

RAYAT SHIKSHAN SANSTHA'S
MAHATMA PHULE MAHAVIDYALAYA, PIMPRI, PUNE – 17

DEPARTMENT OF COMMERCE

Program Outcomes (POs)

	Program Outcomes
PO1	In depth knowledge, understanding and skills in commerce.
PO2	Build a strong foundation of knowledge in different areas of Commerce.
PO3	Develop the skill of applying concepts and techniques used in Commerce for real life problems.
PO4	Inculcate reading, writing, speaking skills and Business correspondence.
PO5	Creates awareness among society about Law and Legislations related to commerce and business.
PO6	Use effectively recent Trends in Business, Organizations and Industries.
PO7	Communicate effectively about Economic Environment of Country as well as World.
PO8	Use effectively practical skills in real life related to banking and corporate world.
PO9	Provides a platform for overall development and develop knowledge level and awareness about Recent Trends of World
PO10	Use new technologies effectively to communicate ideas in the area of commerce.
PO11	Critically evaluate new research findings, ideas, methodologies and theoretical frame work in specialized study.
PO12	Work collaboratively and productively in groups.


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Department of Commerce
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DEPARTMENT OF COMMERCE

Program: B.Com. (Undergraduate)


Program Specific Outcomes (PSOs)

Program Specific Outcomes (Banking and Finance)	
PSO1	Analyze the functioning and operations of the Indian money market, capital market, and foreign exchange market.
PSO2	Identify and describe the basic concepts and processes of the stock market, including primary and secondary markets, merchant banking, IPOs and FPOs.
PSO3	Understand the types and processes of stock trading, including cash market, future and option market.
PSO4	Analyze the functions and workings of non-banking financial institutions in India, including lease financing, mutual funds, housing finance companies, life insurance companies, and general insurance companies.
PSO5	Develop an understanding of the regulatory framework governing the banking and finance industry in India, including the legal aspects of various banking transactions and their implications for both bankers and customers.
PSO6	Develop an understanding of the role and responsibilities of paying and collecting bankers, and the legal and practical aspects of bank advances.
PSO7	Analyze the impact of recent developments in the banking and finance industry, including cybercrimes and the Insolvency and Bankruptcy Code, 2016.

Program Specific Outcomes (Cost and Works Accounting)	
PSO1	Demonstrate a solid understanding of fundamental accounting principles, including cost accounting.
PSO2	Apply analytical and problem-solving skills to make informed decisions related to financial management, budgeting and cost control.
PSO3	Communicate financial information clearly and effectively to stakeholders.
PSO4	Apply ethical principles and professional standards in accounting and financial management.
PSO5	Stay current with developments and trends in the accounting and finance industry.
PSO6	Ability to communicate effectively in oral and written forms.
PSO7	Ability to work effectively in a team.


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DEPARTMENT OF COMMERCE

Program: M.Com. (Postgraduate)

Program Specific Outcomes (PSOs)

Program Specific Outcomes (Advanced Banking and Finance)	
PSO1	Gain knowledge about legal framework in which the Indian banking is working today.
PSO2	Understand of the role of central banking especially in India.
PSO3	Understand of various aspects of foreign exchange market and financing of foreign trade.
PSO4	Creating awareness about structure and working of foreign banking and various instruments of foreign debt and equity market.
PSO5	To keep the students abreast with the innovative practices introduced by RBI in day-to-day banking in India.

Program Specific Outcomes (Advanced Cost Accounting & Cost system)	
PSO1	Able to understand the Scope of Cost Accounting in any business activity.
PSO2	Application of Cost Accounting treatment in relation to Material Cost Accounting, employee cost and overheads.
PSO3	To equip the students with knowledge and skill to design and implement Cost Control through Costing Techniques.
PSO4	Knowledge about recent trends in Cost Accounting.
PSO5	In depth Understanding of basic concepts of cost audit and its applicability in various areas.


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DEPARTMENT OF COMMERCE
(B.Com. 2019 Pattern)**

Course Outcome (COs):

Program	Course Code	Course Name	Course Outcome
F. Y. B.Com. Sem. I & II	112 & 122	Financial Accounting	<ol style="list-style-type: none"> 1. The concepts, nature and purpose of financial statements in relationship to decision making. 2. How to use the fundamental accounting equation to analyse the effect of business transactions on an organization's accounting records and financial statements. 3. How to use a basic accounting system to create the data needed to solve a variety of business problems. 4. How to use accounting information to solve a variety of business problems. 5. To impart knowledge regarding finalization of accounts of various establishments. 6. To impart knowledge about accounting for leases.
	114A & 124A	Business Mathematics and Statistics	<ol style="list-style-type: none"> 1. Prepare for competitive examination. 2. Understand the concept of simple, compound interest. 3. Know about concept of population, sample & frequency distribution to make decision. 4. Understand technique of different type of Index Number (SENSEX & NIFTY). 5. To learn some elementary statistical methods for analysis of data. 6. To familiar the students with applications of Statistics and Mathematics in Business.
	115A & 125A	Org. Skill Development	<ol style="list-style-type: none"> 1. To introduce the students to the emerging changes in the modern office environment. 2. To develop the conceptual, analytical, technical and managerial skills of student's efficient office organization and records management. 3. To develop the organizational skills of students. 4. To develop technical skills among the students for designing and developing effective means to

			<p>manage records, consistency and efficiency of work flow in the administrative section of an organisation.</p> <ol style="list-style-type: none"> 5. To develop employability skills among the students. 6. To develop writing, presentation, interpersonal skills of the students for effective formal corporate reporting.
	115B & 125B	Banking and Finance	<ol style="list-style-type: none"> 1. Student is acquaint with theoretical knowledge of Evolution, functions, services of banks. 2. Student can open and operate his bank account. 3. Student will know different instruments used in banking with their legal aspect. 4. To conceptualize banking operations. 5. To Make the Students aware of Banking Business and practices. 6. To enlighten the students regarding the new concepts introduced in the banking system.
	116D & 126D	Consumer Protection and Business Ethics	<ol style="list-style-type: none"> 1. Aware about consumer right, Duties and mechanism for resolving their disputes. 2. Understand about law relating to consumers. 3. Know students with role of business ethics in various functional areas. 4. To create awareness among the students about dispute redresses machinery and basic procedures for handling consumer dispute. 5. To understand the issues relating to e-commerce, e-Banking emerging issues and internet regulations. 6. To prepare students to play a constructive role in improving the sustainable development with which they may become involved.

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Course Outcome (COs):

Program	Course Code	Course Name	Course Outcome
S. Y. B.Com. Sem. III & IV	231 & 241	Business Communication- I & II	<ol style="list-style-type: none"> 1. The concept, process and importance of communication. 2. The new technologies in business communication. 3. How to use various soft skills in business. 4. How to draft various letters in business. 5. Business communication skills through the application and exercises. 6. To understand the Report Writing and Internal Correspondence.
	232 & 242	Corporate Accounting- I & II	<ol style="list-style-type: none"> 1. Corporate Accounting in conformity with the provisions of Companies Act and Accounting as per Indian Accounting Standards. 2. The conceptual aspect of corporate accounting. 3. Various skills about Computerized Accounting and Accounting Standards. 4. Various concepts related to companies. i.e. liquidation, amalgamation, absorption, re-construction and holding company. 5. Conceptual Understanding of Holding Company Accounts. 6. Conceptual understanding on the concept of Absorption of companies.
	234 & 244	Business Management- I & II	<ol style="list-style-type: none"> 1. Understand basic knowledge and business management concept. 2. Know about various function of management. 3. Understanding needs and expectations of group members and meeting them effectively. 4. Understanding followers and their views on various organizational matters. 5. Conflict Management. 6. How to coordinate group efforts Minimizing resource waste.

235 & 345	Elements of Company Law- I & II	<ol style="list-style-type: none"> 1. Student get key information from formation of company up to winding up of the company. 2. Student understands the roles, duties and responsibilities of key persons. 3. Student acquaint with the knowledge of various documents involved in from formation up winding up of company. 4. To Equip the students with procedure and practices. 5. To have Comprehensive understanding about the Key Managerial Persons and CSR. 6. To be able to appreciate the emerging E Governance and E-filing under the Companies Act, 2013.
236B & 246B	Banking and Finance – I & II	<ol style="list-style-type: none"> 1. Understand the evolution and structure of banking in India. 2. Recognize the role of banking in economic development. 3. Analyze the functions of the Reserve Bank of India and the present currency system in India. 4. Differentiate the features and performance of private and public sector banks in India. 5. Evaluate the challenges faced by the banking sector in India, including the impact of COVID-19. 6. Analyze the principles and features of cooperative banking in India.
236E & 246E	Cost and Works Accounting- I & II	<ol style="list-style-type: none"> 1. Understand the basic concepts of cost accounting. 2. Identify and differentiate between the elements of cost. 3. Prepare a cost sheet, tender, quotation and estimates. 4. Apply the techniques of inventory control and understand the importance of inventory Management. 5. Evaluate the role of a cost accountant in an organization. 6. Understand the various documents used in stores and calculate the issuing price of materials.


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Course Outcome (COs):

Program	Course Code	Course Name	Course Outcome
T. Y. B.Com. Sem. V & VI	351 & 361	Busi. Regulatory Framework- I & II (M. Law)	<ol style="list-style-type: none"> 1. Understand the concept of Contract and its contents. Equip the students with knowledge of nature and performance and breach of Contracts. 2. Understand the nature of partnership Rights and duties of Partner. 3. Compressive understanding about the sale of Goods Act. 4. To give Comprehensive insight about the emerging trend of Arbitration and conciliation and its regulatory mechanism. 5. To Equip the students with procedure and practices about negotiable instruments and liabilities of parties in case of dishonour of negotiable instruments. 6. Comprehensive understanding about the E Contracts, E-Commerce and their legal aspects.
	352 & 362	Advanced Accounting- I & II	<ol style="list-style-type: none"> 1. To develop conceptual understanding about various Accounting Standards and its applicability and also introduce the students about IFRS – Fair Value Accounting. 2. To develop conceptual understanding about accounting for capital restructuring in the form of internal reconstruction. 3. To develop the skill & upgrade the knowledge regarding reorganization of venture capital and it's recording. 4. To understand the various legal provisions regarding banking companies. 5. To understand the meaning of different costs incurred in investment business. 6. To upgrade regarding legal provisions of co-operative accounting. - To develop the skill regarding preparation & presentation of final accounts of Credit Co-op. Societies &

		Consumer Co-op. Societies.
354 & 364	Auditing and Taxation- I & II	<ol style="list-style-type: none"> 1. Understanding the concept of Auditing, Various type of Audit 2. Help to Find out Errors frauds and help to improve internal control system in business organization. 3. To know the terms used in Audit Report, Certificate and Auditing Assurance Standard. 4. Enhance Provisions under Income Tax Act 1961 used for Conduct Tax Audit. 5. 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 6. To get knowledge of Computerized Systems and Forensic Audit used for new techniques applicable for new business trends
355B & 365B	Banking And Finance – II	<ol style="list-style-type: none"> 1. Analyze the Indian money market and its participants, credit instruments, and recent developments. 2. Understand the functions of the Indian capital market, its participants, credit instruments, and recent developments. 3. Explain the functioning of the foreign exchange market, including the determination of exchange rates and recent developments. 4. Identify and describe the basic concepts of the stock market, including primary and secondary markets, merchant banking, IPOs, and FPOs. 5. Understand the types and processes of stock trading, including cash market, future, and option market. 6. Analyze the functions and workings of non-banking financial institutions in India, including lease financing, mutual funds, housing finance companies, life insurance companies, and general insurance companies.
355E & 365E	Cost and works accounting – II	<ol style="list-style-type: none"> 1. Identify and classify different types of overheads. 2. Explain the cost accounting standards and the cost accounting standard board.

			<ol style="list-style-type: none"> 3. Analyze the stages involved in the accounting of overheads. 4. Analyze the applications of different methods of costing in manufacturing and service industries. 5. Prepare cost statements under different types of manufacturing industries and service industries. 6. Apply the applicability of cost accounting standards in the method of costing.
	356 B & 366B	Banking And Finance – III	<ol style="list-style-type: none"> 1. Analyze the legal aspects of various banking transactions and their implications for both bankers and customers. 2. Familiarize themselves with the regulatory framework governing cooperative banks in India. 3. Develop an understanding of the Insolvency and Bankruptcy Code, 2016 and its various processes. 4. Analyze the concept of cybercrimes in the banking industry and their impact. 5. Develop an understanding of the role and responsibilities of paying and collecting bankers. 6. Develop an understanding of the legal and practical aspects of bank advances.
	356 E & 366E	Cost and works accounting – III	<ol style="list-style-type: none"> 1. Apply Cost Accounting techniques in cost control and decision making. 2. Prepare various types of Budgets. 3. Learn the basic concept of Uniform Costing and Inter-firm comparison. 4. Impart knowledge about Standard Costing and Variance Analysis. 5. Know the related Cost Accounting Standards and Cost Management practices in specific sectors. 6. Provide a conceptual understanding of procedures and Provisions of Cost Audit.


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DEPARTMENT OF COMMERCE
(M.Com. 2020 Pattern)**

Course Outcome (COs):

M.COM. PART-I

Program	Course Code	Course Name	Course Outcome
M.Com Part I (Semester I & II)	101 & 201	Management Accounting & Financial Analysis and Control	<ol style="list-style-type: none"> 1. Student understands the various concept of Financial Accounting and its difference between Management Accounting and Cost Accounting. 2. Student understand the concept of Marginal Costing, its applications, different techniques of managerial cost accounting and Fixed and Variable Cost Analysis in decision making process. 3. Student understands the concept of budget and budgetary control, types of budgets and preparation of functional budgets in an organization. 4. Student understands the concept of Working Capital Management, determination of working capital, components of working capital and accounts receivable and inventory management. 5. Acquire sound Knowledge of concepts, methods, and techniques of management accounting. 6. Make the students develop competence with their usage in managerial decision making and control.
	102	Strategic Management	<ol style="list-style-type: none"> 1. Understanding of the concept of Strategic management, process of Strategic Management. 2. Understanding the External and Internal Business Environment for effective Strategy. 3. Developing Technical skills for evaluation of alternatives and analytical skills for choice among alternatives. 4. Development of Analytical and Managerial Abilities for critical evaluation. 5. Students get the knowledge of importance of SWOT analysis in business survival and growth.

			6. Students thinks on the various strategies in the problems of any business organisation.
107 & 207	Advanced Cost Accounting & Application of Cost Accounting		<ol style="list-style-type: none"> 1. Ability to understand the classification of costs, Trace the cost to cost centers, able to prepare cost sheet in various situations. 2. Understand the inventory related treatments in Cost Accounting. 3. Understand the concept of Employee Cost and its relevance in the total cost. 4. Student can relate the CAS 7 to Employee Cost Concepts. 5. Student can understand the process of accounting of overheads and able to understand CAS 3. 6. Student is able to ascertain cost in different industries.
108 & 208	Costing Techniques and Responsibility Accounting & Cost Control & Cost System		<ol style="list-style-type: none"> 1. Students are expected to understand the role of Budget in the process of Cost Control and Decision Making. 2. Student skills in computation and analysis of various variances will develop. 3. Student will understand the concept of uniform costing and inter firm comparison. 4. Understand the relevance of Cost Accounting data as a part of monitoring various segments of business. 5. To equip the students with knowledge and skill to design and implement Cost Control through Costing Techniques. 6. To equip the students with knowledge and skill to design and implement cost control, cost reduction programme and different cost systems.
115 & 215	Legal Framework of Banking & Banking Law & Practice		<ol style="list-style-type: none"> 1. Student will acquaint the with legal framework in which the Indian banking is working today. 2. Students will aware about the latest developments in the field of banking law. 3. Students will able to understand modern banking practices. 4. Students will enable to establish a link between the legal provisions and the practical aspects of banking.

			<ol style="list-style-type: none"> 5. To enable students to acquire sound Knowledge of banking laws and practices in India. 6. To make the students aware about the latest developments in the field of banking law.
	116 & 216	<p>Central Banking</p> <p>&</p> <p>Monetary Policy</p>	<ol style="list-style-type: none"> 1. Students will acquaint with RBI's various functions. 2. Students will aware about the latest developments in the field of Para banking and NBFCs in India. 3. Students will enable to understand the role of central banking especially in India. 4. Students will acquire sound knowledge of working and techniques of central bank. 5. To enable the students to understand the role of RBI in financial inclusion. 6. To acquaint students with the recent policy changes announced by RBI.

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Course Outcome (COs):

M.COM. PART- II

Program	Course Code	Course Name	Course Outcome
M.Com Part II (Semester III)	301	Business Finance	<ol style="list-style-type: none"> 1. Students will be able to understand the role and importance of corporate finance, and learn the calculation value of money. 2. Students will be able to understand the financial planning, theories of capitalization and estimation of finance need of firm. 3. Students will be able to learn the sources of finance to be tapped for running business successfully. 4. To enable the students to understand the traditional theories of capitalization and dividend distribution practices. 5. To make the students aware about the latest developments in the field of corporate finance. 6. To give detail exposure of working capital management practice of finance to students Skills to be developed.
	302	Research Methodology for Business	<ol style="list-style-type: none"> 1. To understand the nature, scope and Types of Research. 2. To understand the basics of good research and research process. 3. To understand the concept and techniques of Research Problem. 4. To understand various aspects and methods of testing of Hypotheses. 5. To gain the fundamental knowledge about Methods of Data Collection and formulating questionnaire. 6. To understand the concept, type and classification of Measurement and Scaling.
	307	Cost Audit	<ol style="list-style-type: none"> 1. Understand the fundamental concepts, objectives, and scope of Cost Audit, including its applicability and the advantages it offers in assessing organizational performance. 2. Differentiate between Cost Audit and Financial Audit, grasping the

			<p>distinctive features and the purpose of each audit type.</p> <ol style="list-style-type: none"> 3. Analyze the qualifications, responsibilities, and liabilities of Cost Auditors under relevant legal statutes, enabling a comprehensive understanding of their role in corporate governance. 4. Plan and execute a thorough Cost Audit, demonstrating proficiency in verifying Cost Records, assessing internal control systems, and addressing challenges in Electronic Data Processing (EDP) environments. 5. Prepare a comprehensive Cost Audit Report, distinguishing between 'Notes' and 'Qualifications,' and explore the utilization of Extensible Reporting Language (XBRL) in enhancing reporting quality. 6. Develop a clear understanding of the relationship between Cost Auditors and financial auditors, recognizing the distinct contribution each makes to organizational oversight.
	308	Management Audit	<ol style="list-style-type: none"> 1. Demonstrate an understanding of the concepts and essentials of Management Audit, differentiating it from Financial Audit. 2. Analyze the objectives, importance, and scope of Management Audit in various business contexts. 3. Evaluate the benefits of conducting Management Audit and recognize its role in decision-making processes. 4. Apply appropriate techniques to plan, execute, and report on Management Audit processes effectively. 5. Assess the relationship between Management Audit and other types of audits, and understand their synergies. 6. Critically examine conflicts between profit maximization and value maximization principles and comprehend the Management Accountant's role in resolving these conflicts.
	315	Foreign Exchange	<ol style="list-style-type: none"> 1. Analyze the fundamental features of the foreign exchange market,

			<p>including its participants, spot and forward markets, and assess the effectiveness of various hedging techniques in managing currency risk.</p> <ol style="list-style-type: none"> 2. Evaluate the significance of the Foreign Exchange Management Act (FEMA) and its impact on foreign exchange transactions, demonstrating a clear understanding of its origin and scope. 3. Explain the factors influencing exchange rates and their implications for international trade and investment decisions, showcasing a comprehensive grasp of global economic dynamics. 4. Differentiate between various types of non-resident accounts, such as NRE, NRO, FCNR, and RFC, and propose suitable scenarios for their application in international financial transactions. 5. Construct strategies for managing risks associated with foreign exchange transactions and international trade, considering recent developments and innovations in the foreign exchange market. 6. Appraise the methods of financing foreign trade, including pre-shipment and post-shipment credit, export credit agencies, and assess their impact on facilitating international business transactions.
	316	International Finance	<ol style="list-style-type: none"> 1. Analyze the role of international banking and its various types in facilitating global financial transactions. 2. Evaluate money transfer mechanisms, including Forex division and modern digital platforms, in international transactions. 3. Explain the functions of the Reserve Bank of India (RBI) in regulating foreign banking operations and promoting Indian banks' international presence. 4. Describe the development and significance of Euro-markets and the instruments associated with them. 5. Compare different exchange rate

			<p>regimes and their implications for global trade and financial markets.</p> <p>6. Analyze the objectives, structure, and operations of key international financial institutions and their contributions to the global economy.</p>
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Program	Course Code	Course Name	Course Outcome
M.Com Part II (Semester IV)	401	Capital Market and Financial Services	<ol style="list-style-type: none"> 1. Students will be able to learn the importance and working of capital market. 2. Student will be able to understand the working of BSE and NSE, and OTCEI in detail. 3. Students will be able to know the role of inter-mediatories, Mutual funds. Portfolio management. 4. To make the students aware about the latest developments in the field of capital market in India. 5. To enable the students to understand various transactions in stock exchanges and agencies involved in it. 6. To give exposure of financial services offered by various agencies and financial adviser to students.
	402A	Industrial Economics Environment	<ol style="list-style-type: none"> 1. To understand the concept of Economic Environment & its Constituents. 2. To understand the elements of Economic & Non-Economic environment. 3. To help students to know about changes in Industrial growth and pattern after 1991. 4. To make students aware about Industrial pattern and growth in India and Industrial policies of India since independence. 5. To provide knowledge about basic issues in Industrial Economic Environment to students. 6. To study the progress and current problems of major industries in India.
	407	Recent Advances in Cost Auditing and Cost System	<ol style="list-style-type: none"> 1. Gain insights into contemporary trends in Cost Accounting and Cost Systems, appreciating how these advancements impact managerial decision-making. 2. Comprehend the significance of Cost Accounting Standards (CAS) 2, 4, 5, and 8 to 24, and their application in maintaining consistency and accuracy in financial reporting. 3. Explore the complexities of GST audit, including its applicability,

		<p>auditor qualifications, and procedural aspects, fostering a deep understanding of indirect taxation compliance.</p> <ol style="list-style-type: none"> 4. Understand Productive Audit, including its features, scope, and benefits, and develop strategies to mitigate potential challenges in implementation. 5. Recognize the transformative potential of Enterprise Resource Planning (ERP) systems, along with the benefits and limitations of implementing E-Costing in modern business environments. 6. Evaluate emerging trends in Cost Accounting, such as Six Sigma, Lean Manufacturing, Artificial Intelligence, and Robotics Manufacturing, understanding their implications for enhancing operational efficiency and cost control.
408	Project Work / Case Studies	<ol style="list-style-type: none"> 1. Identify and select a relevant project topic from the provided list, demonstrating an understanding of its significance. 2. Formulate a structured plan for conducting fieldwork, surveys, or data collection related to the chosen project topic. 3. Apply appropriate research methods to study current trends and gather relevant data for analysis. 4. Compile a comprehensive project report that includes findings, analysis, and insights related to the chosen project topic. 5. Present the project report effectively through written documentation and a viva voce examination, showcasing a deep understanding of the subject matter. 6. Critically evaluate the application of theoretical concepts to practical scenarios, demonstrating the ability to bridge the gap between academic knowledge and real-world situations.
415	Recent Advances in Banking and Finance	<ol style="list-style-type: none"> 1. Critically evaluate the concept of financial inclusion, its benefits, and the challenges it poses, along with proposing strategies for enhancing its effectiveness in promoting economic growth.

			<ol style="list-style-type: none"> 2. Analyze the regulatory measures introduced by RBI to address Non-Performing Assets (NPAs) and maintain capital adequacy norms, and assess their impact on banking stability. 3. Assess the implications of Basel III and IV norms on the banking sector's capital requirements and risk management practices, identifying their role in ensuring financial stability. 4. Evaluate the impact of technological advancements such as core banking, mobile banking, and internet banking on customer convenience and operational efficiency in the banking industry. 5. Compare and contrast various components of the money market, such as treasury bills, commercial paper, and certificate of deposits, and demonstrate their relevance in short-term financing. 6. Analyze recent reforms in the capital market, both in terms of primary and secondary markets, and assess their impact on improving transparency, investor confidence, and the efficiency of trading platforms.
	416	Project Work / Case Studies	<ol style="list-style-type: none"> 1. Apply financial analysis techniques to evaluate trends in mutual funds and their impact on investment decisions. 2. Assess the role of financial inclusion in improving the economic conditions of unskilled workers. 3. Analyze NABARD's contributions to rural development and its role in enhancing agricultural productivity. 4. Evaluate the structure and performance of bank portfolios, considering risk and return factors. 5. Examine the challenges and opportunities in the evolving banking sector and their effects on economic growth. 6. Investigate the influence of information technology on banking practices and identify strategies to overcome associated challenges.


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Rayat Shikshan Sanstha's
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Reaccredited with 'A++' Grade by NAAC/ DST-FIST funded /An ISO 9001:2015 Certified College
Affiliated to Savitribai Phule Pune University, Pune (PU/PN/ACS/053)

Mass Communication B.Voc – 2023 -2024
Programme outcomes (PO'S) & Course outcomes (PCO'S) (Semester-wise)

Program outcomes

Name of the Program	Program outcome
Mass Communication (B.Voc)	<ul style="list-style-type: none">• POs 1: Demonstrate an understanding of mass media communication values including timeliness, impact, and storytelling ability as portrayed in written, visual and spoken formats.• POs 2: Learn and apply Audio- Video skills and media management principles to excel in professional career in the field of Mass Communication.• POs 3: Exhibit professional ethics, Media regulations and communication skills, engage in lifelong learning and to adapt emerging technologies and developing creative solutions for target audience.• POs 4: Develop and use original content for different media formats, including written, visual, radio, internet, and apps.• POs 5: Ability to understand the concepts of key areas in Mass Communication.• POs 6: To apply the objectivity and critical thinking for communicating to masses through a variety of mediums such as Short Films, Documentary Films, Television, Advertising and PR Campaign, Event Management, Broadcast Journalism and New Media.• POs7: To impart the knowledge of Mass communication & Journalism covering wide areas of studies.• POs8: To empower learners by communication, professional and life skills.• POs9: To imbibe the culture of research, innovation, entrepreneurship and incubation.• POs10: Create awareness to become an enlightened citizen as well as a dynamic professional with commitment to deliver one's responsibilities strictly adhering to highest standard of ethics and professionalism.• POs11: The program focuses on in-depth knowledge practical and theoretical aspects of Video Production.• POs 12: The program is designed to create awareness among the students about Brand management.

Program Specific outcomes

Name of the Program	Program Specific outcome
Mass Communication (B.Voc)	<ul style="list-style-type: none">• Understanding the fundamental relations between society, culture and communication.• Provide advanced knowledge on communication theories and models.• Introduce students to the practical arena of exploring the potential of communication tools to become an able communicator.• To develop the learner into competent and efficient Media & Entertainment Industry ready professionals• To inculcate professional ethics, values of Indian and global culture.• To prepare socially responsible media Professional, media academicians, researchers, professionals with global vision.• The students will be able to write specialized stories for various media.• The students will understand the importance of media research and Advertising.• The students will be able to make specialized Audio Video Programmes for various media.• The students will learn to use Public Relation tools like Press release, news writing etc• An ability to develop professional skills and use in the field of print media, electronic media and development communication• To develop the learner into competent and efficient Media & Entertainment Industry ready professionals.

COURSE OUTCOMES

Name of the Department	Class	Subject	Course outcome
B.Voc (Semester I)	First Year	DMC 01 LANGUAGE SKILLS ENGLISH/MARATHI -I	<ul style="list-style-type: none"> • Students will heighten their awareness of correct usage of English/Marathi grammar in writing and speaking • Students will improve their speaking ability in English/Marathi both in terms of fluency and □comprehensibility • Students will give oral presentations and receive feedback on their performance. • Students will increase their reading speed and comprehension of academic articles. • Students will improve their reading fluency skills through extensive reading. • Students will enlarge their vocabulary by keeping a vocabulary journal. • Students will strengthen their ability to write academic papers, essays and summaries using the process approach.
B.Voc (Semester I)	First Year	DMC 02 INTRODUCTION TO JOURNALISM	<ul style="list-style-type: none"> • Students will be able to identify news values and comprehend the news process • Organize a news story according to the hard news structure • Write different leads, the body text and ending • Demonstrate interviewing and newsgathering skills • Display editing skills including proof reading and headline writing. • Understand and apply the

			principles and laws of freedom of speech and incorporate this fundamental right when functioning at different political structures.
B.Voc (Semester I)	First Year	DMC 03 INTRODUCTION TO MASS COMMUNICATION	<ul style="list-style-type: none"> • To introduce basic concepts of communication and its role in society • To introduce students to various processes and theories of communication • To introduce the students to basics of journalism and its role in society • To introduce different types of media their characteristics, merits and demerits • The students can understand various types of journalism and their importance • The units provide students an understanding of the importance of public opinion and role of journalism in framing it.
B.Voc (Semester I)	First Year	DMC 04 TRANSLATION	<ul style="list-style-type: none"> • Developed expertise in their working languages in the practice of translation; • Mastered the different theoretical knowledge and know-how relating to translation and become able to employ them in an appropriate fashion in order to translate a document while respecting the author's intentions and register; • Assimilated a range of thematic (disciplinary) and cultural knowledge which they are capable of employing and completing independently in order to carry out their translation assignment; • Mastered all aspects of written communication, and in particular accuracy, readability and flow to a high level of expertise; • Become able to implement a

			<p>rigorous scientific and methodological approach to a translation problem and thereby improve their service;</p> <ul style="list-style-type: none"> • Become capable of respectfully and constructively holding discussions and collaborating with speakers and their colleagues; • Consolidated their technical and ethical skills and knowledge through their first professional experiences.
B.Voc (Semester I)	First Year	DMC 05 PAGE DESIGNING	<ul style="list-style-type: none"> • Analyse, synthesize, and utilize design processes and strategy from concept to delivery to creatively solve communication problems. • Create communication solutions that address audiences and contexts, by recognizing the human factors that determine design decisions. • Utilize relevant applications of tools and technology in the creation, reproduction, and distribution of visual messages. • Apply graphic design principles in the ideation, development, and production of visual messages. • Identify and utilize design history, theory, and criticism from a variety of perspectives, including: art history, communication/information theory, and the social/cultural use of design objects. • Setting up page layout, colour schemes, contract, and typography in the designs. Writing valid and concise code for webpages. Best use of social media for revenue generation.
B.Voc (Semester I)	First Year	DMC 06 COMPUTER SKILLS	<ul style="list-style-type: none"> • Performing basic editing functions, formatting text, copy and moving objects and text. • Learning the formatting skills on

		FOR MEDIA	<p>paragraphs, tables, lists, and pages.</p> <ul style="list-style-type: none"> • Knowledge on navigating the Word Ribbon Interface. • Understanding the process of inserting graphics, pictures, and table of contents, Drop Cap. • Learning the utilities of Auto text, AutoCorrect, Footnotes and Bookmark. • Demonstrate the mechanics and uses of Word tables to organize and present data. • Working knowledge of using Word's themes and clip art to create a variety of visual effects. • Word's advanced formatting techniques and presentation styles. • Applicable knowledge and uses of accepted business style formatting conventions. • Creating and producing a mail merge
B.Voc (Semester 2)	First Year	DMC 07 INTRODUCTION TO RADIO	<ul style="list-style-type: none"> • Discuss Radio as powerful media for Mass Communication • Analyse the origin and growth of Radio • Analyse different forms of programmes for different audio broadcasting technologies • Produce Effective Radio Programmes using technical equipment • Write the script for various forms of radio programme • Handle audio editing software for Radio Production

B.Voc (Semester 2)	First Year	DMC 08 INTRODUCTION TO TELEVISION	<ul style="list-style-type: none"> • The students will Memorize basic evolution of TV industry and its growth in India. • Students will be able to illustrate the basics of TV genres and essentials of TV journalism. • Students will able to explain the handling and operating video camera and sound controlling equipments used in TV production • Study would also include trends and patterns in changes to programming content or its targeting in local, regional and global contexts and urban, rural or semi urban setups • TV studies would also include other influencing factor such as globalization or other matters of international concerns in its core • TV studies would also identify effects due to promulgation of other new media avenues or technologies such as social media, IP TV
B.Voc (Semester 2)	First Year	DMC 09 BASICS OF PHOTOGRAPHY	<ul style="list-style-type: none"> • Comprehends how today's photographic camera works and records images. • Explains the working mechanism and production of the camera at the basic level in the context of the historical process. • Identifies cameras according to formats and view finder systems. • States what type of camera to be used for different photographic purposes. • Names the main parts of the photographic camera. • Lists the types of lenses and states what type of lenses to be used for different purposes.
B.Voc (Semester 2)	First Year	DMC 10 AUDIO VISUAL NEWS GATHERING	<ul style="list-style-type: none"> • Exhibit a sound understanding and knowledge of Journalism and Mass Communication. • Display the competence to explore career opportunities as

			<p>per demands and requirements of Media Industry.</p> <ul style="list-style-type: none"> • Think critically, creatively, and demonstrate curiosity to discover new horizons in Journalism and Mass Communication. • Speak proficiently, clearly and effectively while presenting concepts and their diversifications in Journalism & Mass Communication. • Enhance the ability of leadership in the working avenue and to motivate team members to work with cooperation for utmost efficiency. • Demonstrate enthusiasm while working in collaborative teams for successful implementation of concepts in Journalism & Mass Communication.
B.Voc (Semester 2)	First Year	DMC 11 BASICS OF CAMERA (PRACTICALS)	<ul style="list-style-type: none"> • Demonstrate artistry by creating images that evoke an emotional response. • Apply the principles of lighting and colour theory to a variety of photographic scenarios by measuring, evaluating, and adjusting light and colour to create quality images. • Apply the mechanics of exposure to control light and influence the final product. • Apply principles of composition to produce professional images. • Select and use photographic equipment and technologies appropriate to the task. • Demonstrate effective use of written, verbal, and non-verbal communication, employing relevant knowledge, skills, and judgment in a business setting.
B.Voc (Semester 2)	First Year	DMC 12 INTERNSHIP ON	<ul style="list-style-type: none"> • Discuss the application of classroom theory in the context of the student's work experience • Apply appropriate skills in the

		JOB TRAINING	<p>techniques of getting a job</p> <ul style="list-style-type: none"> • Recognize knowledge and skills that relate to the technical aspects of their discipline • Demonstrate in a written work report a broad understanding of the organization for which the student worked • Practice good work habits • Establish interpersonal relationships through personal contacts on the job and employer evaluations • All of these goals and objectives are parts of the Internship program. For some students, some of the objectives maybe more important than the others. However, the Internship is designed to be an individual course of study flexible enough to meet the special individual needs of students and employers.
B.Voc (Semester 3)	Second Year	ADMC 01 NATIONAL AND INTERNATIONAL AFFAIRS - I	<ul style="list-style-type: none"> • Understand and explain the significance of Indian Constitution as the fundamental law of the land. • Exercise his fundamental rights in proper sense at the same time identifies his responsibilities in national building. • Analyse the Indian political system, the powers and functions of the Union, State and Local Governments in detail. • Understand Electoral Process, Emergency provisions and Amendment procedure • Understand key concepts and concerns in international relations, including notably the way power is acquired and used globally and how states and non-state actors interact. • Become familiar with contemporary theories of international relations to use as

			lenses to differently explain outcomes and events in world affairs.
B.Voc (Semester 3)	Second Year	ADMC 02 ADVERTISING	<ul style="list-style-type: none"> • Understand and analyze the relevant research in advertising and marketing communication. • Design effective visual communication for various advertising approaches that combine the use of print, online/digital, and other multimedia communication. • Develop advertising media buying and planning strategies. • Create and defend the strategy and execution of an ad campaign for a client(s). • Demonstrate an understanding of advertising strategies and budgets. • Identify and understand the various advertising media. • Demonstrate an understanding of how an advertising agency operates.
B.Voc (Semester 3)	Second Year	ADMC 03 PUBLIC RELATION	<ul style="list-style-type: none"> • Describe the communication discipline and its central questions. • Employ communication theories, perspectives, principles, and concepts. • Engage in communication inquiry • Create messages appropriate to the audience, purpose, and context • Critically analyze messages • Demonstrate the ability to accomplish communicative goals

			<ul style="list-style-type: none"> • Apply ethical communication principles and practices • Utilize communication to embrace difference • Influence public discourse
B.Voc (Semester 3)	Second Year	ADMC 04 AUDIO VIDEO EDITING	<ul style="list-style-type: none"> • Demonstrate technical aspects of professional digital production including: file management, real-time video editing, sound editing. • Demonstrate technical aspects of professional digital production including: working with a timeline, working with multiple windows. • Choose and apply aesthetic decisions and appropriate use of non-linear techniques including use of transitions, continuity, pacing, and storytelling. • How you can edit the clips to make a final video. • The image presentation using different video and sound effects. • How to manage your old images/ videos. • About the stop motion animation videos.
B.Voc (Semester 3)	Second Year	ADMC 05 COPY WRITING & DESIGN IN ADVERTISING	<ul style="list-style-type: none"> • Students will be able to understand key concepts of Ad Copywriting. • Students will be able to understand making of creative advertising. • Students will be able to understand the concept of creativity of advertisement. • You will discover how does web works really, what makes web sites work. • Simple and impressive design techniques, from basics till advanced to focus on goal oriented and user centric designs. • How to and where to start research, planning for website &

			actually build excellent web sites.
B.Voc (Semester 3)	Second Year	ADMC 06 SOFT SKILLS & BASICS OF EVENT MANAGEMENT	<ul style="list-style-type: none"> • To encourage the all round development of students by focusing on soft skills. To make the engineering students aware of the importance, the role and the content of soft skills through instruction, knowledge acquisition, demonstration and practice. • To develop and nurture the soft skills of the students through individual and group activities. • To expose students to right attitudinal and behavioural aspects and to build the same through activities • Analyze the role of events in image building • Explain all the steps of planning and organizing an event • Plan and organize events
B.Voc (Semester 4)	Second Year	ADMC 07 NATIONAL AND INTERNATIONAL AFFAIRS - II	<ul style="list-style-type: none"> • Develop the ability to evaluate and synthesize information from diverse and reliable sources, identifying and differentiating between primary and secondary source material. • Bring research skills to bear on a specific issue related to national/international affairs, producing a research paper, opinion paper, personal reflection, or analytical essay. • Exhibit familiarity with research methods by students of national/international relations and political science to pose and answer questions and conduct research. • Effectively develop a logical argument and justify a position through written and oral

			<p>presentations and demonstrate the ability to read and question original research and theoretical writings.</p> <ul style="list-style-type: none"> • Engage in an international practicum—study abroad or international internship—that enhances global citizenship and cultural competence. • Understanding of the relationship between personal ethics, individual decisions, and public outcomes at the national and international levels
B.Voc (Semester 4)	Second Year	ADMC 08 INTRODUCTION TO PRINTING & PUBLICATION	<ul style="list-style-type: none"> • Identify industry standard commercial printing processes • Understand and discuss how production processes require planning (schedule and design) to meet deadlines • Learn and use relevant vocabulary for the industry • The knowledge of testing procedure of the raw materials and consumables used for the various printing techniques and packaging systems. • The procedure of making image carriers for the different printing techniques. • The knowledge of press management and quality control aspects of various printing processes and packaging systems.
B.Voc (Semester 4)	Second Year	ADMC 09 MEDIA ETHICS & LAWS	<ul style="list-style-type: none"> • Discuss media laws in India and the world • Discuss the Right of Freedom of Speech and reasonable restrictions applicable • Discuss media regulation in India • Demonstrate an understanding of the nature of ethics and morality in journalism

			<ul style="list-style-type: none"> • Determine the ethical issues of media with case studies • Determine the provision provided to the journalist
B.Voc (Semester 4)	Second Year	ADMC 10 TV / R J ANCHORING SKILLS	<ul style="list-style-type: none"> • To prepare students for news reading and anchoring and to provide them hands-on experience for industry. • This course aims to expose its students to the techniques employed in news reading and anchoring for live events, TV shows and News shows. • This course aims that students can shine in challenging careers like Anchoring, Show Hosting, Public Speaking and News Reporting etc. • - Radio Presenter: Radio Presenting, Voice Projection, Scripting, Mic Technique • Public Speaking: Showing how to hold an audience's attention, Teaching awareness of voice and its function, • Demonstrating how to control body language, Breathing and articulation
B.Voc (Semester 4)	Second Year	ADMC 11 BASICS OF PRINT	<ul style="list-style-type: none"> • Print and Digital Publishing minors will be able to write and

		TECHNOLOGY & DIGITAL PLATFORMS	<p>correct skilful expository prose.</p> <ul style="list-style-type: none"> • Print and Digital Publishing minors will be able to demonstrate the fundamentals of editing and publishing in print and digital media. • Print and Digital Publishing minors will demonstrate the skills of independent researchers and project managers. • Explain the manufacturing process for paper and paperboard • Apply Packaging formulae and Design packages • Identify various types of labels, bags, and multi-wall sacks based on their application
B.Voc (Semester 4)	Second Year	ADMC 12 INTERNSHIP /ON JOB TRAINING	<ul style="list-style-type: none"> • Explore career alternatives prior to graduation. • Integrate theory and practice. • Assess interests and abilities in their field of study. • Learn to appreciate work and its function in the economy. • Develop work habits and attitudes necessary for job success. • Develop communication, interpersonal and other critical skills in the job interview process. • Build a record of work experience.
B.Voc (Semester 5)	Third Year	BMC 01 INTRODUCTION TO FILMS	<ul style="list-style-type: none"> • Reading and researching different critical points of view; • Developing a critical eye to enhance their appreciation of film as an art form; and • Developing a critical sensitivity to the thematic and historical

			<p>contexts of respective films.</p> <ul style="list-style-type: none"> • Discussing the evolving technology of films; • Analysing the technical elements of films; and • Students are able to identify, analyse and evaluate the aesthetic qualities of cinema
B.Voc (Semester 5)	Third Year	BMC 02 SHORT FILM AND DOCUMENTARY MAKING	<ul style="list-style-type: none"> • Students will identify and explain the major traditions of documentary studies for the past years. • Students will become proficient in one or more of the following documentary methodologies: photography, film, audio/radio, and oral history/narrative writing. • Students will engage in critical thinking regarding fieldwork as a responsible and theoretically sound mode of research that can be used effectively in a variety of settings and related directly to academic research in a variety of disciplines. Using their chosen methodology, students will produce professional-quality documentary work, including at least one major project with a public presentation. • Students will connect their field-based experiences with appropriate archival sources and literatures. • Students will demonstrate the ability to make informed decisions about representational and ethical matters regarding the subjects of their documentary work, as they show in-depth understanding of the intricacies of collaboration, self-knowledge as it pertains to documentary work, and service learning. • Students will communicate effectively with individuals and/or groups outside of University and/or separate from

			their own personal experiences.
B.Voc (Semester 5)	Third Year	BMC 03 INTRODUCTION TO THEATRE & CRAFT	<ul style="list-style-type: none"> • Define and explain the contributions of the playwright, actor, director, designers, and technical theatre personnel. • Demonstrate an understanding of the collaborative nature of the theatre arts. • Demonstrate an understanding of a broad range of theatre terminology. • Demonstrate an understanding of how a theatrical production is “made” and be able to critically evaluate the success of a theatrical production. • Apply basic theory and criticism to works explored in the course • Evaluate drama and theatre
B.Voc (Semester 5)	Third Year	BMC 04 INTRODUCTION TO CINEMATOGRAPHY	<ul style="list-style-type: none"> • Knowledge and Understanding • Work with a range of Digital Cinema Cameras to capture appropriately exposed, focused and colour balanced images. • Intellectual Skills • Translate ideas into shot-sequences. • Translate internal states into visible action in effectively composed images. • Practical Skills • Develop pre-production documentation such as storyboards, mood boards, shot lists and location surveys to facilitate a successful production • Utilise the functions of various manual control settings on the HD and Ultra HD cameras in order to take control of the visual field in front of the camera. • Understand the implications of shooting in different camera and compression formats.

B.Voc (Semester 5)	Third Year	BMC 05 TRENDS IN SOCIAL MEDIA	<ul style="list-style-type: none"> • Identify key network concepts, vocabulary and conceptual literacy; • Consider dimensions of protocols and power in social media use; • Contrast the social capital models of various social networks; • Consider ways social media is used to promote social change; • Examine concepts around “privacy” and identity in a social media context; • Evaluate considerations of copyright and intellectual property in the share economy
B.Voc (Semester 5)	Third Year	BMC 06 NEW MEDIA	<ul style="list-style-type: none"> • Use written, oral, and visual communication to analyze and critique digital media. • Articulate how media art acts as an agent of social change. • Explain the history of media technologies. • Situate media art in its historical, political, and social context. • Evaluate the ethical and legal considerations surrounding the production and distribution of digital media. • Understand the basic concepts of Computer fundamentals. • Work on MS Office tools, Photoshop and Internet
B.Voc (Semester 6)	Third Year	BMC 07 INTRODUCTION TO TECHNICAL WRITING & INSTRUCTIONAL DESIGN	<ul style="list-style-type: none"> • Understand professional writing by studying management communication contexts and genres, researching contemporary business topics, analyzing quantifiable data discovered by researching, and constructing finished professional workplace documents. • Recognize, explain, and use the formal elements of specific genres of organizational communication: white papers,

			<p>recommendation and analytical reports, proposals, memorandums, web pages, wikis, blogs, business letters, and promotional documents.</p> <ul style="list-style-type: none">• Understand the ethical, international, social, and professional constraints of audience, style, and content for writing situations a.) among managers or co-workers and colleagues of an organization, and b.) between organizations, or between an organization and the public.• Understand the current resources (such as search engines and databases) for locating secondary information, and also understand the strategies of effective primary data gathering.• Understand how to critically analyze data from research; incorporate it into assigned writing clearly, concisely, and logically; and attribute the source with proper citation.• Practice the unique qualities of professional rhetoric and writing style, such as sentence conciseness, clarity, accuracy, honesty, avoiding wordiness or ambiguity, using direct order organization, readability, coherence and transitional devices.• Explore different format features in both print, multimedia and html documents, and develop document design skills.• Revise and edit effectively in all assignments, including informal media (such as email messages to the instructor).• Develop professional work habits, including those necessary for effective collaboration and cooperation with other students, instructors and Service Learning contact representatives.
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B.Voc (Semester 6)	Third Year	BMC 08 CREATIVE WRITING	<ul style="list-style-type: none"> • your own voice and style as a writer, which you have discovered and developed • your use of the central subject matter that comes out of your own individual life experience and from your imagination • your understanding of the creative process as a forum for critical as well as intuitive thinking, as well as problem-solving • your awareness of the literary, cultural, and historical contexts within which you write, including the influence of past and present literary forms, structures, styles, and traditions on your artistic choices • (for poets): your ability to shape a poem in terms of lineation, stanza structure, rhythm, and sound; and to effectively work within the parameters of various poetic forms • (for fiction writers): your ability to invent and organize plot; develop character; modulate tone; make use of evocative imagery; and shape and control the formal in both modular and linear narratives • (for creative nonfiction writers): your ability to establish a distinctive voice and a clear sense

			<p>of purpose; provide insightful reflection on the chosen subject matter; render vivid scenes complete with dialogue; distinguish between various types of nonfiction including memoir, personal essay, and literary journalism; and determine when and where to use research, as well as appropriate sources and research methods</p>
B.Voc (Semester 6)	Third Year	BMC 09 MEDIA MANAGEMENT	<ul style="list-style-type: none"> • Compare communication and media management styles and evaluate their effectiveness in enterprises within the creative industries. • Analyze the economic structure of content industries and businesses. • Apply the principles of program development and creation. • Analyze business strategies underlying content marketing and exploitation. • Analyze audience measurement and activity across media platforms, including broadcast ratings, website activity, downloads. • Set benchmarks for measuring success across multiple screens, including first window, second window, after-markets and syndication.
B.Voc (Semester 6)	Third Year	BMC 10	(Short Film or Documentary) Group Activity

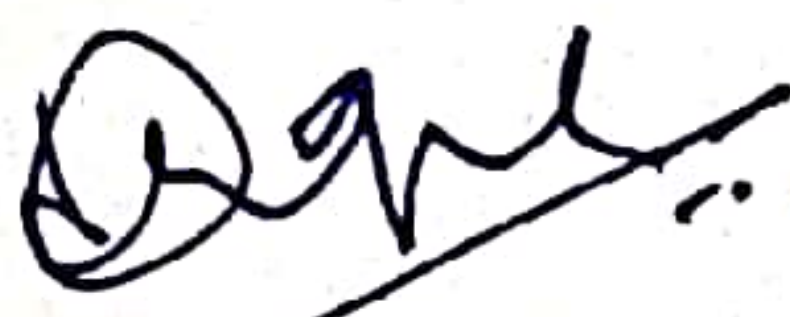
		TEAM PROJECT (SHORT FILM)	<ul style="list-style-type: none"> • At the end of the session the student will be able to do research, storytelling process. • Students will be able to record video as per the concept of Short film • At the end of the session the student will be able to do Story development, Interviewing. • After completing the programme will able to make fiction film and documentary film. • At the Completion of the Project the student will be able to Production Design. • At the end of the session the student will be able to capture a drama.
B.Voc (Semester 6)	Third Year	BMC 11 INDIVIDUAL PROJECT	<p>(Mini-Dissertation) Individual Activity</p> <ul style="list-style-type: none"> • Student would gain conceptual knowledge of communication research. • Students would be able to finalize research design, and use various research tools to conduct research. • Students would be able to conduct survey(s), use sampling techniques, and conduct quantitative research.. • Students get clarity on the research tools and techniques during this course as they themselves design it under the guidance of their guide. • Students do their Dissertation under the guidance of media academicians or practitioners who help them in relating the theoretical skills of research to practical field research. • This course also provides them further direction to work in the given media platform pertaining

			to the development issues they might come across.
B.Voc (Semester 6)	Third Year	BMC 12 INTERNSHIP/ON JOB TRAINING	<ul style="list-style-type: none"> • Explore career alternatives prior to graduation. • Integrate theory and practice. • Assess interests and abilities in their field of study. • Learn to appreciate work and its function in the economy. • Develop work habits and attitudes necessary for job success. • Develop communication, interpersonal and other critical skills in the job interview process. • Build a record of work experience.



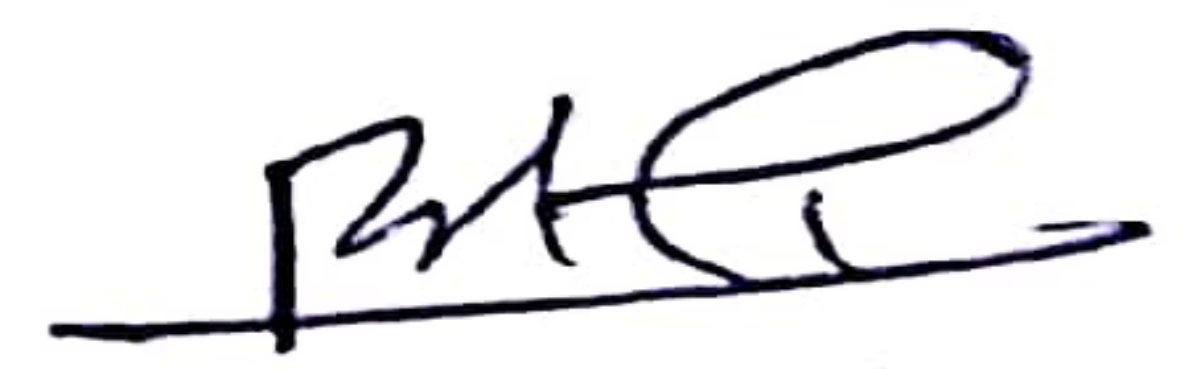
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Affiliated to Savitribai Phule Pune University, Pune (PU/PN/ACS/053)

Department of Botany

Course outcomes (Semester-wise)

Name of the Department	Class	Course Name	Course code	Course Outcome
Botany	F.Y. B.Sc. (SEM I)	Botany I- Plant life and Utilization I	BO111	<p>CO1. Student will be able to differentiate plant diversity i.e. various plant groups such as Algae, Lichens, Fungi, Bryophytes, Pteridophytes, Gymnosperm and Angiosperms.</p> <p>CO2. Students will be able to identify the major groups of plants and be able to classify them as a general outline of classification.</p> <p>CO3. Students will be able to compare the characteristics of algae, lichen, fungi and bryophytes that differentiate them from each other and from other forms of life.</p> <p>CO4. Student will be able to describe life cycles of different plant specimens such as <i>Spirogyra</i>, Lichens, <i>Agaricus</i> and <i>Riccia</i>.</p> <p>CO5. Student will be able to integrate value of plant diversity for maintenance of entire ecosystem and environment.</p> <p>CO6. Student will be able to analyze how these plant diversity provides different resources for humans and other organisms.</p>
		Botany II- Plant morphology and anatomy	BO112	<p>CO1. Student will be able to compare different morphological characters of plants such as inflorescence, flower and its parts, fruits and seeds.</p> <p>CO2. Student will be able to analyze how these</p>

				<p>morphological characters are useful in identification, nomenclature, classification, phylogeny and plant breeding</p> <p>CO3. Student will be able to recognize the anatomical structure in plant system by studying different tissue systems in plants.</p> <p>CO4. Student will be able to describe the conducting system of the plants</p> <p>CO5. Students are able to identify the different kinds of tissues associated with plants.</p> <p>CO6. Student will be able to distinguish the internal structure of monocotyledonous and dicotyledonous plants with typical examples</p>
		<p>Practical based on BO111 and BO112</p>	<p>BO113</p>	<p>CO1. Student will be able to recognize life cycles of different plant specimens such as <i>Spirogyra</i>, <i>Agaricus</i> and <i>Riccia</i>.</p> <p>CO2. Student will be able to identify various forms of lichens and mushroom cultivation stages.</p> <p>CO3. Student will be able to compare different morphological characters of plants such as inflorescence and their types</p> <p>CO4. Student will be able to differentiate flower and its parts.</p> <p>CO5. Student will be able to identify types of fruits and seeds.</p> <p>CO6. Student will be able to examine and identify the internal structure of monocotyledonous and dicotyledonous plants with typical examples</p>
	<p>F.Y. B.Sc. (SEM II)</p>	<p>Botany I- Plant life and Utilization II</p>	<p>BO121</p>	<p>CO1. Students will be able to compare the detailed morphological and anatomical studies with reference to pteridophytes, gymnosperms and angiosperms.</p> <p>CO2. Students will be able to explain the</p>

			<p>characteristics of pteridophytes, gymnosperms and angiosperms that differentiate them from each other and from other plant forms.</p> <p>CO3. Students will be able to classify and describe life cycles of different plant specimens such as <i>Nephrolepis</i>, and <i>Cycas</i>.</p> <p>CO4. Students will be able to describe the outline of classification of Bentham and Hooker's system.</p> <p>CO5. Student will be able to analyze the concept of dicotyledons and monocotyledons.</p> <p>CO6. They will be able to demonstrate the utilization and economic importance of these plant groups in food, fodder, fiber, horticulture and medicine.</p>
		Botany II- Principles of plant science	BO122 <p>CO1. Student will be able to demonstrate the concepts Plant physiology such as osmosis, diffusion, plasmolysis etc.</p> <p>CO2. Student will be able to describe plant growth and factors affecting plant growth</p> <p>CO3. Student will be able to differentiate prokaryotic and eukaryotic cell</p> <p>CO4. Student will be able to explain plant cell structure and cell cycles in plants.</p> <p>CO5. Student will be able to analyze the structure of DNA, RNA and types of chromosomes.</p> <p>CO6. Student will be able to demonstrate the process of DNA replication.</p>
		Practical based on BO121 and BO122	BO123 <p>CO1. Student will be able to describe life cycles of <i>Nephrolepis</i> and <i>Cycas</i>.</p> <p>CO2. Student will be able to classify plants according to Bentham and Hookers system.</p> <p>CO3. Student will be able to differentiate monocotyledonous and dicotyledonous plants.</p>

				<p>CO4. Student will be able to distinguish between mitosis and meiosis</p> <p>CO5. Student will be able to realize about estimation of chlorophyll</p> <p>CO6. Student will be able to describe the concept of Plasmolysis and DPD</p>
Botany	S.Y. B.Sc. (SEM I)	Botany I- Taxonomy of Angiosperm and plant ecology	23141	<p>CO1. Students will be able to compare morphological and reproductive characters of plants and also describe the concept of identification, classification and nomenclature of plant families of Angiosperm.</p> <p>CO2. Students will be able to differentiate various systems of classification and describe botanical nomenclature.</p> <p>CO3. Students will be able to classify various plant families.</p> <p>CO4. Student will be able to describe the concept of species, genetic and ecosystem diversity and hotspots in India.</p> <p>CO5. Students will be able to compare environmental basic concept of ecology and know about plant adaptation according to different ecological conditions such as xerophytes, halophytes, mesophytes and succulents.</p> <p>CO6. Students will be able to analyses and prepare hypothesis to know the tissue system and their adaptations among the different group of plants</p>
		Botany II- Plant physiology	23142	<p>CO1. Student will be able to describe basics of plant physiology its importance and scope in other branches like Ecology, Taxonomy, and Genetics etc.</p> <p>CO2. Student can describe the phenomenon like osmosis, imbibition, water absorption,</p>

				<p>transpiration and ascent of sap, and its importance in plants</p> <p>CO3. Students are able differentiate phenomenon like Transpiration, Guttation and Exudation.</p> <p>CO4. Students can able to demonstrate use of BGA in agriculture for Nitrogen fixation.</p> <p>CO5. Student will be able to explain the concept of Nitrogen metabolism, seed dormancy and germination,</p> <p>CO6. Students will be able to describe physiology of flowering and vernalization and they understand its use in agriculture.</p>
		Botany III- Practical	23143	<p>CO1. Student will be able to use tools of taxonomy and ecological instruments.</p> <p>CO2. Student will be able to describe plant families and their economic importance.</p> <p>CO3. Student will be able to differentiate ecological adaptations in xerophytes and hydrophytes</p> <p>CO4. Student will be able to calculate status of vegetation by list count quadrat method.</p> <p>CO5. Student will be able to demonstrate commercial bio fertilizers Ringing experiment etc.</p> <p>CO6. Student will be will be calculate seed germination percentage and vigor index.</p>
		Botany I- Plant anatomy and embryology	24141	<p>CO1. Student will be able to define scope and importance of plant anatomy.</p> <p>CO2. Students will be able to differentiate Epidermal tissue system, Mechanical tissue system.</p> <p>CO3. Students will be able to compare normal and anomalous secondary growth.</p> <p>CO4. Student will be able to describe</p>

				<p>microsporangium, mega sporangium, pollination and fertilization and the concept of endosperm and embryo and embryo development and types of embryo.</p> <p>CO5. Student will be able to describe process of fertilization and types of pollination.</p> <p>CO6. Students will be able to describe double fertilization and its importance in endosperm formation.</p>
	S.Y. B.Sc. (SEM II)	Botany II- Plant Biotechnology	24142	<p>CO1. Students will be able to describe plant Biotechnology, plant tissue culture and single cell protein.</p> <p>CO2. Students will be able to relate the application of micropropagation, Somoclonal variation, Haploid production, Production of secondary metabolite etc.</p> <p>CO3. Students will able to define basics of plant genetic engineering, genomics, proteomics and bioinformatics.</p> <p>CO4. Student will be able to compare various methods of bioremediation, microbial remediation and phytoremediation.</p> <p>CO5. Student are able to apply biofuel technology and able to describe concept of Biogas, Bioethanol, biodiesel and bio hydrogen.</p> <p>CO6. Student will be able to demonstrate media preparation, sterilization, and inoculation, incubation.</p>
		Botany III- Practical	24143	<p>CO1. Student will able to differentiate epidermal tissue system, mechanical tissue system,</p> <p>CO2. Student will be able to distinguish between normal and anomalous secondary growth.</p> <p>CO3. Student will be able to describe</p>

				tetrasporangiate anther and types of ovules and monocot dicot embryo.
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CO4. Student will be able to demonstrate about laboratory instruments, preparation and sterilization of MS medium, surface sterilization, inoculation and incubation.

CO5. Students will be able to demonstrate *Spirulina* cultivation and describe transgenic crops.

CO6. Student are able to use different instruments like Gel electrophoresis, centrifuge and spectrophotometer, Autoclave, oven etc.



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Mahatma Phule Mahavidyalaya, Pimpri, Pune-17
 Department of Microbiology
 2023-2024

Course Outcomes
(PG)

Name of the Department	Class	Course Code	Course Name	Course outcome
Microbiology	M.Sc. I Sem I	MB 501 MJ	Microbial Systematics	<p>CO 1:efine species concept in prokaryotes and eukaryotes list measures and indices of diversity define –unculturable‘ bacteria and list culture independent molecular methods for identifying unculturable bacteria list different molecular methods used in microbial taxonomy know difference between 6 Classes of Fungi</p> <p>CO 2: explain 5-Kingdom and 3 domain classification system and facets of microbial diversity understand molecular evolution explain Socio-biology and Lamarckism, Darwinism, Neo Darwinism and understand Game theory , r and k selection</p> <p>CO 3: apply the use molecular clocks in taxonomy summarize various theories of evolution</p>
		MB 503 MJ	Basic Quantitative Biology	<p>CO 1: Understand importance of statistics in biology</p> <p>CO 2: Understand basic terms used in statistics Formulate a hypothesis for the experiment as well as test it using appropriate methods.</p> <p>CO 3: Methods for Systematically collection and arranging different type of data</p> <p>CO 4: Calculate basic statistical parameters, plot graphs by using data</p>

			<p>CO 5: Calculate and interpret the observations by using tests used inferential statistics</p> <p>CO 6: Describe the method to collect samples in the most appropriate way to carry out desired experiments. Record the data obtained in the experiment in a suitable way.</p> <p>CO 7 Design the experiments based on the different principles</p> <p>CO 8 Apply the measures of central tendency, dispersion to the data and calculate the probability of obtaining the expected results in the experiments.</p> <p>CO 9 Analyze large data to get a meaningful inference from it.</p> <p>CO10 Compare the different methods of measuring central tendency and evaluate the best suitable one for a particular data</p> <p>CO11 Formulate a hypothesis for the experiment as well as test it using appropriate methods.</p>
		<p>MB 502 MJ</p>	<p>Biochemistry, Cell and Developmental Biology</p> <p>CO 1: Students learn about structural features of amino acids and proteins and their functions.</p> <p>CO 2: Students get introduced with biochemistry and molecular biology technique.</p> <p>CO 3: Students get introduced to developmental biology in that hox code, mechanism of gastrulation, pattern formation in body axis</p> <p>CO 4: udents get introduced with ultrastructure and organization of eukaryotic cell, protein transport and cell cycle.</p>
		<p>MB 504 MJP</p>	<p>Biochemical Techniques Compulsory Practical Paper</p> <p>CO 1 To follow and appreciate protocols and practices in the laboratory as per the</p>

			<p>standards for successful practical completion</p> <p>CO 2 Methods to prepare biological buffers</p> <p>CO 3 Effective ways of presentation of biological data and its statistical using software</p> <p>CO 4 Microbiological procedures required for isolation, characterization and identification of microbes.</p> <p>CO 5 Methods for visualization of cell division</p> <p>CO 6 Basic aspects of developmental biology</p> <p>CO 7 Methods for extraction of microbial biomolecules and their estimation Computational aspect of protein structures</p>
		<p>MB 508 MJ</p>	<p>Experimental Design and Quantitative approach for Biologists</p> <p>CO 1 Students will be able to gain knowledge about research methodology in detail.</p> <p>CO 2 Students will be able to hypothesize the probabilistic statements and make predictions about the data under study.</p> <p>CO 3 Students will be able to identify, select, and tabulate data under study.</p> <p>CO 4 Students will be able to learn experimental designs and understand improved process and able to build confidence making informed decisions about the data</p> <p>CO 5 Students will be able to learn the relationships between multiple input and output variables.</p> <p>CO 6 Students will be able to learn epidemiology, able to use, comment and criticize various epidemiological methods.</p>

			<p>Credit II</p> <p>CO 1 Students will be able to learn basics about numbers.</p> <p>CO 2 Students will be able to perform comparative study about different types of mathematical functions.</p> <p>CO 3 Students will be able to correlate exponential function, bacterial growth and bacterial death</p> <p>CO 4 Students will be able to learn mathematical basis of 12-D concept in autoclaving</p> <p>CO 5 Students will be able to apply differentiation and integration in biology.</p> <p>CO 6 Students will be able to apply mathematical and computational skills in real life.</p> <p>CO 7 This course will enhance quality of student's mathematical, analytical and creative skills</p> <p>CO 8 This course will enable the students and the faculty to become lifelong learners and practitioners of mathematics</p>
		MBEP 116	<p>Practical based on Experimental Design and Quantitative approaches for Biologist</p> <p>CO 1: Designing of Mock Research Proposal.</p> <p>CO 2: Epidemiological study and statistical survey designing.</p> <p>CO 3: Enhancement of numerical microbiological problem solving potential.</p> <p>CO 4: Implementation of statistical tools for data representation and analysis using computer software or statistical packages.</p> <p>CO 5: Interdisciplinary approach for Mathematics and Biology.</p>
		MB 510	<p>Research</p> <p>CO 1</p>

		RM	Methodology	<p>Understand research terminology CO 2 Describe quantitative, qualitative and mixed methods approaches to research CO 3 Identify the components of a literature review process CO 4 Analyze and interpret the research CO 5 Apply ethical principles of research in preparation of scientific documents</p>
	Sem II	MB 551 MJ	Molecular Biology I	<p>CO 1 To remember the basic differences between the Eukaryotic and the Prokaryotic Genome organization-working CO 2 To understand the regulation of Eukaryotic and Prokaryotic Gene expression with examples CO 3 To apply recombinant DNA technology and genetic engineering in the field of molecular Biology CO 4 To analyze and evaluate the molecular diagnostic techniques and its applications</p>
		MB 552 MJ	Enzymology, Bioenergetics and Metabolism	<p>O 1 understand about enzyme kinetics, the mechanisms of enzyme catalysis, and the mechanisms of enzyme regulation in the cell. CO 2 gain knowledge of purification methods of enzymes. They will define terms related to thermodynamics. They will draw structure of hormones. CO 3 conceive the concept of energy, cite examples and assess its importance to living organisms. CO 4 understand the Kinetics of enzyme reactions and gain knowledge of role of enzyme inhibitors CO 5 write metabolic pathways with respect to carbohydrate and lipid metabolism. They will solve problems based on enzyme kinetics, purification and thermodynamics.</p>

		<p>CO 6 study metabolic pathways for various nitrogenous compounds.</p> <p>CO 7 collect information about types and functions of micronutrients</p> <p>CO 8 Students will summarize types of cooperativity and models of allosteric enzymes.</p>
MB 553 MJ	Laboratory Techniques and Instrumentation	<p>CO1 Study of techniques will help in understanding basics</p> <p>CO2 Study of techniques will help in application of electromagnetic spectrum.</p> <p>CO3 Studies of structure will lead to in depth knowledge of Biomolecules</p> <p>CO 4 Techniques of Spectroscopy will improve technical knowledge which will help in Skill development.</p>
MB 554 MJP	Practicals based on MB 551 MJ Molecular Biology I, MB 552 MJ Enzymology, Bioenergetics and Metabolism, and MB 553 MJ Laboratory Techniques and Instrumentation	<p>CO1 To familiarize students with the molecular Biology techniques which includes study of DNA, RNA, proteins etc</p> <p>CO2 To gain an understanding of the solution, the calculations and preparation for cellular extraction of biomolecules and Purification.</p> <p>CO3 To experience a hands-on approach and the troubleshooting during processing of the biomolecules</p> <p>CO 4 To have an insight in the usage of bioinformatics and data bases in gene annotation procedure</p>
MB 561 MJ	Nitrogen Metabolism, Respiration and Photosynthesis	<p>CO1 Understand of biological nitrogen fixation and it's regulation.</p> <p>CO2 Gain knowledge of enzymes involved in nitrogen metabolism.</p> <p>CO3 Knowledge of anaerobic respiration with respect to chemolithotrophs</p> <p>CO 4 Differentiate between oxygenic and unoxygenic photosynthesis mechanism</p>
MB 561 MJP	Practical based on Nitrogen Metabolism, Respiration and Photosynthesis	<p>CO1 Methods used for isolation of microbes able to produce the metabolites such as indole acetic acid, siderophores and techniques for their detection.</p>

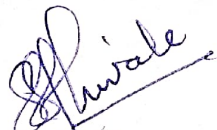
				<p>CO2 Techniques used for isolation of microbial system that are able to fix the atmospheric nitrogen.</p> <p>CO3 Characterization technique for polyphenols and tannins</p> <p>CO 4 Microbial methods for isolation and characterization of microbes able to degrade biomolecules such as xylan/lignin</p> <p>CO 5 Microbial methods required for isolation of sulfur reducing microbes / methanogens</p> <p>CO 6 Microbial methods for photosynthetic microbes such as cyanobacteria and biochemical method to determine its chlorophyll content</p>
	M.Sc. II Sem III	MBCT 231	Immunology	<p>CO 1: Students will understand the concepts of Immunology.</p> <p>CO 2: They will be able to understand the different effector mechanisms of host immune response.</p> <p>CO 3: To acquaint students with the cell surface receptors present on various cells for signal transduction pathways and regulation of immune responses.</p> <p>CO 4: Applications of different immunological techniques in analysis and diagnosis of diseases and immunological disorders.</p> <p>CO 5: Extending the knowledge of how the immune system mounts an immune response against tumor and how tumors evade immunity.</p> <p>CO 6: Comparing strategies to combat tumors based on immunotherapy, including passive and active immunization.</p>
		MBCT 232	Molecular Biology	<p>CO 1: Students will be able to understand the concept of Metabolomics.</p> <p>CO 2: Detail knowledge about the concept and applications of transgenic plants and transgenic animals.</p> <p>CO 3: Understanding the terms</p>

				<p>illustrating the extract of terms involved in genomics.</p> <p>CO 4: Gaining knowledge concerning the methods developed to study genomic variations.</p> <p>CO 5: Theoretically Manifesting the importance of applications in rDNA technology by learning transgenic plants and animals.</p> <p>CO 6: Core clearance of pre-requisite concepts of proteomics.</p> <p>CO 7: Streching the importance of learning GMOs and associated social and ethical issues.</p> <p>CO 7: Thorough overview of key concepts lies in transposons with reference of maize and drosophila.</p>
		MBCT 233	Clinical Microbiology	<p>CO 1: Interpretation of host parasite interaction.</p> <p>CO 2: Knowledge of morphology, cultural characteristics, biochemical tests, epidemiology, laboratory diagnosis etc of bacterial pathogens.</p> <p>CO 3: Understand the basics and applications of various chemotherapeutic agents and their mode of action.</p> <p>CO 4: To develop informatics and diagnostic skills, including the use and interpretation of laboratory tests in the diagnosis of infectious diseases</p> <p>CO 5: Acquaint with knowledge of handling and disposal of medical waste.</p> <p>CO 6: Illustrate prognosis, diagnosis, incidence and prevalence of local and global diseases using epidemiological models.</p>
		MBCP 234	Practicals based on Immunology, Molecular Biology and Clinical Microbiology	<p>CO 1: Students will be acquainted with techniques in Clinical Microbiology, Immunology and Molecular Biology.</p> <p>CO 2: Analysis of serum proteins and importance of it.</p> <p>CO 3: Applications of immunological techniques in qualitative and quantitative antigen/ antibody in diagnostics.</p> <p>CO 4: Evaluate efficiency of recombinant DNA technology by various screening techniques.</p> <p>CO 5: Exemplifying regular</p>

				pathogens to understand their disease manifestation.
		MBET 237	Microbial Virus Technology	<p>CO 1: Students will understand the basics of isolation and characterization of bacteriophages.</p> <p>CO 2: Pupil will understand the need of bacteriophages and phage therapy for antibiotic resistant pathogenic bacteria.</p> <p>CO 3: Comparing phage therapy over antibiotic therapy.</p> <p>CO 4: Studying the interaction between host and phage.</p>
		MBEP 237	Practicals based on Microbial Virus Technology	<p>CO 1: Students' knowledge will grow up with isolation, purification and preservation of bacteriophages</p> <p>CO 2: They will be acquainted with various concepts of bacteriophage growth kinetics</p> <p>CO 3: It will also help to learn about applications of bacteriophages.</p> <p>CO 4: Application of bacteriophages as therapeutic as well as bio control agents.</p>
	M.Sc II Sem IV	MBCT 241	Pharmaceutical Microbiology	<p>CO 1: In addition to drug development students will also understand the concepts of drug discovery.</p> <p>CO 2: They will be able to know pharmacokinetics and pharmacodynamics.</p> <p>CO 3: Besides this students will know the recent trends for MDR therapy also.</p> <p>CO 4: Summarizing the general concepts and definitions fall under the medicinal chemistry.</p> <p>CO 5: Comprehending the theoretical concept of classification, and drug mechanism.</p> <p>CO 6: Detailed overview of drug designing and development by</p> <p>CO 7: Assimilation of basic ideas behind clinical trials, definitions and methods to perform.</p> <p>CO 8: Extending the knowledge of drug metabolism in a circuitous way.</p> <p>CO 9: Extending the connotation of pharmacopeia in pharmaceutical industry.</p>
		MBCT 242	Microbial Technology	CO 1: They shall acquire knowledge about various process control methods

				<p>in fermentation.</p> <p>CO 2: Students will be acquainted with the applications of microorganisms in different industries.</p> <p>CO 3: Understanding the role of industrially important microorganisms in upstream and downstream process.</p> <p>CO 4: Extending the knowledge of production of industrially important products.</p>
		MBCP 243	Dissertation	<p>CO 1: Students will be able to choose a dissertation topic of research or application orientation</p> <p>CO 2: They will get an experience for gathering literature survey and apply it into practical dissertation work</p> <p>CO 3: They shall also be educated for use of statistical analysis and graphical presentations</p> <p>CO 4: Besides this they will also be able to analyze qualitative and quantitative data with evidence based explanation gathered supports the initial hypothesis.</p> <p>CO 5: This course will help students to craft an extensive and comprehensive piece of dissertation work with research or application orientation.</p>
		MBET 244	Quality Assurance and Validation in Pharmaceutical Industry and Development of Anti Infectives from plants	<p>CO 1: Students. will have knowledge of Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP) in pharmaceutical industry.</p> <p>CO 2: They will be accustomed with ISO, WHO and US certification and also Safety in microbiology laboratory.</p> <p>CO 3: The knowledge of Therapeutic ratio, MIC and MBC Susceptibility Testing will be obtained by students</p> <p>CO 4: Learning the significance of rules and regulations fall under pharmacopeia.</p>
		MBEP 244	Practicals based on Quality Assurance and Validation in Pharmaceutical Industry and Development of Anti Infectives from plants	<p>CO 1: Students will have knowledge of Quality Assurance in the Pharmaceutical Industry.</p> <p>CO 2: Understanding about validation processes in the Pharmaceutical Industry will become easy.</p> <p>CO 3: They will be acquainted with the knowledge of development of anti-infectives from plants.</p>

		MBET 246	Industrial waste water treatment and Industrial production of vaccines	<p>CO 1: Students will get to know the concepts of Industrial Waste Water Treatment</p> <p>CO 2: They will also learn about sludge treatment</p> <p>CO 3: The concept of Industrial Production of Vaccines will also be clear to them.</p> <p>CO 4: Understanding the composition of effluent.</p> <p>CO 5: handling and operating the parameters involved in effluent treatment and kinetics.</p>
		MBEP 246	Practicals based on Industrial waste water treatment and Industrial production of vaccines	<p>CO 1: They will learn about sludge treatment</p> <p>CO 2: Students get acquainted with the concepts of Industrial Production of Vaccines.</p> <p>CO 3: Critical analysis of industrial waste water.</p>


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Rayat Shikshan Sanstha's
Mahatma Phule Mahavidyalaya, Pimpri, Pune-17
Department of Microbiology
2023-2024
Program outcome
(UG)

Name of the Program	Program outcome
B.Sc. (Microbiology)	<p>PO-1: Theoretical and practical Knowledge: Science learners are encouraged to apply the knowledge of science fundamentals to solution of various complex global challenges. A student is exposed to a wide range of theory and practical topics in various subjects and is given intensive hands on training and laboratory related work in each of the courses. The learner is encouraged to use various scientific methods (observational, analytical and numerical) and experimental methods as an application to the acquired concepts and principles that help in studying various branches of sciences. At the end of the program, students are able to gain thorough knowledge in key areas in the subjects offered.</p> <p>PO-2: Problem Analysis Approaches: Students are able to understand and use analytical approaches to interpret and analyse results so obtained from experimental data and draw suitable conclusions against their supported data acquired. At the end of the program, students will be able to identify, formulate and analyse scientific problems and reach concrete solutions using various principles of mathematics and sciences.</p> <p>PO-3: Experimental and Solution Designing Approaches: Students are able to think out of box with proper acquired knowledge of various subjects, students are trained to think out of the box, design and conduct an experiment or a series of experiments that demonstrate their understanding of the methods and processes involved.</p> <p>PO-4: Modern tool usage: students are trained to create, select, and apply appropriate techniques and resources through practical knowledge and IT tools through training programmes.</p> <p>PO-5: Communication Skill: English being a language of instruction, learning, writing and communication skills of learners will be improved where students are capable of explaining complex things in easy way. Students can able to</p>

get placements in various fields.

PO-6: Employability of the Programme: Equip students with skills needed to adapt better to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains. To equip learners with knowledge other than that of the subject such as skills required helping them qualify for jobs, all the science subjects offer skill enhancement courses and value added courses so that learners have a better edge over their counterparts.

PO-7: Ethical Values: Spirit of competitiveness among students is ever emerging, therefore it is equally important to develop a strong sense of ethical values among the learners to develop positive attitudes and values. This includes appreciation of the various principles and theories that evolved in science, the impact that science has on social, economical and environmental issues. Motivation may come from our understanding of the natural world in which we live. Advances in physics, chemistry, biology, and other sciences in the past two or three centuries have enriched not only our understanding of, but our ability to shape, the natural world.

PO-8: Science for Environmental Sustainability: Nature is under pressure as never before because of the population explosion, civilization and modernization. Our needs for food, water and land, and our demands for energy and more and more stuff are destroying habitats, polluting our air and water, and driving species of animals and plants to extinction. Academics should not remain quarantined from such issues. Through classroom discussions and research projects, this programme facilitates active dialogues with factors which influence human-ecology interactions. As such, at the end of this programme students will be able to identify and analyse socio-political, cultural and economic problems.

PO-9: Soft-Skill Development: Apart from the attainment of knowledge and hands on skills in practical applicability of the subject, learners need to be equipped with soft-skills and values which will help them function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary groups. These soft skills include leadership, teamwork, project-management, positive outlook, innovative approaches etc. As such, at the end of this programme, students will be able to hone the soft-skills

required in positively enhancing their academic, professional and personal pursuits towards self and societal advancement.

PO-10: Social Awareness: To create awareness to become conscious citizens with a sense of responsibility towards their surrounding irrespective of any man made differences.

PO-11: Business Skills: The course is reasoning and application based, making the students eligible for higher studies, jobs in various sectors and entrepreneurship abilities.

PO-12: Life-long learning: With the pursuit of knowledge for either personal or professional reasons, learners are also encouraged to volunteer and be self-motivated that not only enhances society values, active participation and personality development, but also enhances self-sustainability, competitiveness and employability.

**Program Specific Outcome
(UG)**

Name of the Program	Program Specific outcome
B. Sc. Microbiology	<p>PSO 1: Develop the working knowledge and applications of instrumentation and laboratory techniques. Enabling the students to apply skills to design and conduct independent experiments and interpret.</p> <p>PSO 2: To enrich student knowledge and train them in a pure microbial science.</p> <p>PSO 3: To introduce the concepts of application and research in Microbiology.</p> <p>PSO 4: To inculcate sense of scientific responsibilities and social and environment awareness. Ability to understand the concepts of key areas in Microbiology.</p> <p>PSO 5: Learn and apply principles of microbiology in day today life and in applied fields like industry or institution.</p> <p>PSO 6: Provide a conducive environment to unleash their hidden talents, creative potential, nurture the spirit of critical thinking and encourage them towards higher education.</p> <p>PSO 7: Equip students with skills needed to adapt better to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.</p> <p>PSO 8: The Human Microbiome will equip you to help solve some of the world's most pressing problems involving food, water, disease and the environment.</p>



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Department of Microbiology
2023-2024

Program Outcome
(PG)

Name of the Program	Program outcome
M.Sc. (Microbiology)	<p>PO-1: Theoretical and practical Knowledge: Application of knowledge of microbial science to resolve critical global issues. Pupil is manifested with a broad range of elements involved in the current industrially and research oriented skills. Students are acquainted with profound understanding involved in manuscript writing, epidemiological models and surveys to enhance the research approach and scientific attitude.</p> <p>PO-2: Problem Analysis Approaches: To escalate the prior knowledge and extending it to develop into technology. Students will have better perspective to solve given practical, epidemiological query by logical, statistical and analytical way of approach to retrieve better outcomes using the provided data and the interpretation of the acquired data using statistical tools.</p> <p>PO-3: Experimental and Solution Designing Approaches: Number of experiments which involve high order thinking that would aid students to look out for better solution designing, based on the pathways and mechanisms they have been studied, to develop mathematical and statistical approach for solution designing.</p> <p>PO-4: Modern tool usage: Students become familiar to use analytical, biophysical, molecular instruments and their precise implementation in various interdisciplinary fields. Associated application of software in research and development sectors, data analysis and molecular experiments.</p> <p>PO-5: Scientific writing and Communication Skill: By various means of activities viz. poster presentation, seminar, group discussion and attending conferences it strongly builds individuals' verbal and nonverbal skills. This significantly results in ability to expose diversified conditions and to tackle the problem confidently by</p>

interviewing and exchanging the knowledge.

PO-6: Employability of the Programme: Polishing the skills needed for sustaining in the challenging world and also improving the better understanding for the incoming demands with respect to the future developmental projects.

PO-7: Ethical Values: Developing the sense of ethical values as morals are equally important in development. An individual is filled with prudent point of view towards the societal and other living beings sharing the earth equally to maintain ecosystem and social well-being.

PO-8: Science for Environmental Sustainability: Equip students with key responsibility of awareness towards environment. Also understands the micro form of life and their diversity helping in balancing of the ecosystem.

PO-9: Soft-Skill Development: Introducing to achieve positive and professional attitude leads to build stronger relationship with co-workers.

PO-10: Social Awareness: Creating a sense of responsible citizen which enables one to show empathy towards others from diverse background and also putting a valuable experience in their personality that result in changing the perspective towards society and nature. Make them aware of human rights and cyber security.

PO-11: Business Skills: Enabling the students to implement and build their crude ideas into a potential business plan which in return bifurcate the possibility of employment and entrepreneurship.

PO-12: Life-long learning: by extending the knowledge and skills which will consciously remain intact and build the values such as competitiveness, motivation and better outlook, adaptability critical thinking, logical reasoning and leadership, professional ethics.

**Program Specific Outcome
(PG)**

Name of the Program	Program Specific Outcome
<p style="text-align: center;">M.Sc. (Microbiology)</p>	<p>PSO1 Academic competence:</p> <p>i) Describe microbial processes that can be used for the development of biochemical and immunological tools to improve the quality of human life.</p> <p>ii) Study the cytology, biochemistry, growth as well as application of environmentally and industrially important microbes with a specific emphasis on improving environmental sustainability and human health.</p> <p>iii) Describe and understand the concepts of role of microorganisms in geochemical processes like leaching of metals and bioremediation methods</p> <p>PSO2 Personal and Professional competence:</p> <p>i) Apply tools of molecular taxonomy and bioinformatics to the study of diverse microbial groups.</p> <p>ii) Evaluate industrially important microbial products in terms of their purity, safety and ethically acceptable application for the benefit of mankind.</p> <p>iii) Combine public presentation skills of effective articulation and nonverbal communication with a sound understanding of microbial science to effectively communicate ideas</p> <p>PSO3 Research competence:</p> <p>i) Validate scientific hypothesis and editorialize experimental scientific data by using</p>

statistical tools applicable to biological sciences.
ii) Integrate principles of biology and physical sciences to standardize detection and quantification methods using sophisticated techniques.

PSO4

Entrepreneurial and Social Competence:

- i) Employ skill sets related to Quality assurance and testing of pharmaceutically important products in accordance with internationally accepted standards.
- ii) Evaluate the importance of new groups of consumer goods such as prebiotics, probiotics and nutraceuticals.
- iii) Apply the concepts of microbial interactions in basic and advanced treatment of waste water treatment processes.



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Department of Microbiology**

2023-2024

Course Outcomes

(UG)

Name of the Department	Class	Course code	Course Name	Course Outcome
B.Sc. (Microbiology)	B.Sc.I Sem-I	MB-111	Introduction to Microbial world	<p>CO 1: Introduce students about development of microbiology.</p> <p>CO2: Have developed a good knowledge of the development of the discipline of Microbiology and the contributions made by prominent scientists in this field.</p> <p>CO 3: Develop and understand the vast diversity and characteristics of microbial world.</p> <p>CO4: Provides an information about how to classify cellular microorganisms based on their general characteristics.</p> <p>CO 5: Introducing the student about morphological, structural characterization of microorganisms.</p>
		MB-112	Basic techniques in Microbiology	<p>CO 1: Introduction of the standard operating procedures in Microbiology</p> <p>CO 2: Introduce the student to different laboratory instruments.</p> <p>CO 3: Introduction of students to different staining techniques</p> <p>CO 4: Enable the student to understand basic techniques in laboratory.</p> <p>CO 5: To acquire the knowledge of different methods of disinfection and sterilization.</p>
		MB-113	Practical Course based on MB-111 & MB-112	<p>CO 1: Enabling the students to perform good laboratory practices.</p> <p>CO 2: Developing the student's ability to handle laboratory instruments.</p> <p>CO 3: Enabling the student to perform staining techniques.</p> <p>CO4: Develop the keen observational skill using different microscopy techniques and staining techniques.</p> <p>CO5: Gain knowledge about common laboratory glass wares.</p> <p>CO6: Students will able to observe</p>

B.Sc.I Sem-II	MB-121	Bacterial cell and Biochemistry	<p>motility of bacteria.</p> <p>CO 1: To understand the bacterial cell structure.</p> <p>CO 2: Helps student to learn different bacterial cell organelles</p> <p>CO 3: To understand the biochemical characterization of components of microorganisms.</p> <p>CO4: Describe characteristics of bacterial cells, cell organelles, cell wall composition and various appendages like capsules, flagella or pilli.</p> <p>CO5: To learn about ICTV classification of viruses.</p> <p>CO6: Acquainted with chemical and molecular structures of biomolecules.</p>
	MB-122	Microbial Cultivation and Growth	<p>CO 1:To understand the different nutritional requirement of microorganisms.</p> <p>CO 2 : Help the student to learn different methods of cultivation of microorganism.</p> <p>CO 3 : To understand the concept of bacterial growth.</p> <p>CO 4: Enable the students to understand the methods of bacterial growth measurements.</p> <p>CO 5: To gain the knowledge of different methods of measurements of bacterial growth.</p> <p>CO 6: To gain the knowledge of different factors affecting bacterial growth.</p>
	MB-123	Practical Course based on MB-121 & MB-122	<p>CO 1: Enable the students to prepare laboratory media.</p> <p>CO 2: Enable the students to isolate bacteria for different sources.</p> <p>CO 3: Students are able to study practically the effect of different environmental factors on growth of microorganisms.</p> <p>CO4: Students will gain the knowledge about preservation of cultures in laboratory.</p> <p>CO5: Students will able to check sterilization efficiency of autoclave.</p> <p>CO6: Enable the students to perform special staining techniques.</p>
B.Sc. II Sem-III	MB-211		<p>CO 1: To inculcate knowledge in relationship between human diseases and microorganisms.</p>

			<p>Medical Microbiology and Immunology</p>	<p>CO 2: Help student to understand different concepts in medical microbiology.</p> <p>CO 3: Give the student knowledge about various chemotherapeutic agent and their mode of action.</p> <p>CO 4: Develop the knowledge about human immune response towards microorganism concept related to cells and organs of immune system, immune response and immune mechanism</p> <p>CO 5: To acquaint with human pathogens & normal flora of the human body systems.</p>
		MB-212	<p>MB212 Bacterial physiology and Fermentation Technology</p>	<p>CO 1: To develop fundamental knowledge about various biomolecules.</p> <p>CO2: Understand the basic concept related to enzyme.</p> <p>CO 3: To understand various biochemical pathways.</p> <p>CO4: Student will be able to define various modes and techniques of fermentation.</p> <p>CO 5: Enable the student to get sufficient knowledge about development of industrially important strains.</p> <p>CO6: Students will able to understand commercial application of microorganism to produce commercially important product on large scale.</p>
		MB-213	<p>Practical course based on MB-211 &MB-212</p>	<p>CO 1: The aim is to deliver practical knowledge about implementation of the concept studied.</p> <p>CO 2 :It enable the students to perform lab diagnostic techniques like blood grouping, various biochemical reactions and to screen industrially important microorganisms</p> <p>CO3: To get acquainted with measurement of cell dimensions using micrometry.</p> <p>CO4: Practicing screening of industrially important microorganisms.</p> <p>CO5: To implement fundamentals of Medical Microbiology in determining Pathogenesis & Lab diagnosis.</p>

B.Sc. II Sem-IV	MB 221	Bacterial genetics	<p>CO 1: Enable the student to get sufficient knowledge about concept of genes, chromosomes & mutations.</p> <p>CO 2: Help the student to understand deciphering of genetic code.</p> <p>CO3: Developing interest by studying history of genetics.</p> <p>CO4: Paraphrasing central dogma of life.</p> <p>CO5: Analysing different mutagens and their mechanism.</p> <p>CO6: Basic understanding of plasmid genetics and eventually plasmid as one of the tools in genetic engineering.</p>
	MB 222	Air, Water & Soil microbiology	<p>CO 1: To inoculate knowledge about micro flora of air, water and soil.</p> <p>CO 2: To introduce method of air sanitization water purification and sewage treatment.</p> <p>CO3: Able to check the potability of water by using appropriate tests.</p> <p>CO4: Students will acquire a fairly good understanding about rhizospheric microorganisms.</p> <p>CO5: A brief review on composting and humus formation.</p> <p>CO6: Students will get the knowledge about biogeochemical recycling; nitrogen fixing and use as biofertilizers.</p> <p>CO7: Students will understand the significance of various texts involving use of enumerating fecal <i>E. coli</i> for assessing quality of water.</p>
	MB-223	Practical course	<p>CO1: Enable the students to calculate the air flora.</p> <p>CO2: Enable the student to test potability of water to prepare bio-inoculant and to apply it.</p> <p>CO3: Students are able to isolate mutants by suitable method.</p> <p>CO4: Determination of settling velocity, & diversity of air flora.</p> <p>CO5: Learn to perform staining of cell organelles.</p>
B.Sc. III Sem-V	MB 351:	Medical Microbiology- I	<p>CO 1: To analyse the human anatomy & pathogen associated with disease.</p> <p>CO 2 : Acquire knowledge of principles underlying establishment of pathogens in human body.</p>

			<p>CO 3: Comprehend of pathogenesis of specific pathogens causing microbial diseases.</p> <p>CO 4: Assess epidemiological patterns of microbial disease transmission by various modes, intensity at local and global level.</p> <p>CO 5: Gain Knowledge principles of chemotherapy of microbial diseases and development of drug resistance among pathogens and strategies to mitigate.</p> <p>CO 6: Develop identification systems for microbial disease diagnosis, disease treatment and prevention measures.</p>
		MB 352:	<p>Immunology-I</p> <p>CO 1: Understand the importance of primary lymphoid organs in immune system.</p> <p>CO 2 : Detailed study about structure and functioning of the its secondary lymphoid organ</p> <p>CO 3: Students should be aware about cellular components of the immune system.</p> <p>CO 4: Students will learn the Concepts of complement system.</p> <p>CO 5: Educating the students about the peculiar and key concepts falls under the Allograft rejection mechanism. & its prevention</p> <p>CO 6: Comprehending & Exemplifying Immune complexes by the means of diverse techniques such as ELISPOT, RIA.</p>
		MB353:	<p>Enzymology</p> <p>CO 1: To understand methods of active site determination, role of enzymes and its cofactor in microbial physiology.</p> <p>CO 2 : To learn to perform enzyme assay, purification and quantification of enzymes activity, enzyme kinetics in terms of initial, final velocity, mathematical expression of enzyme kinetic parameters.</p> <p>CO 3 : To correlate regulation of metabolism at enzymatic levels and apply, methodology</p> <p>CO4: To get acquainted with</p>

		<p>mechanism of allosteric enzymes, enzyme inhibition, feedback inhibition.</p> <p>CO5:To get good knowledge of different methods of immobilization of enzyme and its industrial applications.</p> <p>CO6:To learn about zymogens and their activation, isozymes.</p>
MB 354	Genetics	<p>CO 1: To exhibit a knowledge base in Genetics and Molecular Biology</p> <p>CO 2 : To understand the central dogma of Molecular Biology</p> <p>CO 3 : To construct genetic map of bacteria and fungi</p> <p>CO 4: To get introduced to concept of recombination and bacteriophage Genetics</p> <p>CO 5: To understand the concept cloning in bacteria</p> <p>CO 6: To demonstrate the knowledge of common and advanced laboratory practices in Molecular Biology</p>
MB 355	Fermentation Technology– I	<p>CO 1: Student's will be able to define various modes and techniques of fermentation</p> <p>CO 2 : Isolate, identify and develop the microbial inoculum for industrial processing.</p> <p>CO 3 : Students will be able to give examples of industrially important microorganisms and their applications.</p> <p>CO 4: Student's will grasp about fermentation economics,parent ability and validation of process.</p> <p>CO 5: Students will learn about upstream and downstream processes.</p> <p>CO 6: Student's will attain the knowledge about fundamentals of Intellectual Property Rights (IPR), Parent designs.</p> <p>CO 7: Students will get the information of different methods for quality assurance of fermentation products.</p> <p>CO 8: Students will learn strain improvement strategies,media optimization methods for production of various valuable products.</p>
MB 356	Agricultural Microbiology	<p>CO 1:To understand plant growth improvement with respect to disease resistance, environment tolerance.</p>

			<p>CO 2 :To correlate stages of plant disease development, epidemiology, symptom based classification, control methods.</p> <p>CO 3 :To understand the importance of microorganisms in sustainable agriculture, biotechnological application of bio films, edible vaccines.</p> <p>CO 4 : To correlate Soil Micro biome and Role of microorganisms in soil health</p> <p>CO 5 : To determine the use of Microorganisms as tools in plant genetic engineering.</p>
MB – 357:	Diagnostic Microbiology and Immunology		<p>CO 1: Application of identification systems for microbial disease diagnosis, disease treatment and preventives measures.</p> <p>CO 2: Students can develop strategies for diagnosis of diseases based on antigen and antibody reactions with emphasis on prevailing communicable diseases.</p> <p>CO 3 : Graduates can perform different hemato-pathological tests.</p> <p>CO 4 : To get acquaint to the epidemiological survey and its questionnaire preparation.</p> <p>CO 5: estimation and interpretation of the different hematological indices.</p>
MB 358:	Enzymology and Genetics		<p>CO 1: Students can prepare buffers and able to calibrate pH meter.</p> <p>CO 2: Students can perform qualitative analytical tests using flow charts for Proteins.</p> <p>CO3: Students are able to separate and identify sugars from mixtures.</p> <p>CO4: Students will able to do isolation of genomic DNA from bacteria.</p> <p>CO5: Practicing quantitative estimation of DNA by Diphenylamine method.</p> <p>CO6: Students can perform quantitative estimation of carbohydrates.</p>
MB 359	Fermentation Technology- I and Agricultural Microbiology		<p>CO 1: Experimenting isolation of <i>Aspergillus niger</i> from black rot of onion.</p> <p>CO 2 : Performing and determining the outcomes MIC & MBC of</p>

				<p>antibacterial compounds.</p> <p>CO 3 : Detecting the sterility of Pharmaceuticals as test culture given as per IP Guidelines</p> <p>CO 4 : Validation of commercial formulation of bioinoculants based on BIS Standards.</p> <p>CO 5 : Executing the standard methodology to perform antibiotic assay.</p>
		MB-3510	Marine Microbiology	<p>CO 1: Help the students to impart the awareness of unseen and unexplored niche of marine ecosystem of microbes.</p> <p>CO 2 : Student acquire advances in the knowledge of marine microbes and marine ecology.</p>
		MB 3511	Dairy Microbiology	<p>CO 1: Students acquire skills of processing of milk and dairy products.</p> <p>CO 2: Students are able to assess quality control in dairy industry.</p>
B.Sc. III Sem VI		MB 361	Medical Microbiology II	<p>CO 1: To get acquainted with different drug for designing of effective treatment.</p> <p>CO 2: To gain knowledge of development of drug resistance among pathogens & strategies to mitigate.</p> <p>CO 3: To become familiar with the various routs of drug administration.</p> <p>CO 4: Graduates acquire knowledge about cultivation of viruses and viral as well as fungal diseases of humans and animals.</p> <p>CO 5: To get acquainted with establishment of human viral pathogens, animal viral pathogens, fungal & protozoal pathogens .</p> <p>CO 6 : To establish preventive measures to cope with transmission & treatment of viral, fungal & protozoal diseases.</p>
		MB 362	Immunology-II	<p>CO 1: Highlighting the properties, attributes and biological functions of cytokines.</p> <p>CO 2 : Tweeting about social values in vaccination programs.</p> <p>CO 3 : Extending the basic knowledge about Antigen processing and presentation.</p> <p>CO 4 : Assimilation of basic ideas behind the immune response against</p>

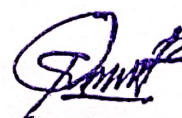
		tumors. CO 5: Thorough overview of key concepts lies in general principles of different types of hypersensitivity reactions. CO 6 : A brief understanding about autoimmune diseases.
MB 363:	Metabolism	CO 1: To learn mechanisms of transport of solutes across the membrane. CO 2 : To get acquainted with mechanism of biosynthesis and degradation of biomolecules. CO 3 : To comprehend basic concept of autotrophic mode of metabolism of prokaryotes. CO4: To learn laws thermodynamics, free energy, entropy, enthalpy. CO5: To get knowledge of electron transport chain. CO6: Protein metabolism, role of urea cycle.
MB-364:	Molecular Biology	CO 1: Graduates get introduced to concept of recombination and bacteriophage Genetics CO 2 : To understand the concept cloning in bacteria CO 3 : To demonstrate the knowledge of common and advanced laboratory practices in Molecular Biology CO 4: Understanding of phage life cycle and its application in genetic engineering. CO 5: Applications of tools of genetic engineering. CO 6: Basic understanding of techniques used in recombinant DNA technology.
MB 365	Fermentation Technology – II	CO 1: Students will be able to describe each step required for successful fermentation and note any potential problems so they can be resolved. CO 2 : Students will get knowledge about large Scale production of milk and milk products. CO 3 : Students will acquire knowledge of production of primary metabolite & secondary metabolites.

			<p>CO 4: Students will gets introduced to microbial transformation of Steroids.</p> <p>CO 5: Students will get acquainted with the concept of Immune sera.</p> <p>CO 6: Student's will learn about the industrial production of Alcohol, beer, wine etc.</p>
	MB 366:	Food Microbiology	<p>CO 1: Enable the student to get sufficient knowledge in relationship between food and microbes, techniques used in food microbiology and food processing.</p> <p>CO 2: Introduce the graduates about preservation technique used in food industries,</p> <p>CO 3: Aware the students about microbial food borne illnesses.</p> <p>CO 4: Introduction of concept of prebiotic and probiotic</p>
	MB 367	Diagnostic Microbiology and Immunology	<p>CO 1: Students are able to identify and differentiate different fungal and parasitic pathogens.</p> <p>CO 2: Can perform antibiotic sensitivity testing of the bacterial pathogens.</p> <p>CO 3: Students get acquainted to different immune-haematological techniques.</p> <p>CO 4: Graduates will practically study different blood components.</p> <p>CO 5: To get acquainted with the egg inoculation techniques required for cultivation of viruses.</p> <p>CO 6: To know importance of cross matching useful in blood transfusion.</p>
	MB 368	Metabolism and Molecular Biology	<p>CO 1: Students will implement knowledge of biochemistry to detect the different bio- elements in the blood and serum.</p> <p>CO 2: Students will acquire the knowledge of large scale production of enzyme its purification, quantification and immobilization.</p> <p>CO 3: Students are able to isolate and enumerate the bacteriophage.</p> <p>CO4: Student will able to observe mitotic cell division.</p> <p>CO5: Students are able to isolate plasmid DNA.</p>
	MB 369	Fermentation	<p>CO 1: Lab scale production and</p>

			Technology-II and Food Microbiology	<p>estimation of ethanol.</p> <p>CO 2 : Understanding the solid state fermentation with taking reference of mushroom cultivation.</p> <p>CO 3 : students will get acquainted with different guidelines of with HACCP (Hazard Analysis and critical control point) for food industry.</p> <p>CO 4: Students will get the knowledge about isolation and Identification of probiotic microflora and health benefits associated with it.</p> <p>CO 5: Examining the values TDP and TDT.</p> <p>CO 6: Testing the Aflatoxin using UV trans-illuminator.</p>
		MB 3610	Waste Management	<p>CO 1: To learn the design and working of treatment plants and methods used for liquid and solid waste treatment.</p> <p>CO 2 :To impart the understanding of kinetics of biological systems used in waste treatment.</p> <p>CO 3 : To learn the standards of waste management and competent authorities involved at National and international level.</p>
		MB 3611	Nano-biotechnology	<p>CO 1:To learn fundamentals of nanotechnology as to Synthesis and characterization techniques of nanoparticles.</p> <p>CO 2 :To acquire knowledge of applications of nanomaterials in different disciplines of human life.</p> <p>CO 3 : To compare the merits of using nanotechnology with existing technologies.</p>


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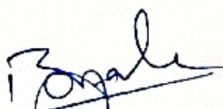
Rayat Shikshan Sanstha's

Mahatma Phule Mahavidyalaya, Pimpri, Pune

DEPARTMENT OF HISTORY

Programme Outcomes (POs)

Programme Outcomes (POs):	
PO-1	Cultural Intelligence: The students develop a deep understanding of the multiple pasts which makes them uniquely equipped in the emerging field of cultural intelligence .
PO-2	Knowledge Construction: The students develop a logical understanding of the past which enables them to make sense of the current societal situations in their historical context. The students gather intimate knowledge of the genesis and evolution of the social, economic, cultural and political formations from the human past.
PO-3	Historical Research: Students learn historical research methods to generate knowledge about the various events and phenomena from the past.
PO-4	Conservation and Preservation: The course equips the student to understand the necessity of conservation and preservation of art, culture and heritage at the regional and global level.
PO-5	Application of Research methods: Students learn to select and apply appropriate methods, techniques, sources and modern ICT for generation and dissemination of historical knowledge.
PO-6	Historical understanding of society: Students learn to apply reasoning informed by the contextual knowledge of the human past to assess the current state of society, economy, environment, culture and other related areas
PO-7	Career Prospects: The programme will enable the students to have a detailed knowledge of the past, which is useful for various domains of public service. PO-9 Communication: The programme is designed to make the students excel in communicating the outcomes of their historical research in various media. PO-10 Life-long learning: The learners acquire the capability of critically evaluating the past for a better understanding of the human past.
PO-8	Individual and team work: The programme is designed to let the students build knowledge effectively as an individual and a team member.
PO-9	Communication: The programme is designed to make the students excel in communicating the outcomes of their historical research in various media.
PO-10	Life-long learning: The learners acquire the capability of critically evaluating the past for a better understanding of the human past.



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DEPARTMENT OF HISTORY
Programme Specific Outcomes (PSOs)

- 1) Students will have the ability to apply historical methods to critically evaluate the past and how historians and others have interpreted it.
- 2) Students will be able to acquire basic historical research skills, including the effective use of Libraries, Archives and databases.
- 3) Students will be able to organize and express their thoughts clearly and coherently both orally and in writing.
- 4) Students will be able to demonstrate a broad knowledge of historical events, historical eras and their significance.
- 5) Students will be able to recognize how different individuals, groups, societies, cultures and nations have negotiated and consumed their history.
- 6) Students will develop capabilities to gainfully use their skills in the field of historical and traditional knowledge systems, tourism, archives and museums.
- 7) Students will develop an approach of tolerance about the differences and commonalities in the heritage and traditions of their own society as well as that of the others.
- 8) Students can become historians, museum curators, archivists, etc. and they may pursue higher education and research in the field of history.
- 9) They can become independent entrepreneurs or become employed in the heritage industry.
10. Students who complete this course are equipped with a knowledge of multiple cultural specificities and as such have a great future in the emerging field of cultural intelligence.

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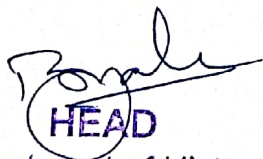
PG Programmes POs, PSOs & Cos of New syllabus
2023-24

Sr. No.	Course Code	Course Title	COs
01	HIS 506 MJ	Early India: Evolution of Ideas and Institutions	<p>CO- 1 Understand the gradual evolution of ideas and institutions in Early India.</p> <p>CO- 2 : Understand the changes and continuities in Ideas and Institutions in Early India</p> <p>CO- 3 : Know the sources for extrapolating knowledge about early Ideas and Institutions</p> <p>CO- 4 Know how ideas and institutions evolve and give shape to political history and geography.</p>
02	HIS 507 MJ	Welfare State Policies of Chhatrapati Shiv aji Maharaj	<p>CO- 1 Students will understand the concept of the Welfare State of Chhatrapati Shivaji Maharaj.</p> <p>CO- 2 : The student develops their own thought process about the policy of social harmony practised by Chhatrapati Shivaji Maharaj.</p> <p>CO- 3 : The student knows about the administrative necessity and the importance of the coronation of Chhatrapati Shivaji Maharaj.</p> <p>CO- 4 : The Student will understand the significance of the time-tested warfare techniques of Chhatrapati Shivaji Maharaj.</p> <p>CO- 5 : Students will gain a broader perspective of Chhatrapati Shivaji Maharaj's peoplecentric policies..</p>

	HIS 508 MJ	History and Its Theories	<p>CO- 1 : The student understands the importance of History as a discipline and its fundamental tenets, meaning definitions and scope. CO- 2 : Students develop an understanding of different theories of History.</p> <p>CO- 3 The students learn the interactions between various kinds of critical Historical thought.</p>
04	HIS 509 MJ	Art and Architecture in Early India	<p>CO- 1 :Students will understand the processes of behind the various developments in Art and Architecture.</p> <p>CO- 2 :They will understand cultural changes as reflected in art and Architecture</p> <p>CO- 3 :They will know the technology behind early Indian art and architecture</p> <p>CO- 4 :They will learn to appreciate historical monuments in their religious, regional and stylistic context.</p>
05	HIS 516 MJ	Early Maharashtra (up to 10th Century)	<p>CO- 1 :After completing this course the students will know about the early history of Maharashtra.</p> <p>CO- 2 :The students will be able to trace out the continuities and changes in terms of geographical and political conditions in early Maharashtra.</p> <p>CO- 3 :The students will understand the contributions made by various dynasties in shaping early Maharashtra.</p> <p>CO- 4 :The student will learn the cultural legacy that people of Maharashtra have inherited.</p>

	HIS 510 MJ	RM- Research Methodology in History	<p>CO- 1 :Grasp the fundamental concepts and characteristics of historical research.</p> <p>CO- 2 :Insights into how historical research interconnects with other disciplines</p> <p>CO- 3 :Knowledge of wide array of research methodologies used in historical investigations,</p> <p>CO- 4 :Proficiency in conducting historical research and communicating it.</p>
07	Semester II HIS 555 MJ	Mediaeval India: Evolution of Ideas and Institutions	<p>CO- 1 :Understanding socio-cultural bases of mediaeval Indian society</p> <p>CO- 2 :Understanding various aspects of economic life in mediaeval India.</p> <p>CO- 3 :Learning about the state formation in mediaeval India..</p> <p>CO- 4 :Students will know the main religious currents in Medieval India.</p>
08	Semester II HIS 556 MJ	Socio-Economic History of the Marathas)	<p>CO- 1 :Evaluate socio-economic history of the Marathas in an analytical way.</p> <p>CO- 2 :Critical analytical thinking about the social structure and functions in the Maratha period.</p> <p>CO- 3 :Know the relationship between religion, caste, customs, traditions and class in Maratha Society.</p> <p>CO- 4 :Know the aspects of economic life and be able to trace the determinants of change in social and economic life.</p>
09	Semester II HIS 557 MJ	Approaches to Indian History	<p>CO- 1 :The course intends to provide understanding of the ideological processes of history writing.</p> <p>CO- 2 :The students may think on their own about</p>

		popular history and develop their thought process. CO- 3 : Equip the students to offer the scientific view and disambiguate the misrepresentations of History in popular media.
10	Semester II HIS 558 MJ	Art and Architecture in Medieval India CO- 1 : understand the process of development in Mediaeval Art and Architecture CO- 2 : understand cultural changes according Development in Art and Architecture CO- 3 : Knowledge of Technology behind medieval Architecture CO- 4 : Understand the Monuments in their religious, Regional and Stylistic context
	Semester II HIS 566 MJ	Medieval Maharashtra CO- 1 : Understand the complex political history of Medieval Maharashtra, gaining insights into major dynastic changes, key events, and the significant contributions of rulers during the specified period. CO- 2 : Analyse the diverse cultural landscape of Medieval Maharashtra, evaluating the influence of different faiths on the region's cultural, social, and political evolution. CO- 3 : Interpret and evaluate the socio-economic structure of Medieval Maharashtra, comprehending the factors that moulded society, economy, and livelihoods during that era CO- 4 : Explore and appreciate the diverse cultural legacy of Medieval Maharashtra, examining its literature, art, architecture, and their profound impact on the region's identity and heritage.



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