

Name of the Programme: Bachelor of Commerce (Honors)

Course Code: COM-100 Title of the Course: Financial Accounting

Number of Credits: 04

Effective from AY: 2023-24

Pre-requisites for the Course:	Nil	
Course Objectives:	Objectives of the Course are: <ol style="list-style-type: none">1. To develop conceptual and practical knowledge of financial accounting.2. To acquaint learners with skills of recording various kinds of business transactions.3. To enable learners to prepare “Statement of Profit and Loss” and “Balance Sheet” as per Schedule III of the Companies Act 2013.4. To acquaint learners with the insights on recording transactions upon buying and selling of securities.	
Content:	Unit 1: Accounting Fundamentals and Depreciation Accounting Accounting Fundamentals: Accounting: Meaning, Need, Nature, Classification, Users of Accounting Information, Accounting Equation, Accounting Principles, Concepts and Conventions, Accounting Standards: Meaning and Need, Elementary knowledge of IFRS. Depreciation Accounting: Meaning, Causes, Need for providing depreciation, AS 6, Methods of Depreciation – Sinking Fund Method and Insurance Policy Method.	15 hours
	Unit 2: Accounting from Incomplete Records Single Entry System: Meaning, Features, Advantages, Limitations; Difference between Single Entry System and Double Entry System, Preparation of Trading, Profit & Loss Account and Balance Sheet under Conversion Method.	15 hours
	Unit 3: Company Final Accounts Preparation of “Statement of Profit and Loss” and “Balance Sheet” as per Schedule III of the Companies Act 2013.	15 hours
	Unit 4: Investment Accounting Meaning and types of investments- Fixed returns (Debentures and Bonds) and Fluctuating returns (Equity shares), AS-13 Accounting for investments, Ex-interest/dividend; Cum- interest/ Dividend transactions, Brokerage, Securities Transaction Tax and other expenses, purchase and sale of investment, Bonus shares and Rights Issue, Valuation of investment.	15 hours
Pedagogy:	Lectures, Discussions, Presentations, Case Studies, Assignments, Class Activities	
Reference/ Readings:	<ol style="list-style-type: none">1. Anthony, R.N, Hawkins, D., Merchant, K. A., (2017). Accounting: Text and Cases (13th Ed). Mc Graw Hill Education.2. Horngren, C.T. and Philbrick, D., (2017). Introduction to Financial Accounting (11th Ed.), Pearson Education.3. Monga, J.R., (2023). Financial Accounting: Concepts and Applications (34th ed.). Mayur Paper Backs, New Delhi.	

	<ol style="list-style-type: none"> 4. Shukla, M.C., Grewal, T.S. and Gupta, S.C. (2017). Advanced Accounts. Vol.-I. (19th Ed.), S. Chand & Co., New Delhi. 5. Maheshwari, S.N., and. Maheshwari, S.K. (2022). Financial Accounting. (6th Ed.) Vikas Publishing House, New Delhi. 6. Goyal, B. K. and Tiwari, HN, (2021). Financial Accounting (6th Ed.), International Book House 7. Goldwin, Alderman and Sanyal (2016). Financial Accounting (2nd Ed), Cengage India Private Limited. 8. Tulsian, P.C. (2023). Financial Accounting (1st Ed.), S. Chand publishing. 9. Mukherjee, A., and Hanif, M. (2018) Modern Accountancy Vol.no. 1 & 2 (3rd Edition) McGraw Hill. 10. Compendium of Statements and Standards of Accounting (2023). The Institute of Chartered Accountants of India, New Delhi.
Course Outcomes:	<p>After completion of this course, the learners will be able to:</p> <p>CO 1: Explain the basic accounting concepts, conventions and accounting standards.</p> <p>CO 2: Record various kinds of business transactions.</p> <p>CO 3: Prepare the financial statements as per Companies Act, 2013.</p> <p>CO 4: Prepare Investment Accounts for buying/selling of fixed/non-fixed interest-bearing securities.</p>

Name of the Programme: Bachelor of Commerce (Honors)

Course Code: COM-111 Title of the Course: Principles and Practice of Management

Number of Credits: 04

Effective from AY: 2023-24

Pre-requisites for the Course:	Nil	
Course Objectives:	<p>Objectives of the Course are:</p> <ol style="list-style-type: none">1. To enable the learners to describe the competitive landscape of a company using Porter's five force model.2. To acquaint the learners with skills to interpret the relevance of delegation and decentralization of authority in an organization.3. To acquaint the learners to recognize the various needs of an individual using Maslow's Need-Hierarchy Theory.4. To elucidate the principles and major techniques of control and apply the principles and techniques of coordination.	
Content:	Unit 1: Introduction to Management Management: Concept and Need, Managerial Functions - An overview; Coordination: Essence of Management. Evolution of Management Thought, Classical Approach - Taylor, Fayol, Neo-Classical and Human Relations Approaches - Mayo, Hawthorne Experiments, Behavioural Approach, Systems Approach, Contingency Approach, MBO, Hammer and Champy- Business Process Re-engineering, Porter's Five-forces' Model.	15 hours
	Unit 2: Planning and Organising Types of Plan; Strategic planning - Concept, process, Importance and limitations; Environmental Analysis and diagnosis (Internal and external environment) - Definition, Importance and Techniques (SWOT/TOWS/WOTS-UP, BCG Matrix, Competitor Analysis); Decision-making: Process and Techniques; Perfect rationality and bounded rationality. Concept and process of organizing - An overview, Span of management, Different types of authority (line, staff and functional), Decentralization, Delegation of authority; Formal and Informal Structure; Principles of Organizing; Network Organization Structure. Emerging types.	15 hours
	Unit 3: Staffing and Leading Staffing: Concept of staffing, staffing process. b. Motivation & Leadership: Concept, Importance, extrinsic and intrinsic motivation; Major Motivation theories - Maslow's Need-Hierarchy Theory; Herzberg's Two-factor Theory, Vroom's Expectancy Theory. Leadership: Concept and importance; Leadership styles. Communication: Concept, purpose, process; Oral and written communication; Formal and informal communication networks, Barriers to communication, Overcoming barriers to communication. Emerging trends in communication.	15 hours

	Unit 4: Control and Coordination Concept, Process, Limitations, Principles of Effective Control, Major Techniques of control - Effective Control Systems. Coordination Concept, Importance, Principles and Techniques of Coordination, Concept of Managerial Effectiveness. Emerging issues in Management.	15 hours
Pedagogy:	Lectures, Classroom discussions and Case study	
Reference/ Readings:	<ol style="list-style-type: none"> 1. Tripathi, P. C. & Reddy, P.N. (2010). Principles of Management (Fourth ed.). Tata Mc Graw Hill Education Pvt. Ltd., New Delhi. 2. Chandan, J. S. (2004). Management, Theory & Practice (Second ed.). Vikas Publishing House, New Delhi. 3. Prasad, L. M. (2000). Principles and Practice of Management (Fifth ed.). Soutan Chand & Sons. 4. Jain, V. (2010). Management Theory & Practice (First ed.). International Book House, New Delhi. 5. Prasad, M. (2008). Management Concepts & Practices. (Fourth ed.). Himalaya Publishing House, Mumbai. 6. Subba Rao, P., & Venkatram T. K. (2010). Management Theory & Practice (First ed.). Himalaya Publishing House, Mumbai. 7. Moshal, B. S. (2009). Principles of Mangement (First ed.).Ane Books Pvt. Ltd., New Delhi. 8. Barton, G., & Thakur, H. (1997). Management Today, Principle & Practice (First ed.). Tata Mc Graw Hill Publishing Co. Ltd., New Delhi. 	
Course Outcomes:	After completion of this course, the learners will be able to: CO 1: Describe the competitive landscape of a company using Porter's five force model. CO 2: Interpret the relevance of delegation and decentralization of authority in an organization. CO 3: Recognise the various needs of an individual using Maslow's Need-Hierarchy Theory. CO 4: Eucidate the principles and major techniques of control and apply the principles and techniques of coordination.	

Name of the Programme: Bachelor of Commerce (Honors)

Course Code: COM-141 Title of the Course: Computer Applications in Business

Number of Credits: 03 (1T+2P)

Effective from AY: 2023-24

Pre-requisites for the Course:	Nil	
Course Objectives:	Objectives of the Course are: 1. To provide skills in data capturing, presentation, and report formatting. 2. To provide an understanding of essentials of Information Technology, Internet Applications and Emerging Technologies. 3. To develop skills in efficient search techniques and online collaboration tools.	
Content:	Unit 1: Information Technology Basics Information: Prerequisites of Information, Need for Information Technology and its advantages; Information Technology : Definition and components; Data : Definition, Types, Data Representation, Number system and Coding Schemes(ASCII and UNICODE); Parts of a Computer: CPU, Memory, Input/ Output Devices, Auxiliary Memory; Software – Definition, Relationship between Hardware and Software, Categories of Software, OS - definition & functions Role of Information Technology in : Business, Mobile Computing, Health Services, Public Sector, Media, Defence Services, Education and Publication.	10 hours
	Unit 2: Internet Applications and Emerging Technologies Internet – role and importance, Web Browser, IP Addressing – Public Vs Private, Static Vs Dynamic; WWW & related protocols; Internet Applications. Cloud Computing: Meaning, Features, & Service models, Advantages and disadvantages, Mobile Computing: Meaning, Business Applications of Mobile computing, Virtual reality & Augmented Reality: Meaning and applications, IoT - Internet of Things: Meaning & Applications	5 hours
	Unit 3: Practicals Lab 1 Basic Computer Skills Surfing the Internet, Use of Email and Search Engines Securing your device Installation and Configuration of any free Antivirus Package eg. AVG/Avast etc., Online Sharing and Collaboration Create documents, spreadsheets and presentations online, Share and collaborate in real time, Safely store and organize your work, Control who can see your documents Data capture using Google Forms Create data forms to capture data for Event Registration, Event Feedback, Customer feedback/satisfaction on a product or service and Order Request OS Basic Installation of Operating System , Demonstrate features of any MS	10 hours

	<p>Windows based OS or any of the Linux flavor , Identification of Directories , Setting up computer, Add a printer, Check device drivers, Installation of software, Users and administrative rights for installation</p> <p>Lab 2</p> <p>Report Formatting using Word Processing (MS Word or any similar Open Source software)</p> <p>Draft an official letter for job interview invitation/ job appointment/ invitation to a business trade show event, use mail merge to input the recipients list linking with database.</p> <p>Given a project report in PDF format transfer to word processor software and format to include title page, specified Paragraph and Page Formatting (page size, orientation, line spacing, font type and font size, Indent, bullets, paragraph formatting) details, Acknowledgement page, Table of contents page, List of figures page, List of Tables page, bibliography, references, distinct headers for each chapter, page numbering in roman for initial pages and normal from first chapter. The document should be checked for spelling errors and corrected appropriately. Create / Upload a document in a collaboration software like Google docs. Share and collaborate in real time, Safely store and organize your work, Control who can see your documents.</p> <p>Lab 3</p> <p>Presentation Software (MS- Powerpoint or any similar Open Source software)</p> <p>Preparing presentation in areas such as Customer satisfaction/ feedback, product analysis, job satisfaction using the data obtained through data capture tool, including appropriate slide animation, sound recording, slide timings, customer feedback video. Export the presentation as video or save as slide show. Prepare handouts for audience.</p>	<p>30 hours</p> <p>20 hours</p>
Pedagogy:	Lectures, Practical Lab Sessions, Presentations	
Reference/ Readings:	<ol style="list-style-type: none"> 1. Sinha, P. K., & Sinha, P. (2014), Computer Fundamentals (Sixth ed.), BPB Publications 2. Leon, A., & Leon, M. (1999), Fundamentals of Information Technology (First ed.), Leon Press 3. Arvind Babu, M. C., Anandamurugan, S., & Priyaa, T. (2016), Cloud Computing (First ed.), Laxmi Publications Pvt Ltd 4. Bahga, A., & Madiseti, V. (2015), Internet of Things: A Hands-On Approach, (First ed.), University Press 5. https://www.howstuffworks.com 6. https://www.panola.edu/media/825/download?attachment/itsw1401.pdf 	
Course Outcomes:	<p>After completion of this course, the learners will be able to:</p> <p>CO 1: Explain the concepts of Information Technology.</p> <p>CO 2: Discuss significance and applications of Internet Applications.</p> <p>CO 3: Discuss significance and applications of Emerging Technologies.</p> <p>CO 4: Demonstrate practical skills in Application software.</p>	

Name of the Programme: Bachelor of Commerce (Honors)

Course Code: COM-142 Title of the Course: Business Mathematics I

Number of Credits: 03 (1T+2P)

Effective from AY: 2023-24

Pre-requisites for the Course:	Elementary Mathematics	
Course Objectives:	Objectives of the Course are: 1. To provide mathematical literacy and foundations in concepts of Mathematics necessary in the areas of Economics, Finance, Commerce and Management 2. To demonstrate modelling of descriptive problems into mathematical formulae for solving business problems. 3. To enable learners to integrate acquired knowledge and skills with practical problems in Economics.	
Content:	Unit 1: Mathematics of Finance <ul style="list-style-type: none">Ratio, Proportions, PercentageSimple Interest, Compound InterestAnnuity	5 hours
	Unit 2: Set Theory and Solutions of Algebraic Equations <ul style="list-style-type: none">Sets: Definition, Representation, Types of sets, Operations on Sets, Power set, De Morgan's laws.Relations and Functions, Domain, Co-domain, RangeQuadratic Equations	5 hours
	Unit 3: Calculus <ul style="list-style-type: none">Derivatives and its applications: Definition, Computational formulae, Algebra of derivatives, derivatives of composite functions. Increasing/decreasing functions, Maxima and Minima. (Definition and Interpretation)Integration and its applications: Definition, standard forms, Algebra of integration, Integration by parts, definite integrals.	5 hours
	Practicals List of Practicals (Each practical of two hours each) UNIT I <ul style="list-style-type: none">RatioProportionsWork and TimeUnit conversion (SI to metric, metric to SI)DiscountsProfit and LossCompound Interest (compounded annually, half-yearly, quarterly, monthly)EMI using interest on reducing balance and flat interest rateFuture valuePresent value UNIT II <ul style="list-style-type: none">Venn diagramPrinciple of inclusion and exclusionGraph of a function	60 hours

	<ul style="list-style-type: none"> • Roots of quadratic equation • Numerical Solution of Algebraic Equations: <ul style="list-style-type: none"> • Bisection method • Regula-Falsi method • Newton-Raphson method <p>UNIT III</p> <ul style="list-style-type: none"> • Cost/ Demand/ Revenue, Marginal Cost/ Demand/ Revenue • Elasticity of demand, supply • Increasing/decreasing functions <ul style="list-style-type: none"> ○ Maxima and minima ○ Area under a curve ○ Consumer Surplus ○ Producer's Surplus • Numerical Differentiation using: <ul style="list-style-type: none"> ○ Newton's Forward difference ○ Backward difference method ○ Divided difference method • Numerical Integration using: <ul style="list-style-type: none"> ○ Trapezoidal rule ○ Simpson's one-third formula ○ Weddle's formula <p>Practicals using softwares like GeoGebra for interactive sessions is encouraged. Additional workshops on these softwares are recommended.</p>	
Pedagogy:	Lectures, Practicals	
Reference/ Readings:	<ol style="list-style-type: none"> 1. Clendenen, G., & Salzman, S. (2015). Business Mathematics (Global Edition), Pearson Education. 2. Sharma, J. K. (2014). Business Mathematics: Theory and Applications (Ane's Student Edition), Lakshi Publishers. 3. Dikshit, A., & Jain, J. K. (2009). Business Mathematics, Himalaya Publishing House. 4. Sastry, S. S. (2012). Introduction to Numerical Analysis (Fifth Edition), Prentice Hall India Learning Pvt. Ltd. 5. Cain, J., & Emeritus, R. C. (2000). Mathematics for Business Careers (Fifth Edition), Pearson Education. 6. Eugene, D., & Lerner, J. (2009). Schaum's Outline of Basic Business Mathematics (Second Edition), McGraw-Hill Education. 7. Hilderbrand, F. B. (2003). Introduction to Numerical Analysis (Second Edition), Dover Publications Inc. 8. Robert, B., & Zima, P. (2011). Schaum's Outline of Mathematics of Finance (Second Edition), McGraw Hill Education. 	
Course Outcomes:	<p>After completion of this course, the learners will be able to:</p> <p>CO 1: Solve problems in the areas of business calculus, simple and compound interest account, loan and consumer credit.</p> <p>CO 2: Undertake necessary computations for problems of interest, annuities and perpetuities, capitalized cost, depletion allowances, stocks and bonds.</p> <p>CO 3: Evaluate and select financial arrangements which are best for a consumer.</p> <p>CO 4: Demonstrate and use calculus in the areas of Commerce, Economics and Finance.</p>	

Name of the Programme: Bachelor of Arts

Course Code: ENG-141

Title of the Course: Soft Skills

Number of Credits: 03

Effective from AY: 2023-24

Pre-requisites for the Course:	<ul style="list-style-type: none">● The aspiration for personality development● Basic inter-personal communication skills	
Course Objectives:	<ul style="list-style-type: none">● To develop effective communication skills● To formulate problem solving skills● To enhance the ability to work with others● To improve the quality of their body language● To make students more proficient in their future career	
Content:	Course Content: UNIT 1- Theory <ul style="list-style-type: none">● Interpersonal Skills – Communication: Speaking, Listening● Team spirit and ability to work as a team player● Emotional Intelligence● Adaptability - interpersonal sensitivity, cultural tolerance UNIT 2- Practical <ul style="list-style-type: none">● Leadership● Problem solving skills● Negotiation Skills● Business Etiquette UNIT 3- Practical <ul style="list-style-type: none">● Social Graces● Behavioural traits● Personal Qualities and Work ethics● Cultural Awareness	(15hours) (30 hours) (30 hours)
Pedagogy:	Collaborative and integrative approach	
References/Readings:	<ul style="list-style-type: none">● Dhanavel, S. P. <i>English and Soft Skills</i>. Orient Black Swan, 2013.● Kaushik, et al., editors. <i>English for Students of Commerce: Precis, Composition, Essays, Poems</i>.	
Course Outcomes:	On completion of the course, the student will be able to do the following: <ul style="list-style-type: none">● Improve their overall communication and interpersonal skills● Develop self-confidence to function effectively in different circumstances● Put into practice emotional intelligence and problem-solving skills● Use appropriate body language in different social settings	

Name of the Programme: Bachelor of Commerce (Honors)

Course Code: COM-144 Title of the Course: Business Documentation

Number of Credits: 03 (1T+2P)

Effective from AY: 2023-24

Pre-requisites for the Course:	Nil	
Course Objectives:	Objectives of the Course are: 1. To enhance business document presentation skills. 2. To improve competence in business correspondence and documentation. 3. To acquaint learners with skills of business report writing.	
Content:	Unit 1: Business Document Presentation Business, commercial and managerial vocabulary- terms used in trade, business plans/ proposals, presenting business plans, multimedia corporate presentations; Use of digital platforms in business documentation and communication; Document sharing and collaborative working; Privacy and data security issues in business documentation	15 hours
	Unit 2: Business Correspondence and Documentation (Practical) Letter writing, presentation, inviting quotations, sending quotations, placing orders, sales letters, claim and adjustment letters; Job application letter, preparing the resume; Social and public relations correspondence; Drafting simple contracts and deeds; Legal documentation for bank transactions; Property documentation; Contract of employment; Memorandum, inter- office memo, notices, note-sheet, agenda, minutes; Creating, storing/ archiving and retrieving folders/ documents.	30 hours
	Unit 3: Report Writing (Practical) Format of a report; Steps in report writing; Identify the types of reports; Inserting visuals such as tables, diagrams and charts in report; Citations and References; File Management.	30 hours
Pedagogy:	Lectures, Presentations, Case study, Role Play, Seminars	
Reference/ Readings:	1. Raman, M., & Sharma, S. (2015). Technical Communication - Principles and Practice (Third ed.). Delhi: Oxford University Press. 2. Sharma, R.C. & Krishna, M. (2017). Business Correspondence and Report Writing (Fifth ed.). Tata McGraw Hill Publishing Company Limited. 3. Sinha, K. K (2012). Business Communication (fourth ed.). Galgotia Publishing Co., Karol Bagh, New Delhi. 4. Pal, R. & Korlahalli, J. S. (2012). Essentials of Business Communications. (First ed.). Sultan Chand & Sons. 5. Taylor, S. (2012) Model Business Letters, Emails and Other Business Documents (7th ed.), FT Publishers. 6. Shinley, T. (2016) Communication for Business (fourth ed.). Pearson Education. 7. Khanna, J. K. (2013). Documentation and Information-Services, Systems & Techniques. (Fifth ed.) Y.K. Publishers.	
Course Outcomes:	After completion of this course, the learners will be able to: CO 1: Demonstrate business document presentation skills. CO 2: Display competence in business correspondence. CO 3: Display competence in business documentation. CO 4: Prepare business reports.	

Name of the Programme: Bachelor of Commerce (Honors)

Course Code: COM-145 Title of the Course: Innovation and Start-ups

Number of Credits: 03 (1T+2P)

Effective from AY: 2023-24

Pre-requisites for the Course:	Nil	
Course Objectives:	Objectives of the Course are: 1. To develop an entrepreneurial mind-set. 2. To acquaint learners with skills to develop a business model. 3. To enable learners to explore funding and growth opportunities.	
Content:	Unit 1: Introduction to Startups and Entrepreneurship Introduction to Entrepreneurship, Factors influencing Entrepreneurship, Characteristic of Entrepreneur; Process and Phases of Entrepreneurship, Types of Entrepreneurs, Barriers to entrepreneurship, Entrepreneurship Motivation Theories, Entrepreneurship Models - Introduction to various form of business organization (sole proprietorship, partnership, corporations, Limited Liability company); Skills of an Entrepreneur, Ethics and Entrepreneurship	15 hours
	Unit 2: Exploring Business Opportunity, Developing a Business Model and Starting up (Practical) Exploring Business Opportunity: Self-Discovery, Environment Scanning for idea generation, Problem Identification and Idea Generation, Spotting Trends, Creativity and Innovation, Idea Evaluation; Developing a Business Model: Team, Market Understanding, Product/ Market Fit, Customer Validation, Business Model Canvas Preparation, Preparation of Business model and Business Plan; Translating Business Model into Startup: Business Planning (Finance, HR, Marketing, Distribution, Production Plan, Networking), Obtaining Business Licenses, Applicability of Regulations	30 hours
	Unit 3: Startup Growth and Expansion (Practical) Identifying Growth Opportunities, Funding Sources of Entrepreneurship for Growth, Retention & Expansion Strategies, Expansion model, Maximizing Profits, Determine appropriate exit strategies for entrepreneurs; Identify Funding Agencies both private and government aided, Cases in various types of fundings: Debt Funding, Bootstrap, Seed, Series A; Organizational Assistance by government for startup and various policies; Incubation Centres – role, support and mentorship, prototyping and stakeholder connects, startup scaling.	30 hours
Pedagogy:	Lectures, Discussions, Presentations, Case Studies, Assignments, Class Activities	
Reference/ Readings:	1. Ramachandran, K. (2008). Entrepreneurship Development, McGraw Hill 2. Katz, J., & Green, R. (2020). Entrepreneurial Small Business (6 th Ed.), McGraw Hill 3. Byrd, M. J., & Megginson, L. C. (2012). Small Business Management an	

	<p>Entrepreneur's Guidebook (7th Ed.), McGraw Hill</p> <ol style="list-style-type: none"> 4. Fayolle, A., & Lyon, E. M. (2007) Entrepreneurship and new value creation: The Dynamic of the Entrepreneurial Process. Cambridge University Press. 5. Hougaard S. (2005) The Business Idea: The Early Stages of Entrepreneurship. Springer 6. Lowe, R., & Mariott, S. (2006) Enterprise: Entrepreneurship & Innovation. Butterworth Heinemann 7. Dana, L. (2013). World Encyclopedia of Entrepreneurship, Edward Elgar. 8. Akhouri, M. M. P., & Mishra, S. P. Udyamita (in Hindi) MMP. By National Institute for Entrepreneurship and Small Business Development (NIESBUD), NSIC-PATC Campus, Okhla
Course Outcomes:	<p>After completion of this course, the learners will be able to:</p> <p>CO 1: Develop an entrepreneurial mind-set by learning key skills.</p> <p>CO 2: Create and validate a business model and business plan.</p> <p>CO 3: Explore business funding opportunities.</p> <p>CO 4: Explore business growth opportunities.</p>

Name of the Programme: Bachelor of Arts- English
Course Code: ENG-151
Title of the Course: Communicative English: Spoken and Written
Number of Credits: 02
Effective from AY: 2023-24

Pre-requisites for the Course:	Interest in improving spoken and written English skills	
Course Objectives:	<ul style="list-style-type: none"> ● To listen, understand and convey information ● To listen and respond appropriately to the contributions of others ● To understand others and present facts, ideas and opinions ● To articulate experience and express what is thought, felt and imagined ● To communicate clearly and fluently ● To use grammatically correct language ● To use a register appropriate to the audience and context 	
Content:	UNIT 1 <ul style="list-style-type: none"> ● Verbal and non-verbal Skills: importance of pronunciation, enunciation, diction, articulation, intonation and body language. ● Group Discussion: persuasion, negotiation, leading and participating. ● Interview Skills: techniques of answering and conducting interviews. ● Delivering Speeches: balancing rhetoric and empathy to connect with the audience. 	(15 hours)
	UNIT 2 <ul style="list-style-type: none"> ● Communication through Letters: cover letters, letters of goodwill, complaint letters and invitation letters. ● Email Correspondence: components, format, attachments, content and language. ● Writing Reports: format and steps. ● Drafting Speeches: special occasion, motivational, informative, and extemporaneous. 	(15 hours)
Pedagogy:	Topics to be taught using interactive teaching and the workshop method.	
References/Readings:	<ul style="list-style-type: none"> ● Beebe, S. A., & Beebe, S. J. <i>Public Speaking: An audience centered approach</i>. 8th ed, 2012 ● Hancock, Mark. <i>English Pronunciation in Use</i>. Cambridge UP, 2003 onwards. ● Krishna Mohan and N. P. Singh. <i>Speaking English Effectively</i>. Macmillan India Ltd ISBN: 0333925521 ● Loughheed, Lin. <i>Business Correspondence: A Guide to Everyday Writing</i>. Longman, 2003. ● Murphy, Raymond. <i>Murphy's English Grammar</i>. Cambridge UP. ● Vyas Manish A., Yogesh L. Patel. <i>Tasks for the English Classroom</i>. Macmillan, 2012. ● Online Resource – The homepage of NATE (National Association of Teaching English) while a national British association, has many resources which are in effect international. Series: English Writing Frames – Copiable books. Could be used in used in conjunction with any language/Communication skills course. A systematic resource, with step-by-step practical exercises and photocopiable frames to practice with. 	

Course Outcomes:	<p>On completion of the course, the student will be able to do the following:</p> <ul style="list-style-type: none"> ● Elicit and show respect for the views of others as well as be culturally sensitive. ● Display emotional stability and self-confidence. ● Apply critical thinking skills through decision-making and problem-solving. ● Demonstrate effective written communication for an intended purpose and audience that follows genre/disciplinary conventions that reflect creation, organization, precision, and revision.
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Name of the Programme: Bachelor of Arts- English
Course Code: ENG-151
Title of the Course: Communicative English: Spoken and Written
Number of Credits: 02
Effective from AY: 2023-24

Pre-requisites for the Course:	Interest in improving spoken and written English skills	
Course Objectives:	<ul style="list-style-type: none"> ● To listen, understand and convey information ● To listen and respond appropriately to the contributions of others ● To understand others and present facts, ideas and opinions ● To articulate experience and express what is thought, felt and imagined ● To communicate clearly and fluently ● To use grammatically correct language ● To use a register appropriate to the audience and context 	
Content:	UNIT 1 <ul style="list-style-type: none"> ● Verbal and non-verbal Skills: importance of pronunciation, enunciation, diction, articulation, intonation and body language. ● Group Discussion: persuasion, negotiation, leading and participating. ● Interview Skills: techniques of answering and conducting interviews. ● Delivering Speeches: balancing rhetoric and empathy to connect with the audience. 	(15 hours)
	UNIT 2 <ul style="list-style-type: none"> ● Communication through Letters: cover letters, letters of goodwill, complaint letters and invitation letters. ● Email Correspondence: components, format, attachments, content and language. ● Writing Reports: format and steps. ● Drafting Speeches: special occasion, motivational, informative, and extemporaneous. 	(15 hours)
Pedagogy:	Topics to be taught using interactive teaching and the workshop method.	
References/Readings:	<ul style="list-style-type: none"> ● Beebe, S. A., & Beebe, S. J. <i>Public Speaking: An audience centered approach</i>. 8th ed, 2012 ● Hancock, Mark. <i>English Pronunciation in Use</i>. Cambridge UP, 2003 onwards. ● Krishna Mohan and N. P. Singh. <i>Speaking English Effectively</i>. Macmillan India Ltd ISBN: 0333925521 ● Loughheed, Lin. <i>Business Correspondence: A Guide to Everyday Writing</i>. Longman, 2003. ● Murphy, Raymond. <i>Murphy's English Grammar</i>. Cambridge UP. ● Vyas Manish A., Yogesh L. Patel. <i>Tasks for the English Classroom</i>. Macmillan, 2012. ● Online Resource – The homepage of NATE (National Association of Teaching English) while a national British association, has many resources which are in effect international. Series: English Writing Frames – Copiable books. Could be used in used in conjunction with any language/Communication skills course. A systematic resource, with step-by-step practical exercises and photocopiable frames to practice with. 	

Course Outcomes:	<p>On completion of the course, the student will be able to do the following:</p> <ul style="list-style-type: none"> ● Elicit and show respect for the views of others as well as be culturally sensitive. ● Display emotional stability and self-confidence. ● Apply critical thinking skills through decision-making and problem-solving. ● Demonstrate effective written communication for an intended purpose and audience that follows genre/disciplinary conventions that reflect creation, organization, precision, and revision.
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Name of the Programme: BA Economics
Course Code: ECO-131
Title of the Course: Sustainable Development
Number of Credits: 3
Effective from AY: 2022-23

Pre-requisites for the Course:	Nil	
Course Objectives:	To understand global challenges, mechanism to promote equity and social justice, enhance education and awareness, and achieve long-term well being for present and future generations sustainably.	
Content:	<ol style="list-style-type: none"> 1. Introduction to Sustainable Development Definition and concept of sustainable development, objectives of Sustainable development, three pillars of sustainable development, sustainable development: process or end results? dimensions of sustainable development-social, economic and environmental, The Millennium Development Goals, Tools for Sustainable growth. 2. Sustainable Development and Climate Change Causes and impact of climate change, Link between Sustainable Development and Climate Change, Implementation of Sustainable Development and Climate Change Policies, Sustainability Assessment Methods - Indicators and Indices, Conceptual Framework and System Dynamics, Multi-Criteria Analysis, Vulnerability Analysis, Climate change and migration, impact of climate change on cities, strategies adopted for climate change. 3. Sustainable development and India Emergence of Green Technologies towards Sustainable Growth, Transforming millennium development goals to sustainable development goals with reference to India, Environment and Sustainable development with reference to India- state of India's environment, Strategies for sustainable development, Sustainable agriculture and climate change, Industrial development and environmental pollution., Sustainable management of water and sanitation, Environment management and sustainable development. 	<p>No of hours</p> <p>15</p> <p>15</p> <p>15</p>
Pedagogy:	Lectures/ case analysis/assignments/class room interaction/lab practical	
References/ Readings:	<p>Core Reading</p> <p>C1. Jonathan M. Harris and Brian Roach (2018) Environmental and Natural Resource Economics A Contemporary Approach, Fourth Edition, Taylor and Francis, New York</p> <p>C2. Partha Dasgupta (2021), The Economics of Biodiversity: The Dasgupta Review. Abridged Version. (London: HM Treasury) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957292/Dasgupta_Review_-_Abridged_Version.pdf</p>	

	<p>C3. Lynne Lewis, Thomas H. Tietenberg (2020) Environmental Economics and Policy, Routledge, London</p> <p>Additional References</p> <p>A1. Charles D. Kolstad (2012) Intermediate Environmental Economics, Oxford University Press, New Delhi</p> <p>A2. Stephen Smith (2011) Environmental Economics: A Very Short Introduction, Oxford University Press, Oxford</p>
Course Outcomes:	<p>Student will be able to:</p> <ol style="list-style-type: none"> 1. understand global sustainability challenges, 2. Appreciate mechanisms to promote equity and social justice, 3. Explain role of enhance education and awareness in achieving long-term well being for present and future generations sustainably.

Name of the Programme: B.Sc. (Mathematics)

Course Code: MAT-131

Title of the Course: Mathematical Techniques in Competitive Exams

Number of Credits: 3 (3L)

Effective from AY: 2023-24

Prerequisites	NIL	
Course Objectives	To make students competent enough to answer competitive examinations like Banks, Post Office, SSC, LIC, CDS, CSAT, CAT, CMAT, GMAT, MAT, UPSC, CBI, CPO, Civil Services, Hotel Management, Railway, Police, Defence, etc.	
Content		Hours
Unit I	Ratio and Proportion: Ratio; Comparison of ratios; Proportion. Mixture or Alligation: Mixture; Rule of mixture or allegation. Partnership: Types of partnerships; Types of partners. Problems Based on Ages: Rules for problems based on ages.	15
Unit II	Work and Time: Basic rules related to work and time. Work and Wages: Important points. Pipes and Cisterns: Facts related to pipes and cisterns. Clock and Calendar: Clock; Calendar; Day Gain/Loss.	15
Unit III	True Discount and Banker's Discount: True discount; Banker's discount. Speed, Time and Distance: Basic formulae related to speed, time and distance. Problems Based on Trains: Basic rule related to problems based on trains. Boats and Streams: Concepts and formulae on boats and streams.	15
Pedagogy	Lectures/Problem Solving/Self study.	
References/Readings	1) R. Verma: <i>Fast Track Objective Arithmetic</i> , Arihant Publications Limited, 2017. (Principal Text) 2) A. Sharma: <i>How to Prepare for Quantitative Aptitude for CAT</i> , 9 th Edition, McGraw Hill, 2021. 3) P. K. Mishra, and R. Mishra: <i>Elementary & Advanced Mathematics For Competitive Exams</i> , Source Books, 2018. 4) R. S. Aggarwal: <i>Quantitative Aptitude for Competitive Examinations</i> , S. Chand Publications, 2017. 5) R. Mathuriya: <i>Mathematics for all Competitive Exams SSC (Pre./Mains)</i> , Sunita Publications, 2017.	
Course Outcomes	The student will be able to, 1. Apply mathematical techniques in solving problems. 2. Identify tricks in solving problems quickly. 3. Employ various strategies to solve problems arising in various competitive exams. 4. Manage time in answering several questions appearing in the exam.	

Name of the Programme: B.Sc. (Mathematics)

Course Code: MAT-132

Title of the Course: Descriptive Statistics

Number of Credits: 3 (3L)

Effective from AY: 2023-24

Prerequisites	NIL	
Course Objectives:	To make students aware of various statistical tools and techniques that can be employed in data analysis and simple research.	
Content		Hours
Unit I	Data Visualization Introduction to Statistics: Definition and scope of Statistics; Concepts of statistical population and sample; Variates and attributes. Types of Data: Quantitative and Qualitative data, Cross-sectional and Time-series data, Discrete and continuous data. Different types of scales: Nominal, Ordinal, Interval and Ratio. Collection and Scrutiny of Data: Primary data, Secondary data – its major sources, Complete enumeration; Construction of tables with one or more factors of classification; Frequency distributions and cumulative frequency distributions and their graphical representations (Histograms, frequency polygon, Ogives).	15
Unit II	Data Summarization Measures of Central Tendency: Mean, Median, Mode. Measures of Dispersion: Range, Quartile deviation, Mean deviation, Standard deviation, Coefficient of variation, Skewness and Kurtosis.	15
Unit III	Correlation and Regression Bivariate data: Scatter diagram; Karl Pearson's coefficient of correlation; Spearman's rank correlation coefficient. Bivariate Regression Analysis: Regression lines; Properties of regression coefficients; Residual variance. Principle of least squares and fitting of polynomials and exponential curves.	15
Pedagogy	Lectures/Problem Solving/Self study.	
References/Readings	1) S. C. Gupta: <i>Fundamentals of Statistics</i> , 7 th Edition, Himalaya Publishing House, 2018. (Principal Text) 2) A. M. Goon, M. K. Gupta, and B. Dasgupta: <i>Fundamentals of Statistics, Vol. I</i> , 8 th Edition, The World Press, Kolkata, 2016. 3) S. C. Gupta, and V. K. Kapoor: <i>Fundamentals of Mathematical Statistics</i> , 12 th Edition, S. Chand and Sons, Delhi, 2020. 4) S. P. Gupta: <i>Statistical Methods</i> , S. Chand & Sons, 2017. 5) S. Bernstein, and R. Bernstein: <i>Schaum's Outlines: Elements of Statistics I – Descriptive Statistics and Probability</i> , McGraw Hill, 2020.	
Course Outcomes	The student will be able to,	

	<ol style="list-style-type: none"> 1. Understand concepts of sample v/s. population and Identify different types of scales. 2. Distinguish between primary and secondary data and Organize the Statistical data. 3. Calculate measures of central tendencies and variations. 4. Interpret correlation and regression. 	
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Name of the Programme: Bachelor of Science in Computer Science (Honours)

Course Code: CSC-133

Title of the Course: Cyber Security Essentials

Number of Credits: 03

Effective from AY: 2023-24

Pre-requisites for the Course:	The student should have basic knowledge on how to use computers and internet technology.	
Course Objectives:	<ul style="list-style-type: none">• To introduce principles of cyber security and have an understanding on the cyber-crimes taking place.• To have an understanding of the existing legal framework and laws on cyber security.• To enable students to adopt safe practices when using social media platforms and digital payment systems.	
Content:	1. Introduction to Cyber security Defining Cyberspace and Overview of Computer and Web-technology, Architecture of cyberspace, Communication and web technology, Internet, World Wide Web, Advent of internet, Internet infrastructure for data transfer and governance, Internet society, Regulation of cyberspace, Concept of cyber security, Issues and challenges of cyber security.	5 hours
	2. Cyber crime and Cyber law Classification of cyber-crimes, Common cyber-crimes, cyber-crime targeting computers and mobiles, cyber-crime against women and children, financial frauds, social engineering attacks, malware and ransomware attacks, zero day and zero click attacks, Cybercriminals modus-operandi, reporting of cyber-crimes, Remedial and mitigation measures, Legal perspective of cyber-crime, IT Act 2000 and its amendments, Cyber-crime and offences, Organisations dealing with Cyber-crime and Cyber security in India, Case studies.	10 hours
	3. Social Media Overview and Security Introduction to Social networks. Types of Socialmedia, Social media platforms, Social media monitoring, Hashtag, Viralcontent, Social media marketing, Social media privacy, Challenges, Opportunities and pitfalls in online social network, Security issues related to social media, Flagging and reporting of inappropriate content, Laws regarding posting of inappropriate content, Best practices for the use of Social media, Case studies.	10 hours

	4. E-Commerce and Digital Payments Definition of E- Commerce, Main components of E-Commerce, Elements of E-Commerce security, E-Commerce threats, E-Commerce security best practices, Introduction to digital payments, Components of digital payment and stakeholders, Modes of digital payments- BankingCards, Unified Payment Interface (UPI), e-Wallets, Unstructured Supplementary Service Data (USSD), Aadhar enabled payments, Digital payments related common frauds and preventive measures. RBI guidelines on digital payments and customer protection in unauthorised banking transactions. Relevant provisions of Payment Settlement Act, 2007.	10 hours
	5. Digital Devices Security, Tools and Technologies for Cyber Security End Point device and Mobile phone security, Password policy, Security patch management, Data backup, Downloading and management of third-party software, Device security policy, Cyber Security best practices, Significance of host firewall and Anti-virus, Management of host firewall and Anti-virus, Wi-Fi security, Configuration of basic security policy and permissions.	10 hours
Pedagogy:	Lecture method, Case Studies, Hands-on Training, Group Discussions	
References/ Readings:	1. Cyber Crime Impact in the New Millennium, by R. C Mishra, Author Press. Edition 2010. 2. Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives by Sunit Belapure and Nina Godbole, Wiley India Pvt. Ltd. (First Edition, 2011) 3. Security in the Digital Age: Social Media Security Threats and Vulnerabilities by Henry A. Oliver, Create Space Independent Publishing Platform. (Pearson, 13th November, 2001) 4. Electronic Commerce by Elias M. Awad, Prentice Hall of India Pvt Ltd. 5. Cyber Laws: Intellectual Property & E-Commerce Security by Kumar K, Dominant Publishers. 6. Network Security Bible, Eric Cole, Ronald Krutz, James W. Conley, 2nd Edition, Wiley India Pvt. Ltd. 7. Fundamentals of Network Security by E. Maiwald, McGraw Hill.	
Course Outcomes:	At the end of the course, learner will be able to: <ol style="list-style-type: none"> 1. Explain the concept of Cyber security and issues and challenges associated with it. 2. Explain the cyber crimes, their nature, legal remedies and as to how to report the crimes through available platforms and procedures. 3. Explain various privacy and security concerns on online social media and the reporting procedure of inappropriate content, underlying legal aspects and best practices for the use of Social media platforms. 4. Explain the basic concepts related to E-Commerce and digital payments, digital payment modes and related cyber security aspects, RBI guidelines and preventive measures against digital payment frauds. 	

Name of the Programme: UG

Course Code: VAC-110

Title of the Course: Indian Economic

Thought

Number of Credits: 02

Effective from AY: 2023-24

Pre-requisites for the Course:	UG programme	
Course Objectives:	1) To facilitate the economic thought in ancient India. 2) To familiarise students with the contribution of Indian Economic Thinkers and the relevance of their contribution.	
Content:		No of hours
	Module I: Economic Thought in Ancient India Kautilya's Asthashastra: The economic functions of the State Wealth, Taxation and Pricing Policy, the Land System, Trade.	15
	Module II: Economic Thought at the time of Independence (i) Dadabhai Naoroji – his Drain Theory, his views on the British Policy of Public Finance and Financial Administration. (ii) Mahadev Govind Ranade – his views on laissez-faire policy and protectionism. (iii) Romesh Chandra Dutt – causes of Indian Poverty, his measures for the removal of poverty in India. (iv) Gopal Krishna Gokhale – his views on public expenditure policy of the British – India Government. (v) Sir. M. Visveswaraya – his views on industrialisation and planned development of India. (vi) Mohandas Karamchand Gandhi – his views on village swaraj, swadeshi, use of machinery, the doctrine of trusteeship. (vii) Dr. B.R. Ambedkar – his views on currency money.	15
Pedagogy:	Group Discussion, Class room Presentation, Case Studies, Quiz, Short Assignment.	
References/ Readings:	Core reading C1. R. N. Ghosh and Rama Ghosh, Concise History of Economic Thought. Himalaya Publishing House, 1999. C2. Ajit Dasgupta, A History of Indian Economic Thought, Routledge history of economic thought series, 1993 [E-book] Available: Taylor & Francis e-Library, 2002	
Course Outcomes:	1. To learn and discuss, how the economic thought has evolved over time. 2. To introduce & highlight before the students about Indian Economic Thinkers and their valuable contribution in the field of Economics. 3. Introducing students to the critical comparison of the contributions of the Indian Thinkers.	

Name of the Programme : UG

Course Code : VAC-107

(Army) 1

Number of Credits : 02 (Hours 15L+0T+30P)

Effective from AY : 2023-24

Title of the Course : NCC

Pre-requisites for the Course :	Same as Programme.	
Course Objectives :	Groom the youth of the country into disciplined, responsible and patriotic citizens.	
Content	Module I Theory NCC General, National Integration and Awareness, Personality Development, Social Service and Community Development Module II- Practical Drill, Field Craft & Battle, Craft, Map Reading, Weapon Training, Communication, Social Service and Community Development	No. of hours 15L 30 P
Pedagogy :	Lectures and Practical applications	
References/ Readings	1. Common Handbook : Common Subject SD / SW 2. Army Army NCC Cadet Handbook Specialised Subject SD/SW	
Course Outcomes :	The course will: 1. inculcate a spirit of adventure, explorative inquisitiveness, 2. develop stamina, endurance, discipline, courage, determination, comradeship, 3. Develop leadership leading to development of self-confidence, team spirit and spirit-de- corps amongst NCC cadets	

COMMON AND SPECIAL SUBJECTS FOR NCC ARMY

Sr. No.		Periods (1-hour duration each)		
		Lectures/Tutorials	Practical	Total
1.	NCC General	06		06
2.	National Integration	04		04
3.	Drill		45	45
4.	Weapon Training		25	25
5.	Personality Development	25		25
6.	Leadership	12		12
7.	Disaster Management	13		13

8.	Social Service & Community Development	08	39	47
9.	Hearth & Hygiene		10	10
10	Adventure	01		01
11	Environmental awareness	03		03
12.	Obstacle Training		09	09
13.	General Awareness	04		04
14.	Border & Coastal Areas	06		06
		82	128	210

SEMESTER WISE DISTRIBUTION OF NCC ARMY SYLLABUS FOR THEORY

S. No.	SUBJECT	SEMESTER						TOTAL
		I	II	III	IV	V	VI	
1	NCC General	6						6
2	National Integration and Awareness	4						4
3	Personality Development	2	5	5	4	6	3	25
4	Leadership		5	4	3	-	-	12
5	Disaster Management			3	10			13
6	Social Service and Community Development	3	5					8
7	Adventure			1				1
8	Environmental awareness & conservation				3	-		3
9	General Awareness				4			4

SD/SW (ARMY): SPECIAL SUBJECTS

Sr. No.	Subject	Lecture/Tutorials	Practical's	Total
1.	Armed Forces			
2	Map Reading		24	24
3	Communications	03	03	06
4	Infantry Weapons	03	03	06
5.	Field Craft & Battle Craft		22	23
6	Military History	23		23
Total Hours Specialized Subjects		38	52	90

Name of the Programme: UG

Course Code: VAC-103

Number of Credits: 02

Title of the Course: Environmental Practices in Goa

Effective from AY: 2023-24

Pre-requisites for the Course:	Same as programme	
Course Objectives :	<ol style="list-style-type: none">1. To introduce and acquaint students to Goa's rich Natural Heritage and the importance of sacred groves of Goa.2. Create awareness in students about role of Sacred Groves, Oral Traditions & myths in Conserving Biodiversity.	
Content : Unit I:	Sacred Groves <ol style="list-style-type: none">1. Meaning of Nature worship, Sacred groves, Protector spirits and Natural Heritage2. Types of Sacred Groves.3. Ecological importance of sacred Groves in Goa.4. Guardian Spirits of Goa5. Threats to sacred groves and biodiversity in Goa.6. Strategies to protect the Sacred Groves	15 hours
Unit II:	Intertwining Culture, Religion and Society <ol style="list-style-type: none">1. Oral Traditions protecting Goa's biodiversity.2. Meaning and types of Nature worships3. Myths contributing towards protection nature4. Common taboos and beliefs in the practice of Nature worship.5. Goan practices and rituals related to Nature worship6. Ecological Festivals of Goa.	15 hours
Pedagogy:	Multimedia and ICT based teaching learning.	
References/ Readings:	<ol style="list-style-type: none">1. Kerkar, Rajendra. <i>Sacred Groves of Goa</i>. Saligao, Goa: Goa State Biodiversity Board, 20192. Kerkar, Rajendra. <i>Natural Heritage of Goa</i>. Panaji, Goa: Broadway Publishing House, 2006.3. Gadgil, Madhav and Vartak, V.D. "Sacred groves of India : A plea for Continued conservation" <i>Journal of Bombay Natural History Society</i>, vol. 72, 1975.4. Alvares, Claude (ed.). <i>Fish, Curry and Rice</i>, Mapusa: The Goa Foundation, 2002.	
Course Outcomes :	<ol style="list-style-type: none">1. Develop respect for rich Heritage of Goa and also work towards protection of Nature.2. Promote and inculcate intrinsic values toward Biodiversity by replacing human- centered approach with bio-centric values.	

Name of the Programme: UG

Course Code: VAC-101

Title of the Course: Environmental Studies I

Number of Credits: 02

Effective from AY: 2023-24

Pre-requisites for the Course:	Same as programme	
Course Objectives:	Sensitise students to environmental conservation and sustainable use of resources	
Content:	<p>Module 1 : Multidisciplinary nature of environmental studies Definition, scope and importance Need for public awareness. Natural Resources : Renewable and non-renewable resources : Natural resources and associated problems. Forest resources : Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people. Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies. Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. Energy resources : Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies. Land resources : Land as a resource, land degradation, man-induced landslides, soil erosion and desertification. • Role of an individual in conservation of natural resources. • Equitable use of resources for sustainable lifestyles.</p> <p>Module 2 : Ecosystems Concept of an ecosystem. Structure and function of an ecosystem. Producers, consumers and decomposers. Energy flow in the ecosystem. Ecological succession. Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following ecosystem :- a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries); Biodiversity and its conservation Introduction – Definition : genetic, species and ecosystem diversity. Biogeographical classification of India, Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values, Biodiversity at global, National and local levels. India as a mega-diversity nation IV, Hot-spots of biodiversity. Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India, Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.</p>	<p>No of hours</p> <p>15</p> <p>15</p>
Pedagogy:	Class lectures, Case Studies, Field visits	
References/ Readings:	<ol style="list-style-type: none">1. Agarwal K.C. (2001): Environmental Biology, Bikaner, Nidi2. Bharucha E.: The Biodiversity of India, Ahmedabad, Mapin3. Bharucha E.: Textbook of Environmental Studies. Orient BlackSwan	

	<p>4. Brunner R.C. (1989): Hazardous Waste Incineration, New York, McGraw-Hill</p> <p>5. Chatwal G.R. & Sharma H. (2005): A Textbook of Environmental Studies, Mumbai, Himalaya</p> <p>6. Clark R.S.: Marine Pollution, Oxford, Clanderson</p> <p>7. Cunningham W.P., Cooper T.H., Gorani E. & Hepworth M.T. (2001): Environmental Encyclopaedia, Mumbai, Jaico.</p> <p>8. De A.K.: Environmental Chemistry, Wiley</p> <p>9. Desai R.J. (2003): Environmental Studies, Mumbai, Vipul, Goa University, Taleigao Plateau, Goa</p> <p>10. Gleick H.P. (1993): Water in Crisis, Stockholm Env't. Institute, OUP</p> <p>11. Hawkins R.E.: Encyclopedia of Indian Natural History, Mumbai, BNHS</p> <p>12. Heywood V.H. & Watson R.T. (1995): Environment Protection and Laws, Mumbai, Himalaya</p> <p>13. Jadhav H. & Bhosale V.M. (1995): Environment Protection and Laws, Mumbai, Himalaya</p> <p>14. McKiney M.L. & Schoel R.M. (1996): Environment Science, Systems and Solutions, Web Enhanced Edition.</p> <p>15. Mhaskar A.K.: Matter Hazardous, Techno-Science Publications</p> <p>16. Miller T.G. Jr.: Environmental Science, Wadsworth</p> <p>17. Odum E.P. (1971): Fundamentals of Ecology, Philadelphia, W.B. Saunders</p> <p>18. Rao M.N. & Datta A.K. (1986): Waste Water Treatment, Oxford & IBH</p> <p>19. Santra S.C. (2004): Environmental Science, Kolkata, Central Book Agency</p> <p>20. Sharma B.K. (2001): Environmental Chemistry, Meerut, Goel Publishing House</p> <p>21. Townsend C., Harper J. & Begon M.: Essentials of Ecology, Blackwell Science</p> <p>22. Trivedi R.K.: Handbook of Environmental Laws, Rules, Guidelines, Compliances and, Standards, Vol.1 & 2, Enviro Media.</p> <p>23. Trivedi R.K. & P.K. Goel: Introduction to Air Pollution, Techno-Science Publications</p> <p>24. Wagner K.D. (1998) Environmental Management, Philadelphia, W.B. Saunders Magazines</p> <p>Down to Earth, Centre for Science & Environment, Survey of the Environment published by The Hindu</p> <p>E- resource http://www.ugc.ac.in/oldpdf/modelcurriculum/env.pdf</p>
Course Outcomes:	<p>Students will have the ability to</p> <ol style="list-style-type: none"> 1. Distinguish between renewable and non-renewable resources 2. Understand different ways to manage resources sustainability 3. Appreciate the value of bio-diversity and its management