

**Lonavala Education Trust's**

**Dr. B. N. Purandare Arts, Smt. S.G.Gupta Commerce & Smt. S.A. Mithaiwala  
Science College, Lonavala**

**DEPARTMENT OF COMMERCE**

**BACHELOR OF COMMERCE (B.COM)**

**GOALS:-**

1. The objective of the department is to shape the overall personality of the students by imparting quality education so that they can stand successfully in the commercial world.
2. The department strives hard to organize various activities for soft skills development of students and providing practical knowledge.
3. Encouragement and support is provided to each student for pursuing their career.

**PROGRAMME OUTCOMES:**

*After successfully completing this course, student will able to-*

**PO1:** Gain deeper understanding about the subjects in commerce.

**PO2:** Know different areas in commerce.

**PO3:** Understand the practical application of different concepts in commerce in real life.

**PO4:** Know the contemporary trends and methods in business world.

**PO5:** Learn the skills required for entering into and sustaining in commercial world.

**PO6:** Understand various laws rules and regulations in corporate sector.

**PO7:** Understanding the use of computerized systems in management of various activities in business.

**PO8:** Learn the ways of business correspondence and effective communication.

**PO9:** Enhance the analytical and critical thinking skills required for business.

**PO10:** Developed practical and logical thinking as well as research aptitude for application in real life.

**PROGRAMME SPECIFIC OUTCOMES:**

**PSO1:** Students will learn how to record, analyse and interpret the accounting system for taking crucial business decisions.

**PSO2:** The subjects like business mathematics and statistics, business economics, accounting, marketing, banking will help students to learn the actual functioning of the corporate sector and apply this knowledge in practice.

**PSO3:** Students will be able to understand the recent trends in all areas of business.

**PSO4:** Students will come to know the business communication skills and applied the same.

## **COURSE OUTCOMES:-**

### **F.Y.B.COM**

#### **Course: Financial Accounting:-**

**(Semester I -112 & Semester II - 122)**

*After successfully completing this course, student will able to-*

**CO1:** Understand the order of Payment of liabilities and practically solving problems of piecemeal distribution of cash.

**CO 2:** Understand the GST System in Accounting.

**CO 3:** Learn single Entry system of Accounting.

**CO 4:** Learn how to create a company, grouping, generation, Accounting Report with the help of Tally Accounting Software Package.

**CO 5:** Understand the significance of and application of Accounting Standards in India.

**CO 6:** Understand the procedure of Royalty Accounting and solving practical problems.

**CO 7:** Know the Hire Purchase System and Instalment System of Accounting and solve problems.

**CO 8:** Allocate of expenses on basis of Apportionment in Departmental Accounts.

#### **Course: Business Mathematics and Statistics**

**(Semester I -114 A & Semester II – 124 A)**

*After successfully completing this course, student will able to-*

**CO1:** Discuss the pre-requisites of business mathematics and basic methods & types of interest and their basic applications in practice.

**CO2:** Understand the types of shares and dividends and interpret them with example.

**CO3:** Learn sampling technique and apply simple statistical methods for analysis.

**CO4:** Solve the problems of measures of central tendency: Mean, Median and Mode.

**CO5:** Classify various types and methods of computing interest.

**CO6:** Know the relevance of measures of dispersion by using Range, Variance and Standard Deviation.

**CO7:** Classify various types and methods of calculating correlation and regression for the bivariate data.

**CO8:** Get adapted to the acquired knowledge and skills with practical problems in real life.

**Course: Marketing & Salesmanship**

**(Semester I -116 C & Semester II – 126 C)**

*After successfully completing this course, student will able to-*

**CO1:** Understand the concept of Market and Marketing.

**CO2:** It helps students to know about marketing environment and impact of marketing environment on market decision making.

**CO3:** Gain knowledge regarding Buyer behavior and factors affecting on buyer behavior and buying process.

**CO4:** Understand Concept of product, product life cycle, pricing decision their methods and factors affecting pricing decision.

**CO5:** Understand the logistic management, its importance in marketing.

**CO6:** Study term advertisement, its importance, advantages, types and role of advertisement in sales promotion so they can pursue their carrier in the field of Salesmanship as well as in Advertising world. It also helps to enhance student's creativity.

**CO7:** Know the importance of rural development for economic growth, its nature, and differentiate rural and urban market and challenges before rural market.

**CO8:** Learn about the concept of marketing used globally and which modern techniques are followed by various business organizations to capture more market.

**Course: Business Environment and Entrepreneurship**

**(Semester I -116 E & Semester II - 126 E)**

*After successfully completing this course, student will able to-*

**CO1:** Understand Business Environment and Entrepreneurship, study the various types of Business Environment.

**CO2:** Discuss environment issues like water, air, soil and noise pollution and their remedies.

**CO3:** Study the various problems of growth and their remedies.

**CO4:** Explain the qualities required for successful entrepreneurs.

**CO5:** Distinguish between entrepreneurial personality and non-entrepreneurial personality.

**CO6:** Explain the role of Entrepreneurship in Economic Development, Industrialization and as a Catalyst.

**CO7:** Discuss about institutional support and promoting entrepreneurship in Indian at national level, state level and district level.

**CO8:** Explain the life story of entrepreneurs like Narayan Murti, Cyrus Poona Walla and Milind Kambli, etc.

**Course: Banking & Finance**

**(Semester I -115 B & Semester II - 125 B)**

*After successfully completing this course, student will able to-*

**CO1:** Explain evolution of Banking in Asia, India, Europe and England.

**CO2:** Discuss about Primary function and Secondary function of bank.

**CO3:** Explain types of accounts and account holders.

**CO4:** Discuss about Traditional Method, electronic fund transfer, RTGS, NEFT, SWIFT.

**CO5:** Describe concept of Safety, Liquidity, and Profitability.

**CO6:** Explain types of Negotiable Instruments.

**CO7:** Define concept of Endorsement and its types.

**CO8:** Discuss about ATM, Credit card, Debit Card, Net Banking and Core Banking.

**S.Y.B.COM:**

**Course: Corporate Accounting**

**(Semester III -232 & Semester IV – 242)**

*After successfully completing this course, student will able to-*

**CO1:** The students will understand the concept of Accounting Standards 5, 6, 10, 14, 21 with Practical Examples. This topic will help students to get knowledge regarding the universal application of Accounting Standards which are used by the different organizations and their importance.

**CO2:** Preparation of Final Accounts- Forms and contents as per Provisions of Companies Act (As Amendment up to the beginning of the relevant academic year) As per Revised Schedule- VI helps students to know about how companies are preparing their final Accounts to ascertain actual profit earn by them.

**CO3:** By studying Modes of winding up and liquidation accounting process students can imagine how certain companies are comes to an end and how liquidation process is held.

**CO4:** By studying Summarize skills for computerized accounting like Inventory Accounting, Payroll Accounting and MIS Reports students will understand how companies prepare their different report systems and after analyzing reports how companies estimates their future business prospective.

**CO5:** Amalgamation and absorption accounting procedure helps students to understand how weaker section companies comes into end or merge in other big companies and what process are followed while deciding purchase considerations.

**CO6:** Illustrate external and internal reconstruction accounting procedure leads to give practical idea about companies' reconstruction procedures.

**CO7:** The study of holding and subsidiary company helps students to study difference between holding and subsidiary companies and which problems are face by the companies while rendering different services in the market.

**CO8:** In depth knowledge of Calculate value of shares using different methods like Net Assets Method, Yield Basis Method and Fair Value Method.

**Course: Business Communication**

**(Semester III -231 & Semester IV – 241)**

**After successfully completing this course, student will be able to –**

**CO1:** Understand the Meaning, Definition, Characteristics, Principles, Significance, steps in the process of Communication, Barriers to Communication and their remedies.

**CO2:** Know various methods and channels of communication.

**CO3:** Identify and implement the soft-skills and understand the components of soft-skills such as Grooming Manners and Etiquettes, Effective Speaking, Interview Skills, Listening, Group Discussion and Oral Presentation.

**CO4:** Elaborate the concept and format of business letter, its meaning, and significance, qualities/Essentials of a good business letter, Physical Appearance, and Layout of Business Letter.

**CO5:** Develop the writing skill of business letters under various circumstances in business that include Enquiry letter, order letter, sales letter, etc.

**CO6:** Classify the types of Job Application Letters and their Drafting.

**CO7:** Learn internal office correspondence that include Office Memo, Office Orders, Office Circulars, and Press Releases.

**CO8:** Understand the contemporary developments in communication technology that is applicable in business like Gmail, Whatsapp, Twitter, Facebook, LinkedIn, YouTube, Mobile Communication as well as Video Conferencing.

**Course: Elements of Company Law**

**(Semester III -235 & Semester IV – 245)**

**After successfully completing this course, student will able to-**

**CO1:** The Background and Salient Features of the Act of 2013, & Overview of the changes introduced by the Act of 2013 & Types of Companies based on various criteria.

**CO2:** The four stages of company formation and incorporation.

**CO3:** Documents required for Incorporation and Raising of Capital.

**CO4:** The various modes of raising of capital of company including private placement, public issue, rights issue, bonus shares and the procedure for forfeiture, Re- issue of forfeiture, surrender, transfer, transmission and Nomination of shares.

**CO5:** Basic of MCA Portal, E-filing, DIN-Directors Identification Number and Management of Company such as Legal position of directors, Types of Directors.

**CO6:** Study various Key Managerial Personnel such as Managing Director, Whole Time Director, Manager, Company Secretary and Corporate Social Responsibility.

**CO7:** Various Formalities of valid meeting such as agenda, notice, quorum, proxies, voting, resolutions, minutes, filing of resolutions, Virtual Meeting.

**CO8:** Study the procedure of revival and rehabilitation of sick companies, Compromises, Arrangements and Amalgamation and winding of company.

### **Course 2143: Business Management**

**(Semester III -234 & Semester IV – 244)**

*After successfully completing this course, student will able to-*

**CO1:** Understand the meaning, definition, characteristics, Principles, significance, challenges before management and a brief review of management thoughts of F.W. Taylor & Henry Fayol.

**CO2:** Know the Meaning, Definition, Nature, Importance, Forms, Types, Steps, and limitations of Planning and Decision Making.

**CO3:** Describe Meaning, Process of organization and Principles, Departmentalization of Organization and Organization Structure, Staffing and Recruitment.

**CO4:** Discuss Meaning, components, Principles, Techniques & importance of Direction and communication and Process as well as Barriers of Communication.

**CO5:** Explain the different theories of motivation such as Maslow's Need Hierarchy Theory, Herzberg's Two Factors Theory, and Douglas McGregor's Theory.

**CO6:** Study and analyse the leadership styles for eminent leaders such as Mahatma Gandhi, Dr. Babasaheb Ambedkar and Pandit Jawaharlal Nehru.

**CO7:** Elaborate the concept, need, techniques, difficulties, steps and techniques of coordination and control.

**CO8:** Know and apply the new trends in business management like Business Ethics, Corporate Social Responsibility, Corporate Governance, Disaster Management, and Management of Change.

**Course: Marketing Management Special Paper I**

**(Semester III -236 H & Semester IV – 246 H)**

*After successfully completing this course, student will able to-*

**CO1:** Understand the Meaning, Nature and Scope of Marketing Management, Components of Marketing Management, Marketing Management Philosophy, Marketing Characteristics in Indian context, Marketing Management process and Marketing Planning.

**CO2:** Know the current Marketing Environment in India with reference to Liberalization, Globalization and Privatization, know the elements of marketing environment, analyse the change in marketing practices, and solve global marketing case studies.

**CO3:** Study the Meaning, Definition and objectives of Marketing Communication Mix, study the New Age Advertising Media and Different forms of appeals for marketing communication.

**CO4:** Understand the meaning of services marketing, unique features of Services, and classification of services, and the tasks involved in services marketing.

**CO5:** Learn the Meaning, Definition and utility of e-marketing, its Advantages, limitations and challenges before e – marketing; Online and Offline marketing, Present status of e-marketing in India, Scope for e -marketing in Indian scenario and various online marketing strategies

**CO6:** Know the significance and relevance of Rural Marketing, features of rural market, problems and challenges before rural marketing, marketing strategies for rural marketing, and present status of rural marketing in India.

**CO7:-**Discuss the Meaning, Definition and Importance of Green Marketing, Role of Marketing Manager in Green Marketing, Marketing mix of green marketing, and principles for success of green products.

**CO8:** Elaborate the meaning of Consumer Behaviour, Buying decision process, explain the factors influencing consumer behaviour classify various buying motives & stages involved in buying decision.

**Course: Banking & Finance Special Paper I**

**(Semester III -236 B & Semester IV – 246 B)**

*After successfully completing this course, student will able to-*

**CO1:** Describe structure of Banking in India.

**CO2:** Define concept of Central Banking.

**CO3:** Describe Private sector Banking and types of Private Sector Banks.

**CO4:** Explain about Public Sector Bank and classification of public Sector Banks.

**CO5:** Explain the structure of Co-operative Banking in India.

**CO6:** Discuss the Functions and Roles of Development Banking.

**CO7:** Illustrate various concepts of Banking.

**CO8:** Explain role of various Committees on Banking Sector Reforms.

**T.Y.B.COM:**

**Course 301: Business Regulatory Framework (Mercantile Law):**

*After successfully completing this course, student will able to-*

**CO1:** Explain the meaning of Contract, Offer & Acceptance, Consideration, Consent, Free Consent, and Discharge of Contract.

**CO2:** Understand the terms Partnership, Limited Liability Partnership, Designated partner, the rights & duties of partners under Partnership Act,1932, know the process and legal requirements for incorporation of LLP, liabilities of LLP & partners, their relations, Financial Disclosure, Conversion, Winding up and Dissolution of LLP.

**CO3:** Understand the Sale of Goods Act, 1932, define the terms of Sale, Agreement to Sale, rights of an unpaid seller, describe implied conditions and warranties, and explain legal provision regarding transfer by non-owners.

**CO4:** Know the meaning of E-Contracts, Digital Signature, Describe formation & recognition of E-Contracts, discuss the relevance of Digital Signature and Digital Certificate.

**CO5:** Explain the terms like Consumer, Complaint, Services, unfair trade practices, restrictive trade practices, discuss consumer protection councils, redressal agencies, describe the procedure to file complaint and resolve the complaint, relief available to customers.

**CO6:** Elaborate the objectives, organs, programs, and activities of WIPO, define the terms Patent, Copyright, Trademarks, Design, Geographical Indication, Trade secrets and Traditional Knowledge.



**CO7:** Explain the terms Negotiable Instruments, Promissory Note, bill of exchange, Cheque, discuss the meaning of Holder, Holder in due course, and privileges of Holder in due course, kinds of endorsement.

**CO8:** Understand Arbitration, essentials of arbitration agreement, describe the rights and duties of arbitrator and explain the meaning of Conciliation.

### **Course 302: Advanced Accounting**

*After successfully completing this course, student will able to-*

**CO1:** To know about Impart the knowledge of Indian accounting standards and IFRS like AS- 3, AS-7, AS-12, AS-15 AS-17 to AS-25.

**CO2:** Banking Company, Legal Provisions, Non - Performing Assets (NPA), Reserve Fund, Acceptance, Endorsements & Other Obligations and Preparation of Final Accounts in vertical form as per Banking Regulation Act 1949. By studying this topic students will come to understand about functioning and working of Banking . It also leads to know about guidelines apply by various banks and financial institutions for its working.

**CO3:** While studying this topic student will able to Calculate amount of insurance claims using various methods like Claim for Loss of Stock, claim for Loss of Profit and Claim for Loss of Fixed Assets.

**CO4:** Co-operative society and prepare financial reports as per Maharashtra State Co-operative Societies Act helps students to know about how co-operative works and prepare their financial statements.

**CO5:** Topic of indirect tax like VAT & VAT Report, Service Tax, Central Value Added Tax and Income Tax - Tax Deducted at Source (TDS) and calculate tax liability using computer improve students' knowledge regarding various kinds of duties and taxes.

**CO6:** The methods of maintaining accounts of different types of branches and Goods supplied at Cost & Invoice Price helps students to know about pricing methods used by business organization.

**CO7:** Ascertain profit or loss by using various methods in single entry system like Preparation of Cash Book, Total Debtor Account, Total Creditor Account, and Final Accounts it helps students to study various accounts heads and procedures used while entering transactions in different books.

**CO8:** Analysis and evaluate the financial performance using various ratios like Gross Profit Ratio, Net Profit Ratio, Operating Ratio, Stock Turnover Ratio, Debtor Turnover Ratio, Current Ratio, Liquid Ratio, Debt to Equity Ratio.

## **Course 304: Auditing & Taxation**

*After successfully completing this course, student will able to-*

**CO1:** The students will understand various concepts of audit like Types of errors and frauds, Various Classes of Audit, Audit Programme, Audit Note Book, Working Papers, Internal Control-Internal Check-Internal Audit it helps them to know process followed by Auditors while conducting Audit.

**CO2:** By studying verification and valuation of assets and liabilities and Auditing and Assurance Standards like AAS- 1,2,3,4,5,28,29 students will aware of policies and guidelines use by Auditor for verification and valuation of different aspect of business organizations.

**CO3:** The Topic related Recognize Company Auditor like his Qualification, Disqualifications, Appointment, Removal, Rights, Duties and liabilities helps Students to know about procedures follow by business organization related to Appointment of Auditor.

**CO4:** Tax audit with computerized system and Scope of Auditor's Role under Income Tax Act helps students to know how Audit is conducted in computerized systems .It lead to give students idea about policies follow by Auditor while conducting Audit in computerized system.

**CO5:** Various concepts under Income Tax act 1961like Income, Person, Assesse, Assessment year, Pervious year, Agricultural Income, Exempted Income, Residential Status of an Assesse, PAN, TAN lead student to get information about how various taxes are impose by the government on individuals and firms.

**CO6:** Taxable Income under Head of Income like Income from Salary, Income from House Property, Profits and Gains of Business and Professions, Capital Gains and Income from other sources helps to know how incomes of individuals are treated under different heads.

**CO7:** Calculate total taxable Income and tax liability of an individual under chapter VIA i.e. deductions u/s-80C to 80 U. This lead to understand different Sections of deductions and exemptions on Tax payments.

**CO8:** The Procedure of individual income tax filing and Income Tax Return Filing and Structure, Functions and powers of various Income Tax Authorities. In this Topic the students will get whole idea about filling of income tax returns.

## **Course 305-H: Marketing Management II**

*After successfully completing this course, student will able to-*

**CO1:** Understand the Meaning and importance of Marketing Planning, Types & Elements of Marketing Plan, Process of Preparing a Marketing Plan, Meaning of Sales Forecast, Sales Budgets and Sales Quota, Sales Forecasting Methods Forecasting Techniques.

**CO2:** Know the Meaning and Objectives of Social Marketing, Social Responsibility of Marketing Manager, Impact of Marketing on Society and other Business, Social Criticism of Marketing, and Recent Trends in Social Marketing.

**CO3:** Study the meaning of Marketing Organisation, Changing role of Marketing Organisation, Factors affecting on Marketing Organisation, Essentials of an effective Marketing Organisation and Types of Marketing Organisation.

**CO4:** Understand the concept of Strategy, Characteristics of Strategy, Meaning of Marketing Strategy, Competitive Marketing Strategies, and Competitive Strategies in Global Environment, meaning, process and advantages of Benchmarking.

**CO5:** Discuss the Meaning of Agriculture Marketing, Types of Agro-Products, Features of Agro-Products, Types of Markets, Defects of Agri- marketing and remedies, Marketing Intelligence System and Agriculture Marketing, Distinction between manufactured goods marketing and Agriculture goods marketing.

**CO6:** Explain the Meaning, nature, need and importance of International Marketing, International Marketing vs. Domestic Marketing, Problems and Challenges in International Marketing, Mode of entry in International Market and Scope of International Marketing.

**CO7:** Discuss the Importance of Marketing Regulations in Marketing, study the Relevance and importance of various Acts in the Context of Marketing Management: Consumer Protection Act, 1986, Trade Mark Act, 1999, Competition Act, 2002, Indian Patent (amendment) Act, 2005, Bureau of Indian Standards Act.

**CO8:** Understand the Meaning of Globalization, Features of Globalization, discuss Marketing in 21st Century, Impact of Globalization on marketing, Benefits and limitations of Globalization.

### **Course 306 H: Marketing Management III**

*After successfully completing this course, student will able to-*

**CO1:** Understand the Fundamentals of Advertising, Nature, Scope and Functions of Advertising, Role of Advertising in Modern Business, Objectives, Types, Benefits and Limitations of Advertising, Ethics in Advertising. Know the various Advertising Media, Factors Affecting Selection of Media, Media Mix, Geographical selectivity, Media Scheduling & E-Advertising.

**CO2:** Know and understand the significance of various Appeals and Approaches in Advertisement, Relation between Advertising Appeal and Buying Motive, types of buying motives.

**CO3:** Discuss Brand management, meaning of Branding, Brand identity, Brand Extension, Identity Sources – symbols, logos, trademarks.

**CO4:** Know the meaning of Industrial Marketing, Types of Industrial Goods, Difference between Industrial and Consumer Marketing, Purchasing practices of Industrial customers.

**CO5:** Understand Marketing Research, its Meaning, nature and scope, Marketing Research process, Types of Research, Types of Data, and Types of Questionnaire.

**CO6:** Explain Distribution Management, Warehousing and Transport decisions, meaning and nature of Logistics, Logistics Function, need & functions of Warehousing, modes of Transportation and factors affecting transportation costs.

**CO7:** Understand the Meaning, nature, importance of Target Marketing, Market Targeting, and Selection of Target Segment, discuss various Targeting Strategies.

**CO8:** Understand the Meaning & objectives of Marketing Control, Benefits of Marketing Control, and essentials of an effective Marketing Control System, Techniques of Marketing Control, Process of Marketing Control, Meaning, characteristics, objectives, and process of Marketing Audit.

**Course 305 B: Banking and Finance II (Financial Markets and Institutions in India)**

*After successfully completing this course, student will able to-*

**CO1:** Discuss about Financial Institutions and Financial Markets.

**CO2:** Explain Money Market.

**CO3:** Discuss the meaning and scope of Indian Capital Market.

**CO4:** Describe about Foreign Exchange Market and it's Rate.

**CO5:** Explain about Non-Banking Financial Institutions.

**CO6:** Explain IFCI, SIDBI, Mudra and Bharatiya Mahila Bank.

**CO7:** Discuss about UTI, LIC, Provident Funds and Pension Funds.

**CO8:** Explain about SEBI.

**Course 306 B: Banking and Finance III (Banking Law and Practices in India)**

*After successfully completing this course, student will able to-*

**CO1:** Explain about Banking Regulation Act.

**CO2:** Describe the concept of Negotiable Instruments.

**CO3:** Explain Paying Banker.

**CO4:** Discuss about Collecting Bankers.

**CO5:** Define concept of Banker and Customer.

**CO6:** Explain Precaution to be taken by Bankers While Advancing Against Securities.

**CO7:** Discuss about Methods of Creating Charge.

**CO8:** Explain the steps in Project Appraisal.

## **MASTER OF COMMERCE (M.COM)**

### **PROGRAMME OUTCOMES:**

*After successfully completing this course, student will able to-*

**PO1:** Understand the advanced areas in commerce.

**PO2:** Understand the strategic approaches in business and deal with the same.

**PO3:** Understand the whole financial system and the role of financial services and its functioning.

**PO4:** Know the significance of research in business time learn the methodologies of doing scientific and systematic research.

**PO5:** Get acquainted with the skills required for business administration and business management.

**PO6:** Develop ability for critical thinking and taking pivotal decisions for business.

**PO7:** Learn the practical application of the knowledge gain throughout the course.

**PO8:** Gain insights in the strategic planning and its implementation.

**PO9:** Analyse and evaluate new research findings, ideas, methodologies and technicalities of the new areas in commerce.

**PO10:** Work coherently in the group.

**PO11:** Build a strong foundation of knowledge in commerce.

### **PROGRAMME SPECIFIC OUTCOMES:**

1. Students will be able to understand the Management Accounting in actual practice.
2. Students will be able to know the significance of ethics in business and various approaches to business ethics.
3. Students will gain insights into the key areas like human resource management, organisational behaviour and industrial economics.
4. Students will know the importance and management of business finance.

## **M.COM PART I:-**

### **M.COM SEMESTER I:**

#### **Course 101: Management Accounting**

*After successfully completing this course, student will be able to –*

- CO1:** The concepts of Management Accounting in organizational business environment.
- CO2:** Demonstrate various tools of financial statements of organizational financial performance.
- CO3:** Learn Methods of financial statement analysis of an organization.
- CO4:** Assess different types of ratios of organizational financial performance.
- CO5:** Estimate the cash flow of liquidity capacity of firm.
- CO6:** Assess minimum working capital required for running organization.
- CO7:** Describe concept and types of responsibility center accounting for management Controlling.
- CO8:** Calculate sources and applications of funds of organization.

#### **Course 102: Strategic Management**

*After successfully completing this course, student will be able to –*

- CO1:** Describe different approaches of strategic decision making in corporate environment.
- CO2:** Describe various strategies of business and factors affecting on it.
- CO3:** Analyze techniques of organizational strengths, weakness, opportunities and threats.
- CO4:** Analyze effectiveness and its utilization in corporate strategic planning.
- CO5:** Illustrate the different alternatives of corporate strategies.
- CO6:** Develop allocation of resources for defining corporate strategy of business.
- CO7:** Describe the different functional strategies for organizational effectiveness.
- CO8:** Evaluating the Strategic Performance with actual performance

#### **Course 113: Production and Operations Management (SP-1)**

*After successfully completing this course, student will be able to –*

- CO1:** Explain recent trends in production and plant layout.
- CO2:** Discuss about Supply Chain Management.
- CO3:** Explain Production Planning, Control, design and Development.
- CO4:** Describe Total Quality Management and Emerging issues in Production and Operation Management.

### **Course 114: Financial Management (SP-II)**

*After successfully completing this course, student will be able to –*

- CO1:** Identify financial system in India & recent changes.
- CO2:** Illustrate role of RBI & SEBI in Indian financial system.
- CO3:** Discuss capital budgeting techniques for financial decision making.
- CO4:** Illustrate capital budgeting methods of investment decisions.
- CO5:** Interpret financial statement & its utility of business firm.
- CO6:** Describe limitations of financial statements in financial analysis.
- CO7:** Gain depth of the concept of working capital management.
- CO8:** Understand concept of inventory management & receivable management.

### **M.COM SEMESTER II:**

#### **Course 201: Financial Analysis & Control**

*After successfully completing this course, student will be able to –*

- CO1:** Describe concepts of capital budgeting.
- CO2:** Compute different tools and techniques to identify capital budgeting.
- CO3:** Explain Tabulated measurement of cost of capital.
- CO4:** Interpret expression view of marginal costing.
- CO5:** Evaluate practical problems on marginal costing which correlates to BEP and P/V analysis.
- CO6:** Illustrate short run managerial decision analysis.
- CO7:** Distinguish concept of budget and budgetary control.
- CO8:** Comparative study of different variance analysis

#### **Course 202: Industrial Economics**

*After successfully completing this course, student will be able to –*

- CO1:** Explain concepts of Industrial Economics.
- CO2:** Describe theories of industrial location and Industrial Imbalance.
- CO3:** Illustrate Industrial Productivity and Efficiency.
- CO4:** Describe Sources of Industrial Finance.



**Course 213: Business Ethics & Professional Values (SP-III)**

*After successfully completing this course, student will be able to –*

- CO1:** Understand the concept of business ethics, profession and values.
- CO2:** Classify the factors affecting social ethics.
- CO3:** Elaborate Indian Ethical Practices in marketing, advertising and Employment.
- CO4:** Demonstrate unethical practices in Gender discrimination and accounting disclosures.
- CO5:** Discuss the concept of corporate governance in business.
- CO6:** Analyse the concept of Corporate Social Responsibility in business ethics.
- CO7:** Summarize Indian approaches to business ethics.
- CO8:** Know new values in Indian industries after economic reform 1991.

**Course 214: Knowledge Management (SP-IV)**

*After successfully completing this course, student will be able to –*

- CO1:** Understand the concept of knowledge management.
- CO2:** Analyse evolution of knowledge management.
- CO3:** Elaborate the drives of organizational learning.
- CO4:** Discuss organizational learning frame work.
- CO5:** Demonstrate knowledge management tools.
- CO6:** Describe cultural change management.
- CO7:** Study organizational culture for organization development.
- CO8:** Understand measuring of organizational, cultural and climatic norms.

**M.COM PART II:-**

**M.COM SEMESTER III:**

**Course 301: Business Finance**

*After successfully completing this course, student will able to-*

- CO1:** Explain the role and Importance of Corporate finance and Calculating of Value of Money
- CO2:** Discuss theories of Capitalization
- CO3:** Explain the sources of finance for growing Business.
- CO4:** Explain about Short Term Finance and Working Capital.

**Course 302: Research Methodology for Business:**

*After successfully completing this course, student will be able to –*

**CO1:** Gain deeper understanding about the various concepts of Research in business.

**CO2:** Know the different types of research and the steps in business research process.

**CO3:** Make the formulation of research problem.

**CO4:** Understand various sampling methods in business research.

**CO5:** Distinguish primary and secondary methods of data collection for research.

**CO6:** Describe various techniques of data analysis and processing in research.

**CO7:** Know the writing skill for research project report in business.

**CO8:** Describe various ways of citation & bibliography for writing of report in business.

**Course 313: Human Resource Management (SP-V)**

*After successfully completing this course, student will able to-*

**CO1:** Explain concept of HRM and HR environment in organisation.

**CO2:** Discuss about Recruitment, Selection, and Kind of Retirement.

**CO3:** Explain concept of performance appraisal and merit rating in Human Resource Management.

**CO4:** Understand Recent Trends in HRM after Covid-19.

**Course 314: Organizational Behaviour (SP-VI)**

*After successfully completing this course, student will able to-*

**CO1:** Define concepts of Organisational Behaviour.

**CO2:** Identify concept of Horizontal Network and Virtual Design of Organisation.

**CO3:** Classify theories of Motivation and Define concept of Emotional Intelligence in Workplaces.

**CO4:** Differentiate various types concept of Stress Conflict and Groups.

## **M.COM SEMESTER IV:**

### **Course 401: Capital Market and Financial Services**

*After successfully completing this course, student will be able to –*

- CO1:** Define capital market instruments.
- CO2:** Understand different instruments of financial market.
- CO3:** Understand stock market in detail.
- CO4:** Know the functions of primary and secondary market.
- CO5:** Study different types of mutual funds and merchant banking.
- CO6:** Analyse the concept of portfolio management and credit rating.
- CO7:** Know the role of SEBI in financial market.
- CO8:** Understand new trends in Securities and Exchange Board of India.

### **Course 402: Industrial Economic Environment**

*After successfully completing this course, student will able to-*

- CO1:** Explain concept of Industrial Finance.
- CO2:** Discuss about new Industrial Policy 1991
- CO3:** Explain effects of New Industrial Policy on Industry.
- CO4:** Discuss Progress and Problems of Steel, Textile and Sugar Industries.

### **Course 413: Recent Advances in Business Administration (SP-VII)**

*After successfully completing this course, student will able to-*

- CO1:** Explain concept and principals of Change Management.
- CO2:** Discuss about Customer Centric Approach.
- CO3:** Understand Global Management System and Cross Cultural Management issues.
- CO4:** Explain concept of Tern around Management and step of Innovation Management.

**402: Project Work (SP-VIII)**

*After successfully completing this course, student will be able to –*

**CO1:** Understand and implement concepts of Research in business.

**CO2:** Prepare a research proposal or synopsis for project report.

**CO3:** Learn formulation of a research problem.

**CO4:** Develop research objectives and hypothesis.

**CO5:** Formulate questionnaire for collecting primary data and define sample size by using different sampling methods.

**CO6:** Understanding the application of secondary data in research.

**CO7:** Learn to analyse and interpret the data collected.

**CO7:** Learn verification of objectives, hypothesis testing and drawing conclusions from research work.

**CO8:** Learn how to write a research report in a systematic and scientific manner.

**CO9:** Understand and use modes of citation & bibliography.

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Lonavala Education Trust's Dr. B.N. Purandare Arts, Smt. S.G. Gupta Commerce and  
Smt. Shardaben Amrutlal Mithaiwala Science College, Lonavala-410403.

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## **DEPARTMENT OF CHEMISTRY**

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### **Three Year B.Sc. Chemistry undergraduate programmes**

B.Sc. Chemistry is three year Degree Programmes i.e. F.Y.B.Sc, S.Y.B.Sc & T.Y.B.Sc Chemistry. The systematic and planned curricula from first year to the third year shall motivate and encourage the students for pursuing higher studies in various disciplines of Chemistry such as Physical, Inorganic, Organic, Analytical, Industrial, Agricultural, Dairy, Environmental and Biochemistry. This curriculum also enable student to shoulder the responsibility as Chemist in chemical industry through a well designed Laboratory or practical course.

### **Programme Outcomes (POs):-**

1. To achieve the basic skills required for understanding the fundamental concepts and authenticating the basic laws and principles of Science domain.
2. To develop scientific, analytical and problem solving skills and attitude.
3. To develop discipline specific interest of students by understanding the nature and role of sciences in practical world.
4. To understand the applications of sciences in medicines, food, agriculture, industry, etc. and in everyday life.
5. To build the background for applicative and advanced studies of natural sciences such as Physics, Chemistry, Biology, Geology, etc
6. To become entrepreneur by starting the small scale business related to water analysis, soil analysis, Sericulture, etc.
7. To apply for discipline specific competitive exams conducted by MPSc, UPSc and other service commissions.

### **Programme Specific Outcomes (PSOs):-**

1. To make students aware and assure that Chemistry is the central science and its role in bridging the gap of all other natural sciences.
2. To make aware students the role of Chemistry in everyday life
3. To develop scientific, analytical and problem solving skills.

4. To pursue Post Graduate programme in various branches of Chemistry such as Organic, Inorganic, Physical, Analytical, Industrial, Medicinal, etc and also other related PG programmes.
5. To offers massive job opportunities at all level of chemical, pharmaceutical, food products and life oriented material industries and also in academics as Laboratory Assistant.
6. To provide specific placements in Chemical Laboratory, Chemical Industries, R & D laboratory & almost all other allied Division as Chemist or Assistant Chemist.
7. To be comfortable with the up-and-coming areas of Chemistry and their applications in various fields of Chemical sciences.
8. To communicate the students importance of Chemistry in future studies such as Research, Industry oriented and even in academics.
9. To improve skills in the proper handling of laboratory glassware's, equipment, apparatus and chemicals.
10. To impart the different processes used in industries and their applications.

### **Course Outcomes (COs):-**

#### **F.Y.B.Sc Chemistry**

**(To be implemented from Academic Year 2013-2014 to 2018-2019)**

#### **C-1: Physical and Inorganic Chemistry (Annual Pattern)**

After completing the course students must understand the States of Matter, Surface Chemistry, Chemical Mathematics, Mole Concept, Stoichiometric and Numerical, Oxidation- reduction, Atomic Structure, Chemical Thermodynamics, Chemical Bonding.

#### **C-2: Organic and Inorganic Chemistry (Annual Pattern)**

Students will learn Chemical Bonding in Organic Molecules, Chemistry of Hydrocarbons, Chemistry of s-block elements, Chemistry of Functional Groups, Stereochemistry and Chemistry of p-block elements.

#### **C-3: Practical/Lab Course (Annual Pattern)**

1. The design of practical course is in relevance to the theory courses which helps to improve the Understanding of the basic concepts.
2. It will be helpful help in development of practical skills of the students.
3. It is to be expected that use of micro scale techniques as per requirements and needs.

**F.Y.B.Sc Chemistry**  
**Choice Based Credit System [CBCS] Syllabus**  
**(To be implemented from Academic Year 2019-2020)**

**CH- 101: Physical Chemistry (Sem-I)**

After completing the course work learner will be acquired with knowledge of chemical energetics, Chemical equilibrium and ionic equilibria.

**CH- 102: Organic Chemistry (Sem-I)**

Will learn Fundamentals of organic chemistry, stereochemistry (Conformations, configurations and nomenclatures) and functional group approach for aliphatic hydrocarbons

**CH- 201: Inorganic Chemistry (Sem-II)**

Students will learn quantum mechanical approach to atomic structure, Periodicity of elements, various theories for chemical bonding and calculations used in analytical chemistry

**CH-202: Organic Chemistry (Sem-II)**

Students will learn Functional group approach for the various reactions (preparations & reactions) in context to their structure

**CH 103 + 203: Lab Course (Sem-I +II)**

1. The practical course is in relevance to the theory courses to improve the Understanding of the concepts.
2. It would help in development of practical skills of the students.
3. Use of micro scale techniques wherever required.

**S.Y.B.Sc Chemistry**  
**(To be implemented from Academic Year 2009-2010 to 2013-2014)**

### **CH-211 Physical Chemistry (Sem-I)**

Students will learn Thermodynamics, Free Energy and Equilibrium, Colligative Properties of Solutions, Solutions of liquids in liquids and Nernst distribution law.

### **CH-212 Organic Chemistry (Sem-I)**

1. To learn Stereoisomerism: (Three dimensional aspects of  $sp^3$  hybridized carbon)
2. To understand the Chemistry of Aldehyde and ketones
3. To learn Chemistry of Natural and Unnatural carboxylic acids and their derivatives.
4. To study Aliphatic and Aromatic amines
5. To prepare Functional group Inter conversion
6. To study Chemistry of Homocyclic and Heterocyclic compounds
7. To learn Introduction to Biomolecules

### **CH-221 Inorganic Chemistry (Sem-II)**

1. To study principles and process of metallurgy.
2. To study metallurgy of Aluminium.
3. To study metallurgy of Iron.
4. To know the chemistry of p-block elements
5. To know the chemistry of p-block elements
6. To learn the chemical toxicology
7. To study different solvents and the different theories of acids and bases.
8. To know the corrosion and passivity.

### **CH-222 Analytical Chemistry (Sem-II)**

Student should know Introduction to Analytical chemistry, Inorganic Qualitative Analysis, Analysis of organic compounds, Errors in Quantitative Analysis Volumetric Analysis: a. Acid- base b. Oxidation-Reduction c. Complexometric d. Indrometry, Iodimetry e. Argentimetry, Solvent Extraction.

### **CH-223 Practical/Lab Course (Sem-I+II)**

1. To equip students to correlate theoretical and experimental knowledge.



2. To learn Organic qualitative analysis of Binary Mixtures without ether separation.
3. Acquire skill of crystallisation, record correct m. p. / b. p.
4. To learn the Analytical estimations.

## **S.Y.B.Sc Chemistry**

**(To be implemented from Academic Year 2014-2015 to 2019-20)**

### **CH-211 Physical & Analytical Chemistry (SEM-I)**

1. To introduce concept of kinetics at undergraduate level.
2. To impart basic knowledge of photochemistry and its applications
3. To understand Nernst Distribution Law and its applications
4. To introduce basics of analytical chemistry
5. To understand errors and its interpretation
6. To study the theory underlying Inorganic Qualitative analysis
7. To disseminate knowledge of qualitative & quantitative analysis of organic compounds.

### **CH-212 Organic & Inorganic Chemistry (SEM-I)**

1. Students should be able to understand the Stereoisomerism in terms of following points
2. To know the basic concepts of organic reaction mechanism
3. To study principles and process of metallurgy
4. To study metallurgy of Aluminium.
5. To study metallurgy of Iron.
6. To understand Corrosion and Passivity.

### **CH-221 Physical & Analytical Chemistry (SEM-II)**

1. To conceptualize phenomenon of free energy and equilibria.
2. To distinguish behavior of liquid phase solutions.
3. To provide basic knowledge essential for volumetric analysis.
4. To learn and equip with non instrumental volumetric techniques.

### **CH-222 Organic & Inorganic Chemistry (SEM-II)**

1. Students should understand the concepts of reagents in organic synthesis.
2. To learn the Chemistry of heterocyclic compounds with one hetero atom.
3. To understand the introductory part of Biomolecules such as carbohydrates, proteins, vitamins, hormones, amino acids, etc.
4. To know the chemistry of d-block elements.
5. To study the metal carbonyl complexes and their uses in the homogenous catalysis.

6. To study different solvents and to know the different theories of acids and bases.
7. To know chemical toxicology and toxic chemical in the environment.

### **CH-223 Practical/Laboratory Course (SEM-I+II)**

1. To equip students to correlate theoretical and experimental knowledge.
2. To learn Organic qualitative analysis of Binary Mixtures without ether separation.
3. To learn the Analytical estimations.  
To verify theoretical principles experimentally.

## **S.Y.B.Sc Chemistry**

**(To be implemented from Academic Year 2020-21\_CBSC Pattern)**

### **Course Outcome:**

1. To understand basic concept/principles of Physical, Analytical, Organic and Inorganic chemistry.
2. To impart practical skills and learn basics behind experiments.
3. To prepare background for advanced and applied studies in chemistry.

# **T.Y.B.Sc Chemistry**

**(To be implemented from Academic Year 2015-2016)**

## **CH-331: Physical Chemistry (SEM-I)**

After studying this course, student is expected

1. To know Chemical Kinetics
2. To learn Electrolytic Conductance
3. To know Investigation of Molecular Structure
4. To know Phase Rule

## **CH-332: Inorganic Chemistry (SEM-I)**

1. Student should know Molecular Orbital Theory
2. Know the theories of covalent bond formation
3. Know the assumptions and limitations of VBT
4. Understand the need of concept of MOT
5. Know LCAO principal and its approximation
6. Understand and show the formation of bonding and antibonding MO's
7. Draw the MO energy level diagrams for homonuclear diatomic molecules
8. Draw the shapes of molecular orbitals.
9. Give the calculations of bond order, energy and explanation on stability of the above molecule
10. Introductory Part to Coordination Chemistry
11. Isomerism In Coordination Complexes
12. Sidgwick Theory
13. Pauling's Valence Bond Theory
14. Crystal Field Theory
15. Molecular Orbital Theory Of Coordination Complex

## **CH-333: Organic Chemistry (SEM-I)**

After completing this syllabus student should know

1. Definition and types of aromatic substitution reactions
2. Classification of directing groups
3. What is an arenium ion and Ipso substitution?
4. The evidences, reactivity and mechanism of these reactions
5. Whether a given reaction follows addition-Elimination or Elimination-addition mechanism?
6. To predict product/s or supply the reagent/s for these reactions

### **CH-334: Analytical Chemistry (SEM-I)**

Student learn

1. Gravimetric Analysis
2. Thermal methods of analysis
3. Spectrophotometry
4. Polarography
5. Atomic Absorption Spectroscopy
6. Flame Emission Spectroscopy

### **CH-335: Industrial Chemistry (SEM-I)**

1. Modern Approach to Chemical Industry 08
2. Agrochemicals 08
3. Manufacture of Basic Chemicals 08
4. Petrochemicals and eco-friendly fuels 08
5. Food and Starch Industry 08
6. Cement and Glass industry

### **CH-336-E Agriculture Chemistry (SEM-I)**

After studying this course, student is expected to

1. Know the role of agriculture chemistry and its potential
2. Understand basic concept of soil, properties of soil & its classification on the basis of pH
3. Know the different plant nutrients, their functions and deficiency symptoms
4. Understand importance of manures as compared to chemical fertilizers'
5. Understand the importance of green manuring
6. Have the knowledge of the use of proper the plants
7. Know various techniques to protect the plants
8. Have the knowledge of various pesticides, insecticides, fungicides and herbicides
9. Identify the problematic soil and recommend method for their reclamation
10. Have the knowledge of quality irrigation water, water quality standard and analysis of

Irrigation water

### **CH-341: Physical Chemistry (Sem-II)**

Students are expected to understand

1. Electrochemical Cells
2. Nuclear Chemistry
3. Crystal Structure
4. Quantum Chemistry

### **CH-342: Inorganic Chemistry (Sem-II)**

A student should know:

The meaning of term f-block elements, Inner transition elements, lanthanides, actinides. The meaning of metal & semiconductor, The difference between metal, semiconductor and insulator. Know the nature of solids, know the crystal structures of solids. Homogeneous and Heterogeneous Catalysis Bioinorganic Chemistry

### **CH-343: Organic Chemistry (Sem-II)**

Students should learn–

1. What are terpenoids and alkaloids?
2. Various methods of isolation/extraction of these natural products.
3. Synthesis of Citral and Ephedrin by Barbier- Bouveault and Nagi methods, respectively.
4. To determine the structure of above compounds by chemical methods.

### **CH-344: Analytical Chemistry (Sem-II)**

1. Solvent Extraction
2. Chromatography
3. Gas Chromatography
4. High Performance Liquid Chromatography
5. Electrophoresis
6. Nephelometry and Turbidimetry

### **CH-345: Industrial Chemistry (Sem-II)**

1. Polymer chemistry
2. Sugar and Fermentation Industry
3. Soap, detergents and Cosmetics
4. Dyes and paints
5. Chemistry of pharmaceutical industries
6. Pollution prevention and waste management

### **CH-346-E Dairy Chemistry (Sem-II)**

The students are expected to study “Dairy Chemistry” in view of-

1. Knowing importance of the subject from the point of rural economy.
2. Knowing the composition of milk, its food & nutritive value
3. Understanding the Microbiology of the milk
4. Understanding various preservation and adulterants, various milk proteins and their role for the human body.
5. Knowing various milk products, their composition, manufacture and uses.

### **CH-347: Physical Chemistry Practicals**

Students will perform the experiments on Chemical Kinetics, Viscosity, Adsorption, Phenol-water system, Transport number, Refractometry, Colorometry, Potentiometry, Conductometry, pH meter, Radioactivity.

**CH-348: Inorganic Chemistry Practicals**

It is expected that students should understand and learn Qualitative Analysis, Separation of binary mixture by Column chromatography, volumetric estimations, Calorimetric estimations, Gravimetric Estimations, Inorganic Preparations, etc

**CH-349: Organic Chemistry Practicals**

Separation of Binary Mixtures and Qualitative Analysis, Organic Preparations, Preparation of Derivatives,

## **T.Y.B.Sc Chemistry**

**(To be implemented from Academic Year 2009-2010 To 2014-15)**

### **CH-331: Physical Chemistry (Sem-I)**

Students must learn the Kinetics of Homogeneous Reactions, Adsorption, Crystal Structure, Investigations of molecular structure.

### **CH-332: Inorganic Chemistry (Sem-I)**

The student should:

1. Know the various types of Ligands
2. Know the meaning of the terms used in co-ordination chemistry
3. Be able to name the co-ordination compound when the structure is given to them.
4. Know the application of co- ordination compounds in biology and chemistry.
5. Be able to draw the geometrical and optical isomerism of complexes.
6. Be able to explain various types of isomerism.
7. Know the merits and the demerits of Sidwick's theory
8. Know the assumptions of VBT and explain the VBT / and explain the VBT of different
9. complexes.
10. Know the limitations of VBT.
11. Know outer and inner orbital complexes, electro neutrality principle, multiple bonding
12. Be able to draw crystal field splitting of d orbital of metal ion in octahedral, tetrahedral
13. square planer of tetragonal ligand field.
14. Know the assumptions of CFT.
15. Be able to explain the terms Strong field and weak field splitting.
16. Be able to explain magnetic property CFT spectra.
17. Be able to give evidences of CFSE.
18. Be able to explain Charge transfer Spectra.
19. Be able to explain John- Teller distortion of octahedral complex and its effect on
20. Spectra.
21. Be able to compare the different approaches to bonding in Co-ordination compounds.



### **CH-333: Organic Chemistry (Sem-I)**

The student should know Organic Structures, nomenclatures, Properties and Reactivities, Stereochemistry of disubstituted cyclohexane, Nucleophilic substitution at aliphatic Carbon, Reactions of Carbon –Carbon double bond & triple bond, Reactions of Carbon –Oxygen double bond, Oxidation & Reduction reactions, Elimination Reaction.

### **CH-334: Analytical Chemistry (Sem-I)**

Student must able to learn

1. Gravimetric Analysis
2. Electrogravimetry
3. Spectrophotometry
4. Atomic Absorption Spectroscopy
5. 5 Flame Emission Spectroscopy
6. Nephelometry and Turbidometry

### **CH-335: Industrial Chemistry (Sem-I)**

Student should focus on

#### **1 General Aspects of Chemical Industry**

The students are expected to learn; Importance of chemical industry, meaning of the

terms involved, comparison between batch and continuous process, knowledge of various industrial acts.

#### **2 Manufacture of basic chemicals**

The students are expected to learn physico-chemical principles involved in the manufacturing process, manufacture of basic chemicals with the help of flow sheet diagram, they should know the applications of these chemicals.

#### **3 Fertilizer Industry**

The students are expected to learn importance of synthetic and natural fertilizers and NPK ratios, the various manufacturing processes with flow sheet diagram,

#### **4 Sugar Industry**

The students are expected to learn importance of sugar industry, manufacture of direct

consumption (plantation white) sugar with flow diagram. Cane juice extraction by various methods, clarification by processes like carbonation, sulphitation, phosphotation

etc. Concentration of juice by using multiple effect evaporator system, Crystallization

of sucrose by using vacuum pan.

#### **5 Fermentation Industry**

The students are expected to learn importance of fermentation industry

Various methods of manufactures, manufacture of wine from grapes,

## **6 Pollution prevention and waste management**

The students are expected to learn all the problems of pollution and disposal of waste of various industries.

### **CH-336-E Agriculture Chemistry (Sem-I)**

After studying this course, student is expected to

1. Know the role of agriculture chemistry and its potential
2. Understand basic concept of soil, properties of soil & its classification on the basis of pH
3. Know the different plant nutrients, Their functions and deficiency symptoms
4. Understand importance of manures as compared to chemical fertilizers'
5. Understand the importance of green manuring
6. Have the knowledge of the use of proper the plants
7. Know various techniques to protect the plants
8. Have the knowledge of various pesticides, insecticides, fungicides and herbicides
9. Identify the problematic soil and recommend method for their reclamation
10. Have the knowledge of quality irrigation water, water quality standard and analysis of irrigation water

### **CH-341: Physical Chemistry (Sem-II)**

Electrolytic conductance, Electrochemical cells, Nuclear Chemistry, Elements of Quantum Chemistry.

### **CH-342: Inorganic Chemistry (Sem-II)**

Student should know

1. Chemistry of f-block element
2. Bioinorganic Chemistry
3. Organometallic Chemistry
4. Metals Semiconductors and Superconductors
5. Ionic Solids
6. Thermodynamic properties of Co-ordination Complexes

### **CH-343: Organic Chemistry (Sem-II)**

Aromatic Electrophilic and Nucleophilic Reactions, Carbanions and their reactions, Retrosynthetic analysis and applications, Spectroscopic methods in structure determination of Organic compounds, Natural Products

### **CH-344: Analytical Chemistry (Sem-II)**

Students can understand

1. Paleography
2. pH-Metry
3. Chromatographic Analysis
4. Electrophoresis
5. Gas Chromatography
6. High Performance Liquid Chromatography
7. Mass Spectrometry

### **CH-345: Industrial Chemistry (Sem-II)**

Student should learn

#### **1 Cement and ceramic industries:**

The students are expected to learn importance of these industries, manufacture of cement by modern methods, various ceramic products, different procedure involved and technical ceramics

#### **2 Glass industry**

The students are expected to learn about making of glass by different methods, various operations involved in the manufacture and compositions, properties and uses of special glasses.

#### **3 Dyes**

The students are expected to learn about the various theories of color and chemical constitution, difference between dyes and pigments,

Uses of pigments.

#### **4 Soaps and detergents :**

The students are expected to learn various soap products, their manufacture, special soap products, importance of detergents, meaning of the terms involved in washing action of the soap and detergents.

#### **5 Pharmaceutical Industry**

The students are expected to learn importance of this industry, meanings of the terms involved in diagnosis, prevention and curing of the diseases

#### **6 Fuels**

The students are expected to learn importance of fuels, types of fuels, properties of fuels, preparation of bio-diesel

### **CH-346-E Dairy Chemistry (Sem-II)**

The students are expected to study “Dairy Chemistry” in view of-

1. Knowing importance of the subject from the point of rural economy.
2. Knowing the composition of milk, its food & nutritive value
3. Understanding the Microbiology of the milk
4. Understanding various preservation and adulterants, various milk proteins and their role for the human body.
5. Knowing various milk products, their composition, manufacture and uses.

**CH-347: Physical Chemistry Practicals**

Students will perform the experiments on Chemical Kinetics, Viscosity, Adsorption, Phenol-water system, Transport number, Refractometry, Colorometry, Potentiometry, Conductometry, pH metery, Radioactivity.

**CH-348: Inorganic Chemistry Practicals**

It is expected that students should understand and learn Qualitative Analysis, Separation of binary mixture by Column chromatography, volumetric estimations, Calorimetric estimations, Gravimetric Estimations, Inorganic Preparations, etc

**CH-349: Organic Chemistry Practicals**

Separation of Binary Mixtures and Qualitative Analysis, Organic Preparations, Preparation of Derivatives,

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Lonavla Education Trust's

Dr. B. N. Purandare Arts and Smt. S. G. Gupta Commerce and Smt.S.A.Mithaiwala  
Science College, Lonavla

## Department of Physics

### Three Year B.Sc. Physics Undergraduate programme

The department is mainly emphasized on following three principles,

- 1) **Understanding basic Physics:** Starting from F.Y.B.Sc. students department always focused on to make understand basic concepts in Physics in a simple way and with day today examples. The courses such as Physics principles and applications and mechanics help students to gain knowledge about contribution of Scientist in the development of modern physics.
- 2) **Problem solving and Practical Skills:** In the S.Y.B.Sc. course to develop the skills of physics problems solving (related to their day today life examples) the courses such as Mathematical methods in Physics and electronics are included in the syllabus. Including these courses two more courses such as waves, oscillations and sound and optics developed the practical skills among the students. To develop the deep and recent knowledge in T.Y.B.Sc. Physics student's various disciplines in Physics such as Electronics, Classical Mechanics, Quantum mechanics, Material Science, Nuclear Physics, Atomic and Molecular Physics etc are introduced. To get awareness related to basic software programs computational Physics (C-Programming) is also included in the course.
- 3) **Employment related skills:** All and all, F.Y.B.Sc., S.Y.B.Sc. and T.Y.B.Sc. is three year B.Sc. Physics undergraduate programme which introduces the pursuit of **Physics**, its historical discoveries, inventions and recent developments in modern Physics. It also provides the technical background required for shaping their career in Physics.

**CHOICE BASED CREDIT SYSTEM:** Savitribai Phule Pune University is changing from the conventional course structure to Choice Based Credit System (CBCS) along with introduction to semester system at first year B.Sc from the academic year 2019-20 and S.Y.B.Sc. from the academic year 2020-21. The semester system will help B.Sc. students in developing the skill-oriented teaching-learning process. In future the choice-based credit system can adapt the interdisciplinary environment among B.Sc. Physics students, so that

they will have choice to have their career in specialized subject in physics such as Nanotechnology, Energy of materials and so on.

### **Programme Outcomes:**

#### **PO1: Learning outcomes**

After successfully completion of this course students will be able to,

- 1) understand the basic concepts in Physics and relate them to their day today life.
- 2) achieve depth knowledge of scientific and technological aspects of Physics
- 3) enrich knowledge through problem solving, hand on activities, study visits, projects etc.

#### **PO2: Professional Skill outcomes:**

After successfully completion of this course students will be able to,

- 1) Inculcate the presentation skills and laboratory practical skills.
- 2) develop skills related to research, education, industry, and market.

### **Programme Specific Ourcomes (PSO's)**

**PSO1)** To create foundation for research and development in the modern subjects such as Electronics, Nanotechnology, Renewable Energy Sources.

**PSO2)** To develop analytical abilities towards real world problems

**PSO3)** To help students build-up a progressive and successful career in Physics

## Course Outcomes (CO's)

### CO1: F.Y.B.Sc.

#### **Mechanics and Properties of Matter:**

- Revision of Newton's Laws of motion and demonstrate it with day today examples.
- Basics of work-Energy, Surface Tension, Elasticity, Viscosity and fluid mechanics by solving related problems.

#### **Physics Principles and its Applications:**

- To understand the basics and development in the understanding of atomic structure.
- To understand the basic principle of LASER, its LASER action and various Applications.
- To understand the types of bonds and their roles in the formation of molecules.
- To understand the historical perspective, general properties and applications of Electromagnetic waves.

#### **Heat and Thermodynamics:**

- To define the fundamentals of Thermodynamics and laws of Thermodynamics.
- To understand the heat transfer mechanism such as Carnot's cycle, Carnot's heat engine, different heat engines such as Otto engine and diesel engine.
- To understand the construction and working of different types of thermometers used in laboratory and industries.

#### **Electricity and Magnetism:**

- To understand the fundamentals of Electrostatics and Magnetostatics by learning the different related laws in Physics which describes the electric and magnetic fields in detail.
- To understand the concept and application of dielectrics.
- To understand the different properties of magnetic materials.

## **CO2: S.Y.B.Sc.**

### **Mathematical Methods in Physics**

- To introduce the complex numbers with its different forms (rectangular, polar and exponential form) and study applications of complex numbers.
- To study the different forms of differentiation such as partial, total, exact etc. by solving related problems.
- To revise the scalar and vector product and to study its triple product with problems.

### **Electronics**

- To apply different network theorems related to electrical circuits.
- To understand basics and working of transistors.
- To understand the working principle and working of operational amplifiers.
- To study different number system and detail working of logic gates.

### **Oscillation, Waves and Sound**

- To understand the difference in undamped, damped and forced oscillations with their numerical expressions and examples.
- To study the basics of wave motion, their types and related concepts in detail.
- To study the different characteristics and its related concepts of sound such as Doppler effect and its applications.

### **Optics**

- To describe the fundamental concepts of lenses and their different aberrations.
- To understand the concept of focal length and cardinal points with problems.
- To understand the basic operation of many optical devices.
- To study in detail about interference, diffraction and polarization.



### **CO3: T.Y.B.Sc.**

#### **Mathematical methods in Physics**

- To understand cartesian, spherical polar and cylindrical co-ordinate systems, transformation equations, and general curvilinear co-ordinate system.
- To demonstrate the special theory of relativity with examples.
- To understand the differential equation and special functions in detail.

#### **Solid state physics**

- To understand the concepts related to crystalline state such as Lattice, Basis, Translational vectors, Primitive unit cell, Symmetry operations, Different types of lattices 2D and 3D (Bravais lattices), Miller indices, Inter planer distances and its different types (SC,FCC and BCC) with their characteristics.
- To introduce X-ray diffraction and other characterization techniques, free electron and band theory in metals and magnetism concepts in detail.

#### **Classical Mechanics:**

- To explain the mechanics of system of particles and their motion in a central force field.
- To study the scattering of a particles in centre of mass frame and laboratory frame.
- To introduce the Langrangian and Hamiltonian formulation for N particle system.
- To solve the problems related to canonical transformation and Poisson's bracket.

#### **Atomic and Molecular Physics**

- To make understand the history of development in understanding the basic particles of atomic structure and study its energy levels and spectra.
- To demonstrate the one and two electron systems.
- To study the observed Zeeman effect in atoms and molecules.
- To understand the theory and experimental of X-ray, Raman and Molecular spectroscopies.

#### **Computational Physics**

- To study the concepts in programming like flowchart and algorithm.
- To understand the basic structure of C-programming, its keywords, registers, character set etc.
- To study the graphics in C with examples.
- To study the various possible errors in this language.

## **Elements of Material Science**

- To study the different types of defects in metals.
- To understand the single and molecular phases in metals.
- To study about Ceramic materials and phase diagrams.
- To introduce about smart material's, their properties, and applications.

## **Classical Electrodynamics**

- To revise the basic laws and detailed theory of electrostatics and magnetostatics.
- To study the electrodynamics and its numerical.

## **Quantum Mechanics**

- To understand the origin of quantum mechanics.
- To introduce the new concepts in modern physics such as Schrodinger equations and its applications.
- To solve the problems related to operators in quantum mechanics.

## **Thermodynamics and Statistical physics**

- To revise the kinetic theory of gases and related concepts such as mean free path, viscosity etc.
- To demonstrate the Maxwells relations and applications.
- To understand the elementary concepts of statistics, distribution of system of particles, statistical ensembles, and quantum statistics.

## **Nuclear Physics**

- To revise the fundamental properties of nucleus.
- To introduce the concept of radioactivity and related phenomenon.
- To understand about the nuclear forces, nuclear reactions, and nuclear energy in detail.
- To understand the theory of particle accelerators and detectors.

## **Electronics**

- To study the various types of diodes, transistor amplifiers, Field effect transistors, and operational amplifiers.
- To understand about timers, different components of regulated power supply.
- To demonstrate about sequential logic circuits.

## **Lasers**

- To introduce the theory and function of LASER and its action.
- To understand about Laser oscillator and its output in detail.
- To study about characteristics, types and applications of lasers.

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**Lonavla Education Trust's**  
**Dr. B. N. Purandare Arts, Smt. S. G. Gupta Commerce and Smt. S.**  
**A. Mithaiwala Science College, Lonavla**  
**(Affiliated to Savitribai Phule Pune University, Pune)**

**Department of Mathematics**  
**Programme Specific Outcomes and Course outcomes**

**Programme Specific Outcomes (PSO):**

The completion of the B.Sc. Programme will help students to:

- i) Communicate mathematics strongly by written, computational and graphic means.
- ii) Create mathematical ideas from basic axioms.
- iii) Use mathematics to solve problems by analysing and understanding
- iv) Identify applications of mathematics to the real-world problems

**Course Outcomes (CO)**

**1. Algebra**

This course will help students to

- Identify injective, surjective and bijective functions.
- Find inverse of function.
- Apply Euclid's algorithm to find GCD of integers.
- Apply Fermat's theorem to compute remainders
- Apply De-Moivre's theorem to find nth roots of a complex number.

**2. Calculus I**

This course will help students to

- Determine real numbers satisfying inequations.
- Apply density theorem to find rational number between two irrationals.
- Determine convergence and divergence of sequences.
- Study  $\varepsilon - \delta$  definition of limit of a function.
- Study continuity of function on an interval.
- Locate intervals in which root of equation occur.

### **3. Analytical Geometry**

This course will help students to

- Study translation and rotation of axes
- Identify, classify conics and reducing general second degree term to standard form.
- Find equation of plane in normal form
- Find angle between planes, distance between parallel planes.
- Find equation of line in symmetric form.
- Find angle between line and plane, condition of Coplanarity of lines.
- Find equation of spheres in different forms.
- Find plane section of sphere.
- Find equation of tangent plane to the sphere.

### **4. Calculus II**

This course will help students to

- Study mean value theorems
- Find limit using L'Hospital Rule.
- Find nth derivatives using Leibnitz theorem
- Find Taylor's and Maclaurin's series
- Solve linear ordinary differential equations
- Solve exact differential equations
- Solve non exact differential equations using integrating factors

### **5. Multivariable Calculus I**

This course will help students to

- Sketch level curves and graph of a function
- Discuss limit continuity of functions of several variables.
- Find approximate values using differentials.
- Find extreme values of functions of several variables.
- Study Taylor's theorem for function of two variables.
- Find double and triple integrations.
- To change order of double integrals.

### **6. Laplace transforms and Fourier Series**

This course will help students to

- Find Laplace and inverse Laplace transforms of basic functions.
- Study Properties of LT and ILT
- Study convolution of functions and their application in finding ILT
- Apply theory of LT and ILT to solve ordinary differential equations.
- Find Fourier series of functions.

### **7. Linear Algebra**

This course will help students to

- Study Vector spaces, subspaces, basis, dimension, linear dependence, independence of vectors and functions.
- Study linear transformation, kernel and range of linear transformations.
- Study rank-nullity theorem of linear transformation.

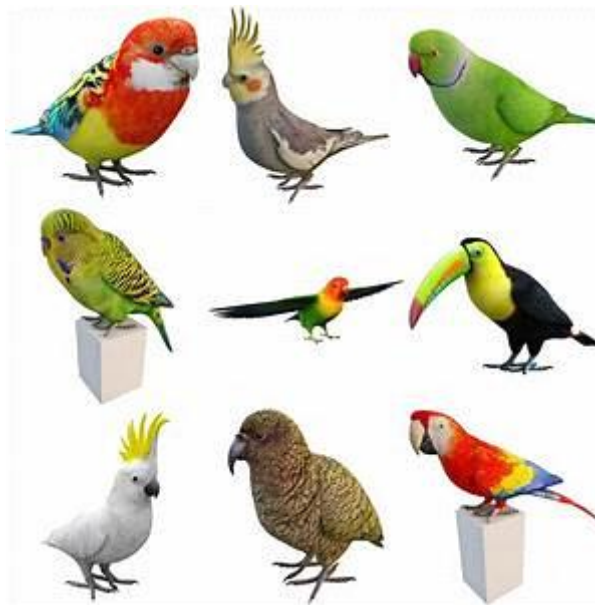
- Find matrix of linear transformation
- Study inner product spaces, Cauchy-Schwartz inequality.
- Find orthogonal basis using Gram-Schmidt process.

## **8. Numerical Methods**

This course will help students to

- Find significant figure, errors.
- Round of given numbers to significant figures
- Find numerical solutions of algebraic and transcendental equations.
- Find derivatives from the tabular data.
- Find solutions of ordinary differential equations using Taylor's series, Euler's method, Runge-Kutta method.

**Department of Zoology**  
**Program Outcomes, Program Specific Outcomes and Course**  
**Outcomes of**  
**B.Sc. in Zoology**



**Zoology Programme:-**

B.Sc. in Zoology is an undergraduate Program in Zoology. Zoology is the branch of science which deals with the study of animal kingdom including the evolution, structure, Physiology, classification embryology, habits, habitat and distribution of all the animals both living and extinct, and how they interact with their ecosystems . The B.Sc. Zoology course is premeditated to introduce students to the study of zoology at the organismal and organ function levels. The theoretical part of the program deals with the general principles of classical as well as modern zoology. It includes an interesting range of highly diverse topics. The program provides the student with an introduction to the recent advances in zoology in the areas of systematic, evolution, reproduction, development, animal diversity, biochemistry, cytology, Pest Management, Histology, Genetics, Developmental Biology, Parasitology, Medical & Forensic Zoology, Animal Physiology, Molecular Biology, Entomology, Techniques in Biology and animal ecology. A zoology student needs to gain understanding of many areas of the subject to keep pace with advancements in Life Sciences. This course is offered for candidates who are interested in the study of animals. The minimum time required to complete the course is three years.

## Objectives:

Imparting quality education in Zoology has been the focus of the department right from its inception. Emphasis is given on education both within and outside the classroom. The Department is dedicated to fulfil the following objectives through the curricular and cocurricular activities: To provide students with knowledge of fundamental principles in zoology that will provide a foundation for their later advanced course in more specific biological subjects. To make students familiar with animal classification schemes and other applied courses

as well as developing an understanding of and ability to apply basic zoological principles. To integrate the laboratory and lecture sections of the course and directed toward teaching students both in the classroom and on the field. To provide quality education offering skill based programs and motivate the students for self-employment in applied branches of Zoology. To inculcate the value based education and entrepreneurial skills among the students. To create awareness on environmental issues through various activities.

## Programme Outcomes:

After successfully completing B. Sc. (Zoology) Programme students will be able to:

- PO1.** Communicate scientific information through effective formal and informal methods generally used in sciences.
- PO2.** Create an awareness of the impact of Zoology on the environment, society, and development outside the scientific community.
- PO3.** Develop competence in basic sciences and in the content of the specific courses that constitute the principal knowledge of their degree.
- PO4.** Demonstrate, solve and an understanding of major concepts in all disciplines of Zoology
- PO5.** Acquire the skills in handling scientific instruments, planning and performing in laboratory experiments.
- PO6.** Understand and be aware of relevant theories, paradigms, concepts and principles of zoology.
- PO7:** Understand the structure and functions of cell types
- PO8:** To study and understand the classification of whole phyla includes in Non chordates with the help of charts/models/pictures
- PO9:** Relate the various abiotic factors with health of living forms and ecosystems
- PO10:** . Use modern techniques, decent equipments and Zoology software's
- PO11:** Apply the knowledge of Zoology to understand the complex life life Processes and phenomena.

After successful completion student should be able to; of three year degree program in Zoology .

## Programme Specific Outcomes:-

- PSO-1.** Gain the knowledge of Zoology through theory and practical's.
- PSO2.** Ability to connect and apply biological knowledge to other disciplines and to integrate knowledge into their personal and professional lives.
- PSO-3.** Use modern Zoological tools, Models, Charts and Equipments.



**PSO-4.** Develop research oriented skills

**PSO5.** Explain the origin of life with context to the origin of eukaryotic cell and endosymbiotic theory of origin., fossil records, Darwinism and Neo-Darwinism, experimental evidences.

**PSO6.** Illustrate zoological science for its application in branches like medical entomology, apiculture, aquaculture and agriculture etc

**PSO7.** Understand animal interactions with the environment and identify the major groups of organisms with an emphasis on animals and classify them within a phylogenetic framework.

**PSO-8.** Know structure-activity relationship

**PSO-9.** Make aware and handle the sophisticated instruments/equipments.

## **Course Outcomes:-**

### **B. Sc. (Zoology) First Year B.Sc. Choice Based Credit System Syllabus to be implemented from - Academic Year 2019-2020**

**Course Code ZY 111 -Animal Diversity-I SEM- I Credits = 2**

**And**

**Course Code ZY 121 -Animal Diversity-I SEM II Credits = 2**

### **After successfully completing this course, students will be able**

**CO1:** The student will be able to understand classify and identify the diversity of animals

**CO2:** The student understands the importance of classification of animals and classifies them effectively using the six levels of classification.

**CO3:** The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life.

**CO4:** Demonstrate anatomical and physiological attributes of each animal group and why these have led to their success

**CO5:** List the various animals in a given phylum

**Course Title: Animal Ecology - Course Code: ZO 112 , Semester I (2 Credits)**

### **Learning outcomes for the course: -**

**CO1:** The learners will be able to identify and critically evaluate their own beliefs, values and actions in relation to professional and societal standards of ethics and its impact on ecosystem and biosphere due to the dynamics in population.

**CO2:** To understand anticipate, analyse and evaluate natural resource issues and act on a lifestyle that conserves nature.

**CO3:** The Learner understands and appreciates the diversity of ecosystems and applies beyond the syllabi to understand the local lifestyle and problems of the community.

**CO4: The learner will be able to link the intricacies of food chains, food webs and link it with human life for its betterment and for non-exploitation of the biotic and abiotic components.**

**CO5: The working in nature to save environment will help development of leadership skills to promote betterment of environment.**

**Course Title: Cell biology Course Code: ZO122 ; Semester II (2 credits)**

### **Learning outcomes for Cell Biology :-**

**CO1: The learner will understand the importance of cell as a structural and functional unit of life.**

**CO2: The learner understands and compares between the prokaryotic and eukaryotic system and extrapolates the life to the aspect of development.**

**CO3: The dynamism of bio membranes indicates the dynamism of life. Its working mechanism and precision are responsible for our performance in life.**

**CO4: The cellular mechanisms and its functioning depends on endo-membranes and structures. They are best studied with microscopy**

**Course Title: Zoology Practical Paper Course Code: ZO113:  
Semester I (2 credits)**

**And**

**Course Title: Zoology Practical Paper Course Code: ZO123:  
Semester II (2 credits)**

### **After successfully completing this course, students will be able to:-**

CO1: Identify of the Dissolved oxygen from given water sample.

CO2: Identify of the Water Alkalinity from given water sample.

CO3: Identify of animal community structure by quadrat method (Field or Simulation).

CO4: Detect of density, frequency and abundance of species by quadrat method.

CO5: Prepare of microscopic fauna of freshwater ecosystem (from pond).

CO6: Detect of water holding capacity of given soil sample.

CO7: Detect of dissolved and free carbon dioxide from water sample.

CO8 Identify of Eutrophication in lake/river.

CO9: Explain Study of phylum Protozoa: Euglena, Paramecium, Amoeba, Plasmodium sp.

CO10: Identify Museum study of Phylum Porifera: *Sycon*, *Euplectella*, *Chalina*, Spongilla, *Hydra*, *Physalia*, *Aurelia*, *Metridium*.

CO11: Identify Platyhelminthes: *Planeria*, *Faciolahepatica*, *Taenia solium*

CO12: Identify Paramecium: Culture, External morphology, Conjugation and Binary fission.

CO13: Identify permanent slides: Spicules and Gemmules in Sponges, T.S. of *Sycon*, T.S. of *Hydra*, *Taeniasolium*: Scolex, Gravid proglottid.

CO14: Study Visit to Zoological survey of India/ Museum/National Park. Visit to a vermicomposting unit/ field for insect pest collection and its identification.

CO15 Economic importance of honey bees, Lac insects silk worms, red cotton bug, Anopheles mosquito CO16 Earthworm: vermicomposting bin preparation and maintenance.

CO17 Identify Microscope: Simple and Compound , Micrometry: Measurement of microscopic objects CO18 Explain of cell: Preparation of temporary mount of human buccal epithelial cells.

CO19 Identify Preparation of blood smears to observe the blood cells & mitotic cell from onion roots

CO20 Observation of Cell organelles (any three) by using microphotographs

## **Second Year B. Sc. Zoology:-**

### **Course ZY 211-Animal Systematics and Diversity III & IV.**

**After successfully completing this course, students will be able to:**

CO1: List the various vertebrate animals in a given class.

CO2: Identify poisonous and non-poisonous snakes.

CO3: Study and understand Salient features and classification of Arthropoda , Mollusca and Echinodermata

CO4: Explain various adaptations in avian group as well as migration and flight in birds.

CO5: Describe the morphology, habit and habitat. Systematic position and various systems in *Scoliodon*.

CO6: Understand the General Topics like Mouthparts in Insects, Shell and foot modification in mollusc, Metamorphosis in Insects, Mimicry and Economic importance of Insects.

CO7: Study and Understand External characters , digestive system , blood vascular system and brain of *Scoliodon*.

CO8: Categorize the diversity found in the vertebrate groups of animals like reptiles, birds and mammals.

CO9: Understand the external characters digestive system and water vascular system in sea star.

CO10: Study and understand Salient features of Class Reptilia, Aves and Mammalia.

### **Course ZY 212: Applied Zoology I & II**

**After successfully completing this course, students will be able to:**

CO 1: Define the concepts of the applied subjects like Apiculture and Sericulture.

CO 2: Identify different species and casts of honeybees and species of silkworm.

CO 3 To aware the students and provides the economic importance of Apiculture.

CO 4: Understand the Bee keeping equipments and apiary management.

CO 5: Describe the economic importance of honeybee and silkworm.

CO 6: Introduction to fisheries and its types, Different types of ponds used in fishery

CO 7: Classify of *Apis*, *Bombyx* and *Anthereria*.

CO 8: Select economically important species of *Apis* for unifloral and

CO9: Understand the Harvesting methods of some marine forms.

CO10: Learn about Crafts and gears in Indian Fishery, fishery byproduct and Fish preservation technique.

CO11: Learn about various Agricultural Pests and their control.

CO12: Introduce the term apiculture sericulture to the students.

CO13: Students can learn about Cultivation and Harvesting of Mulberry and rearing technique of silkworm .

## **S. Y. B. Sc. Practicals:-**

### **Course ZY 223: Practicals in Zoology: (Sem I & Sem II)**

After successfully completing this course, students will be able to:

CO1: Study and classification of some non-chordates and chordates phyla

CO2: Identify animals of higher groups in Invertebrates and Vertebrates.

CO3: Study of Starfish and various systems in it.

CO4: Distinguish between poisonous and non-poisonous snakes

CO5: Label various parts of the animals and their modifications

CO4: Observe the various tools, crafts and gears used in Apiary, Fishery, Sericulture and Pest control.

CO5: Identify the pests in agriculture and enemies in Apiary

CO6: Study and Understand the Identification, Classification and habit, habitat of fresh water fishes.

CO7: Study and Understand External characters, digestive system, blood vascular system and brain of Scoliodon.

CO8: Study and Understand External characters, digestive system and water vascular system of Starfish

CO9: Explain the use of tools in Apiary, Sericulture and appliances in Pest control.

CO10: Describe External features and economic importance of freshwater and Marine water fishes and other aquaculture organisms

CO11: Describe the morphology, habit and habitat. Systematic position and various systems in starfish and *Scoliodon*

CO12: To Study Agricultural pests with respect to marks of identification, nature of damage and economic importance.

### **Third Year B. Sc. Zoology:-**

Theory courses: (Sem III: ZY-331 to ZY-336) : Semester

(Sem IV: ZY- 341 to ZY-346) : Semester

Practical Course:(ZY-347-349) : Annual

**Department of Zoology-** After successful completion student should be able to:

### **Course ZY 331: Animal Systematics & Diversity V**

After successfully completing this course, students will be able to:

CO1: Outline the systematic position of *Pila globosa*. and *Calotes versicolor*

CO2: Understand the evolution, history of phylum.

CO3: Label the organs and systems of *Pila globosa*. and *Calotes versicolor*

CO4: To study the external as well as internal characters of non chordates.

CO5: Describe the major features in the Phylum Protozoa, Porifera, Coelenterata and Hemichordata and the reason of their success in the ecosystem.

CO6: Illustrate the morphological peculiarities of Integument, Heart, Kidney and Brain of vertebrates.

CO7: Understand the economical importance of Molluscs

CO8: Categorize the Accessory respiratory organs in fish.

CO9: Understand the economical importance of Molluscan shells.

CO10: Classify the dentition in mammals.

CO11: Justify the need of electric organs in fish.  
CO12: Understand the various internal systems like Digestive system, nervous system with the help of charts.

### **Course ZY 341: Biological techniques**

*After successfully completing this course, students will be able to:*

CO1: Define the basic terms solution preparation.  
CO2: Understand the various Applications of Biotechnology.  
CO3: Study and Understand the Hybridoma technology as well as Enzyme biotechnology.  
CO3: Describe the techniques used in hematology.  
CO4: Study and understand the DNA Recombinant technology.  
CO5: Explain the principle of separation techniques.  
CO6: Explain the procedure of preparing permanent histological slides.  
CO7: Illustrate the working of microscopes.  
CO8: Analyze the dimensions of the biological samples.  
CO9: Justify the selection of fixatives for histological procedures.  
CO10: Understand the industrial and environmental biotechnology.

### **Course ZY 332: Mammalian Histology**

*After successfully completing this course, students will be able to:*

CO1: Understand the terms Histology and Physiology  
CO2: Study the derivatives of skin- horns, nails, hairs.  
CO3: Study and understand the terms- acidosis, alkalosis, asphexia, hypoxia, anoxia and cyanosis.  
CO4: Explain the location, structure and functions of various organs.  
CO5: Illustrate the histology of endocrine glands.  
CO6: Diagrammatically represent the various organs.

### **Course ZY- 342: Mammalian Physiology & Endocrinology**

*After successfully completing this course, students will be able to*

CO1: Understand the Importance of physiology and branches of it.  
CO2: List the various types of digestive enzymes.  
CO3: Understand the terms-Osmosis, diffusion, pH and Buffer.  
CO4: Explain the physiological processes in mammals.  
CO5: Explain the anatomy of various systems.  
CO6: Understand the Digestion and Excretion process, by studying the Organs of it.  
CO7: Understand the Circulatory system and Lymphatic system.  
CO8: Illustrate the reproductive cycles with hormonal control.  
CO9: Diagrammatically represent the working of kidney.  
CO10: Understand the process of Metabolism.  
CO11: Understand the term Detoxification.

### **Course ZY 333 Biological Chemistry**

*After successfully completing this course, students will be able to:*

CO1: Understand about the agencies responsible for Production of various products using biochemistry  
CO2: Explain the structure, functions and reactions of the various biomolecules.  
CO3: Understand the structure and function of carbohydrate, amino acids, proteins, and lipids.

- CO4: Give examples of each group type of biomolecules.
- CO5: Correlate the changes in the levels of these biomolecules with the diseases in human
- CO6: Understand the term pH, Buffer.
- CO7: Draw the structures of major biomolecules.
- CO8: Understand the concept Enzymes and also Vitamins and minerals.
- CO9: Understand the Principle role of Vitamins in metabolism and Deficiency diseases

### **Course ZY 343 Genetics & Molecular biology**

**After successfully completing this course, students will be able to:**

- CO1: Define the basic terms in genetics.
- CO2: Discuss the linkage groups and gene frequency.
- CO3: Explain the concept of mutation.
- CO4: Explain DNA structure.
- CO5: Paraphrase the Central dogma of molecular biology.
- CO6: Illustrate the mechanism of replication, transcription and translation.
- CO7: Justify the post transcriptional and post translational modifications.

### **Course ZY- 334 Environmental Biology & Toxicology**

**After successfully completing this course, students will be able to:**

- CO1: Know the biotic and abiotic components of ecosystem.
- CO2: List the environmental challenges and their remedies.
- CO3: Describe the nature of ecosystem, productivity, food webs, energy flow,
- CO4: Explain Biosphere, biomes and impact of climate on biomes.
- CO5: Understand diversity among various groups of animal kingdom
- CO6: Explain wildlife management in India and conservation of wildlife.
- CO7: Explain the three necessary and sufficient conditions i.e. struggle for existence; variation; and inheritance.
- CO8: Discuss natural resources, causes of their depletion and their conservation.
- CO9: Illustrate the toxic effects of chemicals in the environment on human and his livestock.
- CO10: Scope , importance and management of biodiversity

### **Course ZY 344: Organic Evolution:**

**After successfully completing this course, students will be able to:**

- CO 1: Define organic evolution.
- CO 2: Understand theories of organic evolution, isolation, speciation
- CO 3: Describe the concept of origin of life and theories of origin of life.
- CO 4: To understand Origin of life with respect to prokaryotic and eukaryotic cells.
- CO 5: Illustrate the presence of organisms at various geological time scale.
- CO 6: Apply the knowledge in relevant experimentations.
- CO 7: 4. Understand geological time scale, methods and classification of animal distribution and factors affecting animal distribution.
- CO 8: Compare animal distribution in different zoogeographical realms.
- CO-9. Understand the evidences of organic evolution by anatomical embryological list, paleontological, physiological, genetics and molecular biology evidences.

### **Course ZY 335 Parasitology**



**After successfully completing this course, students will be able to:**

CO 1: Define the basic terms in parasitology.

CO2: To study and understand the scope and branches of Medical Zoology.

CO3: To aware the students for various parasites and diseases which spreads in human with the help of study of host-parasite relationship.

CO4: Discuss the life cycle and importance of major parasites.

CO5: Illustrate transmission routes of animal and zoonotic parasites

CO6: To aware about the typhoid, cholera likes disease.

CO7: Justify the control measures of arthropod vectors.

CO8: Convince the importance of hygiene with respect to epidemic diseases.

CO9: Understand the various disease causing vectors like Mosquitoes

CO10: To increase awareness for the health in students.

CO11: Understand the importance of medical diagnostic and also understand the term forensic Entomology

### **Course ZY 345 General Embryology**

**After successfully completing this course, students will be able to:**

CO1: Understand the terms: Gametogenesis, Fertilization and early development.

CO2: Describe the key events in early and systematic embryological development.

CO3: Understand the Morphogenesis and Organogenesis in animals

CO4: Describe the chick development up to 96 hours of incubation and extra embryonic membranes.

CO5: Explain the life cycles of few parasites.

CO6: Explain the theories of preformation, and concepts like growth, differentiation and reproduction.

CO7: Explain the principles and process of fertilization and cleavage.

CO8: Prepare the flow chart of gametogenesis process.

CO9: Understand the Aging, Apoptosis and Senescence.

### **Course ZY 336 Cell Biology**

**After successfully completing this course, students will be able to:**

CO1: Understand the Scope of cell biology, because cell is the basic unit of life.

CO2: Describe the composition, structure and functions of the plasma membrane.

CO3: Understand the Main distinguishing characters between plant cell and animal cell.

CO4: Explain the structure and functions of the nucleus and its components.

CO5: Describe the three primary components of the cell's cytoskeleton and how they affect cell shape, function, and movement.

CO6: Diagrammatically represent the phases of division of somatic and gametic cells.

CO7 : Understand the various applications of cells by using cell biology like study of various types of tumour.

CO8: Differentiate between rough and smooth endoplasmic reticulum both in structure and function.

CO-9. To study and understand the whole cell organelles with their structure and function.

CO10: Understand the cell cycle and know the importance of various cells in body of organisms.

CO11: Understand the Animal cells and various cell organelles by using microphotographs.

### **Course ZY 346 Medical Entomology**

*After successfully completing this course, students will be able to:*

CO1: Understand the fundamentals of agricultural, forest, medical and veterinary entomology

CO2: Define medical entomology.

CO3: Explain the social organization of insects with examples.

CO4: Illustrate the role of household insects in relation to human health.

CO5: Classify major medically important insects.

CO6: Understand intra specific and inter specific relationships among insects.

CO7: Choose the control measures of medically important insects

CO8: To understand significance of beneficial and harmful insects with reference to their habit and habitat, life cycle, diseases caused by them and their control measures.

### **Course ZY 347 Practical Paper I**

*After successfully completing this course, students will be able to:*

CO1: Identify the organs by studying the histological slides.

CO2: Identify hormonal disorders using pictures.

CO3: Use techniques like chromatography, spectrophotometry in biological experiments.

CO4: Explain the anatomical features of brain, heart, kidney and skin of vertebrates.

CO5: Demonstrate the importance of modifications in animal for their survival.

CO6: Demonstrate the structure of tissues by making temporary slides.

CO7: Demonstrate haemin crystals and effect of osmolarities on RBCs.

CO8: Sketch and label the various systems and organs of *Pila*, *Balanoglossus* and *Calotes*.

CO9: Prepare blood smear and identify the various cells.

CO10: Draw exact figures of structures/organism using camera lucida.

CO11: Measure the cell/organism dimensions.

CO12: Prepare blood smear and identify the various cells.

CO13: Process animal tissues and prepare permanent histological slides.

CO14: Count total leucocytes from blood samples.

CO15: Estimate the Hb.level in blood samples.

CO16: Estimate blood glucose level, BT and CT.

### **Course ZY 348 Practical Paper II**

*After successfully completing this course, students will be able to:*

CO1: Identify the fossil types/ adaptations in animals.

CO2: Explain the stages of human evolution.

CO3: Demonstrate the effect of physical and chemical factors on enzyme activity.

CO4: Explain the evidences of evolution

CO5: Demonstrate physical and chemical properties of water and soil samples.

CO6: Illustrate the application of Hardy –Weinberg law

CO7: Detect given carbohydrates using biochemical tests.

CO8: Measure the pH of given samples.

CO9: Isolate protein from milk.

CO10: Prepare acid and base solutions and titrate them.



- CO11: Collect and identify freshwater planktons.
- CO12: Determine LD50 and LC50.
- CO13: Estimate nucleic acids in given samples.
- CO14: Elucidate the difference between ape and man.
- CO15: Prepare temporary mounting of Giant chromosome.
- CO16: Prepare paper model of DNA.
- CO17: Record zoogeographical distribution of animals.

### **Course ZY 349 Practical Paper III**

**After successfully completing this course, students will be able to:**

- CO1: Identify the life cycle stages of few parasites.
- CO2: Identify and explain the types of eggs, blastulae and gastrulae
- CO3: Identify the age of chick embryo.
- CO4: Identify the phases of cell division.
- CO5: List the household Pest and social insects.
- CO6: Explain the pathogenicity and morphology of few ectoparasites.
- CO7: Explain the diseases spread by vectors.
- CO8: Explain the interrelationship of insects and human with examples.
- CO9: Explain the effects of household insects on human health.
- CO10: Demonstrate rectal parasites in cockroach.
- CO11: Demonstrate Mitochondria/ mitotic and meiotic stages by stained preparations.
- CO12: Illustrate the social organization in insects.
- CO13: Prepare temporary slide of chick embryo to identify the stage and age.
- CO14: Prepare mounting of mouth parts of few common insects.
- CO15: Justify the effect of colchicine on cell division.

\_\_\_\_\_ **THE END** -----

**THANK YOU**

<b>Botany</b>	
<b>F Y B. Sc.</b> BO111 and BO 121 Plant life and utilization. SEM. I and II	1. Understand the basic principles of Botany.
	2. To study morphology of plants.
	3. To get them economic importance of plants.
	5. To get the knowledge of functions of plants.
BO 112 Plant morphology and Anatomy	1. To get knowledge of range of plant diversity in terms of structure, function and environmental relationships
	2. To study local flora.
	3. To get knowledge of adaptations in plants
	4. Think logically and organize tasks into a structured form.
BO122 Principles of plant science	1. The evaluation of plant diversity.
	2. The role of plants in the functioning of the global ecosystem.
	3. Plant classification and the flora of Maharashtra
	4. Students learn to carry out practical work, in the field and in the laboratory, with minimal risk.
	5. Students learn Vegetation analysis techniques.
<b>S. Y. B. Sc.</b> BO 231: Taxonomy of Angiosperms and Plant Ecology	1. Learn the types of classifications- artificial, Natural and phylogenetic.

	2. Gain knowledge about Botanical Survey of India (BSI).
	3. Briefly studied on herbarium techniques.
	4. Learn the taxonomic evidences from molecular, numerical and chemicals.
	5. Brief studied the economic products with special reference to the Botanical name, family, morphology of useful part and the uses
BO232: Plant Physiology	1. Know about the requirement of mineral nutrition for plant growth
	2. Understand the process of Photosynthesis, Respiration and Nitrogen metabolism
BO 414: Plant Anatomy and Embryology	1. Understand the internal structure of plant body.
	2. Study the development of plant embryo.
	3. Understand the development of gametes and embryo formation.
	4. Learn the anatomy in relation to taxonomy.
BO 242 Plant Biotechnology	1. To learn methodology of plant tissue culture
	2. Learn the specific and non-specific methods of gene transfer
	3. Recombinant DNA technology

	4. Applications of Biotechnology in Plant, and Human welfare
T.Y.B. Sc. Course Semester III	
BO. 331 Cryptogamic Botany	1. Learn about the structure, pigmentation, food reserves and methods of reproduction of Algae.
	1. Learn about the structure, food reserves and methods of reproduction of Fungi.
	3. Know about the Economic importance of algae, Fungi and lichen.
BO. 332 Cell and Molecular Biology	1. Learn the structure, chemistry and functions of cellular organelles.
	2. Study the structure and properties of Macromolecules.
BO. 333 Genetics and Evolution	1. Learn about Mendelian principles.
	2. Know about gene mapping methods & Extra chromosomal inheritance.
	3. Familiarize about Evolution & Emergence of evolutionary thoughts.
	4. Gain knowledge on Plant breeding techniques
BO. 334 Spermatophyta and Palaeobotany	1. Know about the structure, life history and Economic importance of Gymnosperms.
	2. Learn the fossil plants and past flora.
	3. Studied the methods of fossilization and fossil plants.
BO. 335 Horticulture and Floriculture	1. Learn the importance of horticulture – career and occupational opportunities

	2. Learn the techniques of gardening - Types, Methods & Tools
	3. Learn about Floriculture - Cultivation of commercial flower crops
BO. 336 Computational Botany	1. Studied the application of Bioinformatics in Drug designing.
	2. Learn the phylogenetic analysis – molecular evolution
Semester IV	
BO.341 Plant Physiology and Biochemistry	1. Understand the process of Photosynthesis, Respiration and Nitrogen metabolism.
	2. Know about the Plant Growth hormones (Auxins, Gibberellins, Cytokinins, Ethylene)
	3. Understand the biosynthesis of phenols and nitrogenous compounds
	4. Know about the requirement of mineral nutrition for plant growth.
BO.342 Plant Ecology and Biodiversity	1. Learn the Approaches to the study of Ecology (Autecology, Synecology and Genecology)
	2. Understand the population & Community Ecology - concept of metapopulation
BO.343 Plant Pathology	1. Studied some plant diseases with special reference to the causative agents, symptoms, etiology and control measures.
BO.344 Medicinal and Economic Botany	1. Brief studied the economic products with special reference to the Botanical name, family, morphology of useful part and the uses
	2. Learn the taxonomic evidences from molecular, numerical and chemicals.

BO.345 Plant Biotechnology	1. Biotechnology and IPR, Biosafety, Biopiracy, Bioterrorism and Bioethics.
	2. Recombinant DNA technology
	3. Know about the morphogenesis and organogenesis in plants.
	4. Study about the role of tissue culture in crop improvement.
BO.346 Plant Breeding and Seed Technology	1. Learn about Mendelian principles
	2. Know about gene mapping methods & Extra chromosomal inheritance
	3. Gain knowledge on Plant breeding techniques

## Department of Psychology

### Program Specific Outcomes

- 1) Realise the importance of health and well being.
- 2) Understand the application of psychology in health, harmony and happiness.
- 3) Understand the importance of positivity in life
- 4) Understand the application of Psychology in industrial and organisational setting.

### Course Outcomes:

#### F.Y. B. A: (G1) General Psychology

- 1) Understand the basic principles of psychology.
- 2) Comprehend the historical trends in psychology.
- 3) To understand major concepts, theoretical perspective and empirical finding.
- 4) To understand the importance of better mental health in life.
- 5) To understand the process of memory and acquires the techniques of memory improvement.
- 6) To compared the concept of Intelligence And personality.

#### SYBA (G2) Social psychology

- 1) Understand the basic concepts methods and theories of social psychology.
- 2) Understand the relationship between self and Gender.
- 3) Understand the bio- psycho and socio- cultural perspective of gender role development.
- 4) Comprehend the process of attitude formation.
- 5) Realise the nature, causes and prevention of aggression.
- 6) Understand the causes and consequences of group behaviour.
- 7) Understand the process of leadership development.

### Subject code = Sec - 1A

#### SYBA: Health psychology (Course Outcome)

- 1) Understand the role of psychology in health.
- 2) Understand various Bio- psycho social factor related to health and disease.

- 3) Understand the mind body relationship.
- 4) Realise the importance quality of life and promoting the good health.

**SEMISTER – 4, Subject code = 1B**

**Positive Psychology**

Course outcome

- 1) Understand how the positive psychology as the science of happiness.
- 2) Understand the difference between pleasure, happiness and satisfaction.
- 3) Realise the importance of positive emotions in well being.
- 4) Traced the Factors of positive life.

**Program Specific Outcome**

- 1) Understand the nature of human behaviour.
- 2) Comprehend the process of learning and memory.
- 3) Understand various motivations and emotions behind human behaviour.
- 4) Understand the difference between individualistic behavior and social behavior.
- 5) Comprehend the etiology of gender difference.
- 6) Realise the importance of attitude change.
- 7) Understand the application of psychology in industrial setting.
- 8) Understand the application of psychology in organisational setting.

**T. Y. B. A (G3) Industrial and organisational psychology. (CO)**

- 1) Comprehend the emergence of industrial and organisational Psychology.
- 2) Get aquitain with work done in industrial and organisational Psychology.
- 3) Understand the significance of training, performance of appraisal and leadership models.
- 4) Understand the importance of job satisfaction.
- 5) Realise the importance of engineering psychology.

Semester -3

Course outcome SYBA ( CBCS Pattern )





## **Department Of Geography**

### **B.A. Geography**

#### **Programme Outcome**

After successfully completing B.A. Geography Programme students will be able to:

PO1: Apply qualitative and quantitative research techniques to gather and analyse data on social, cultural, and ecological problems.

PO2: Apply clear written and oral communication skills to communicate results of research.

PO3: Demonstrate connections between everyday life at the local scale and the larger Economic, social, and/or environmental forces that network them into a global Community.

PO4: Evaluate cultural, social, and environmental processes with a particular focus on space and place, critical theory, practical application, analysis and/or social justice.

PO5: Think in spatial terms to explain what has occurred in the past as well as using geographic principles to understand the present and plan for the future.

PO6: Demonstrate general understanding of how the physical environment, human societies, and local and global economic systems are integral to the principles of sustainable development.

PO7: Demonstrate acquisition of Weather chart/map, map aerial photograph and Image reading skill.

PO8: Develop research questions and critically analyse both qualitative and quantitative data to answer those questions using various theoretical and methodological approaches in both physical and human geographies.

PO9: Develop a general understanding of global human population patterns, factors

influencing the distribution and mobility of human populations including settlement and economic activities and networks, and human impacts on the physical environment.

PO10: Read, interpret, and generate maps and other geographic representations as well as extract, analyse, and present information from a spatial perspective

### **After completing B. A. Geography programme will have**

PSO1: Demonstrate and understanding of principles and theories of Geography. This include Geomorphology, Economic Geography, Human Geography, Agriculture Geography.

PSO2: Apply Statistical Techniques of Spatial Analysis.

PSO3: Demonstrate ability to apply knowledge learned in classroom to set and perform simple laboratory experiments in geography.

## **2. Department Of Geography**

### **Course Outcomes**

#### **F. Y. B. A. Geography**

Course Gg110 A: Physical Geography (General -1)

Course Gg110 B: Human Geography (General -1)

The student who successfully completes this course can able to:

CO1: Explain principal terms, definitions, Concept and theories of Physical Geography

CO2: Discuss development of micro to mega scale landforms.

CO3: Identify different Materials of the earth crust, rock types, and types of weathering, mass movements and types of slope.

CO4: Describe importance of latitude, longitude and the reasons why different countries have different time zone and date.

CO5: Apply knowledge of basic landforms from tectonic, volcanic, fluvial and coastal environments.

CO6: Evaluate exogenous and endogenous processes in the landscape, their importance in landform development, and distinguish the mechanisms that control these processes.

CO7: Describe nature of man-environment relationship and human capability.

CO8: Explain conditions of living of human beings from primitive life to the modern era.

CO9: Explain human evolution and different races existed since the beginning of living life.

CO10: Describe different tribes and their culture in different geographical areas.

### **S. Y. B. A. Geography**

#### **Course Gg-210: Geography of Disaster Management (General -2)**

After successfully completing this course, students will be able to:

CO1: Describe concepts of Disaster and its relations with Geography.

CO2: Explain terminology and concepts of Disaster Management.

CO3: Implement concepts of hazards in different areas and its Management.

CO4: Explain standard operating procedure on government for disaster management.

CO5: Describe concepts of anthropogenic disaster, its types, causes and management.

CO6: Explain important global level disasters i.e, acid rain, ozone depletion and global warming.

CO7: Demonstrate Disaster Management at local level.

CO8: Suggest methods of protection from disaster and will be able to do disaster

management.

### **Course F.Y.B.Com: Commercial Geography**

After successfully completing this course, students will be able to:

CO1: Define basic principles and concepts in Commercial Geography.

CO2: Describe dynamic aspect of Commercial geography.

CO3: Explain Activities for global Commercial development.

CO4: List type of resources for economic development and its applications.

CO5: Describe skill of planning the Commercial development and its management.

CO6: Describe skill of industrial, agricultural transport and trade activities.

CO7: Apply applications of Commercial geography in different areas of growth and development.

CO8: Conduct geographical field investigation and report writing.

CO9: Describe basic of Statistical data and the skill of graphical data representation.

CO10: Explain principal terms, definitions, nature and scope of Commercial Geography.

CO11: Explain different types of agriculture.

CO12: Discuss problems and prospects of agriculture with Indian examples.

CO13: Demonstrate knowledge of irrigation and watershed management.

CO14: Evaluate allied areas in agriculture and agricultural development.

CO15: Apply the geographical knowledge in the sustainable agriculture development and agriculture in India.

## **T.Y.B.A. Geography**

### **Course Gg 310: Human Geography (G-3)**

After successfully completing this course, students will be able to:

CO1: Describe nature of man-environment

CO2: Explain conditions of living of human beings from primitive life to the modern era.

CO3: Explain human evolution and different races existed since the beginning of living life.

CO4: Describe different tribes and their culture in different geographical areas.

CO5: Explain causes and effect of migration of mankind.

CO6: Analyse relationship between population and available resources.

CO7: Identify and explain spatial distribution pattern of population and environment

CO8: Identify contemporary issues which the global community is facing.

## **Department of English**

### **PROGRAMME OUTCOMES**

The study of English Literature helps students explore how writers use the creative resources of language-in fiction, poetry, nonfiction prose, and drama-to explore the entire range of human experience. From the study of literature students are expected to be imaginative, rhetorically dexterous, and technically proficient and most importantly have a deeper insight into life

### **LEARNING OUTCOMES**

Learning outcomes specify what students after completing a programme is expected to know and do. What attributes will a student develop in himself during the period he is made to acquaint himself to the papers taught .

### **FYBA OPTIONAL ENGLISH**

This course paper is an amalgamation of prose, poetry, short stories and phonetics. The students will gain insight into the poetic devices employed by the poets. They will have an ability to critically read the texts and understand their broader implications. The students will become acquainted with certain issues addressed in the syllabus such as culture gender race etc.The students will also learn about the articulation of sounds.

#### **SYBA S1 (Drama)**

1. The students will learn to comprehend drama. They will gain a brief understanding of the dramatists and their works in the light of social, cultural and historical conditions of their times. The students will also learn to what extent are the texts taught relevant even in modern times.
2. It will hone their skills to evaluate and interpret dramatic lite

#### **SYBA Compulsory English**

This course paper is an amalgamation of prose, poetry, short stories and language. The students will get a bird's eye view of all the three genres of literature. The course also gives some space to language. They will learn the different poetic forms and the socio-political issues of the times in which the poems were written.

The study of prose will enable the students to comprehend, interrogate and redefine the multi-faceted aspects of a culture. The study of language will enable them to write clearly, effectively, and creatively. They will also learn to write accurately and appropriately in accordance to the content, context, and nature of the subject. In this era of globalization, we cannot undermine the importance of communication skills. The study of language and grammar will help the students to learn the art of transmitting information and ideas both in verbal communication and written communication.

### **S. Y. B. Sc . OPTIONAL ENGLISH**

The course largely give an emphasis on communication skills, how to work with other people in a collaborative manner and how to participate in group discussion and leave an everlasting mark.

### **TYBA S3 (NOVEL)**

The students will be introduced to the concept of existentialism, stream of consciousness, popular form of novel widely written and read in different periods, and the reflection of human emotions in the novel. The students will develop an ability to think critically on various issues and relate the same with real life situation.



## Department of Economics

### **Program outcomes: Economics**

1) Learning outcomes SY BA students after completing the course will be able to distinguish properly between micro and macro economics. The concepts will teach them what the different economic terms mean the syllabus of economics general as well as special-1 will teach the students how to deal with the consumer behaviour so that so far as demand, supply, or market is concerned. They will also have a practical knowledge about banking, different household Bank works can be done with this knowledge, types of deposits cheques etc. The TY BA students will know in their public finance paper as to what government expenditure revenue taxes debts are how the government meets the needs of the public, when need be how it collects revenue. The FY BCom business economics syllabus teaches the students what are the different economic tools that are used in economics for application in business. It teaches them what different types of markets exist in the economy what is competition how prices rise and fall and set to a particular fixed rate. How factors of production being scarce are to be utilised. How the factors of production are to be priced. The TY BCom students learn about the Indian and Global Economy before independence and the changes it has undergone due to adoption of LPG they also learn about the different international institutions and India as one of the member of these institutes and how India has made its position in this institute and where India stands today is known to the students.

### 2) **Professional skills outcome- Economics**

**Economics** is such a subject that it being multi-disciplinary can be used in a multiple way it helps students get jobs in banks schools corporate offices accounts department or any administration job. There are many branches in economics in which the students can specialise and get good opportunity in their career.