between.
	2) Public Administration S-3	1) It's an introductory course in public administration. 2)The essence of public administration lies in its 3) Effectiveness in translating the governing philosophy into programmes, policies and activities and making it a part of community living. 4) The paper covers personnel public administration in its historical context thereby proceeding to highlight several of its categories, which have developed administrative salience and capabilities to deal with the process of change. 5) The recent developments and particularly the emergence of new public administrations are incorporated within the larger paradigm of democratic legitimacy. 6) the importance of legislative and judicial control over administration is also highlighted

	3)(Sec 2) Samyukta Maharashtra Movement (Extra Credits)	2) This course is an introduction to the political process in Maharashtra with special reference to regionalism sub-regionalism and samyukta Maharashtra movement. 3) The aim of the course is that students are expected to understand both the historical evolution of Maharashtra's politics and different analyses of politics of the state. 4) It tries to acquaint students with the main issues and concerns in the public life of a regional society as it shaped in the concept of colonialism, nationalism and modernity.
	4) International Politics S-4	1) This paper deals with concepts and dimensions of international relations and makes an analysis of different theories highlighting the major debates and differences within the different theoretical paradigms. 2) The dominant theories of power and the question of equity and justice, the different aspects of balance of power leading to the present situation of a unipolar world are included. 3) it highlights various aspects of conflict and conflict resolution, collective security and in the specificity of the long period of the post second world war phase of the cold war, of détente and deterrence leading to theories of rough parity in armaments.

The People's Education Society

JAMKHED MAHAVIDYALA JAMKHED
Affiliated To
Savitribai Phule Pune University
Academic Year 2022-23

DEPARTMENT OF ECONOMIC

Programme Outcome
Programme Specific Outcome
Course Outcome For
BA Economic (Course)

Department of Economics

PO'S, PSO'S, CO'S –BA Economics

Course Outcomes (COs)
Department of Economics (UG)
FYBA Economics General Paper-I (11151)
Semester I/II-Indian Economic Environment

CO1: Understand the recent development in the Indian Economy.

CO2: To help the student to prepare for varied competitive examinations.

CO3: Understand the Background of the Indian economy with focus on contemporary issues like economic environment.

CO4: Understand and comprehend the current business scenario, Agricultural scenario and other sectarian growth in the Indian context.

SYBA Economics General Paper -

(23153)IISemesterI /II-Financial System

CO1: To Understand Principals and Function of Commercial Banks.CO2: To Understand New Technology in Banking.

CO3: To Understand Co-Operative Banking in India.CO4: To Understand Operation and types of Account. **SYBA Economics Special Paper-I (23151)**

Semester I/II-Micro Economics

CO1: To understand the behavior of an economic agent.
CO2: Analysis of production function and equilibrium of producer.
CO3: To understand Consumer, Producer, factor owner and Price fluctuation in a market.CO4: To understand Market Structure: Income, Price, Supply, and Elasticity in market.

SYBA Economics Special Paper –

(23152)II Semester I/II-

Macroeconomics

CO1: Familiarize the students to basic concepts Macro Economics and application.CO2: To understand the type of national income concepts and measurements.

CO3: To understand the inflation and business cycle and Monetary Policy and Fiscal Policy.

CO4: The theory of Employment, Consumption and Investment.

SYBA Skill Enhancement Course (23154)

Semester I/II-Basic Concept of Research Methodology

CO1: Demonstrate his/her understanding of sampling methods and ability to use collection of data.

CO2: Identify the appropriate sample techniques for different kinds of research questions.CO3: Identify the appropriate source of data in relation to the collection of research data.CO4: Able to classify and present the collected data in the form of Graph bar, Diagram, Chartists.

TYBA Economics General Paper –III (35153)

Semester I/II-Indian Economic development.

CO1: To relate and recognize the concept and indicators of Economic Development.

CO2: To describe and analyze the concept and indicators of human development.

CO3: To explain the characteristics of developing and developed entrees.

CO4: To describe and explain the relation between economic development and environment

CO5: To describe and explain the changing structure of planning process in India.

TYBA Economics Special Paper –

(35151) IIISemesterI/II-

International Economics

CO1: Ability to comprehend the issues relating to foreign capital and regional and international Co-operation.

CO2: To explain and compare end the issues relating to terms of trade and balance of payment.

CO3: Ability to relate and explain the Concepts of exchange rates and foreign exchange market.

CO4: To describe and apply those theories of International Trade.

CO5: Ability to describe the trends in growth, composition and direction of India's foreign trade.

TYBA Economics Special

(35152) Paper IV Semester I/II-

Public Economics

CO1: To relate and recognize the nature and scope of public finance.

CO2: To describe and analyze to concept of public revenue and its components.CO3: To understand Center – State financial relationship

CO4: To understand meaning, nature and objectives of budget.CO5: To understand public debt, deficit financing and fiscal policy.**TYBA Skill Enhancement Course (23154)**

Semester I/II-Business Management

CO1: Business Planning and decision making.

CO2: Leadership skill- Ability to work in teams at the same time, ability to show leadership qualities.

CO3: Ability of business of management.

CO4: Analytical skill- Ability to analyze data collected and inters prêt in the most logical Manner.

CO5: Project report writing skills- Ability to compare end and illustrate / demonstrate findings.

CO6: Leadership skill- Ability to show leadership skill with business ideas or work on business ventures as practical example.

Course Outcomes

FYBCOM

Business Economics (113)

1) Exposed Students of commerce to basic micro economics concept and inculcate an analytical approach to the subject matter.

2) Stimulated the Students interest by showing the relevance and use of various economic theories.

3) Applied economics reasoning to problem of business.

Banking and Finance (115(b)

1) Acquainted the students with the fundamental of banking.

2) developed the capability of students for knowing banking concept and operation.

3) Tried to make the students aware of banking business and practices.

4) To give thorough knowledge of banking operation.

5) Tried to enlighten the student regarding the new concept introduce in the banking system.

SYBCOM

Business Economics (233)

1) The objective of the course is to familiarize the student's basic concept of macro economics and application.

2) Tried to make them study the behavior of the economy as whole.

3) Tried to make them study the relationship among broad aggregates.

4) Tried to make them apply economic reasoning to problem of the economy.

TYBCOM

India and Global Economic Development (353)

1) Tried to expose students to a new approach to the study of the Indian economy.

2) Helped the students in analyzing the present status of the Indian economy.

3) Tried to enable students to understand the process of integration of the Indian economy with other economics of the world.

4) Tried to make acquaint students with the emerging issues in polices of India's foreign trade.

B.Com

Program Outcomes

1) Recognize, understand and imbibe soft skills required for the business world.

2) Build the abilities to become a successful entrepreneur, prepare a business plan, set up and manage own venture.

3) Maintain books of accounts of small scale and medium scale industrial units.

4) Develop skills of computation of income, submission of income tax return.

5) Acquire various costing techniques and do the cost audit.

Program specific outcomes

1) Take the note of new industrial and commercial scenario.

2) Equip and enable our young graduate to accept the challenges 21 centuries.

3) Accommodate latest happenings, researches, modules, information and technologies in subject of the faculty of commerce.

4) Develop student's communication skills.

5) Get advanced knowledge in special subject as well as the allied subject.

6) Develop appropriate skills in the students so as to make them self –reliant, competent and motivate them for self employment.

BA Economics

Program Outcomes

1) Understand nature, basic Characteristics and major issues of Indian economy.

2) Understand population and economic development.

3) Understand economic planning in India.

4) Understand role of agriculture, industrial sector in Indian economy.

5) Understand role of co-operative in economic development of Maharashtra.

Program Specific Outcome

1) Understand basic concept of economics.
2) Understand the Economic Way of thinking.
3) To able to analyze Economic behavior in practice.
4) To creates students ability to suggest of various economic problem.
5) The ability to right clearly expressing an economic point of view.

Be exposed to alternative approaches to economic problem through exposure to coursework in allied fields.

- Program and Course Out come

Title of the Programme:

B.A. English

Preamble:

The systematic and planned curricula from first year to the third year shall motivate and encourage the students for pursuing higher studies in English and for becoming master in English Language and Literature.

Introduction:

At **first year of under-graduation:** The topics related to the grammar of English and introduction of Language are covered. English is a Global Language, therefore, the syllabi for FYBA course is formulated as to achieve the basic skills required for enhancing communication and linguistic competence. It focuses at vocabulary building, grammar and written communication.

At **second year under-graduation**: At this level the students are introduced to essay, biographical pieces, short stories and poems in Compulsory English (Core Course-CC) paper. As far as special papers like English General SEC-1A, English Special Paper I (Appreciating Drama DSC-1A) English Special Paper II (Appreciating Poetry DSC-2A) Skill Enhancement Course-(SEC-2A) "Mastering Communication Skills" are concerned, the students are introduced to the certain concepts from linguistics and to the genres like Drama and Poetry along with their aspects. There is aninsightful introduction to the basics of poetry, focusing on various kinds that exist-from narrativeto dramatic and lyric. It also presents a brief history of the genre.

At **third year under-graduation:** Compulsory English paper introduces the best uses of language in literature, communicative power of English and overall personality development by improving communicative and soft skills. The special papers deal with the further detailed studies of the different genres of English literature. The General Paper deals with employability skills, presentation skills and grammar etc. English Special III (Appreciating Novel DSE-1C& DSE-1D) introduces basics of novel, its historical development and nature of the novel English Special IV (Introduction to Literary Criticism DSE-2C & DSE-2D) introduces to the basics concepts in literary criticism and its historical development.

PROGRAM SPECIFIC OUTCOMES (PSOs)

B. A. in English : On successful completion of the Program the students will be able to:

1. Think critically and thoroughly
2. Communicate effectively and confidently.
3. Deep knowledge of English language and literature.
4. Can build up a progressive and successful career.
5. Able to do research in culture and in English Language and Literature

Course Outcomes:

F.Y. B. A.

1) Compulsory English

a) To expose students to the best examples of prose and poetry in English so that they realize the beauty and communicative power of English

b) To instill human values and develop the character of students as responsible citizens of the world

c) To develop the ability to appreciate ideas and think critically

d) To enhance employability of the students by developing their linguistic competence and communicative skills

e) To revise and reinforce structures already learnt in the previous stages of learning.

2) Optional English –

a) To expose students to the basics of literature and language and develop an integrated view about language and literature in them.

b) To acquaint them with minor forms of literature in English and help them to appreciate the creative use of language in literature

c) To introduce them to the basics of phonology of English so that they can pronounce better and speak English correctly.

d) To prepare students to go for detailed study and understanding of literature and language

e) To enhance the job potential of students by improving their language skills.

F. Y. B. Com.

3) Compulsory English

a) To offer relevant and practically helpful pieces of prose and poetry to students so that they not only get to know the beauty and communicative power of English but also its practical application

b) To expose students to a variety of topics that dominate the contemporary socio-economic and cultural life

c) To develop oral and written communication skills of the students so that their employability enhances

d) To develop overall linguistic competence and communicative skills of students

S. Y. B. A.

4) Compulsory English (Core Course-CC)

Preamble:

The course aims at contributing to the overall personality development of the students. They have to be good human beings before anything else. This laudable aim involves instilling essential human values like tolerance, understanding, sympathy, respecting the differences, living in harmony with nature, protecting the environment etc. In our prose and poetry selections we have kept these considerations in mind. We offer an adequate mix of British, American, Indian and other writers and poets because we want our students to be responsive to an era of globalization but at the same time they have to be rooted in Indian culture and ethos.

Our students have to develop into responsible citizens of the world. They have to become confident and face the challenges of life successfully. Effective use of language is necessary for success in all walks of life. Hence we have focused on enhancing the linguistic skills of the students by concentrating on essential aspects of grammar and enrichment of vocabulary. Apart from the professional and technical qualifications of the employees, the present day employers generally look for certain soft skills which relate to some positive personality traits, attitudes and social skills. Hence the course includes units on some essential soft skills.

The course is thus a value oriented and a skill-based course.

a) To expose students to the best examples of literature in English and to contribute to their emotional quotient as well as independent thinking.

b) To instill universal human values through best pieces of literature in English

c) To develop effective communication skills by developing ability to use right words in the right context.

d) To enhance employability of the students by developing their basic soft skills

e) To revise and reinforce the learning of some important areas of grammar for better linguistic competence.

5) English General SEC-1A

Preamble:

Language is basically a skill-based subject. The present course is a skill enhancement course. Effective use of language involves multiple skills, namely listening, speaking, reading and writing. In order to acquire these skills and become efficient users of language our students need to be conversant with different aspects of language. Thus the students need to know phonological aspects of language like correct pronunciation, stress, tone groups, intonation patterns etc. The basics of morphology acquaint students with the structure of words and word formation processes. Morphology combined with lexical semantics contributes to the enrichment of vocabulary and helps the students to use right words in a right place in their communication. English in India is a second language and in a second language learning situation, developing insight into the process of sentence formation is very important. Syntax part of the course takes care of this crucial aspect in the development of language skills. Mere correctness of language is not enough. We have to use language appropriately in a given context. Grounding in pragmatics contributes to the language skills of students by helping them produce contextually appropriate utterances. The sociolinguistics part of the course focuses on language variation because language is not a monolithic phenomenon. Awareness of diversity in language use can make the learner a better user of language. The course thus enhances the linguistic and communicative skills of the students.

a) To familiarize students with the various components of language.

b) To develop overall linguistic competence of the students.

c) To introduce students to some advanced areas of language study.

d) To prepare students to go for detailed study and understanding of language.

e) To enhance communicative skills of students by developing insight into the working of language

6) English Special Paper I (Appreciating Drama DSC-1A)

Preamble:

Drama is an age-old form of literature. Moreover, it is a performing art form. It has been undergoing several transformations in its form and performance till date. In this sense, the world of drama has been exploring and exposing very many distinguishing theoretical, literary and theatrical dimensions. At the backdrop of the very dynamics of drama, the syllabus prescribed under this paper attempts to give justice to the multi-dimensional aspects of drama. The course contents and the

evaluation patterns are radically designed to keep pace with the age of technology and to empower the learners for futuristic academic avenues.

a) To introduce Drama as a major form of literature

b) To introduce minor forms of Drama

c) To acquaint and enlighten students regarding the literary and the performing dimensions of drama

d) To acquaint and familiarize the students with the elements and the types of Drama

e) To encourage students to make a detailed study of a few sample masterpieces of English Drama from different parts of the world

f) To develop interest among the students to appreciate and analyze drama independently

g) To enhance students' awareness regarding aesthetics of Drama and to empower them to evaluate drama independently

7) English Special Paper II (Appreciating Poetry DSC-2A)

Preamble:

Poetry has been the oldest form of literature and continues to be an important part of art and culture. It conveys a thought, describes a scene, or narrates a story in a concentrated, lyrical arrangement of words. It can be structured with rhyming lines and meter or can also be freeform that follows no formal structure. Poetry on the level of content offers a huge variety of aesthetic and worldly experiences. It offers new perspectives to look at the usual matters. The present course is designed in line with such liberating and enriching nature of poetry. This is an introductory course and it is intended that students learn the basics of poetry through its theory and the practical application of some of the terms related to poetry. Given its elementary nature this course cannot afford to be ambitious in its scope and selection of poems. Poems are not necessarily selected from different nationalities and cultures and no specific theme is maintained in the selection of poems. However it is seen in the selection that students get exposed to a variety of experiences through poems of different mold and that their aesthetic and human sensibilities get enriched.

a) To acquaint students with the terminology in poetry criticism (i.e. the terms used in appreciation and critical analysis of poems)

b) To encourage students to make a detailed study of a few sample masterpieces of English Poetry.

b) To enhance student’s awareness in the aesthetics of poetry and to empower them to read, appreciate and critically evaluate poetry independently.

8) Skill Enhancement Course-(SEC-2A) “Mastering Communication Skills”

a) Enhancing the skill of using English for everyday communication

b) To acquaint the students with the verbal and nonverbal communication

c) To create opportunities to access exposure of speaking in various contexts

d) To acquaint and familiarize the students with soft skills

e). To develop interest among the students to interact in English

T. Y. B. A.

9) Compulsory English (Core Course-CC)

Preamble:

The present course is a core course and it basically consists of two components: the literature component and the skills component. The literature component includes some of the best samples of English short stories, essays and poems written by writers of different nationalities (British, American, and Indian etc.) This cultural mix is deliberate. We are living in a globalized world and our students need to have at least a cursory acquaintance with different cultures in the outside world. This is particularly important in a pluralistic society like ours. The core course is a part of the humanities. It aims at contributing to the linguistic and communicative abilities of the students. At the same time it also aims at fostering humanitarian attitude in our students and makes them better human beings. Our prose and poetry selections in the literature part of the syllabus take care of these humanistic and aesthetic considerations.

The skills component of the syllabus includes language skills (i.e. grammar part and writing skills), soft skills and employability skills. All these are necessary in the contemporary world to make our students confident and enable them to face the real life challenges successfully. The core course is essentially a language course. Linguistic competence is absolutely necessary for achieving success in almost all the fields of life. Hence we have concentrated on some important aspects of grammar. There are certain writing skills and communicative skills required in all work environments today. These have also been included in the syllabus. Some soft skills and employability skills are necessary from the viewpoint of the employer as well as the employee for his own career advancement. In fact no employee can survive without these skills in the modern day work place. We have kept all these practical considerations in mind while preparing the present syllabus. It is thus a composite course focusing on human values and useful, practical skills.

a) To familiarize students with some excellent pieces of prose and poetry in English so that they realize the beauty and communicative power of English.

b) To enable students to become competent and effective users of English in real life situations.

c) To contribute to the overall personality development of the students.

d) To instill humanitarian values and foster sympathetic attitude in the students.

e) To train the students in practical writing skills required in work environment.

f) To impart knowledge of some essential soft skills to enhance their employability.

10) English General
Skill Enhancement Course (SEC 1-C & SEC 1-D)

Preamble:

TYBA students are on the threshold of their career. Hence, it is necessary to orient and prepare them for different careers they can join after graduation. Considering the various career opportunities available to Arts graduates, the syllabus aims at awareness raising, competence building and skill enhancement of the learners. All the units in the book, besides offering exposure to the use of English for different careers, are radically designed to keep pace with the age of technology and to empower the learners for the present as well as the upcoming career avenues.

a) To get the awareness of career opportunities available to them.

b) To identify the career opportunities suitable to them.

c) To understand the use of English in different careers.

d) To develop competence in using English for the career of their choice.

e) To enhance skills required for their placement.

f) To use English effectively in the career of their choice.

g) To exercise verbal as well as nonverbal communication effectively for their career.

11) English Special III (Appreciating Novel DSE-1C& DSE-1D)

Preamble:

The impact of literature in human society is undeniable. Literature acts as a form of expression for each individual author. Some books mirror society and allow us to better understand the world we live in. Literature is important because it teaches the universal human experiences. It also provides different meanings to different people or teaches different lessons to the same person at different stages of his life. The novel is one of the major forms of literature which generally deals imaginatively with

human experiences, usually through a connected sequence of events involving a group of persons in a specific setting. It is a genre of fiction and fiction may be defined as a form of art. It is not a short story in prose; instead, it is actually an extensive and illustrated account of series of events that happened right through the life of a character. By studying and appreciating novel, the students can develop their interpretative abilities and enhance their analytical skills.

A) To introduce students to the basics of novel as a literary form

b) To expose students to the historical development and nature of novel

c) To make students aware of different types and aspects of novel

d) To develop literary sensibility and sense of cultural diversity in students

e) To expose students to some of the best examples of novel

12) English Special IV (Introduction to Literary Criticism DSE-2C & DSE-2D)

Preamble:

Literary criticism is as ancient as literature. It has provided different views, perspectives, approaches and terms to understand literature in its diverse forms. It consists of interpretation, judgment, analysis and evaluation of literature. It makes readers aware of form and content of literature, structure and substance of literature. It deals with text and context in its analysis and provides many different views on literature. Literary criticism has undergone many changes in its long journey from the classical antiquity to the modern period. It has branched off from its earlier preoccupations like author's superiority and search for universal meaning and has taken on new pursuits. The present course is designed to introduce students to the basics of literary criticism and the age wise important critical concepts.

a) To introduce students to the basics of literary criticism

b) To make them aware of the nature and historical development of criticism

c) To make them familiar with the significant critical approaches and terms

d) To encourage students to interpret literary works in the light of the critical approaches

e) To develop aptitude for critical analysis

13) Skill Enhancement Course (SEC 2-C & SEC 2-D) Mastering Life Skills and Life Values

a) To equip the students with the social skills

b) To train the students interpersonal skills

c) To build self-confidence and communicate effectively

d) To encourage the students to think critically

e) To learn stress management and positive thinking

f) To enhance leadership qualities

g) To aware the students about universal human values

h) To develop overall personality of the students

The Peoples Education Society's

JAMKHED MAHAVIDYALYA, JAMKHED

Department of Hindi

Programme Outcomes: B. A. Hindi

B.A. Hindi	After successful completion of three year degree program in Hindi student should be able to
	१. छात्रों को हिंदी भाषा के उद्‌भव, विकास तथा विभिन्न रूपो एवं बोलियोंका ज्ञान प्राप्त हुआ।
	२. छात्रों को काव्यशास्त्र का सैध्दांतिक एवं अनुप्रयोगात्मक ज्ञान प्राप्त हुआ।
	३. छात्रों में हिंदी साहित्य के इतिहास के विकासक्रम और लेखन परंपरा के संबंध में यथोचित दृष्टिकोन विकसित हुआ।
	४. छात्रों को भाषाविज्ञान के माध्यम से हिंदी भाषा के व्यवस्थित और यथोचित प्रयोग का ज्ञान प्राप्त हुआ ।
	५. छात्र हिंदी गद्य और पद्य की विभिन्न साहित्य विधाओंसे परिचित हुऐ ।
	६. छात्रों मे हिंदी भाषा और साहित्य को समजने, अध्ययन, आस्वादन और मूल्यांकन की क्षमता निर्माण हुई ।
	७. साहित्य की विभिन्न विधाओं के माध्यम से छात्रोंका भावात्मक विकास हुआ ।
	८. छात्रों में हिंदी साहित्य के माध्यम से नैतिक मूल्य, राष्ट्रीय मूल्य तथा सामाजिक मूल्योंके प्रति आस्था निर्माण हुई ।
	९. छात्रों को सरकारी कार्यालयों मे प्रयुक्त कार्यालयीन हिंदी भाषा का परिचय प्राप्त हुआ ।
	१०. छात्रों को श्रव्य और द`श्य काव्य का परिचय हुआ ।
	११. छात्रों को आधुनिक भारतीय भाषा का परिचय तथा व्याकनिक ज्ञान हुआ ।
	१२. छात्रों मे अनुवाद कौशल्य का विकास हुआ ।
	१३. छात्रो को माध्यम लेखन का परिचय तथा लेखन कौशल्य का विकास हुआ ।
	१४. विद्यार्थियों को पटकथा लेखन के बारेमे जानकारी मिली ।
	१५. छात्रों को सहित्यिक विधाका द`थ्य रूपांतरण के बारे में जानकारी मिली ।
Programme Specific Outcomes	१. हिंदी भाषा का व्यवस्थित और यथोचित ज्ञान ।
	२. भावात्मक और सौंदर्यात्मक विकास ।
	३. निवेदक और सूत्रसंचालक ।
	४. पटकथा लेखन, संवाद लेखन, विज्ञापन लेखन ।
	५. प्रकाशक, संपादक, संवाददाता ।
	६. दुभाषिया, अनुवादक, प्रूफ शोधक ।
	७. पदव्युत्तर शिक्षा, पत्रकारिता, अनुवाद और दूरसंचार आदी ।
	८. मूल्य संवर्धन : नैतिक, राष्ट्रीय, सामाजिक मूल्यों का संवर्धन
	९. राष्ट्रीय एकात्मता, समानता, बंधुता, उत्तरदायित्व और वैज्ञानिकता का विकास ।
	१०. विभिन्न नागरी सेवा परीक्षा।
	११. कंप्युटर का व्यवहारिक ज्ञान ।
	१२. छात्रों इतिव`त्त और वार्ता लेखन का कौशल्य विकास ।

	१३. शब्दयुक संक्षेपन लेखन, पल्लवन आदिका यथोचित ज्ञान ।

Course Outcomes B.A. Hindi

Course	Outcomes	
	After completion of these courses students should be able to;	
F.Y.B.A.	**HI 11091 B** **HI 11092 B** **हिंदी सामान्य -१** **वैकल्पिक हिंदी** **(G-I)**	१. छात्रों को हिंदी के गद्य और पद्य रचनाकारों का परिचय प्राप्त हुआ ।
		२. साहित्य की विभिन्न विधाओं के माध्यम से छात्रों का भावात्मक विकास हुआ ।
		३. छात्रों मे राष्ट्रीय ऐक्य, सामाजिक उत्तरदायित्व, वैज्ञानिकता आदी मूल्यों की प्रतिष्ठा हुई ।
		४. छात्रों मे हिंदी साहित्य और रचनाकारों के प्रति रूचि निर्माण हुई ।
		५. छात्रों मे राष्ट्रभाषा हिंदी तथा मानक लिपि का प्रचार-प्रसार हुआ ।
		६. छात्रों को भाषा के रचनात्मक पहलुओंका ज्ञान प्राप्त हुआ ।
		७. कंप्युटर का व्यवहारिक ज्ञान ।
S.Y.B.A.	**HI 23093** **HI 24093** **हिंदी सामान्य -२** **(G-II)**	१. छात्रोंको हिंदी के प्रतिनिधी कहानीकारों एवं कवियों का परिचय प्राप्त हुआ ।
		२. छात्रों को हिंदी कहानी एवं नये कविता की विशेषताओं का परिचय प्राप्त हुआ ।
		३. छात्रों को हिंदी के कार्यालयीन एवं व्यावहारिक पत्रों के स्वरूप का ज्ञान प्राप्त हुआ ।
		४. सामाजिक समस्या, संघर्ष, एकात्मता, पर्यावरण संवर्धन आदि मूल्यों की ओर छात्रों का ध्यान आकर्षित हुआ ।
		५. छात्रों को विज्ञापन, वार्तालेखन, पारिभाषिक शब्द, शब्द-युग्म आदि के माध्यम से कल्पनाशक्ती का विकास हुआ ।
		६. शब्दयुक संक्षेपन लेखन, पल्लवन आदिका यथोचित ज्ञान ।
S.Y.B.A.	**HI 23091** **HI24091** **हिंदी काव्य शास्त्र** **(S-1)** **साहित्य के भेद**	१. छात्रों को भाषा के स्वरूप, परिभाषा और विशेषताओं की जानकारी प्राप्त हुई ।
		२. छात्रों को हिंदी की विविध बोलियों का परिचय प्राप्त हुआ ।
		३. छात्रों को लिपि का स्वरूप, उत्पत्ति, विकास तथा इतिहास का ज्ञान प्राप्त हुआ ।
		४. राजभाषा हिंदी का संवैधानिक परिचय प्राप्त हुआ ।
		५. भाषा विज्ञान तथा अन्य विज्ञानोंका संबंध ज्ञात हुआ ।
		६. नगरी लिपी का विकास तथा उसकी वैज्ञानिकता का परिचय प्राप्त हुआ ।
S.Y.B.A.	**HI 23092** **HI 24092** **उपन्यास, नाटक तथा मध्ययुगीन हिंदी काव्य** **(S-2)**	१. छात्रों में हिंदी उपन्यास का स्वरूप, तत्व आदि मानदंडो के आधार पर समीक्षा की क्षमता निर्माण हुई ।
		२. हिंदी उपन्यास, नाटक इन विधायों के आस्वादन की क्षमता छात्रों को प्राप्त हुई ।
		३. छात्रों को संत एवं भक्ती के काव्य का परिचय प्राप्त हुआ ।
		४. छात्रों को मध्ययुग के कवियों के योगदान का परिचय प्राप्त हुआ ।
		५. छात्रों को साहित्य के शिल्प एवं सौंदर्य से परिचय प्राप्त हुआ ।
		६. ७. छात्रों को सहित्यिक विधाका द`श्य रूपांतरण के बारे में जानकारी मिली ।
S.Y.B.A.	**HI 23096** **HI 24096** **SEC** **अनुवाद स्वरू एवं व्यवहार** **माध्याम लेखन**	१. छात्रों मे अनुवाद कौशल्य का विकास हुआ ।
		२.छात्रो को माध्यम लेखन का परिचय तथा लेखन कौशल्य का विकास हुआ ।

S.Y.B.A.	**MIL 23012** **MIL 24012** **हिंदी भाषाशिक्षण**	१.शब्दयुक संक्षेपन लेखन, पल्लवन आदिका यथोचित ज्ञान ।
		२.छात्रों इतिव`त्त और वार्ता लेखन का कौशल्य विकास ।
T.Y.B.A.	**HI 35093** **HI 36093** **हिंदी सामान्य -३** **(G-III)**	१. छात्रों को हिंदी के गद्य-पद्य के रचनाकारों का परिचय हुआ ।
		२. निबंध, आत्मकथा और काव्यनाटक आदि विधायों के माध्यम से छात्रों का भावनात्मक विकास हुआ ।
		३. आत्मकथा विधा तथा दीर्घ कविता, काव्यनाटक के विकास और स्वरूप का परिचय हुआ ।
		४. छात्रों को सरकारी पत्रलेखन की विभिन्न पध्दतीयों का ज्ञान प्राप्त हुआ ।
		५. पारिभाषिक शब्द, संक्षिप्तियां, कार्यक्रम संयोजन कौशल्य, समाचार पत्र एवं रेडिओ के लिए वार्तालेखन आदि छात्रों को परिचय हुआ ।
		६. छात्रों को अनुवाद, पत्रकारिता का ज्ञान परिचित हुआ ।
T.Y.B.A.	**HI 35091** **HI 36091** **हिंदी साहित्य का इतिहास (S-3)**	१. छात्रों को हिंदी साहित्य के इतिहास लेखन की परंपरा का परिचय प्राप्त हुआ ।
		२. छात्रों को हिंदी साहित्य के कालखंडो एवं उनके नामकरण का परिचय प्राप्त हुआ ।
		३. छात्रों को हिंदी साहित्य के विकासक्रम तथा साहित्य के परिवर्तनो के कारणों का परिचय प्राप्त हुआ
		४. छात्रों को आधुनिक काल की सामाजिक, राजनितीक, धार्मिक, साहित्यिक परिस्थिती का ज्ञान प्राप्त हुआ ।
		५. छात्रों में साहित्य और युगजीवन का संबंध विशद करने की क्षमता निर्माण हुई ।
		६. छात्रों को हिंदी साहित्य के प्रतिनिधि रचनाकारों का महत्व, प्रभाव आदि का ज्ञान प्राप्त हुआ ।
T.Y.B.A.	**HI 35092** **HI 36092** **भाषा विज्ञाण** **हिंदी भाषा और विकास (S-4)**	१. छात्रों को काव्य के हेतू तथा प्रयोजनों का परिचय प्राप्त हुआ ।
		२. छात्रों को काव्यशास्त्र के स्वरूप का ज्ञान प्राप्त हुआ ।
		३. छात्रों को रस के स्वरूप, भेद एवं अंगोंका शास्त्रीय ज्ञान का परिचय प्राप्त हुआ ।
		४. छात्रों को काव्य के तत्व तथा शब्दशक्तियों का परिचय प्राप्त हुआ ।
		५. छात्रों को आलोचना का स्वरूप, उपयोगिता तथा आलोचक के गुण का परिचय प्राप्त हुआ ।
		६. छात्रों में नाटक और एकांकी के रसास्वादन की दृष्टी विकसित हुई ।
T.Y.B.A.	**SEC 35096** **SEC 36096** **पटकथा लेखन साहित्य और फिल्मअंतर**	१. विद्यार्थियों को पटकथा लेखन के बारेमे जानकारी मिली ।
		२.छात्रों को सहित्यिक विधाका द`ष्य रूपांतरण के बारे में जानकारी मिली ।

The People's Education Society's

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Department of Science

(UG and PG)

Programme Outcomes (PO)

PROGRAMME SPECIFIC OUTCOMES (PSO)

COURSE OUTCOMES (CO)

Department of Chemistry

(UG and PG)

Programme Outcomes (PO)

PROGRAMME SPECIFIC OUTCOMES (PSO)

COURSE OUTCOMES (CO)

Program Outcomes, Program Specific Outcomes and Course Outcomes

Bachelor of Science (B.Sc.)Chemistry

FACULTY OF B.Sc. Chemistry

Program	Program Outcomes
Program Outcomes	**On successful completion of the program, the students will be able for** **PO1. CRITICALTHINKING The curriculum is designed in such way that students should acquire the ability to observe the concepts accurately and think impartially, scientifically, independently and draw rational conclusions.** **PO2. EFFECTIVE COMMUNICATION The medium of instruction for this course is in English. English is an international language therefore students should become habitual to communicate in English while studying chemistry.** **PO3 SOCIAL INTERACTIONS In these course students are made aware of environment related issues. They are made aware of optimal use of fertilizers, water, fuels and drugs.** **PS04 EFFECTIVE CITIZENSHIP In this program students are made aware of the pollution problems such as waste water management, water treatment etc. Also they made aware of significance of energy, water, food, fuels, general hygiene and cleanliness etc.** **PO5 ETHICS In this program students made alert regarding misuse of food adulteration, chemical technology, poisons, fungicides, pesticides and chemical and nuclear weapons** **PO6 ENVIRNMENT AND SUSTAINABILITY Being Chemistry students they become well conversant with various pollutants their sources and their impact on bio system. So they become well-informed with protection and conservation of environment.** **PO7 SELF DIRECTED AND LIFE LONG LEARNING Program curriculum inculcates the curiosity and problem solving approach Which makes them self-directed and learning becomes a continuous process throughout the life.**

Program	Program Specific Outcome
Program Specific Outcomes	**PSO1: Provide the basic principles of all branches of Chemistry, knowledge of chemical principles and make them independent for the effective application of it** **PSO2: Provide knowledge of laboratory skills so that students can prepare for the experimental setup, actual working of equipment, obtain experimental data and interpretation of it and interpret using theoretical principles** **PSO3: Make the students self-sufficient in understanding and handling the various issues that may arise while studying Chemistry**

Course Outcomes

F.Y. B.Sc. Chemistry		
Semester I		
SubjectCode	**Subject Name**	**Outcome**
CH-101	**Physical Chemistry**	**CO1. After completing the course work students will be acquired with knowledge of chemical energetic, chemical equilibrium and ionic equilibria.** **CO2. Students will be able to apply thermodynamic principles to physical and chemical process,** **CO3. Knowledge of chemical equilibrium will make students to understand relation between free energy and equilibrium and factors affecting on equilibrium, constant. Exergonic and endergonic reaction** **CO4. Ionic equilibria will lead students to understand the concept to ionization process occurred in acids and bases**
CH-102	**Organic Chemistry**	**CO1.Students will learn Fundamentals of organic chemistry, stereochemistry (Conformations, configurations nomenclatures) and functional group approach for aliphatic hydrocarbons.** **CO2.Student understand different types of chemical reactions such as, Catalytic hydrogenation, Wurtz reaction, Free radical Substitution: Halogenation, Elimination reaction**
CH-103	**Chemistry Practical Course-I**	**CO1. It would help in development of practical skills of the students.** **CO2. Student understands Importance of chemical safety and Lab safety while performing experiments in laboratory** **CO3. Determination of thermo chemical parameters and related concepts.** **CO4. Techniques of pH measurements, chromatographic techniques, elemental analysis of organic compounds.**

F.Y. B.Sc. Chemistry

Semester II

Subject Code	Subject Name	Outcome
CH-201	Inorganic Chemistry	CO1.Students will learn quantum mechanical approach to atomic structure, Significance of quantum numbers, Shapes of orbitals CO2.Understand Longform of periodic table, Periodicity of elements and periodic properties. CO3. Various theories for chemical bonding. Born-Haber Cycle
CH-202	Analytical Chemistry	CO1. Students will know about basic concept of analytical chemistry, some techniques of analysis and able to do calculations essential for analysis. CO2. Various units of concentrations of solution, definition of various terms involved in solution CO3. Separation of binary mixtures by organic qualitative analysis. Purification techniques for organic compounds. CO4. Understand the different types of chromatographic techniques CO5. Student understand basic, working and applications of PH-Meter
CH-203	Chemistry Practical-II	CO1. Understand Inorganic estimations using volumetric analysis CO2. Synthesis of Inorganic compounds CO3. Analysis of commercial products CO4. Purification of organic compounds CO5. Preparations and mechanism of reactions involved

S.Y. B.Sc. Chemistry

Semester III

Subject Code	Subject Name	Outcome
CH-301	Physical & Analytical Chemistry	CO1. Student understand concept of kinetics, rate laws, Determination of order of reaction CO2. Learn classification of given processes into physical and chemical adsorption. discuss factors influencing adsorption, adsorption isotherm, CO3. Understand methods of expressing the errors in analysis, different terms related to errors in quantitative analysis. CO4. Knows different terms used in volumetric analysis, prepare standard solution and perform standardization of solutions, carry out different types of titrations
CH-302	Inorganic and Organic Chemistry	CO1. Able to discuss the terms related to molecular orbital theory, draw MO energy level diagrams for different molecules. CO2. Define different terms related to the coordination chemistry, Werner's theory of coordination compounds, apply IUPAC nomenclature to coordination compound. CO3. Identify and draw the structures aromatic hydrocarbons, knows important reactions of aromatic hydrocarbon CO4. discuss the mechanism of Nucleophilic Substitution reaction CO5. Identify and draw the structures alcohols / phenols from their names. Important reactions of alcohols / phenols.
CH-303	Practical Chemistry-III	CO1. Students will verify theoretical principles experimentally. CO2. Understand systematic methods of identification of substance by chemical methods. CO3. Perform organic and inorganic synthesis CO4. Perform the quantitative chemical analysis of substances

S.Y. B.Sc. Chemistry

Semester IV

Subject Code	Subject Name	Outcome
CH-401	Physical & Analytical Chemistry	CO1. Students are able to define the terms in phase equilibria, phase rule, and derive of phase rule. CO2.Knows ideal and no-ideal solutions, explain thermodynamic aspects of Ideal solutions, CO3.Understand different terms in conductometry, discuss conductometric titrations. CO4. Understand different terms in Colorimetry, Explain construction and working of colorimeter. CO5. Understand different terms in column chromatography CO6. Explain separation of ionic substances using resins, Silica gel / alumina
CH-402	Inorganic and Organic Chemistry	CO1. Able to explain different types of isomerism in Coordination complexes. CO2. Apply principles of VBT to explain bonding in Coordination compound of different geometries. Explain principle of CFT., apply crystal field theory to different type of complexes CO3. Discuss synthesis of aldehydes and ketones and important reactions of aldehydes and ketones. CO4. Identify and draw the structures carboxylic acids and their derivatives from their names, important reactions CO5. Student can explain important reactions of carboxylic amines. draw the structures of different conformations of cyclohexane.
CH-403	Practical Chemistry-III	CO1. Verify theoretical principles experimentally CO2. Perform conductometric titrations CO3. Separation of binary mixture of cations by Column Chromatography CO4. Perform the variation of mutual solubility temperature with concentration for the phenol - water system CO5. Able to verify the Freundlich and Langmuir adsorption isotherm for adsorption of acetic acid on activatedcharcoal. CO6. To verify the Freundlich and Langmuir adsorption isotherm for adsorption of acetic acid on activated charcoal. CO7.Student can prepare different coordination compounds

		CO8. Verify Beer's Law and determine unknown concentration.

T.Y. B.Sc. Chemistry

Semester V

Subject Code	Subject Name	Outcome
CH-501	Physical Chemistry-I	CO1. Know historical of development of quantum mechanics in chemistry. Understand the idea of wave function, Solving Schrodinger equation for 1D, 2D and 3D model CO2. Understand the term additive and constitutive properties, Classification of molecules on the basis of moment of Inertia, Understand Simple Harmonic oscillator model, Raman spectra: Concept of polarizability CO3. Understand photochemical laws: Grothus - Draper law, Stark-Einstein law, types of Photochemical reactions: photosynthesis, photolysis,photocatalysis, hotosensitization ,knows fluorescence and phosphorescence
CH-502	Analytical Chemistry-I	CO1. Define basic terms in gravimetry, spectrophotometry, qualitative analysis and parameters in instrumental analysis. CO2. Knows various steps involved in gravimetric analysis CO3. Understands the terms precision, accuracy, Sensitivity, Selectivity CO4. In spectrophotometry understand Beers law, absorbance, transmittance, molar absorptivity, monochromator, wavelength of maximum absorbance, CO5.Understand separation of mixture by inorganic qualitative analysis
CH-503	Physical chemistry Practical-I	CO1. Able to determine the refractive index of a series of salt solutions and determine the concentration of a salt of unknown solution CO2.Determine cobalt by using R-nitroso salt colourimetrically CO3. Titration of a mixture of weak acid and strong acid with strong alkali conductometrically CO4. To determine the molecular weight of a high polymer by using solutions of different concentrations by viscosity measurement
CH-504	Inorganic Chemistry-I	CO1.To explains electroneutrality principle and different types of pi bonding, can draw and explain MOT of octahedral complexes with sigma bonding. CO2. Classification of reactions of coordination compounds, Understand the basic mechanisms of ligand substitution reactions, Stereochemistry of mechanism

		CO3. Know position of d-block elements in periodic table and electronic configuration of elements. Understand trends in periodic properties of these elements **CO4. Understand electronic configuration of lanthanides and actinides, Separation lanthanides by modern methods, Preparation methods of transuranic elements.** **CO5. Students can differentiate the metal, semiconductor and insulator, n and p type of semiconductors, meaning ofsuper conductors and their structure. Discovery and applications of superconductors**
CH-505	**Industrial Chemistry**	**CO1.Understands the importance of chemical industry, Meaning of the terms involved in chemical industry, Get knowledge of various industrial aspects** **CO2. Understands concept of basic chemicals, Uses and manufacturing process of NH3, HNO3 and H2SO4 CO3. Understand Importance of sugar industry, manufacturing of sugar from sugarcane** **CO4.Basic requirement of fermentation process, Manufacturing of ethyl alcohol by using molasses and fruit juice. CO5. Knows different types of soap products, chemistry of Soap. Raw materials required for soap manufacture,** **Washing action of soap and detergents.** **CO6. Classification of dyes, Synthesis, Structures, properties and applications of dyes, Classification and general properties of pigment , Production processes of zinc oxide and iron oxide**
CH-506	**Inorganic Chemistry Practical-I**	**CO1. Students are able to determine the amount of metal in given sample solution by gravimetric estimation.** **CO2. To prepare the inorganic complexes** **CO3. Separation of basic and acidic radicals by using inorganic qualitative analysis**
CH-507	**Organic Chemistry-I**	**CO1. Define and classify polynuclear and hetreonuclear aromatic hydrocarbons, Understand the reactions and mechanisms,** **CO2. Understand synthetic applications ethyl acetoacetate and malonic ester, Different types of intermediate in rearrangement reactions, Electrocyclic rearrangement with their mechanisms** **CO3. Understand elimination reaction and is mechanism, Orientation and** **reactivity in E1 and E2 elimination, Effect of factors on the**

		rate elimination reactions
CH-508	**Chemistry Biomolecules**	**CO1. The student will understand of Cell types, Difference between a bacterial cell, Plant cell and animal cell.** **Biological composition and organization of cell membrane, structure and function of various cell organelles of plant and animal cell. Concepts of biomolecules, Bonds that link monomeric units to form macromolecules** **CO2. To know types of carbohydrates and their biochemical significance in living organisms, reactions and Properties** **CO3. Know the types of lipids, structure and properties of lipids** **CO4. Student will understand the structure and types of amino acids. Reactions and Properties of amino acids. Types of proteins, Structural features in proteins.** **CO5. Features of various types of enzyme inhibitions, industrial applications of enzymes.** **CO6. Basic concepts of Endocrinology. Types of endocrine glands and their hormones. Biochemical nature of hormones.**
CH-509	**Organic Chemistry Practical-I**	**CO1. Perform the qualitative chemical analysis of water insoluble mixture and water-soluble mixture. Understand the techniques involving drying and recrystallization by various method, Learn the confirmatory test for various Functional groups.** **CO2. Learn the basic principles of green and sustainable chemistry. Synthesis of various organic compounds through greener approach.** **CO3. To know various techniques of preparation and analysis of organic substances, understand principle of Thin Layer Chromatographic techniques, understand the purification technique used in organic chemistry.**
CH-510(B)	**Polymer Chemistry**	**CO1. To understand the history of polymer.** **CO2. To know the difference between simple compound and polymer.** **CO3. To understand the names, classification of polymer.** **CO4. Various ways of nomenclature, application of polymers.** **CO5. Uses and properties of polymer.**
CH-511(A)	**Environmental Chemistry**	**CO1. Students knows importance and conservation of environment, importance of biogeochemical cycles** **CO2. Understand water resources, hydrological cycle,**

		organic and inorganic pollutants, water quality parameters **CO3. Water quality parameters and standards, domestic water quality parameters, Monitoring techniques and methodology,** **CO4.Student understand water pollution methods of waste water treatment**

T.Y. B.Sc. Chemistry

Semester VI

Subject Code	Subject Name	Outcome
CH-601	Physical Chemistry-II	**CO1. Student understand Electrochemical cells such as Daniell cell, reversible and irreversible electrochemical cell, EMF of electrochemical cell and its measurement,** **CO2. Primary reference electrode (SHE), secondary reference electrodes: calomel electrode, glass electrode, silver- silver chloride electrode.** **CO3. Types of Reversible electrodes: Metal-metal ion electrodes, amalgam electrodes, Gas electrodes, Metal-metal insoluble salt electrodes,** **CO4. Understand applications of emf measurements: Potentiometric titrations: i) Acid-base titrations, (ii) Redox titrations and (iii) Precipitation** **CO5.Knows Primary Batteries, Secondary Batteries, Different types of fuel cells,** **CO6.Student understand difference between crystalline and amorphous solids / anisotropic and isotropic solids, cubic lattice and types of cubic lattice, methods of Crystal structure analysis** **CO7.Determine the crystal structure of NaCl by Bragg's, method** **CO8.Know types and properties of radiations: alpha, beta and gamma, understand detection and measurement of radioactivity** **CO9. Types of radioactive decay: α- Decay, β-Decay and γ-Decay** **CO10. Application of radioisotopes as a tracer**
CH-602	Physical Chemistry-III	**CO1. Meaning of the terms-Solution, electrolytes, nonelectrolytes and colligative properties,** **CO2. Elevation of B.P. of solvent in solution, freezing point depression, Application of colligative properties to determine molecular weight of nonelectrolyte** **CO3.Understand factors affecting on solid state reactions, Rate laws for reactions in solid state, Applying rate laws for solid state reactions** **CO4. Cohesive Energy of ionic crystals based on coulomb's law and Born Haber Cycle, Band structure in solids – Na , Ca and diamond, phenomena of photoconductivity, knows**

		semiconductors **CO5. Knows history of polymers, classification of polymers, chemical bonding & molecular forces in Polymer, molecular weight of polymers, Practical significance of polymer molecular weights, Molecular weight determination**
CH-603	**Physical Chemistry Practical-III**	**CO1. Able to determine the PKa value of given monobasic weak acid by potentiometric titration.** **CO2. To determine the solubility product and solubility of AgCl potentiometrically using chemical cell. CO3.To determine the degree of hydrolysis of anilin hydrochloride** **CO4. pH metric titration of strong acid against strong base by pH measurement and determine the concentration and strength of strong acid. To determine the molecular weight of solute by depression in freezing point method** **CO5. To determine the molecular weight of a given polymer by Turbidometry**
CH-604	**Inorganic Chemistry-II**	**CO1. To understand M-C bond and to define organometallic compounds, the multiple bonding due to CO ligand.** **CO2. To know methods of synthesis of binary metal carbonyls, understand the catalytic properties of binary metal carbonyls, uses of organometallic compounds in the homogenous catalysis., chemistry of ferrocene** **CO3. Understand the phenomenon of catalysis, its basic Principles and terminologies, brief account of homogeneous catalysts, heterogeneous catalysts, Understand the catalytic reactions used in industries** **CO4. Identify the biological role of inorganic ions & compounds, Give the classification of metals as enzymatic and non- enzymatic.** **CO5. Explain the functions of hemoglobin and myoglobin in O2 transport and storage** **CO6. know thy types of Inorganic polymers, comparison with organic polymers, synthesis, structural aspects of Inorganic polymers, understand the polymers of Si, B, Si and P, Inorganic polymers and their use.** **CO7. Understand Preparation of inorganic solids by various methods, Inorganic liquid crystals, Ionic liquids, their preparations, and their significance w.r.t green chemistry, Technological importance of ionic liquids**

CH-605	**Inorganic Chemistry-III**	**CO1. Student will learn the concept of acid base and their theories, know different properties of acids and bases, Strength of various types acids.** **CO2. Know the crystal structures of solids, draw the simple cubic, BCC and FCC structures, know the effect of radius ratio indetermining the crystal structure, know how to draw Born-Haber Cycle, know the defects in Ionic solids.** **CO3. Understand different Zeolite Framework, types and their classification, Zeolite synthesis and their structure, application of zeolites** **CO4.Various methods of nanoparticle synthesis, stabilization of nanoparticles in solution, Properties and application of nanoparticles, know about carbon nanotube and its application** **O5. To know toxic chemical in the environment, impact of toxic chemicals on enzyme, biochemical effect of Arsenic, Cd, Pb, Hg. To explain biological methylation.**
CH-606	**Inorganic Chemistry Practical-II**	**CO1. Analysis of Iodine from Iodized salt** **CO2. Estimation of K by flame photometry by calibration curve method** **CO3. Purification of water using cation /anion exchange resin and analysis by qualitative analysis CO4. Synthesis of Silver nanoparticles, synthesis of ZnO nanoparticles.** **CO5. Synthesis of amine complexes of Ni(II) and its lig and exchange reaction**
CH-607	**Organic Chemistry-II**	**CO1. Students will learn the interaction of radiations with matter and regions of electromagnetic radiations,** **CO2. Students will learn the principle of mass spectroscopy, UVspectroscopy, IR spectroscopy and it instrumentation CO3. IR spectroscopy, able to find out IR frequencies of Different functional groups.** **CO4. Understand the principle of NMR spectroscopy and will understand various terms used in NMR spectroscopy,** **CO5. Determine the structure of simple organic compounds on The basis of spectral data such as λ max values, IR frequencies, chemical shift (δ values).** **CO6.Understand The use of models to draw different types of disubstituted cyclohexanes in chair form, The geometrical isomerism in disubstituted cyclohexanes**
CH-608	**Organic Chemistry-III**	**CO1. Different terms used – Disconnection, Synthons, Synthetic equivalence, FGI, TM. One group disconnection, Retrosynthesis and Synthesis of target molecules:**

		Acetophenone, Crotonaldehyde, Cyclohexene **CO2.Student understand different organic reactions and their mechanism like Simmons-Smith reaction, Michael reaction, Wittig reaction and McMurry reaction, Diels-Alder reaction,** **CO3. Preparation and Applications of reagents such as, Reducing Reagents: LiAlH4, NaBH4, Oxidizing Reagents: DMSO** **CO4. Student understand Introduction, Isolation, Classification of natural products such as terpenoids and alkaloids, synthesis of ephedrine by nagai.**
CH-609	**Organic Chemistry Practical-II**	**CO1 The students will be able to explain "fingerprint region" of an infrared spectrum can used in the identification of an unknown compound. Identify the functional groups present in a compound** **CO2.Understand use of NMR spectra to determine the structure of compounds, Interpret elemental analysis technique CO3.Achieve the practical skills required to estimations of glucose and glycine. Achieve the practical skills required to** **Saponification value of oil.** **CO4.Apply the principles of extraction, Understand the equipment for extraction ,Describe the extraction separation process.** **CO5. Defines the basic parameters in chromatography, Explain the processes of a chromatography analysis, Describes the types and materials of column, Explains the types of mobile phase and elution. Realize theselection of appropriate mobile phase, column and detector**
CH-610(A)	**Chemistry of Soil and Agrochemicals**	**CO1. Understood various components of soil and soil properties and their impact on plant growth. Understood the classification of the soil.** **CO2. Useful in making decisions on nutrient dose, choice of fertilizers and method of application etc. practiced in crop production.** **CO3.Got experience on advanced analytical and instrumentation methods in the estimation of soil.** **CO4.Understood various Nutrient management concepts and Nutrient use efficiencies of major and micronutrients and enhancement techniques.** **CO5. Proper understanding of chemistry of pesticides will be inculcated among the students.** **CO6. Imparts knowledge on different pesticides, their nature**

		and mode of action and their fate in soil so as to monitor their effect on the environment.
CH-611(A)	**Analytical Chemistry-II**	**CO1. Define basic terms in solvent extraction, basics of chromatography, HPLC, GC, and AAS and AES. Some important terms are: solvent extraction, aqueous and organic phase, distribution ratio and coefficient** **CO2.Understand retention time, selectivity, resolution, stationary phase, normal and reverse phase, ion exchange,** **column efficiency, carrier gas, split and spit less injection,** **CO3.Knows atomic absorption and emission spectroscopy, electronic excitation in atoms, nebulization, atomization, reduction of metal ions in flame, absorbance by atoms in flame, flame atomizers, furnace atomizers, interference in AES and FES, HCL** **CO4. Explain different principles involved in the analyses Using solvent extraction, basics of instrumental chromatography, HPLC, GC, and atomic spectroscopic techniques.**

Master of Science (M.Sc.) Organic Chemistry

Program Outcomes, Program Specific Outcomes and Course Outcomes

Program	Program Outcomes
Program Outcomes	**PO1. It is intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing or evaluating information gathered from or generated by observations, experience, reflection, reasoning or communication as a guide to belief and action. The students of chemistry are progressively trained along these lines.** **PO2. It is two ways information sharing process which involves successfully delivering the intended message. Thus the students can deliver their knowledge of chemistry to the society using English or other suitable relevant language.** **PO3. In this post-graduate course students are made aware of environment related topics like drugs fertilizers, industrial chemicals etc. They are made aware of optimal use of these substances and are expected to spread this knowledge in the society.** **PO4. In this program students are made aware of pollution problems waste water management, water treatment etc. They are also made aware of importance of energy and water, food, fuels, general hygiene and cleanliness etc.** **PO5. It includes practice of moral principles that govern the person's behavior or conducting an activity. During the teaching of this course, properties of various chemicals (old and newly synthesized) are discussed and also their beneficial and/or adverse effects on the human race/living world are also discussed.** **PO6. It is state in which the demands placed in environment can be made without reducing its capacity to all the people to leave well now in future. In post graduate teaching a special course entitled Green Chemistry which especially stresses these issues considering the environmental friendly processes and products is discussed with the students.** **PO7. Program curriculum inculcates the curiosity; critical thinking and problem solving approach so as to reach the rational conclusions among the students making them self-directed and thus learning becomes a continuous process throughout their life.**

Program	Program Specific Outcomes
Program Specific Outcomes	**PSO1. It is intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing or evaluating information gathered from or generated by observations, experience, reflection, reasoning or communication as a guide to belief and action. The students of chemistry are progressively trained along these lines.** **PSO2. It is two ways information sharing process which involves successfully delivering the intended message. Thus the students can deliver their knowledge of chemistry to the society using English or other suitable relevant language.** **PSO3. In this post-graduate course students are made aware of environment related topics like drugs fertilizers, industrial chemicals etc. They are made aware of optimal use of these substances and are expected to spread this knowledge in the society.** **PSO4. In this program students are made aware of pollution problems waste water management, water treatment etc. They are also made aware of importance of energy and water, food, fuels, general hygiene and cleanliness etc.** **PSO5. It includes practice of moral principles that govern the person's behavior or conducting an activity. During the teaching of this course, properties of various chemicals (old and newly synthesized) are discussed and also their beneficial and/or adverse effects on the human race/living world are also discussed.** **PSO6. It is state in which the demands placed in environment can be made without reducing its capacity to all the people to leave well now in future. In post graduate teaching a special course entitled Green Chemistry which especially stresses these issues considering the environmental friendly processes and products is discussed with the students.** **PSO7. Program curriculum inculcates the curiosity; critical thinking and problem solving approach so as to reach the rational conclusions among the students making them self-directed and thus learning becomes a continuous process throughout their life.**

Course Outcomes

M.Sc. Part I Organic Chemistry		
Semester I		
Subject Code	**Subject Name**	**Outcome**
CHP-110	**Physical Chemistry-I**	**CO1. Understanding of thermodynamics and its concepts** **CO2. Use of Quantum mechanics** **CO3. Hybridization and molecular bonding phenomenon** **CO4. Students get knowledge of kinetics of reaction**
CHI-130	**Inorganic Chemistry-I**	**CO1. This is made to understand the symmetry and group theory** **CO2.Students are also made to understand Representations of Groups** **CO3.Students are also made to understand Symmetry Adapted Linear Combinations** **CO4. Application of Group theory to Infrared Spectroscopy and Students able to find out the possible modes of vibration.**
CHO-150	**Organic Chemistry-I**	**CO1.To understand some fundamental aspects of organic chemistry, to learn the concept aromaticity, to understand the various types of aromaticity** **CO2.To study heterocyclic compound containing one and two hetero atoms with their structure, synthesis and reactions.** **CO3.To study rearrangement reaction with specific mechanism and migratory aptitude of different groups.** **CO4.To study Ylides and their reaction.**
CHG-190 Section-I:	**General Chemistry-I**	**CO1.Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.** **CO2.Students will be able to function as a member of an interdisciplinary problem solving team.** **CO3.To impart the students thorough idea in the chemistry of carbohydrates, amino acids, proteins and nucleic acids** **CO4.Be able to describe the chemical basis for replication, transcription, translation and how each of these central processes can be expanded to include new**

		chemical matter.
CHP- 107	**Basic Practical Chemistry I**	**CO1. Calculate molar and normal solution of various concentrations.** **CO2. determine specific rotations and percentage of to optically active substancesby polorimetrically.** **CO3. Study the energy of activation and second order reaction.** **CO4. study the stability of complex ion and stranded free energy change andequilibrium constant by potentiometry.** **CO5.This course makes the students to aware of different organic techniques like purification, crystallization,distillation, TLC, M.P./B.P.** **CO6. This course develops scientific views, organic synthesis** **CO7.Student gets knowledge of chemistry software likes, MOPAC, ISIS draw, Chemdraw office.**
CHG-190 Section-II:	**General Chemistry Practical (Any one) Elective Option-A :Inorganic Chemistry-Material Analysis, Synthesis and Applications**	**CO1.Students are given the knowledge of basic preparation of various solutions, synthesis of various inorganic complexes and their characterization.** **CO2.The students are trained for handling of natural materials and their quantitative analysis which involves disintegration, separation and individual estimations.** **CO3.They are given hands on training to handle various equipments like spectrophotometer, flame photometer, conductometer etc.** **CO4. Synthesis of various nanomaterial's**

M.Sc. Part I Organic Chemistry

Semester II

Subject Code	Subject Name	Outcome
CHP-210	Physical Chemistry – II	CO1.The course aims to provide understanding of physical chemistry; In this course fundamentals of molecular spectroscopy are introduced. CO2.The course aims to provide understanding of physical chemistry; In this course fundamentals of molecular spectroscopy are introduced. CO3.Students learns basic elements of rotational, vibrational, raman and electronic spectroscopy. CO4. Electronic Spectroscopy of molecules
CHI-230	Inorganic Chemistry –II	CO1.Student should able to find out the no of microstates and meaningful term symbols, construction of microstate table for various configuration CO2.Hund's rules for arranging the terms according to energy. CO3.Student should understand interelectronic repulsion. CO4.Student should know the concept of weak and strong ligand field.Student able to find out splitting of the free ion terms in weak ligand field and strong ligand field.
CHO-250	Organic Chemistry-II	CO1. Students will be able to understand MOT and will be able to extend this in predicting reaction mechanism and stereochemistry of electrocyclic reactions. CO2.The concepts in free radical reactions, mechanism and the stereo chemical outcomes. CO3.The basic principle of spectroscopic methods and their applications in structure elucidation of organic compounds using given spectroscopic data or spectra.
CHG-290 Section-I:	General Chemistry-II, Theory	CO1.Develop skills to critically read the literature and effectively communicate research in a peer setting. CO2.At the end of course student will understand Bonding in solids – band theory CO3.Students will be able to understand Electronic conductivity CO4.Semiconductors, photoconductivity

CHG-290 Section-II:	**General Chemistry, Practical (Any one option) Elective Option-A: Electro analytical Techniques of Analysis**	**CO1. Students are trained to use the techniques such as pH metry, Conductometry, Potentiometry, Colorimetry, Spectrophotometry, Refractometry** **CO2. These techniques will enable them to work as quality control chemist in various labs and such organizations.**
CHP-227	**Basic Practical Chemistry-II**	**CO1. Students are trained to different purification techniques in organic chemistry like recrystallization, distillation, steam distillation and extraction.** **CO2.Students are made aware of safety techniques and handling of chemicals.** **CO3.Students are made aware of carrying out different types of reactions and their workup methods.** **CO4.This practical course is designed to make student aware of green chemistry and role of green chemistry in pollution reduction.**

M.Sc. Part II Organic Chemistry

Semester III

Subject Code	Subject Name	Outcome
CHO-350	Organic Reaction Mechanism and Biogenesis	CO1.The main aim of this course is to learn and understand the basic concept in reaction mechanism. CO2. This course helps the students to understand the role of recent reagent, catalyst in mechanism of reaction. CO3. This course also helps to improve the thinking ability of the students towards reaction mechanism. CO4. Students learn about biogenesis
CHO-351	Structure Determination of Organic Compounds by Spectroscopic Methods	CO1.This course enables to the students learn the basic of spectroscopic methods like UV, 1H-NMR, 13C-NMR, IR. CO2.Mass spectrometry and their application. CO3.This course gives idea of structure determination of known and unknown organic molecules by using spectroscopic data. CO4. Students learn about 2D NMR spectroscopy
CHO-352	Stereochemistry and Asymmetric Synthesis of Organic Compounds.	CO1.This course helps to aware the students to understand the stereochemistry of organic reactions. CO2.Also gives detail idea regarding stereochemistry of alicyclic rings, fused, bridge and caged rings. CO3.This course also includes resolution of racemic modification and determination of stereochemistry of organic compound using NMR, which helps to the students that they predict stereochemistry of organic compounds
CHO-353B	CHO-353B Designing Organic Syntheses and Heterocyclic Chemistry	CO1. This course is designed to make the students aware of the chemistry of biomolecules and basic concept of retrosynthetic strategy and synthesis of chiral drugs. CO2. This course also gives knowledge of synthesis of pharmacologically active chiral drugs.
CHO-354	CHO-354 Practical-I Solvent Free Organic Synthesis	CO1.The objective of this course is to develop the skilled practical hand of the students in laboratory. CO2.The main objective of this course is how to avoid solvents and do solvent free reactions. CO3.This course makes the students to aware of role of green chemistry in organic synthesis. CO4. Green chemistry helps to reduce the pollution.

M.Sc. Part II Organic Chemistry

Semester IV

SubjectCode	Subject Name	Outcome
CHO-450	Chemistry of Natural Products	CO1. In this course PG students learn the different pathways of synthesis of natural products it also helps stereochemistry and structure determination of some natural products. CO2. This course involves multistep synthesis of natural products.
CHO-451	CHO-451 Organometallic Reagents in Organic Synthesis	CO1.This course involves organometallic chemistry which helps the students to develop their ideas in organic synthesis. CO2. This course involves the reactions like coupling reactions, multicomponent reactions, ring formation reactions, olifination which helps the students to plan synthesis of new organic molecules. CO3. Click chemistry develops the ecofriendly approach towards organic synthesis.
CHO-452(A)	Concepts and Applications of Medicinal Chemistry	CO1.Medicinal chemistry helps to introduce the drugs and their biological properties to the students. CO2.It also helps to understands pharmacokinetics and pharmacodynamics of the drugs and drug targets.
CHO-453	Practical-II	CO1.This course includes multistep synthesis of organic compounds and heterocycles. CO2. Carbohydrate Synthesis CO3. Isolation of pigments from the natural products
CHO-454	Practical-III: Convergent and Divergent Organic Syntheses	CO1.This course helps the students to improve the techniques like workup of reactions, purification, TLC , M.P / B.P etc. CO2. The main of this course is to improve practical skill and practice of micro scale preparation. CO3. Convergent Synthesis CO4. Divergent Synthesis

The People's Education Society's

JAMKHED MAHAVIDYALA JAMKHED

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Savitribai Phule Pune University

DEPARTMENT OF PHYSICS

Programme Outcome

Programme Specific Outcome

Course Outcome For

B.Sc. Physics

Department of Physics

PO's, PSO's and CO's: B.Sc. Physics

After successful completion of three-year degree program in physics a student should be able to do following;	
Program Outcomes	**PO:** 1. Demonstrate, solve and an understanding of major concepts in all disciplines of physics. 2. Solve the problem and also think methodically, independently and draw a logical conclusion. 3. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of Physics experiments. 4. Create an awareness of the impact of Physics on the society, and development outside the scientific community. 5. To inculcate the scientific temperament in the students and outside the scientific community. 6. Use modern techniques, decent equipment's.
Program Specific Outcomes	**PSO:** 1. Gain the knowledge of Physics through theory and practical's. 2. Understand good laboratory practices and safety. 3. Develop research-oriented skills. 4. Make aware and handle the sophisticated instruments/equipment.

Department of Physics

PO's, PSO's CO's - F.Y.B.Sc.

Course Outcomes F.Y. B.Sc. Physics Semester I	
Course Name	**Outcomes**
PHY-I **PHY- 111:** **Mechanics and Properties of Matter**	On successful completion of this course student will be able to do following: 1) Demonstrate and understanding of Newton's law and applying them in calculation of motion of simple systems. 2) Use the free body diagrams to analyses the forces on the object. 3) Understand the concept of energy, work, power, the concept of conservation of energy and be able to perform calculations using them. 4) Understand the concept of elasticity and be able to perform the calculations using them. 5) Understand the concept of surface tension and viscosity and be able to perform calculations using them. 6) Use of Bernoulli's theorem in real life problems. 7) Demonstrate the quantitative problem solving skills in all the topics covered
PHY-II **PH-112:** **Physics Principles and Application**	On successful completion of this course student will be able to do following: 1) To demonstrate and understanding of electromagnetic waves and its spectrum 2) Understand the types and sources of electromagnetic waves and applications. 3) To understand the general structure of atom, spectrum of hydrogen atom. 4) To understand the atomic excitation and LASER principles. 5) To understand the bonding mechanism in molecules and rotational and vibrational energy levels of diatomic molecules. 6) To demonstrate quantitative problem solving skills in all the topic covered.
Practical Course: **PHY-113:** **Physics Laboratory- 1A**	After completing the practical course the students should be able to do the following; 1) To determine range and least count of instruments and measurements using vernier caliper, screw gauge. 2) To understand MI and determination of MI of a disc using ring. 3) To understand moduli of elasticity and to determine young's modulus and modulus of rigidity. 4) To study the spectrometer and determination of angle of prism. 5) To understand Plank's constant which is determine from the LED bulb. 6) To understand wavelength of light, LASER beam, and its diffraction from the grating. 7) To understand the solar cell and its IV characteristics.

Course Outcomes F.Y. B.Sc. Physics Semester II	
PHY-III **PHY-112:** **Heat and Thermodynamics**	On successful completion of this course student will be able to do following: 1. Describe the properties of a relationship between the thermodynamic properties of a pure substance. 2. Describe the Ideal gas equation and its limitations 3. Describe the real gas equation Apply the law of thermodynamics to formulate the relations necessary to analyze thermodynamic processes. 4. Analyze the heat engines and calculate thermal efficiency. 5. Analyze the refrigerators, heat pumps and calculate coefficient of performance 6. Understand property entropy and derive some thermo dynamical relations using entropy concept 7. Understand the types of thermometers and their uses.
PHY- IV **PHY- 122:** **Electricity and Magnetism**	On successful completion of this course students will be able to do the following: 1. Demonstrate an understanding of the electric force, field and potential, and related concepts, for stationary charges. 2. Calculate electrostatic field and potential of simple charge distributions using Coulomb's law and Gauss's law. 3. Demonstrate an understanding of the dielectric and effect on dielectric due to electric field. 4. Demonstrate an understanding of the magnetic field for steady currents using Biot-Savart and Ampere's laws. 5. Demonstrate an understanding of magnetization of materials. 6. Demonstrate quantitative problem solving skills in all the topics covered.
Practical Course: **Physics Laboratory- 2A**	After completing the practical course the students should be able to do the following; 1. To understand and determine how to calculate solar constant by using Black body. 2. To understand interpretation of isothermal and adiabatic curve on P-V diagram and theoretical study of Carnot,s cycle be drawing graphs of isothermal and Adiabatic curves. 3. To understand characteristics of Diode. 4. To understand charging and discharging of a capacitor. 5. To understand Kirchhoff's laws and use of it to a particular problem. 6. Demonstration of surface tension. 7. To understand the AC and DC and to calculate the frequency of AC.

Department of Physics

PO's, PSO's CO's - S.Y.B.Sc.

Course Outcomes S.Y. B.Sc. Physics Semester III	
Course Name	**Learning Outcomes**
PHY-I **PHY- 231: Mathematical Methods in Physics I**	After the completion of this course students will be able to 1. Understand the concept of partial differentiation. 2. Understand the role of partial differential equations in physics 3. Understand vector algebra useful in mathematics and physics 4. Understand the singular points of differential equation. 5. Understand the complex algebra useful in Physics course
PHY-II **PHY -232: Electronics- I**	On successful completion of this course the students will be able to 1. Apply laws of electrical circuits to different circuits. 2. Understand the relations in electricity. 3. Understand the properties and working of transistors. 4. Understand the functions of operational amplifiers. 5. Design circuits using transistor and amplifiers. 6. Apply laws of electrical circuits to different circuits. 7. Understand the relations in electricity. 8. Understand the properties and working of transistors. 9. Understand the functions of operational amplifiers. 10. Design circuits using transistor and amplifiers.
PHY-233 **Physics Laboratory- 2A**	After completing this practical course student will be able to 1. Use various instruments and equipment. 2. Design experiments to test a hypothesis and determine the value of an unknown quantity. 3. Investigate the theoretical background to an experiment. 4. Set up experimental equipment to implement an experimental approach. 5. Analyze data, plot appropriate graphs and reach conclusions from your data analysis. 6. Work in group to plan, implement and report on an experiment. 7. Keep a well-maintained and instructive laboratory logbook
Course Outcomes S.Y. B.Sc. Physics Semester IV	
PHY-III **PHY-241: Oscillations, Waves and sound**	On completion of this course, the learner will be able: 1. Understand the physics and mathematics of oscillations. 2. Solve the equations of motion for simple harmonic, damped, and forced oscillators. 3. Formulate these equations and understand their physical content in a variety of applications, 4. Describe oscillatory motion with graphs and equations, and use these descriptions to solve problems of oscillatory motion.

	5. Explain oscillation in terms of energy exchange, giving various examples. 6. Solve problems relating to undamped, damped and force oscillators and superposition of oscillations. 7. Understand the mathematical description of travelling and standing waves. 8. Recognize the one-dimensional classical wave equation and solutions to it. 9. Calculate the phase velocity of a travelling wave. 10. Explain the Doppler Effect, and predict in qualitative terms the frequency change that will occur for a stationary and a moving observer. 11. Define the decibel scale qualitatively, and give examples of sounds at various levels. 12. Explain in qualitative terms how frequency, amplitude, and wave shape affect the pitch, intensity and quality of tones produced by musical instruments.
PHY-IV **PHY- 242:** **Optics**	This course will enable you to acquire the basic concepts of wave optics 1. To describe how light can constructively and destructively interfere 2. Explain why a light beam spreads out after passing through small aperture. 3. Appreciate the operation of many modern optical devices that utilize wave optics. 4. Understand optical phenomena such as polarization, interference and diffraction in terms of the wave model. 5. Analyze simple examples of interference and diffraction phenomena. 6. Be familiar with a range of equipment used in modern optics. 7. Summarize the operation of many modern optical phenomenon such polarization, diffraction and interference in terms of the wave model
PHY-243 **Physics Laboratory-2B**	After completing this practical course student will be able to 1. Use various instruments and equipment. 2. Design experiments to test a hypothesis and determine the value of an unknown quantity. 3. Investigate the theoretical background to an experiment. 4. Set up experimental equipment to implement an experimental approach. 5. Analyze data, plot appropriate graphs and reach conclusions from your data analysis. 6. Work in group to plan, implement and report on an experiment. 7. Keep a well- maintained and instructive laboratory logbook

Department of Physics

PO's, PSO's CO's T.Y. B.Sc. Physics

<table>
<tr><td colspan="2">After successful completion of three-year degree program in physics a student should be able to do following;</td></tr>
<tr><td>Program Outcomes</td><td>PO:
7. Demonstrate, solve and an understanding of major concepts in all disciplines of physics.
8. Solve the problem and also think methodically, independently and draw a logical conclusion.
9. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of Physics experiments.
10. Create an awareness of the impact of Physics on the society, and development outside the scientific community.
11. To inculcate the scientific temperament in the students and outside the scientific community.
12. Use modern techniques, decent equipment's.</td></tr>
<tr><td>Program Specific Outcomes</td><td>PSO:
5. Gain the knowledge of Physics through theory and practical's.
6. Understand good laboratory practices and safety.
7. Develop research-oriented skills.
8. Make aware and handle the sophisticated instruments/equipment.</td></tr>
<tr><td colspan="2">Course Outcomes B.Sc. Physics
Semester V</td></tr>
<tr><td>Course</td><td>Outcomes
After completion of these courses students should be able to do following;</td></tr>
<tr><td>PHY-351:
Mathematical Methods in Physics II</td><td>CO:
1) To Know the Cartesian, spherical polar and cylindrical co-ordinate systems.
2) To understand and recognized expressions of gradient, divergence, Laplacian and curl, special cases of them.
3) To understand the Special Theory of Relativity.
4) To get knowledge about Michelson- Morley Experiment.
5) To obtain the series solution by Frobenius method.
6) To solve the Generating functions for Legendre, Hermite polynomials functions.
7) To solve partial differential equations.</td></tr>
<tr><td>PHY-352:
Electrodynamics</td><td>CO:
1. To understand the Coulombs law and the concept of electric field.
2. To understand potential energy of the system.
3. To understand the concept of polarization.
4. Get the knowledge about magnetic induction, concept of magnetic field.
5. Study of magnetic materials and hysteresis.
6. To learn the concept of electromagnetic induction and Faradays law.
7. To know physical significance of Maxwell's equations.</td></tr>
</table>

PHY-353: **Classical Mechanics**	**CO:** 1. Understand Newton's Laws of motion and their applications such as projectile motion and rocket motion. 2. Gain the knowledge of motion in central force field. 3. Classify elastic and inelastic scattering. 4. Know the difference between Laboratory and Centre of mass system. 5. Understands Lagrangian and Hamiltonian formulation. 6. Solve the problems using Lagrangian and Hamiltonian formulation. 7. Get knowledge of canonical transformation and Poisson's bracket. 8. To learn about D'Almeberts Principal of virtual work
PHY-354: **Atomic and** **Molecular Physics**	**CO:** 1. To understand the atomic structure and model experiment. 2. To know the Rutherford Experiment of atom. 3. To understand molecular spectra of atom. 4. To understand the Raman spectra. 5. To understand the Zeeman Effect. 6. To understand the Quantum Numbers. 7. To apply all the experimental knowledge in different field. 8. To able to understand molecular spectroscopy.
PHY-355: **Computational Physics**	**CO:** 1. To write algorithm and flow chart of C-programming language. 2. to get familiar with different type of operators. 3. To use of iterative, decision making and the jump statements. 4. Understand the concept of arrays and pointers. 5. Study of user defined functions and program structures. 6. Able to use the concept of graphics in C language.
PHY-356 Elective-I (B): **Elements of** **Materials Science**	**CO:** 1. To recognized the Mechanical, Electrical and Thermal Properties of material. 2. To know the single phase metal and there properties 3. Know the solid solution and types of solid solution. 4. To understand the Point Defect, Line Defect with example and fick's law. 5. learn the Diffusion Mechanism 6. Know the difference between Elastic and Plastic Deformation. 7. To understand the Polymer Vulcanization of rubber. 8. Know the AX-type crystal structure – e.g., NaCl, ZnS etc.
PHY-357 **Physics Laboratory-3A**	After completion of this course student will able to 1. Use various instruments and equipment.

	2. Design experiments to test a hypothesis and determine the value of an unknown quantity. 3. Investigate the theoretical background to an experiment. 4. Set up experimental equipment to implement an experimental approach. 5. Analyze data, plot appropriate graphs and reach conclusions from your data analysis. 6. Work in group to plan, implement and report on an experiment. 7. Be able to plan and execute experiments for determination of M.I. of a bar by bifilar suspension method. 8. Have developed skills to plan experiments for studying the properties of matter like viscosity, Young's modulus. 9. Be able to plan and perform electronic experiment like Andersons Bridge, determination of energy gap of semiconductor etc. 10. Learn about molecular spectroscope, which are used to observe zeeman effect. Some optical experiment like determination of resolving power of grating, and determination of wavelength by constant deviation spectrometer.
PHY-358 **Physics Laboratory-3B**	After completion of this course student will able to 1. Use various instruments and equipment. 2. Design experiments to test a hypothesis and determine the value of an unknown quantity. 3. Investigate the theoretical background to an experiment. 4. Set up experimental equipment to implement an experimental approach. 5. Analyze data, plot appropriate graphs and reach conclusions from your data analysis. 6. Work in group to plan, implement and report on an experiment. 7. Able to understand charging discharging of capacitor, and characteristics of Diode, IC etc. 8. write and execute mathematical and simple programs using C language. Student will able to write code for complex scientific computational requirement the computational physics problem such as Bisection, Newton Raphson, Trapezoidal rule, and Simpson's $1/3^{rd}$ rule
PHY- 359 **Project I**	**CO:** 1. Through project students learn applications of concept of physics, development and setting of experimental set ups. 2. It also creates research aptitude amongst the students for further studies. 3. Some projects which are applied can be used and find application in day to day life.
Skill Enhancement Course-I **PHY-3510(H):** **Python Programming**	**CO:** 1. To write code for complex scientific computational requirement

	2. Use libraries like NumPy for numeric computation 3. Use library SciPy for scientific and technological calculations. 4. Use library Matplotlib for plotting of graph and its visualization 5. Develop own functions for physics or mathematics.
Skill Enhancement Course-II **PHY-3511(L):** **Physics Workshop Skill**	**CO:** 1. After completion of this course student will able to handle and test various instruments such as digital meters, CRT, CRO and signal generators.

Course Outcomes B. Sc. Physics Semester-VI	
PHY 361: **Solid State Physics**	**CO:** 1. Know the principles of structures determination by diffraction. 2. To understand the principles and techniques of X-rays diffraction 3. Know the fundamental principles of semiconductors and be able to estimate the charge carrier mobility and density 4. To give an extended knowledge about magnetic properties like diamagnetic, paramagnetic, ferromagnetic, ferrites and superconductors
PH-362: **Quantum Mechanics**	**CO:** 1. Understand de-Broglie hypothesis and Uncertainty principle. 2. Derive Schrodinger's time dependent and independent equations. 3. Solve the problems using Schrödinger's steady state equation. 4. Get knowledge of rigid rotator. 5. Understand different operators in Quantum Mechanics
PH-363: **Thermodynamics and Statistical Physics**	**CO:** 1. To study kinetic theory of Gases. 2. To study Maxwell Relations and Application. 3. Know the elementary concept of statistics. 4. Understand statistical distribution of system of particles. 5. To study statistical ensembles. 6. To study Quantum statistics.
PH-364: **Nuclear Physics**	**CO:** 1. Know the properties of nucleus likes binding energy, magnetic dipole moment and electric quadruple moment 2. To understand the concept of radioactivity and decays law 3. To study achievement of Nuclear Models of Physics and its limitations 4. To give an extended knowledge about nuclear reactions such as nuclear fission and fusion 5. To understand the basic concept of Particle Physics
PH-365: **Electronics**	**CO:** 1. Know the special purpose Diode. 2. To study the Transistor Amplifier. 3. To understand the FET, JFET, MOSFET. 4. To study the Operational Amplifier and their types. 5. To know the Timer IC- 555 and its classification. 6. To study the Regulated Power supply. 7. To understand the Sequential Logic Circuits.
PH-366 (S): **Elective (II)** **Lasers**	**CO**: 1. Know the history of LASERS and its basic concepts.

	2. Understand the basic principle and working of different types of lasers. 3. Know the applications of lasers in various fields. 4. Understand the characteristics of LASERS. 5. Learn safety precaution sand measures while handling the lasers.
PHY-367 **Physics Laboratory-4A**	**CO:** After completing the course students should; 1. Be able to gain necessary skills to perform experiments like verification of Stefan's law, determination of Planck's constant. 2. Have developed skills to plan experiments for studying the properties of matter like viscosity, Young's modulus. 3. Able to handle instruments carefully such as G.M. tube, Four probe instrument, various thermometer and cathode ray tube for e/m Thomson method experiment.
PHY-368 **Physics Laboratory-4B**	After completing the course students should; 1) Have acquired necessary skills to design astable multivibrator circuit using IC-555. By using diode they able to design and developed half wave and full wave rectifier. 2) Be able to plan an experiment to study the characteristics of FET and integrator differentiator using IC 741 3) Be able to plan and perform experiment to determine the thickness of cylindrical obstacle by using diffraction of laser light.
PHY- 369 **Physics Project II**	**CO:** 1. Through project students learn applications of concept of physics, development and setting of experimental set ups. 2. It also creates research aptitude amongst the students for further studies. 3. Some projects which are applied can be used and find application in day to day life.
Skill Enhancement Course-III **PHY-3610 SEC (W):** **Scientific Data Analysis using Python**	Learn how to analyses data using Python. This course will take your from the basic of python to exploring many different types of data. Student will learn how to prepare data for analysis, perform simple statistical analyses, create meaningful data visualizations, predict future trends from data, and more student will learn how to: 1. Import data sets, access different elements of data frames. 2. Understand the functions available in existing Python modules. 3. Understand the utility of functions available in NumPy and Pandas library. 4. Clean and prepare data for analysis 5. Manipulate pandas data frame 6. Understand awareness with different types of basic charts and functions in matplotlib library

	7. Get exposure to visualization techniques from seaborn library 8. Build data pipelines, data analysis with python is delivered through lecture, hands-on labs, and assignments. It includes following parts; a) Data analysis libraries will learn to use pandas data frames, NumPy multi-dimensional arrays, and SciPy libraries to work with a various datasets. We will introduce you to pandas, an opensource library, and we will use it to load, manipulate, analyze, and visualize cool datasets. Then we will introduce you to another open source library, srikit-learn, and we will use some of its machine learning algorithms to build smart models and make cool predictions. **CO:** 1. Know basic notion and definitions in data analysis. 2. Know standard methods of data analysis and information retrieval 3. Be able to formulate the problem of knowledge extraction as combinations of data filtration, analysis and exploration methods. 4. Be able to translate a real world problem into mathematical terms.
Skill Enhancement Course-II PHY-3611 SEC(AA): Microcontrollers	After successful completion of this course students are supposed to develop their own applications/mini/tiny projects using microcontroller.

The Peoples Education Society's

JAMKHED MAHAVIDYALAYA JAMKHED
DISTRICT AHMEDNAGAR
DEPARTMENT OF MATHEMATICS

B.Sc. MATHEMATICS

Program outcomes, program specific outcomes and course outcomes

❖ PROGRAMME SPECIFIC OUTCOME (PSO):	
Semester I & II	1. Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of innumerous power of mathematical ideas and tools and know how to use them by modeling, solving and interpreting. 2. Reflecting the broad nature of the subject and developing mathematical tools for continuing further study in various fields of science and technology. 3. Enhancing students' overall development and to equip them with mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment. 4. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.
Semester III & IV	1. A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. 2. A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. 3. A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. 4. A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. 5. A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
Semester V & VI	1. Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of innumerous power of mathematical ideas and tools and know how to use them by modeling, solving and interpreting. 2. To equip the students sufficiently in both analytical and computational skills in Mathematical Sciences. 3. To develop a competitive attitude for building a strong academic - industrial collaboration, with focus on continuous learning skills. 4. Enhancing students' overall development and to equip them with mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment. 5. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study. 6. Enabling students to Gauge the hypothesis, theories, techniques and proofs provisionally.

❖ **PROGRAMME OUTCOME (PO):**	
Semester I & II	1. A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. 2. A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. 3. A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. 4. A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. 5. A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
Semester III & IV	1. Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of innumerous power of mathematical ideas and tools and know how to use them by modeling, solving and interpreting. 2. Reflecting the broad nature of the subject and developing mathematical tools for continuing further study in various fields of science. 3. Enhancing students' overall development and to equip them with mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment. 4. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.
Semester V & VI	A graduate of this program is expected to: 1. Gain sound knowledge on fundamental principles and concepts of Mathematics and computing with their applications related to Industrial, Engineering, Biological and Ecological problems. 2. Exhibit in depth the analytical and critical thinking to identify, formulate and solve real world problems of science and engineering. 3. Get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. 4. A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. 5. Apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. 6. Be capable of undertaking suitable experiments/research methods while solving the real-life problem and would arrive at valid conclusions based on appropriate interpretations of data and experimental results. 7. Develop written and oral communications skills in order to effectively communicate design, analysis and research results. 8. Demonstrate appropriate inter-personal skills to function effectively as an individual, as a member or as a leader of a team and in a multi-disciplinary setting. 9. Acquire competent positions in industry and academia as well.

❖ Course Outcome :

Upon successful completion of this course, the student will be able to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems.

❖ **COURSE LEARNING OUTCOME:**	
Semester-I	
MT-111: Algebra	On successful completion of this course students will able : 1. To understand Sets, Relations, Equivalence relations, Equivalence classes and partitions of a set, Functions, types of Functions, Inverse of a Function, Composition of Functions 2. To demonstrate the ability of algebraically analyse functions. 3. To understand Mathematical Induction, Well-Ordering Principle and its applications. 4. To understand GCD, LCM, Division Algorithm and its applications like De Movier's theorem. 5. To understand complex numbers, Argand diagrams, algebra of complex numbers, Modulus and argument, Euler's formula & De Movier's theorem.
MT-112: Calculus-I	On successful completion of this course students will able to : 1. Understand the concept of sequences of real numbers, bounded & convergence of sequences and its applications. 2. Understand the concept of approach, Neighborhood of points, Limit & continuity of functions.
MT-113: Mathematics Practical	On successful completion of this course students will able to : 1. Apply basic algebra to solve problems. 2. Understand the concept of limit for real functions
Semester-II	
MT-121: Analytical Geometry	On successful completion of this course students will able to 1. Understand the concept of translation & rotation of axes, Conic sections and their equations. 2. Understand concept of directed line and its direction cosines, direction rations, angle between lines, conditions for parallel & perpendicular lines. 3. Visualize Planes & its intersections, Spheres & its intersection with plane, line and sphere. 4. Find algebraic equations of Plane, Line and Sphere.
MT-122: Calculus-II	On successful completion of this course students will able to 1. Understand the concept of differentiation, algebraic properties & applications of differentiation like Mean Value Theorems, Extreme values of functions. 2. Find Limit by differentiation (L'Hospital Rule) 3. Expressing functions as an infinite series (Taylor's theorem, Maclaurin's theorem with Lagrange's form of remainder) 4. Find n^{th} derivatives of functions and Product of functions. 5. Solve first order differential equations utilizing the standard techniques for

	separable, exact, linear, homogeneous, or Bernoulli cases.
MT-123: Mathematics Practical	On successful completion of this course students will able to 1. Apply geometry to solve problems. 2. Discuss the Separable equations, exact differential equations, integrating factors. 3. Student will be able to solve first order differential equations utilizing the standard techniques for separable, exact, linear, homogeneous, or Bernoulli cases.
Semester-III	
MT-231: Calculus of Several Variables	On successful completion of this course students will able to 1. Understand concept of partial derivative. 2. Understand differentiability for function of two variables. 3. Sketch graphs and level curves of two variables. 4. Demonstrate the ability to think critically by setting up and solving application problems involving double and triple integrals. 5. Locate and use information to solve calculus problems in several variables.
MT-232 (A): Numerical Methods and Its Applications	On successful completion of this course students will able to 1. Trained to use various numerical and analytical methods. 2. Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems. 3. The solution of differential equations and nonlinear equations and derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear. 4. Apply numerical methods to obtain approximate solutions to mathematical problems.
MT-233: Mathematics Practical	On successful completion of this course students will able to 1. Finds domain, range and curve of various functions. 2. Discusses the methods like Newton's Raphon's Method, Euler's Method, and Bisections method. 3. Find maxima and minima of functions, Limits of functions by L' Hospital Rule, Double and triple integrals.
Semester-IV	
MT-241 : Linear Algebra	On completion of this unit successful students will be able : 1. To understand basic concepts of matrices, Algebra of matrices, Rank of matrix and applications to solve linear system of equations. 2. To understand Vector spaces, Linear dependence and independence of vectors, Basis and dimension of vector spaces. 3. To understand an inner product spaces, Orthogonal vectors, linear Transformations and matrix for linear transformation.
MT-242 : Vector Calculus	On completion of this unit successful students will be able to : 1. Deals with vector valued functions.

	2. Understand topics like line integral, surface integral which generalize integration to functions defined on curves & surfaces. 3. Understanding the computation of work done flux, mass, area of the surfaces. 4. Understand the Green's theorem, Stroke's theorem, divergence theorem that teaches the relation between integration of functions over surfaces & its boundary, solids & its surface.
MT-243: Mathematics Practical	On completion of this unit successful students will be able to : 1. Demonstrate the Linear independent and Linear Dependent vectors. 2. Find Rank of matrix, Vector spaces, basis and dimension and Linear mappings. 3. Discusses the methods like Newton's Raphon's Method, Euler's Method, and Bisections method. 4. Application in Curve fitting problems like line equation, exponential equation.
Semester-V	
MT -351: Metric Spaces	The course will enable the students to: 1. Understand the introductory concepts of metric spaces. 2. Correlate these concepts to their counter parts in modern analysis by studying examples. 3. Learn to analyze mappings between spaces. 4. Attain background for advanced courses in real analysis, functional analysis, and topology. 5. Appreciate the abstractness of the concepts such as open balls, closed balls, compactness, connectedness etc. beyond their geometrical imaginations.
MT-352: Real Analysis-I	This course will enable the students to: 1. learn the basic facts in logic and set theory 2. Learn to define sequence in terms of functions from N to a subset of R and to understand several properties of the real line. 3. Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence. 4. Use the ratio, root, and alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.
MT-353: Group Theory	The course will enable the students to: 1. Recognize the mathematical objects that are groups, and classify them as abelian, cyclic and permutation groups, etc. 2. analyze consequences of Lagrange's theorem 3. Learn about structure preserving maps between groups and their consequences. 4. Explain the significance of the notion of cosets, normal subgroups, and factor groups.
MT-354: Ordinary Differential Equations	The course will enable the students to: 1. Understand the genesis of ordinary differential equations. 2. Learn various techniques of getting exact solutions of solvable first order differential equations and linear differential equations of higher order.

	3. Grasp the concept of a general solution of a linear differential equation of an arbitrary order and also learn a few methods to obtain the general solution of such equations.
MT -355(A): Operations Research	This course will enable the students to learn: 1. Analyze and solve linear programming models of real-life situations. 2. The graphical solution of LPP with only two variables and illustrate the concept of convex set and extreme points. The theory of the simplex method is developed. 3. The relationships between the primal and dual problems and their solutions with applications to transportation, assignment and two-person zero-sum game problem.
MT-355(B): Differential Geometry	The course will enable the students to: 1. Gain an understanding to solve problems with the use of differential geometry to diverse situations in mathematical contexts. 2. Develop different properties associated with curves and surfaces. 3. Demonstrate a depth of understanding in advanced mathematical topics in relation to geometry of curves and surfaces Learn to analyze mappings between spaces. 4. Apply the theory of differential geometry to specific research problems in mathematics or other fields.
MT- 355(C): C-Programming	1. The course is designed to provide complete knowledge of C-language. 2. Students will be able to develop logics which will help them to create programs, applications in C. 3. Also, by learning the basic programming constructs they can easily switch over to any other language in future. 4. After the completion of this course, the students will be able to develop applications.
MT-356(A): Machine Learning-I	Upon successful completion of this course the student will be able to: 1. Gain knowledge about basic concepts of Machine Learning. 2. Identify machine learning techniques suitable for a given problem. 3. Solve the problems using various machine learning techniques.
MT-356(B): Number Theory	This course will enable the students to learn: 1. Some of the open problems related to prime numbers. 2. About number theoretic functions and modular arithmetic. 3. The Law of Quadratic Reciprocity and other methods to classify numbers as primitive roots, quadratic residues, and quadratic non-residues.
MT-356 (C): Laplace Transform and Fourier Series	This course will enable the students to learn: 1. Students will be able to know the use of Laplace transform in system modeling, digital signal processing, process control. 2. Solve an initial value problem for an nth order ordinary differential equation using the Laplace transform. 3. Find the Fourier series representation of a function of one variable

MT -3510: Programming in Python–I	1. To understand why Python is a useful scripting language for developers. 2. To learn how to use lists, tuples, and dictionaries in Python programs. 3. To learn and understand python looping, control statements and string manipulations. 4. To acquire programming skills in core Python. 5. At the end of the course the student will be able to explain basic principles of Python programming language. 6. The student will implement object-oriented concepts
MT-3511: LaTeX for Scientific Writing	After studying this course, the student will be able to: 1. Write a simple LaTeX input document based on the article class. 2. Turn the input document into pdf with the pdf latex program. 3. Format Words, Lines, and Paragraphs. 4. Understand how to present data using tables.
Semester-VI	
MT - 361: Complex Analysis	The completion of the course will enable the students to: 1. Understand the significance of differentiability of complex functions leading to the understanding of Cauchy-Riemann equations. 2. Evaluate the contour integrals and understand the role of Cauchy-Goursat theorem and the Cauchy integral formula. 3. Expand some simple functions as their Taylor and Laurent series, classify the nature of singularities, find residues and apply Cauchy Residue theorem to evaluate integrals. 4. Represent functions as Taylor, power and Laurent series, classify singularities and poles, find residues and evaluate complex integrals using the residue theorem.
MT: 362: Real Analysis-II	The course will enable the students to learn about: 1. Some of the families and properties of Riemann integrable functions, and the applications of the fundamental theorems of integration. 2. Beta and gamma functions and their properties. 3. Recognize the difference between pointwise and uniform convergence of a sequence of functions. 4. Illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability, and integrability.
MT: 363: Ring Theory	The course will enable the students to learn about: 1. The fundamental concept of Rings, Fields, subrings, integral domains and the corresponding morphisms. 2. Learn in detail about polynomial rings, fundamental properties of finite field extensions, and classification of finite fields. 3. Appreciate the significance of unique factorization in rings and integral domains.
MT 364: Partial Differential Equations	The course will enable the students to: 1. Formulate, classify and transform partial differential equations into canonical form. 2. Solve linear partial differential equations using various methods and apply

	these methods in solving some physical problems. 3. Solve Laplace equations using various analytical methods demonstrate uniqueness of solutions of certain kinds of these equations.
MT365 (A): Optimization Techniques	This course enables the students to get an idea about the 1. Network and basic components, Determination of critical path: Critical Path Method (CPM), Project Evaluation and Review Techniques (PERT).Time-cost optimization Algorithm. 2. Problem of Sequencing, Processing n Jobs through Two Machines, Processing n Jobs through 3 Machines and Processing n Jobs through k Machines. Course 3. The course will enable the students to understand fundamentals of Network Analysis using CPM and PERT. 4. Solve a sequencing Problem for various jobs and machines.
MT 365(B): Calculus of Variation and Classical Mechanics	The course will enable the students to: 1. Understand problems, methods and techniques of calculus of variations. 2. Understand necessary conditions for the equilibrium of particles acted upon by various forces and learn the principle of virtual work for a system of coplanar forces acting on a rigid body. 3. Deal with the kinematics and kinetics of the rectilinear and planar motions of a particle including the constrained oscillatory motions of particles. 4. Determine the center of gravity of some materialistic systems and discuss the equilibrium of a uniform cable hanging freely under its own weight.
MT 365 (C) Financial Mathematics	The course will enable the students to: 1. Describe and explain the fundamental features of a financial instruments. 2. Demonstrate a clear understanding of financial research planning, methodology and implementation. 3. Demonstrate understanding of basic concepts in linear algebra, relating to linear equations, matrices, and optimization. 4. Demonstrate understanding of concepts relating to functions and annuities.
MT-366(A): Machine Learning-II	The students learning outcomes are designed to specify what the students will be able to perform after completion of the course: Ability to select and implement machine learning techniques and computing environment that are suitable for the applications under consideration.
MT- 366(B): Computational Geometry	The course will enable the students to: 1. Construct algorithms for simple geometrical problems. 2. Characterize invariance properties of Euclidean geometry by groups of transformations. 3. Describe and construct basic geometric shapes and concepts by computational means.
MT-366(C): Lebesgue Integration	The course will enable the students: 1. To understand the concept of measure and properties of Lebesgue measure. 2. To study the properties of Lebesgue integral and compare it with Riemann integral.

MT-3610: Programming in Python –II	Upon successful completion of this course the student will be able to: 1. Demonstrate the use of Python in Mathematics such as operations research and computational Geometry etc. 2. Study graphics and design and implement a program to solve a real world problem. 3. The students will implement the concepts of data with python and database connectivity.
MT-3611: Mathematics into LaTeX	After studying this course, the student will be able to: 1. Typeset mathematical formulas, use nested list, tabular and array environments. 2. Import figures and pictures that are stored in external files.

The Peoples Education Society's
JAMKHED MAHAVIDYALAYA JAMKHED DIST. AHMEDNAGAR
DEPARTMENT OF ZOOLOGY

	Course Outcome
Name of the Course	**Course Outcome**
F.Y.B.Sc. Zoology Course Title: Animal Diversity –I Course Code-ZO-111	Understand the classification system of animals based on their characteristics, and identify the key features of different animal phyla. Explain the evolutionary relationships among animals and the processes that have led to the diversification of life on Earth. Identify and describe the anatomical, physiological, and ecological adaptations of animals that allow them to survive and thrive in different environments. Develop an understanding of the ecological roles of animals, including their interactions with other organisms and their impact on ecosystem function.
General Features of kingdom Animalia	Define what the Kingdom Animalia is and the key characteristics that distinguish it from other kingdoms. Understand the basic anatomy and physiology of animals, including the differences between invertebrates and vertebrates. Identify and classify major phyla of animals based on their physical characteristics, behavior, and evolutionary history. Understand the roles of animals in ecosystems and the ways in which they interact with other organisms.
Kingdom Protista (Phylum: Protozoa)	Define what Kingdom Protista is and its characteristics. Describe the different types of organisms that belong to Kingdom Protista, including their structures and modes of nutrition. Explain the importance of Kingdom Protista to the

	ecosystem and its role in the food chain. Understand the concept of symbiosis and its importance in Kingdom Protista. Identify the different types of reproduction used by organisms in Kingdom Protista. Describe the ecological and economic impacts of Kingdom Protista. Understand the role of Kingdom Protista in disease transmission and prevention.
Phylum Porifera	Define what Porifera are and describe their basic characteristics, such as their sessile, filter-feeding nature and their lack of true tissues and organs. Understand the various structures and cell types found in Porifera, including choanocytes, pinacocytes, and spicules. Describe the different types of Porifera and their distinguishing features, including the three main classes (Calcarea, Demospongiae, and Hexactinellida) and their respective skeletal structures.
Phylum: Cnidaria	Basic Characteristics: Students will learn the basic characteristics of cnidarians, including their radial symmetry, the presence of specialized cells called cnidocytes that contain stinging organelles called nematocysts, and their basic body plan, which typically consists of a sac-like body with a central digestive cavity. Classification: Students will learn about the different classes of cnidarians, including Hydrozoa, Scyphozoa, Anthozoa, and Cubozoa, and their distinguishing features. Life Cycle: Students will learn about the life cycle of cnidarians, which typically includes both a polyp and a medusa stage. Ecological Significance: Students will learn about the ecological significance of cnidarians, including their roles as primary producers and predators in marine ecosystems, their symbiotic relationships with other organisms and their ability to form large, complex structures such as coral reefs.
Course Title: Animal Ecology Course Code: ZO 112 Semester I	
Ecology , Ecosystem	Define and differentiate between ecology and ecosystem, and understand their importance in sustaining life on earth. Identify the different levels of ecological organization, including populations, communities, and biomes.

	Understand the concepts of biotic and abiotic factors, and how they interact within ecosystems. Analyze the different types of ecosystems, such as terrestrial, aquatic, and marine ecosystems, and understand their unique characteristics. Understand the different energy flow and nutrient cycling processes within ecosystems. Identify and explain the different ecological relationships, such as symbiosis, predation, and competition. Analyze human impacts on ecosystems, including habitat destruction, pollution, and climate change. Understand the principles of conservation biology and the importance of preserving biodiversity.
Population **Community** **Animal interactions**	By studying population ecology, community ecology, and animal interactions, students can develop a deeper understanding of how organisms interact with each other and their environment. This knowledge is essential for developing effective strategies for managing and conserving ecosystems, as well as for understanding the impacts of human activities on the natural world.
Course Title: Zoology Practical Paper Course Code: ZO113 Semester I	
Animal Diversity –I	Identify and describe the anatomical features of different animal groups. Classify animals based on their body plan, symmetry, and other morphological characteristics. Use taxonomic keys to identify different animal species. Understand the ecological roles of different animal groups and their interactions with other organisms in their environment. Appreciate the diversity of animal life and the adaptations that have allowed animals to survive and thrive in a wide range of environments. Demonstrate safe and ethical practices when handling animals in a laboratory setting. Develop skills in observation, data collection, and data analysis in the context of zoological research. Communicate scientific findings effectively through written reports, oral presentations, and visual aids.
Animal Ecology	Understanding the principles of field sampling and data collection: Students should be able to design and execute field sampling strategies for animal populations and communities, including sampling design, data collection, and data management.

	Analyzing animal population data: Students should be able to analyze population data, including calculating population size, density, and distribution, and assessing population trends over time. Understanding animal interactions: Students should be able to identify and analyze animal interactions, such as predator-prey relationships, competition, and mutualism. Understanding the role of environmental factors: Students should be able to identify the role of environmental factors, such as habitat type, temperature, and precipitation, on animal populations and communities. Applying ecological concepts to real-world situations: Students should be able to apply ecological concepts and principles to real-world situations, such as conservation biology, ecosystem management, and wildlife management.
Course Title: Animal Diversity –II Course Code: ZO-121: Semester II	
Phylum Aschelminthes **Phylum Annelida** **Phylum Arthropoda**	Identify and describe the major characteristics of each phylum. For example, Aschelminthes are characterized by their unsegmented bodies and lack of respiratory or circulatory systems, while Annelida are characterized by their segmented bodies and well-developed circulatory and respiratory systems. Compare and contrast the different body plans and modes of locomotion used by animals in each phylum. For example, Aschelminthes typically move by contracting their muscles, while Arthropoda have jointed appendages that allow for more complex movements. Understand the ecological roles and importance of each phylum. For example, many species in the phylum Arthropoda are important pollinators, while some species in the phylum Annelida are ecosystem engineers that modify their habitats.
Phylum Mollusca **Phylum Echinodermata** **study: *Asteriasrubens* (Sea Star)**	Understanding the anatomy of Echinoderms: The Asterias rubens has a unique anatomy that is characteristic of echinoderms, including a central disk from which arms radiate, a water vascular

	system that aids in movement and feeding, and a unique ability to regenerate lost limbs. Learning about echinoderm reproduction: The Asterias rubens is dioecious, meaning that individuals are either male or female. They reproduce sexually, with fertilization occurring externally. Studying the reproductive biology of sea stars can help one understand the diversity of reproductive strategies across different organisms. Understanding the ecological role of sea stars: Sea stars are important predators in many marine ecosystems. Learning about the diversity of marine invertebrates: The phylum Echinodermata is one of the largest groups of marine invertebrates, with over 7,000 species.
Course Title: Cell biology **Course Code: ZO122:** **Semester II**	Understanding the structure and function of cells: Students should be able to describe the basic components of cells, including their organelles and structures, and how they work together to carry out cellular processes. Understanding cell division: Students should be able to explain the process of cell division, including mitosis and meiosis, and understand how errors in cell division can lead to disease. Understanding the relationship between structure and function: Students should be able to explain how the structure of cells and their organelles relates to their function. Understanding the role of cells in the body: Students should be able to explain the importance of cells in the functioning of the body, including their roles in tissue and organ function. Critical thinking: Students should be able to critically evaluate scientific literature and communicate their ideas effectively in written and oral form.
Course Title: Zoology Practical Paper **Course Code: ZO123** **Semester II**	Mollusca Practical: Determine the class of the mollusk based on its physical characteristics. Mollusks are typically divided into seven classes: Gastropoda, Bivalvia, Cephalopoda, Polyplacophora, Scaphopoda, Monoplacophora, and Aplacophora.

	Discuss the economic importance of mollusks. Mollusks are important both as a source of food and as a natural resource. They are also commonly used in scientific research. Echinodermata Practical: Examine the echinoderm's feeding mechanism. Echinoderms have a range of feeding mechanisms, including filter feeding, scavenging, and predation. Discuss the ecological importance of echinoderms. Echinoderms play an important role in marine ecosystems as both predators and prey. Economic Importance of Honey Bees: Discuss the role of honey bees in pollination. Honey bees are one of the most important pollinators of agricultural crops, including fruits, vegetables, and nuts. Examine the economic impact of honey bees. The value of honey bees to agriculture is estimated at billions of dollars annually.
Cell Biology	Understanding cell structure and function: Students will develop a basic understanding of the structure and function of cells by observing and analyzing different types of cells under the microscope. They will also learn about cell organelles, their functions, and how they work together to maintain cell homeostasis. Familiarity with laboratory techniques: Students will learn different laboratory techniques such as cell staining, cell culture, and microscopy. These techniques are essential for conducting experiments in cell biology and are also valuable skills for future careers in research. Scientific communication: Students will develop scientific communication skills by presenting their findings and experimental results in written and oral forms. These skills are vital for sharing scientific knowledge with others and for future research careers.

S.Y.B.Sc. Zoology	
Course Title: Animal Diversity - III **Course Code: ZO – 231, Semester - III**	
Phylum Chordata , Protochordata , Vertebrata	Define the phylum Chordata and describe its basic characteristics. Identify the major subphyla of Chordata, including Protochordata and Vertebrata. Describe the distinguishing features of Protochordata, including the three subphyla: Urochordata, Cephalochordata, and Hemichordata. Describe the distinguishing features of Vertebrata, including the presence of a vertebral column, a cranium, and a well-developed nervous system. Explain the major classes of Vertebrata, including Agnatha, Chondrichthyes, Osteichthyes, Amphibia, Reptilia, Aves, and Mammalia. Discuss the evolutionary history of Chordata and the relationships among its major subphyla and classes.
Class – Pisces , Amphibia	Understanding the anatomical and physiological features of fish, such as their streamlined body shape, gills for respiration, and swim bladder for buoyancy control. Familiarizing with the diversity of fish species and their classification based on characteristics like fins, scales, and reproductive strategies. Learning about the ecological roles of fish in aquatic ecosystems, such as their role in food webs and nutrient cycling. Understanding the challenges faced by fish in their habitats, including competition for resources, predation, and environmental stressors like pollution and climate change. Understanding the relationships between fish and other organisms in their ecosystem, including mutualistic and parasitic interactions.
Study of *Scoliodon*	Understanding vertebrate anatomy: Scoliodon is a cartilaginous fish, which means it lacks a bony skeleton. However, it possesses several internal organs and a complex nervous system that closely resembles that of higher vertebrates. Studying Scoliodon can help students gain a better understanding of vertebrate anatomy and the functions of different organs. Understanding evolution: Scoliodon is an ancient species that has remained relatively unchanged for millions of years. Studying its anatomy and physiology can provide insights into the evolution

	of vertebrates and their adaptations to different environments. Understanding the impact of humans on the environment: Scoliodon and other shark species are under threat due to overfishing, habitat destruction, and climate change. Studying Scoliodon can help students understand the impact of humans on the environment and the importance of conservation efforts to protect marine ecosystems.
Course Title - Applied Zoology I **Course Code - ZO - 232 Semester III**	
Sericulture	Understanding of the life cycle of silk worms: A learner of sericulture should be able to understand the life cycle of silk worms, including the various stages of growth, feeding, spinning of cocoons, and emergence as adult moths. Knowledge of different species of silk worms: There are different species of silk worms that are used for sericulture, and a learner should be able to differentiate between them. Ability to rear silk worms: A learner of sericulture should be able to rear silk worms from eggs to cocoons, ensuring that they are properly fed, protected from predators, and kept in appropriate temperature and humidity conditions. Knowledge of different types of silk: There are different types of silk, such as mulberry, tussar, muga, and eri silk, and a learner should be able to identify them and understand their properties and uses. Understanding of silk processing: After the cocoons are harvested, they are processed to obtain the silk fiber. A learner of sericulture should be able to understand the various processes involved in silk processing, such as degumming, reeling, and weaving.
Agricultural Pests and their control	What agricultural pests are and why they are a problem. The types of agricultural pests and the damage they can cause. Methods for controlling agricultural pests, including chemical, biological, and cultural control strategies. Integrated pest management (IPM) is a holistic approach that combines different pest control

	methods to achieve effective and sustainable pest management. IPM involves monitoring pest populations, using a combination of pest control methods, and using pesticides only as a last resort. IPM can help reduce the negative impacts of pest control on the environment and human health while also maintaining or increasing crop yields and quality.
Course Title: Zoology Practical Paper **Course Code: ZO – 233 Semester - III**	
Sericulture	kworms, which undergo a complex life cycle. By observing the different stages of silkworm development, such as egg, larva, pupa, and adult, students can gain a better understanding of insect biology and development. Identifying different silkworm species: There are several species of silkworms that are used in sericulture, including the domesticated Bombyx mori and wild silkworms such as Antheraea pernyi. By studying the physical characteristics of different silkworm species, students can learn how to identify them and understand their different characteristics and uses. Cultivating silkworms: Sericulture involves providing the appropriate environmental conditions for silkworms to grow and develop. Students can learn about the optimal conditions for silkworm cultivation, such as temperature, humidity, and diet, and how to manage these conditions to ensure healthy silkworm growth. Harvesting silk: Silk is harvested from silkworm cocoons, and the process of silk extraction involves boiling the cocoons and unraveling the silk fibers. Students can learn about the different techniques for harvesting silk and the properties of different types of silk.
Course Title: Animal Diversity - IV **Course Code: ZO – 241** **Semester - IV**	
class –Reptilia Aves Mammalia	Class - Reptilia: Understand the characteristics of reptiles, such as their scaly skin, cold-bloodedness, and amniotic eggs.

	Identify different types of reptiles and their adaptations to various environments. Understand the importance of reptiles in ecosystems and their role in food chains. Describe the threats to reptile populations, including habitat loss, climate change, and poaching. Explain the conservation efforts aimed at protecting reptile species and their habitats. Class - Aves: Understand the characteristics of birds, such as feathers, wings, and beaks. Identify different types of birds and their adaptations to various environments. Understand the importance of birds in ecosystems and their role in pollination, seed dispersal, and controlling pest populations. Describe the threats to bird populations, including habitat loss, climate change, and hunting. Explain the conservation efforts aimed at protecting bird species and their habitats. Class - Mammalia: Understand the characteristics of mammals, such as their hair, mammary glands, and endothermy. Identify different types of mammals and their adaptations to various environments. Understand the importance of mammals in ecosystems and their roles as predators, prey, and pollinators.
Study of Rat	Understand the anatomy and physiology of rats, including their reproductive system, nervous system, and digestive system. Identify the different species of rats and their habitats, including the brown rat, black rat, and Norway rat. Understand the behavior and social interactions of rats, including their communication, aggression, and dominance hierarchies. Explore the ecological impact of rats, including their role as pests and disease carriers. Learn about the use of rats in scientific research, including their importance in studies of genetics, behavior, and neuroscience. Understand the ethical considerations surrounding the use of rats in research and the efforts to improve their welfare. Learn about the history of rats, including their impact on human society, such as their role in the

	spread of the bubonic plague. Explore the use of rats as pets, including their care requirements, behavior, and common health issues. Understand the methods of controlling rat populations, including trapping, poisoning, and habitat modification.
Course Title - Applied Zoology II **Course Code - ZO-242** **Semester IV**	
Apiculture	Understand the anatomy and physiology of bees, including their life cycle, sensory systems, and communication methods. Identify different species of bees and their habitats, including the honey bee, bumblebee, and carpenter bee. Learn about the ecological importance of bees, including their role as pollinators for crops and wild plants. Explore the different products that can be harvested from bees, such as honey, beeswax, royal jelly, and propolis. Understand the various techniques used in beekeeping, including hive management, colony health monitoring, and queen rearing. Learn about the environmental factors that can impact bee health, such as pesticides, habitat loss, and climate change. Understand the safety precautions and best practices for working with bees, including the use of protective gear and the proper handling of bee stings. Understand the business aspects of beekeeping, including marketing, pricing, and distribution of bee products.
Fisheries	Understand the biology and ecology of fish populations, including their life cycle, behavior, and habitat requirements. Identify different species of fish and their habitats, including freshwater and saltwater species. Learn about the methods used to catch fish, including commercial fishing, recreational fishing, and aquaculture. Explore the environmental and economic factors that impact fish populations, including overfishing, pollution, and climate change. Understand the principles of sustainable fisheries management, including catch quotas, fishing gear regulations, and habitat conservation.

	Learn about the different fishing regulations and policies that govern fishing activities, including international treaties, national laws, and local regulations. Understand the importance of fish as a food source and the cultural significance of fishing in different societies. Learn about the different types of fishing gear and techniques, including seine nets, trawls, and longlines.
Course Title: Zoology Practical Paper **Course Code: ZO – 243 Semester - IV**	
Zoology Practical on reptiles , aves , mammals , digestive system of rat	Identification and classification of reptiles, aves, and mammals: Students will be able to identify and classify different species of reptiles, birds, and mammals based on their physical characteristics, behavior, and habitat. Understanding of the anatomy and physiology of reptiles, aves, and mammals: Students will gain an understanding of the different body systems of reptiles, aves, and mammals, such as the respiratory, circulatory, digestive, and reproductive systems, and how they function in different animals. Understanding of the digestive system of rats: Students will learn about the structure and function of the digestive system of rats, including the organs involved in digestion, the processes of digestion, and the absorption and elimination of nutrients.
Apiculture and Fisheries	Understanding of the biology and behavior of honeybees and fish: Students will gain an understanding of the basic biology and behavior of honeybees and fish, including their life cycle, reproductive system, feeding habits, and habitat preferences. Practical knowledge of beekeeping and fish farming techniques: Students will learn practical skills related to beekeeping and fish farming, including the selection of appropriate equipment, the establishment and maintenance of hives or fish ponds, and the management of bee colonies or fish stocks. Understanding of the importance of bees and fish in

	ecosystems: Students will learn about the important role that bees and fish play in ecosystems, including their contributions to pollination, food webs, and nutrient cycling. Analyzing the economic and social impact of beekeeping and fish farming: Students will examine the economic and social benefits and challenges associated with beekeeping and fish farming, including the potential for income generation, food security, and community development.