



SNDT Women's University, Mumbai

Open Electives Course (OEC)
for
Students of Faculty of Humanities
for
Semester - III

As Per NEP – 2020

Syllabus
(W.E.F. Academic Year 2025-26)

Sr. No.	Subject Code	Title
1	30420111	Customer Relationship Management
2	30420112	Introduction to Advertising
3	30420113	Introduction to Export Marketing
4	30420113	Introduction to Export Marketing
5	30420114	Industrial Psychology–Organisational Behaviour
6	30420115	Marketing Management
7	30420116	Industrial Statistics
8	30420117	Basics of Co-operative Management
9	30420118	Introduction to Treasury & Risk Management
10	30420119	Principles of Economic Systems and Freedom
11	30420161	Financial Accounting Insights
12	30420162	Business Communication
13	30444221	Calligraphy (Pr)
14	30444222	Graphic Design Basic (Pr)
15	30444121	Fashion Categories (Pr)
16	30444122	Yarn Craft (Pr)
17	30444123	Fabric Origami (Pr)
18	30444122	Yarn Craft (Pr)
19	30444123	Fabric Origami (Pr)
20	30444522	Precious and Semi-Precious Stones (Pr)
21	30444523	Traditional Jewelry of India (PR)
22	30444321	Writing Skills (PR)

23	30444322	Metal Studies for Jewellery (PR)
24	30444421	Prints for Textiles PR
25	30444422	Fabric Styling (Pr)
26	30444412	Traditional Textiles of India (Th/Pr)
27	30444821	Fashion Photography (PR)
28	30444822	Computer-Aided Rendering Technique in Fashion (PR)
29	30444823	Mixed Media – Fabric
30	30441221	Batik Art (P)
31	30441121	Film song based on Folk Music
32	30443121	Public Speaking (Pr.)
33	30430511	Foundation of ECE (Th)
34	30430921	Value addition techniques for garments & home textiles (2 Pr)
35	30430321	Basics of Food Processing (Pr) (2 Pr)
36	30430322	Basic Biochemistry (Pr) (2 Pr)
37	30430111	Culinary Science - I (Th) (2 Th)
38	30430112	Science and Society (2 Th)*
39	30430411	Child in Contemporary Society
40	30431011	Applications of Basic Biotechnology for Community Development – I
41	30430221	Nutrition through Lifespan (Pr) (2 Pr)
42	30430811	Consumer Rights, Behaviour, and Redressal Strategies (Th)
43	30430711	Textile Craft of India (2 Pr)
44	30432311	Mathematical Techniques for Competitive

		Examination - I
45	30432312	स्पर्धा परीक्षेसाठी गणित तंत्र भाग - १
46	30432313	Reasoning for Competitive Examination Part - I
47	30432314	Financial Mathematics
48	30432511	Microbes in environment (Theory)
49	30432512	Prevention of Food Spoilage (Theory)
50	30432211	Fascinating Physics
51	30432411	Animal Behaviour
52	30435211	Intellectual Property Rights and Cyber Law
53	30435212	Digital Marketing
54	30435213	E-Commerce
55	30435411	Basics of Data Analysis using spreadsheet
56	30435412	AI Tools
57	30435413	E-commerce Technologies
58	30434311	Study Of Cells and Tissues
59	30432111	Environmental Pollution

Course Title	Customer Relationship Management (CRM)
Course Credits	2
Course Outcomes	<p>After going through the course, learners will be able to</p> <ul style="list-style-type: none"> • Understand the fundamentals of Customer Relationship Management (CRM), explaining its concept and recognizing its significance in driving business success. • Analyze CRM systems by differentiating between various types, including Operational, Analytical, and Collaborative, and understanding their applications in business • Build and maintain customer relationships by identifying effective strategies for acquiring and retaining customers while fostering loyalty and trust. • Familiarize with customer needs by analyzing their expectations and delivering personalized and effective CRM solutions. • Evaluate the benefits of effective CRM by assessing the advantages of implementing strong practices that enhance customer satisfaction and drive business growth.
Module 1 (Credit 1):	Introduction to Customer Relationship Management
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Understand the definition and importance of CRM in business. • Learn the different types of CRM systems. • Recognize the benefits of implementing CRM strategies.
Content Outline	<p>1.1 What is Customer Relationship Management (CRM)? 1.2 Importance of CRM in business 1.3 Key concepts in CRM 1.4 Types of CRM systems (Operational, Analytical, Collaborative) 1.5 Benefits of effective CRM</p>
Module 2 (Credit 1):	Building Customer Relationships
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Learn the difference between customer acquisition and retention. • Understand the importance of customer loyalty and trust. • Identify techniques to personalize customer interactions and build lasting relationships.
Content Outline	<p>2.1 Customer acquisition vs. Customer retention 2.2 Customer loyalty and trust 2.3 Understanding customer needs and expectations 2.4 Personalization in CRM 2.5 Techniques for building strong relationships with customers</p>

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal – NIL

External – 50-Marks

References:

- Buttle, F. (n.d.). *Customer relationship management: Concepts and tools*. Wiley India.
- Goodman, J. A. (n.d.). *The customer experience 3.0*. Pearson.
- Gupta, R. K. (n.d.). *Customer loyalty: Toward an empirical approach*. Sage Publications.
- Kumar, V., & Reinartz, W. (n.d.). *Customer relationship management*. Pearson Education.
- Nigam, S., & Rajpal, S. (n.d.). *Customer relationship management in the digital age*. Sage Publications.
- Shajahan, S. (n.d.). *Essentials of customer relationship management*. Wiley India.
- Shankar, G., & Lalitha, A. (n.d.). *Relationship marketing and customer relationship management*. Wiley India.
- Sheth, J. N., & Sisodia, R. S. (n.d.). *Customer relationship management: A managerial perspective*. Tata McGraw-Hill Education.
- Soni, S. (n.d.). *Customer relationship management: A strategic approach*. Jaico Publishing House.

Course Title	Introduction to Advertising
Course Credits	2
Course Outcomes	<p>After going through the course, learners will be able to</p> <ul style="list-style-type: none"> • Understand the fundamentals of advertising, including its role and key principles. • Develop strategies for designing and implementing impactful advertising campaigns. • Analyze the process of brand building and learn techniques to create and sustain strong brands. • Explore special-purpose advertising units and their applications in various industries. • Evaluate the effectiveness of advertising initiatives and optimize campaigns for better results.
Module 1 (Credit 1) Introduction to Advertising	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Understand the fundamentals of advertising, including its principles, mediums, and role in influencing consumer behavior and market trends. • Gain foundational knowledge of brand building and learn to create effective, audience-tailored advertisements using various advertising strategies and special-purpose units.
Content Outline	<p>1.1 Advertising: Concept, Features, Evolution of Advertising, Active Participants, Benefits of advertising to Business firms and consumers.</p> <p>1.2 Classification of advertising: Geographic, Media, Target audience and Functions.</p> <p>1.3 Integrated Marketing Communications (IMC)- Concept, Features, Elements, Role of advertising in IMC</p> <p>1.4 Economic Aspect – Effect of advertising on consumer demand, competition and price. Waste in advertising.</p> <p>1.5 Social Aspect – Advertising and Cultural values, Ethical and Social issues in advertising, Advertising and Standard of living.</p>
Module 2 (Credit 1) Advertising Brand Building and Special Purpose Advertising	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Evaluate the principles and techniques of advertising, including its role in brand building and consumer engagement. • Create effective brand-building strategies and create impactful advertisements tailored to specific purposes and audiences.

Content Outline	<p>2.1 Brand Building: The Communication Process, AIDA Model, Role of advertising in developing Brand Image and Brand Equity, and managing Brand Crises.</p> <p>2.2 Special purpose advertising: Rural advertising, Political advertising-, Advocacy advertising, Corporate Image advertising, Green Advertising – Features of all the above special purpose advertising.</p> <p>2.3 Trends in Advertising: Media, Ad spends, Ad Agencies, Execution of advertisements.</p>
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal – NIL

External – 50-Marks

References:

- Arens, W., Weigold, M., & Arens, C. (2017). *Contemporary advertising* (15th ed.). McGraw-Hill Higher Education.
- Belch, G., & Belch, M. (2015). *Advertising and promotion: An integrated marketing communications perspective* (10th ed.). McGraw-Hill Education.
- Keller, K. L. (2013). *Strategic brand management* (4th ed.). Pearson Education Limited.
- Singh, R., & Sharma, S. (2006). *Advertising: Planning and implementation*. Prentice Hall.

Course Title	Introduction to Export Marketing
Course Credits	2
Course Outcomes	<p>After going through the course, learners will be able to</p> <ul style="list-style-type: none"> • Understand the fundamentals and Importance of Export Marketing. • Acquaint the students with the knowledge of composition and direction of India's Export trade • Gain knowledge of various trade barriers and trading blocs in the International market • Develop understanding about India's Foreign Trade Policy & Export Promotion Organizations. • Equip students about the knowledge of role of logistic in the International trade & Role of technology in emerging export marketing.
Module 1 (Credit 1):	Fundamentals of Export Marketing
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Understand fundamentals of export marketing and its significance. • Acquaint knowledge of composition and direction of India's Export Trade • Learn about trade barriers and trading blocs in the International Market • Evaluate Foreign Market Selection Process
Content Outline	<p>1.1 Concept and Significance of Export Marketing 1.2 Composition and Direction of India's Export trade 1.3 Trade barriers and Trading Blocs in the International Markets 1.4 World Trade Organization and – Objectives & Functions 1.5 Foreign Market Selection Process</p>
Module 2 (Credit 1):	India's Foreign Trade Policy & Export Promotion Organisations
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Understand India's Foreign Trade Policy and Trade Facilitations • Gain knowledge of various export promotions organization and Export marketing organizations • Learn students about knowledge of role of logistic in International trade its challenges and solutions • Understand role of technology in emerging trends

Content Outline	2.1 India's foreign Trade policy 2015-20 -Highlights & Implications 2.2 Objectives of India's foreign trade policy 2.3 Benefits to the status holders 2.4 Export Promotions organizations & Export Marketing organizations 2.5 Role of logistic in International trade its challenges and solutions 2.6 Role of technology in emerging trends
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal – NIL

External – 50-Marks

References:

- Export management, Balagopal, 2015, T.A.S. (Himalaya publishing house)
- Export Import Procedure & Documentation. N.G. Kale, 2017, (Vipul prakashan)
- Export Marketing. Vaz, Michael.2018, (Manan Prakashan)
- International Trade Policy. Robertson, David,2014, (McMilan publication)
- International Trade theory & practice. P.N. Roy. 2015, (Wiley Eastern Lt.)
- International Trade & export management. Cherunilam Frances,2016, (Himalaya publishing House)
- Export Marketing. Rathar.2018, (Himalaya Publishing House)
- Aarthvyavastha. Ramnaresh Pandey2015, (Atlantic Publisher & Distributors)
- Articles from WTO, UNCTAD, and World Bank Reports

Course Title	Industrial Psychology - Organizational Behaviour
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	<ul style="list-style-type: none"> • Understand the foundations of Organizational Behaviour
	<ul style="list-style-type: none"> • Link managerial roles to organizational demands
	<ul style="list-style-type: none"> • Map attitudes that influence work behaviour
	<ul style="list-style-type: none"> • Outline factors affecting work behaviour
Module 1 (Credit 1)	Organisational Behaviour
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Appraise the contributions of various disciplines to Organizational behaviour
	<ul style="list-style-type: none"> • Analyse the roles and challenges of managing organizational behaviour
Content Outline	1.1 What is Organisational behaviour. Importance of interpersonal skills 1.2 Disciplines contributing to the field of OB 1.3 Management and Organisational Behaviour 1.4 Challenges and Opportunities in OB
Module 2 (Credit 1)	Attitudes at Workplace
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Infer attitudes underlying patterns of work behaviour
	<ul style="list-style-type: none"> • Utilize understanding of job attitudes to increase job satisfaction
Content Outline	2.1 Introduction to the concept of attitudes 2.2 Attitudes and behaviour 2.3 Job Attitudes 2.4 Job Satisfaction

Internal Exam - Nil

External Exam - 50 Marks

References:

1. Robbins, S.P, and Judge, T.A. (2016). Organizational Behavior, 17th Edition. Pearson Prentice Hall, New Delhi. India

Additional Texts:

- Butler, M and Rose, E (2011) Introduction to Organisational Behaviour. Jaico Publishing House, Mumbai.
- Clegg, S., Korberger, M and Pitsis, T (2012) Managing and Organizations: An Introduction to Theory and Practice. Sage Publications, New Delhi.
- Cooper, C.L (2011) Organizational Health and Wellbeing. Vol 1, 2, 3. Sage Publications, New Delhi
- Muchinsky, P. (8th Edition). Psychology Applied to Work.
- Robbins, S., Judge, T. & Sanghi, S. (2009). Organizational Behavior (13th Ed). Pearson Prentice Hall.
- Luthans, F. (2008). Organizational Behavior (11th Ed). Mc Graw Hill International Edition. ISBN: 978-007-125930-9. Singapore.
- Singh, K. (2015). Organizational Behavior. Texts and Cases (3rd Ed). Vikas Publishing House Pvt. Ltd. New Delhi

Course Title	Marketing Management
Course Credits	2
Course Outcomes	<p>After going through the course, learners will be able to</p> <ul style="list-style-type: none"> • Understand and analyze the Concept and Significance of Marketing Management. • Familiarize with Marketing System mechanism and role of International Marketing Management • Prepare Strategic Marketing Management, & Difference between Marketing Management & Strategic Marketing Management. • Know and analyze Changing Marketing Scenario
Module 1 (Credit-1) INTRODUCTION TO MARKETING MANAGEMENT	
Learning Outcomes	<p>After learning the module, learners will be able to:</p> <ul style="list-style-type: none"> • Understand the Nature, Concepts of Marketing • Know the Functions and Importance of Marketing Management • Evaluate the Strategic Marketing Management & difference Between Traditional Marketing Management
Content Outline	<p>1.1 Marketing Management-Meaning and Nature of Marketing Management.</p> <p>1.2 Functions and Importance of Marketing Management,</p> <p>1.3 Concepts of Marketing,</p> <p>1.4 Strategic Marketing Management, Difference between Marketing Management & Strategic Marketing Management</p>
Module 2 (Credit 1) Marketing Planning & Changing Marketing Environment	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Acquaint the students with Marketing Planning & its process. • Understanding Marketing Mix. • Identifying & Analyzing Sales forecasting. • Know the factors Basis of segmentation.
Content Outline	<p>2.1 Marketing Planning-Concept, Significance & Process of Marketing Planning.</p> <p>2.2 Marketing Mix- Meaning and Elements of Marketing Mix.</p> <p>2.3 Sales forecasting-Concept, Methods and Importance.</p> <p>2.4 Market Segmentation-Meaning, features, and Basis of segmentation.</p>

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal – NIL

External – 50-Marks

References:

- Philip Kotler, (2015). Marketing Management. Pearson Education Asia, Prentice Hall, 12th edition.
- Philip Kotler & Kevin Keller, (2016). Marketing Management, 4Th edition.
- Rajan Saxena, (2015). Marketing Management, Tata McGraw Hill Education Private Limited New Delhi, 4th Edition.
- Pride William M. & Ferrell O.C. (2015). Marketing Concepts and Strategies, Biztantra, New Delhi, Twelfth edition.
- Peter Drucker, (2014). Management Challenges for the 21St Century, Harper Collins Publishers, New York,
- Kotler, P., Keller, K. L., Koshy, A., & Jha, M. (2022). Marketing Management. Pearson.
- Dr. S. L. Gupta & Sumitra Pal, (2020) Consumer Behavior- An Indian Perspective (4nd Edition), Sultan Chand & Sons.
- Philip Kotler, Principles of Marketing Management (19th Edition), Pearson.

Course Title	Industrial Statistics
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	<ul style="list-style-type: none"> • Apply concepts of probability and solve the problems • Apply concepts of binomial, Poisson and normal distribution for problems. • Application of decision theory. • Solve the problems using expected monetary value.
Module 1 (Credit 1)	Theory of Probability
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Understand the concept of Probability. • Solve simple Probability Questions
Content Outline	1.1 Approaches to the calculation of probability. 1.2 Calculation of event probabilities. Addition and multiplication laws of probability (Proof not required). 1.3 Conditional probability and Bayes' Theorem (Proof not required). 1.4 Expectation and variance of a random variable.
Module 2 (Credit 1)	Probability Distributions
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Understand different probability distributions and their properties • Solve problems of different probability distributions
Content Outline	2.1 Binomial distribution: Probability distribution function, Constants, Shape, Fitting of binomial distribution 2.2 Poisson distribution: Probability function, (including Poisson approximation to binomial distribution), Constants, Fitting of 2.3 Poisson distribution 2.4 Normal distribution: Probability distribution function, Properties of normal curve, Calculation of probabilities

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal – NIL

External – 50-Marks

References:

- Statical techniques by S.P Gupta Sultan and Chand Prakashan.

Course Title	Basics of Co-operative Management
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	<ul style="list-style-type: none"> • Understand the fundamental concepts and principles of co-operation. • Analyze the types of co-operative institutions and their functions. • Evaluate the significance of agriculture co-operatives and their role in rural development. • Differentiate between various forms of co-operatives and understand relevant legal frameworks.
Module 1 (Credit 1)	Co-operative movement in India
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Define the meaning, definition, and features of co-operation. • Differentiate between the principles of co-operation and other economic principles. • Analyze the role of co-operation in economic development in India. • Evaluate the functions and importance of each type of co-operative institution.
Content Outline	1.1 Introduction to Co-operative movement in India Meaning and definition of co-operation. 1.2 Features of co-operation. 1.3 Historical development and principles of co-operation. 1.4 Contribution of co-operatives to economic growth in India. 1.5 Overview of co-operative institutions
2 Module 2 (Credit 1)	Agricultural Co-operatives.
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Explain the structure and functions of agricultural co-operatives. • Assess challenges faced by co-operatives like NAFED and suggest remedies. • Analyze the significance of co-operative farming and its limitations. • Evaluate the relevance of single-purpose and multi-purpose co-operatives in the modern economy.
Content Outline	2.1 Structure and functions of agricultural co-operatives. 2.2 Co-operative Marketing- Structures, Functions, Problems & remedies 2.3 NAFED: Functions, problems, and remedies. 2.4 Types and issues in co-operative farming. 2.5 Single-purpose vs multi-purpose co-operatives 2.6 Summary of key co-operative laws in India.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal – NIL

External – 50-Marks

References:

- "India's Producer Companies & Small Farmers" Performance & Prospects (2023)
- "Principles of Cooperative Management" by B.S. Mathur. (2015)
- "Principles & Practices of Cooperative Marketing" Dr. B.K.Patil (2023)
- A Handbook of all Cooperatives Exams 2023 Edition (2023)
- Mathur G. R.: Co-operatives In India
- Sharada V.: The Theory of Co-operation (2012)
- New Dimension of Cooperative Management by G.S. Kamat (1978 & 2003)
- Cooperative Management & Administration by V.Kulandaisamy (2000 & 2002)
- Professional Management for the Cooperatives by A.K Shah
- Cooperative Democracy in Action by O.R. Krishnaswamy
- "Cooperative Management" by S Nakkiran (2006)
- Principles & Practices of Cooperative Management by G.S. Kamat
- Management Cooperative Enterprises by S.K.Sinha & R. Sahaya (1981)
- Theory, History & Practices of Cooperation by R.D. Bedi

Course Title	Introduction to Treasury & Risk Management
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	<ul style="list-style-type: none"> • Demonstrate a thorough understanding of treasury management principles and practices. • Define treasury management, explain its scope, and describe its key functions, including cash management, liquidity management, financing, and risk management • Assess the various types of financial risks (interest rate, currency, and commodity risk) and develop hedging strategies. • Identify financial risks in treasury operations and implement appropriate hedging strategies using derivatives to mitigate interest rate, currency, and commodity risks • Assess the organizational structure of a treasury function, understand the role of Treasury Management Systems (TMS), and apply best practices in corporate governance and strategic financial decision-making.
Module 1 (Credit 1): Introduction to Treasury Management	
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Define treasury management, outline its key functions and describe its role in corporate governance and strategy. • Evaluate the organizational structure of a treasury function and understand the role of Treasury Management Systems in enhancing efficiency and control.
Content Outline	1.1 Definition and scope of treasury management. 1.2 Key functions of a treasury department (cash management, liquidity management, financing, and risk management). 1.3 Role of the treasury in corporate governance and strategy. 1.4 Overview of Treasury Management Systems (TMS). 1.5 Organizational structure of a treasury function.
Module 2 (Credit 1): Risk Management in Treasury	
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Recognize key financial risks, including interest rate risk, currency risk, and commodity risk, and apply appropriate measurement techniques to evaluate their impact.
	<ul style="list-style-type: none"> • Implement hedging strategies using derivatives and apply effective risk management techniques to mitigate market and operational risks in treasury operations.

Content Outline	2.1 Financial risk identification and measurement (interest rate risk, currency risk, commodity risk). 2.2 Hedging strategies using derivatives (forward contracts, options, and swaps). 2.3 The role of treasury in managing market risk and operational risk. 2.4 Interest rate and currency risk management techniques. 2.5 Case studies on risk management in treasury operations.
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal – NIL

External – 50-Marks

References:

- Bragg, S. M. (2020). *Treasury management: The practitioner's guide*.
- Brown, A. (2024). *Financial risk management for dummies*. American Broadcast Journal.
- Hong Kong Institute of Bankers (HKIB). (2021). *Corporate treasury management*.
- Myint, S., & Famery, F. (2018). *The handbook of corporate financial risk management*.
- Viswanath, P. V. (2016). *Treasury management: A practitioner's guide*. Macmillan Education, Indian Institute of Banking.

Course Title	Principles of Economic Systems and Freedom
Course Credits	2
Course Outcomes	<p>After going through the course, learners will be able to</p> <ul style="list-style-type: none"> • Understand the evolution and classification of economic systems and their impact on economic activities. • Analyze the role of incentives in various economic systems and their effect on economic decision-making. • Evaluate the efficiency criteria of different economic systems and their importance in economic growth. • Assess the significance of economic freedom and its role in the smooth functioning of an economy. • Develop a comparative understanding of different economic systems concerning social justice and development
Module 1(Credit 1)	: Introduction to Economic System
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Define and explain the concept of an economic system. • Classify different types of economic systems (Capitalism, Socialism, and Mixed Economy). • Understand the functions and importance of economic systems in resource allocation. • Analyze the relationship between economic systems and social justice.
Content Outline	<p>1.1 Economic System- meaning & Definition, Evolution of Economic System</p> <p>1.2 Classification of Economics System</p> <p>1.3 Functions and importance of various economic systems</p> <p>1.4 Economic Systems and Social Justice</p>
Module 2(Credit 1)	: Economic Incentives and Freedom Across Market Structures
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Define incentives and classify them into different types (monetary, non-monetary, moral, etc.). • Examine the role of incentives in motivating economic agents. • Compare how incentives work in different economic systems. • Assess the importance of incentives in driving economic growth and efficiency.
Content Outline	<p>2.1 Incentive-Meaning, Types of Incentives</p> <p>2.2 Important Incentives under Various Economics Systems</p> <p>2.3 Role of incentives in motivating economic agents.</p> <p>2.4 Compare how incentives work in different economic systems.</p> <p>2.5 Meaning, types of Economic freedom under various economic Systems.</p>

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal – NIL

External – 50-Marks

References:

- Samuelson, P. A., & Nordhaus, W. D. (2020). Economics (20th ed.). McGraw-Hill Education.
- Mankiw, N. G. (2021). Principles of Economics (9th ed.). Cengage Learning.
- Stiglitz, J. E. (2015). The Price of Inequality: How Today's Divided Society Endangers Our Future. W.W. Norton & Company.
- Friedman, M. (1962). Capitalism and Freedom. University of Chicago Press.
- Sen, A. (1999). Development as Freedom. Oxford University Press.
- North, D. C. (1990). Institutions, Institutional Change, and Economic Performance. Cambridge University Press.
- Keynes, J. M. (1936). The General Theory of Employment, Interest, and Money. Macmillan.
- Schumpeter, J. A. (1942). Capitalism, Socialism, and Democracy. Harper & Brothers.
- Hayek, F. A. (1944). The Road to Serfdom. University of Chicago Press.
- Dornbusch, R., Fischer, S., & Startz, R. (2018). Macroeconomics (13th ed.). McGraw-Hill Education.

Course Title	Financial Accounting Insights
Course Credits	2
Course Outcomes	<p>After going through the course, learners will be able to</p> <ul style="list-style-type: none"> • Understand the various types of Calculating Depreciation and its effects on the business • Familiarize with the basics of foreign exchange transactions and its terminologies.
Module 1 (Credit 1)	Depreciation Accounting
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Understand the basic fundamentals of need and method of providing depreciation. • Correlate the life span of the asset with yearly extinguishment as expenditure.
Content Outline	<p>1.1 Theory:</p> <ul style="list-style-type: none"> • Introduction, Definition, • Identify Factors affecting depreciation, • Explain the purpose of depreciation, • Methods of calculating depreciation. <p>1.2 Problems on:</p> <ul style="list-style-type: none"> • Accounting Treatment, • Calculation of depreciation by Fixed Instalment Method, • Reducing Balance Method, • Change in the Method of Depreciation. • Preparation of Assets Account and Depreciation Account.
Module 2 (Credit 1)	Accounting for Foreign Currency Transactions
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> • Understand the basics of foreign exchange transactions • Gain deep knowledge of necessary requisites of foreign exchange markets • Comprehend the terminologies used in FOREX markets • Familiarize with the accounting aspects of the transactions
Content Outline	<p>2.1 Theory:</p> <ul style="list-style-type: none"> • Participants of Foreign Exchange Markets, • Characteristics of Foreign Exchange Market, • Major Foreign Currencies that Trade Worldwide, • Meaning of Important Terms, • Requirements of Accounting Standard 11, • Accounting Procedure for Foreign Currency Transactions <p>2.2 Problems on:</p> <ul style="list-style-type: none"> • Journal Entries for foreign Exchange transactions – Import and Export, • Receipts and payments, • Purchase of fixed assets in foreign currency. • Accounting for year-end adjustments

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Internal – NIL

External – 50 Marks

References:

- Ainapure. (2023). *Advance accounting*. Manan Prakashan.
- Choudhary. (2023). *Corporate accounting*. Sheth Publishers.
- Gupta, R. L. (2023). *Advance accountancy*. Sultan Chand & Sons.
- Kishnadwala. (2022). *Financial accountancy & management*. Vipul Prakashan.
- Shukla, M. C., & Grewal, T. S. (2023). *Advance accountancy*. S. Chand & Co.

Course Title	Business Communication
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	<ul style="list-style-type: none"> • Acquire essential skills for effective business communication. • Interpret visual data from verbal data and vice-versa. • Know about the types of meetings, and draft minutes of meetings, circulars, representations, and memos. • Draft Credit and Collection letters.
Module 1 (Credit 1) Essential of Routine Business Communication	
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Interpret data from visual to verbal and verbal to visual. • Know about various types of meetings, roles and responsibilities of the Chairperson, members and participants. • Draft notices, agenda and minutes of meetings, and draft representations, circulars memos
Content Outline	1.1 Interpreting Data: Visual to Verbal and Verbal to Visual 1.2 Business Meetings: Types of Meetings; Preparing for a Meeting; Role and Responsibilities of Chairperson, Members and Participants, and Etiquettes. 1.3 Notices, agenda and minutes of meetings, and representations, circulars and memos.
Module 2 (Credit 1) Business Letters & Emails- Credit and Collection	
Learning Outcomes	After learning this module, learners will be able to
	<ul style="list-style-type: none"> • Learn the theory of Credit and Collection Letters. • Draft Credit and Collection letters.
Content Outline	2.1 Theory: Credit and Collection Letters 2.2 Writing Credit Letters. 2.3 Writing Collection Letters.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE) :

Internal – NIL

External –50- Marks

References:

- Bovee, C. L., & Thill, J. V. (2018). *Business communication today* (14th ed.). Pearson.
- Doctor, A., & Doctor, A. (2019). *Business communication*. Sheth Publishers.
- Guffey, M. E., & Loewy, D. (2016). *Essentials of business communication* (10th ed.). Cengage Learning.

- Jain, P., & Sharma, P. (2014). *Behind every good decision: How anyone can use business analytics to turn data into profitable insight*. AMACOM.
- Knafllic, C. N. (2015). *Storytelling with data: A data visualization guide for business professionals*. Wiley.
- Locker, K. O., & Kaczmarek, S. K. (2013). *Business communication: Building critical skills* (6th ed.). McGraw-Hill Education.
- Locker, K. O., & Kienzler, D. S. (2015). *Business and administrative communication* (11th ed.). McGraw-Hill Education.
- Rai, U. (2014). *Business communication*. Himalaya Publishing House.
- Williams, V. (2020). Chapter 6: Emails, memos and letters. In *Fundamentals of business communication*.
- BC campus (2020) Open Textbooks.

Code 30444221	Course Name Calligraphy (Practical)		Crs 02
Course Outcome	After going through the course, learners will be able to <ol style="list-style-type: none"> 1. Demonstrate proficiency in basic and intermediate calligraphy techniques. 2. Identify and apply different calligraphy styles and tools. 3. Design visually appealing compositions using calligraphic forms. 4. Create creative artworks integrating calligraphy in design applications. 		
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Fabric Styling & its different techniques		01
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to <ol style="list-style-type: none"> 1) Understand the history and evolution of calligraphy. 2) Learn about calligraphy tools, materials, and basic techniques. 3) Develop control over strokes, angles, and spacing. 	<ul style="list-style-type: none"> • Introduction to Calligraphy – History, Importance, and Evolution • Tools and Materials – Nib pens, brushes, ink, paper types • Basic Strokes Practice – Pressure control, thin and thick lines • Lowercase Alphabet Forms – Basic Roman or Italic script • Practice Drills – Rhythm, spacing, and alignment • Introduction to composition layout and spacing 	
Module 2	Brand Analysis & Project Documentation		01
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to <ol style="list-style-type: none"> 1) Apply advanced techniques in decorative letterforms. 2) Design creative projects integrating calligraphy with other visual elements. 3) Experiment with modern and mixed media calligraphy. 	<ul style="list-style-type: none"> • Uppercase Letterforms – Traditional and Decorative styles • Composition Techniques – Word arrangement, balance, spacing • Decorative Styles – Flourishes, borders, color exploration • Introduction to Modern Calligraphy – Brush pens and freestyle scripts • Application of Calligraphy in Design – Posters, greeting cards, logos • Portfolio Preparation and Presentation Techniques 	

Assignments/ Activities towards CCE
<p>Assignments-1 Title: "Lowercase Calligraphy Script Practice Sheet" Task: Create a calligraphy sheet showing the lowercase alphabet in Roman or Italic style, with consistent rhythm, spacing, and alignment. Objective: Evaluate understanding of basic strokes, letterforms, and control.</p> <p>Assignments-2 Title: "Calligraphy-Based Poster Design" Task: Design an A3 size poster for an event or quote using both uppercase and lowercase calligraphy with appropriate composition. Objective: Assess creative application, layout skills, and exploration of advanced calligraphy techniques.</p>

References

1. **"Modern Calligraphy: Everything You Need to Know to Get Started in Script Calligraphy"**

Author: Molly Suber Thorpe

Publisher: St. Martin's Griffin

Publication Year: 2013

2. **"The Art of Calligraphy: A Practical Guide to the Skills and Techniques"**

Author: David Harris

Publisher: DK Publishing

Publication Year: 1995

3. **"Mastering Calligraphy: The Complete Guide to Hand Lettering"**

Author: Gaye Godfrey-Nicholls

Publisher: Chronicle Books

Publication Year: 2013

4. **"Calligraphy and Hand Lettering for Beginners"**

Author: June & Lucy

Publisher: Independently Published

Publication Year: 2019

Code 30444222	Course Name Graphic Design Basic (Practical)		Crs 02
Course Outcome	After going through the course, learners will be able to <ol style="list-style-type: none"> 1. Apply the foundational elements and principles of graphic design. 2. Apply visual grammar to create compelling communication pieces for fashion-related concepts. 3. Use typography, layout, and digital tools effectively in the design process. 4. Conceptualize and execute fashion communication materials such as mood boards and posters. 		
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Elements and Principles of Graphic Design		01
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to <ol style="list-style-type: none"> 1) Identify and apply the fundamental elements and principles of design. 2) Understand visual grammar for fashion-oriented design. 3) Develop aesthetic compositions through manual and digital methods. 	<ul style="list-style-type: none"> • Introduction to Graphic Design in Fashion Communication • Elements of Design – Line, Shape, Color, Texture, Space, Form, Value • Principles of Design – Balance, Contrast, Alignment, Hierarchy, Proximity, Repetition, Unity • Color Theory – Color Wheel, Harmony, Psychology of Color in Fashion • Composition Techniques – Grid systems, Rule of thirds, Visual balance • Visual Mapping – Translating fashion inspiration into design 	
Module 2	Typography, Layout, and Digital Composition		01
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to <ol style="list-style-type: none"> 1) Understand type anatomy and classifications. 2) Design visual compositions using layout, grids, and typography. 3) Apply basic digital tools in creating communication materials for fashion. 	<ul style="list-style-type: none"> • Introduction to Typography – Anatomy, Classifications, Fonts & Styles • Type Hierarchy – Headings, Subheadings, Body Text • Layout and Composition – Alignment, White Space, Visual Flow • Introduction to Graphic Design Software (e.g., Adobe Illustrator/Photoshop/Canva) • Visual Storytelling – Poster, Brochure, Social Media Visuals • Output Formats – File Types, Print vs Digital, Export Settings 	

Assignments/ Activities towards CCE
<p>Assignments-1</p> <p><i>Moodboard Composition Using Design Principles</i></p> <p>Task: Create a thematic moodboard (A3 size) based on a selected fashion trend or concept, integrating elements and principles of design manually or digitally.</p> <p>Objective: Assess conceptual thinking, visual arrangement, and application of design theory.</p> <p>Assignments-2</p> <p>Title: <i>Fashion Event Poster Design</i></p> <p>Task: Design a digital poster (A3 size) for a fictional or real fashion event using effective typography, layout, and visual storytelling techniques.</p> <p>Objective: Evaluate creative communication, typographic skills, and technical execution using design software.</p>

References

1. **"Graphic Design School: The Principles and Practice of Graphic Design"**
Authors: David Dabner, Sandra Stewart, Eric Zempel, *Publisher:* Wiley
Publication Year: 2017
2. **"Thinking with Type: A Critical Guide for Designers, Writers, Editors, & Students"**
Author: Ellen Lupton, *Publisher:* Princeton Architectural Press, *Publication Year:* 2010
3. **"The Elements of Graphic Design"**
Author: Alex W. White, *Publisher:* Allworth Press, *Publication Year:* 2011
4. **"Meggs' History of Graphic Design"**
Authors: Philip B. Meggs, Alston W. Purvis, *Publisher:* Wiley, *Publication Year:* 2016

30444121 OEC	Fashion Categories (Pr)		Crs
Course Outcome	After going through the course, learners will be able to <ol style="list-style-type: none"> 1. Discover the reasonability, need and importance of clothing categories in Fashion. 2. Apprehend clothing categories for various segments such as Men's, Women's and Kid's. 3. Identify factors that influence the clothing preferences. 4. Recognize the specific design features that incorporate a certain category by developing a visual reference. 5. Provide a structured approach to understanding the diverse categories of clothing within the fashion industry, preparing further to develop design collections for various segments. 		2
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Introduction to categories in Fashion		1
	Learning Outcomes	Module Content	

	After learning the module, learners will be able to <ol style="list-style-type: none"> 1. Discovering the reasonability and importance of clothing categories in Fashion 2. Apprehend the various clothing categories of clothing for various segments 3. Identify factors that influence the clothing choices 	<ul style="list-style-type: none"> • Definition and Importance of Clothing categories in Fashion • The need of clothing categories • Overview of Major Market segments such as Men's, Women's and Kid's • Factors influencing clothing categories 	
Module 2	Clothing categories & their role in Fashion		1
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to <ol style="list-style-type: none"> 1. Identify specific clothing categories for Men's Wear 2. Recognize specific design features for the various categories for Men's wear 	<ul style="list-style-type: none"> • Clothing categories for Men's wear • Formal wear • Casual wear • Sports wear • Active Sports wear • Essentials • Club wear • Ethnic wear • Wedding wear • Resort wear • Adventure wear • Lounge Wear • Winter wear • Accessories 	
Assignments/ Activities towards CCE			
<ol style="list-style-type: none"> 1. Identifying and observing various retail brands and the respective clothing categories for Men's, Women's and Kid's wear based on websites, advertisements and store visits. Identifying the lifestyle changes of the niche market to identify the influential factors that affect clothing preferences. 2. Prepare a document researching various materials (e.g., leather, metal, plastic, textiles etc) available in the market which can be used in accessory designing. 			

References

Ambrose, G., & Harris, P. (2007). *The visual dictionary of fashion design*. AVA Publications.

Angus, E. (2015). *The fashion dictionary: A visual resource for terms, techniques and styles*. Carlton Books.

Fashionary International Limited. (2016). *Fashionpedia: The visual dictionary of fashion design*. Fashionary International Limited.

Ireland, P. (1987). *Encyclopedia of fashion details*. Batsford Publication.

Keiser, S., & Torora, P. (2021). *The Fairchild Books dictionary of fashion*. Bloomsbury Publication.

30444122 OEC	Yarn Craft (Pr)		Crs
Course Outcome	After going through the course, learners will be able to 1. Recognize advance yarn craft techniques in the design industry 2. Acquire the knowledge regarding various tools and materials used in the craft work 3. Create a theme based products range by incorporating various craft techniques 4. Examine multiple entrepreneurial pathways applying the skills and knowledge gained from the craft		2
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Advanced Yarn Craft techniques		1
	Learning Outcomes After learning the module, learners will be able to 1. Inherit the knowledge of various advance techniques in yarn craft 2. Recognize the textures and aesthetic appeal of various techniques 3. Explore different techniques of yarn craft for product development	Module Content <ul style="list-style-type: none"> • Nail weaving • Tatting • Needle felting • Smocking • Ribbon work • Yarn wrapping and Coiling • Yarn craft embellishments- beads, sequins, etc. 	
Module 2	Application of the advanced yarn craft		1
	Learning Outcomes After learning the module, learners will be able to 1. Proficiency in combining techniques for innovation in designs 2. Gain the knowledge regarding CAD for yarn craft 3. Incorporating various techniques in developing products	Module Content <ul style="list-style-type: none"> • Yarn craft combining techniques- knit-crochet, crochet-weaving, etc • CAD for yarn crafts • Developing a range of products via any of the techniques and documentation as per the design process. 	
Assignments/ Activities towards CCE			
1. Students have to develop one product by incorporating any of the learned techniques. 2. Prepare a project report on the compilation of all the techniques.			

References

Chandler, R., Kettle, L., Thomas, H., Vlcek, L., & Simon, J. (2016). *Fabric embellishing: The basics & beyond*. Design Originals.

Dace, R., & Balchin, J. (2020). *Needle felting for beginners*. Search Press.

Linden, R. F. (2000). *Easy tatting*. Dover Publications Inc.

Mathew, A. (1989). *Vogue dictionary of crochet stitches*. David and Charles.

Rea, L. (2020). *Needle felting*. Lorian Rea.
Rough, L. (2022). *DIY needle tatting*.

30444123 OEC	Fabric Origami (Pr)		Crs
Course Outcome	After going through the course, learners will be able to <ol style="list-style-type: none"> 1. Define and describe the principles and techniques of fabric origami 2. Identify different types of fabrics suitable for origami projects. 3. Demonstrate basic and advanced fabric origami folds and designs 4. Examine and differentiate between traditional paper origami and fabric origami. 5. Curate and design unique fabric origami pieces for various applications. 		2
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Introduction to Fabric Origami		1
	Learning Outcomes After learning the module, learners will be able to <ol style="list-style-type: none"> 1. Define and name various basic folds and techniques in fabric origami. Describe the history and evolution of fabric origami 2. Identify and categorize different types of fabrics suitable for origami. Demonstrate basic fabric origami folds and techniques 	Module Content <ul style="list-style-type: none"> • Introduction to Fabric Origami • History and Evolution of Fabric Origami • Types of Fabrics for Origami • Basic Folds and Techniques • Practical Exercises: Basic Fabric Origami Projects 	
Module 2	Advanced Fabric Origami Techniques and Applications		1
	Learning Outcomes After learning the module, learners will be able to <ol style="list-style-type: none"> 1. Examine the complex fabric origami patterns and structures. Apply advanced fabric origami techniques in creating detailed designs 2. Design and create original fabric origami pieces. Illustrate the application of fabric origami in fashion and interior design. 	Module Content <ul style="list-style-type: none"> • Advanced Folding Techniques • Structural Analysis of Fabric Origami • Designing Original Fabric Origami Patterns • Applications in Fashion and Home decor Products • Practical Exercises: Advanced Fabric Origami Projects 	

Assignments/ Activities towards CCE
<ol style="list-style-type: none">1. Create a patterns of basic fabric origami designs & present a report on the structural elements of a chosen fabric origami piece2. Develop an original fabric origami design for a fashion or home decor products

References

Betts, L. (2018). Fabric folding: Basics and beyond. C&T Publishing.

Jackson, P. (2011). Folding techniques for designers: From sheet to form. Laurence King Publishing.

Takahama, T. (2001). The complete book of origami: Step-by-step instructions in over 1000 diagrams. Dover Publications.

30444122	Yarn Craft (Pr)		Crs
Course Outcome	After going through the course, learners will be able to 5. Recognize advance yarn craft techniques in the design industry 6. Demonstrate the knowledge regarding various tools and materials used in the craft work 7. Create a theme based products range by incorporating various craft techniques 8. Examine multiple entrepreneurial pathways applying the skills and knowledge gained from the craft		2
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Advanced Yarn Craft techniques		1
	Learning Outcomes After learning the module, learners will be able to 4. Inherit the knowledge of various advance techniques in yarn craft 5. Recognize the textures and aesthetic appeal of various techniques 6. Analyze different techniques of yarn craft for product development	Module Content <ul style="list-style-type: none"> • Nail weaving • Tatting • Needle felting • Smocking • Ribbon work • Yarn wrapping and Coiling • Yarn craft embellishments- beads, sequins, etc. 	
Module 2	Application of the advanced yarn craft		1
	Learning Outcomes After learning the module, learners will be able to 4. Proficiency in combining techniques for innovation in designs 5. Gain the knowledge regarding CAD for yarn craft 6. Incorporating various techniques in developing products	Module Content <ul style="list-style-type: none"> • Yarn craft combining techniques- knit-crochet, crochet-weaving, etc • CAD for yarn crafts • Developing a range of products via any of the techniques and documentation as per the design process. 	
Assignments/ Activities towards CCE			
3. Students have to develop one product by incorporating any of the learned techniques. 4. Prepare a project report on the compilation of all the techniques.			

References

Chandler, R., Kettle, L., Thomas, H., Vlcek, L., & Simon, J. (2016). *Fabric embellishing: The basics & beyond*. Design Originals.

Dace, R., & Balchin, J. (2020). *Needle felting for beginners*. Search Press.

Linden, R. F. (2000). *Easy tatting*. Dover Publications Inc.

Mathew, A. (1989). *Vogue dictionary of crochet stitches*. David and Charles.

Rea, L. (2020). *Needle felting*. Lorian Rea.

Rough, L. (2022). *DIY needle tatting*.

30444123	Fabric Origami (Pr)		Crs
Course Outcome	After going through the course, learners will be able to 6. Define and describe the principles and techniques of fabric origami 7. Identify different types of fabrics suitable for origami projects. 8. Demonstrate basic and advanced fabric origami folds and designs 9. Examine and differentiate between traditional paper origami and fabric origami. 10. Curate and design unique fabric origami pieces for various applications.		2
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Introduction to Fabric Origami		1
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to 3. Define and name various basic folds and techniques in fabric origami. Describe the history and evolution of fabric origami 4. Identify and categorize different types of fabrics suitable for origami. Demonstrate basic fabric origami folds and techniques	<ul style="list-style-type: none"> • Introduction to Fabric Origami • History and Evolution of Fabric Origami • Types of Fabrics for Origami • Basic Folds and Techniques • Practical Exercises: Basic Fabric Origami Projects 	
Module 2	Advanced Fabric Origami Techniques and Applications		1
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to 3. Examine the complex fabric origami patterns and structures. Apply advanced fabric origami techniques in creating detailed designs 4. Design and create original fabric origami pieces. Illustrate the application of fabric origami in fashion and interior design.	<ul style="list-style-type: none"> • Advanced Folding Techniques • Structural Analysis of Fabric Origami • Designing Original Fabric Origami Patterns • Applications in Fashion and Home decor Products • Practical Exercises: Advanced Fabric Origami Projects 	

Assignments/ Activities towards CCE
<ol style="list-style-type: none">3. Create a patterns of basic fabric origami designs & present a report on the structural elements of a chosen fabric origami piece4. Develop an original fabric origami design for a fashion or home decor products

References

Betts, L. (2018). *Fabric folding: Basics and beyond*. C&T Publishing.

Jackson, P. (2011). *Folding techniques for designers: From sheet to form*. Laurence King Publishing.

Takahama, T. (2001). *The complete book of origami: Step-by-step instructions in over 1000 diagrams*. Dover Publications.

Course code 30444511	Course Name Precious and Semi-Precious Stones (Pr)		Crs 2
Course Outcome	After going through the course, learners will be able to <ol style="list-style-type: none"> 1. Identify various types of gemstones and their characteristics 2. Learn basic terminology related to gemology, such as cut, color, clarity, and carat weight. 3. Demonstrate gemological tools and techniques to accurately assess and evaluate gemstones 4. Describe the different types of gem treatments and enhancements and their effects on gemstones. 		
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Introduction to Gemology & Instruments and their applications.		1
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to <ol style="list-style-type: none"> 1. Apply knowledge of gemstone properties to assess quality and authenticity 2. Learn basic terminology related to gemology, such as cut, color, clarity, and carat weight. 3. Explain the formation and geological processes that create different types of gemstones 4. Summarize the classification systems used in gemology 5. Differentiate between natural and synthetic gemstones based on their physical and optical properties. 6. Demonstrate how to use gemological tools 7. Conduct basic gemological tests to identify gemstones 	<ul style="list-style-type: none"> • Introduction of Gemology • Introduction to type of cuts & shapes • Types Of Rocks, Minerals and Gem Minerals • Properties of Mineral/Gemstones • Beauty, Durability and Rarity Of Gemstones Instruments to use in gemology <ul style="list-style-type: none"> • Dichroscope • Principle • Construction and working Isotropic and Anisotropic stones • Dichroism and trichrome • Polaris cope • Principle • Construction and working S.R., D.R., A.G.G. & A.D.R stone • Optic character of gemstone Uniaxial and Biaxial optic signs Use of konoscope • Refractometer • Spectroscope • Visual Identification 	

Module 2	Types of Gemstones and their structure		1
	Learning Outcomes	Module Content	
	<p>After learning the module, learners will be able to</p> <ol style="list-style-type: none"> 1. classification of gemstones into inorganic, organic, and gem rocks 2. crystalline and cryptocrystalline quartz, garnet, feldspar, tourmaline, and other gemstones. 3. Explain the difference between inorganic and organic gemstones. 4. Identify and classify various gemstones based on their physical characteristics and origin. 5. Explain the differences between natural, synthetic, and imitation gemstones. 6. Demonstrate the ability to distinguish between different synthesis methods based on inclusions and growth patterns. 7. techniques of synthetic diamonds and colored stones. 8. Differentiate synthetic gemstones from natural ones through microscopic observation. 	<ul style="list-style-type: none"> • Various Types Of Gems: Inorganic Gems Like Crystalline And Cryptocrystalline Quartz, Garnet, Feldspar, Tourmaline, Topaz, Peridot, Chrysoberyl's Cat's Eye, Alexandrite, Spinel, Zircon, Turquoise, Malachite, Diopside, Iolite, Tanzanite, Apatite And Other Rare Stones. • Organic Gemstone Like Pearl, Ivory, Amber, Coral, Jet Gem Rock Like Lapis Lazuli • Synthesis Of Diamonds and Color stones • Identification Of Synthetic • Synthetics, Treated & Imitations • Certification Practice 	
Assignments/ Activities towards CCE			
<ol style="list-style-type: none"> 1. Lab assessment of identification of gemstone 2. Navratna chart of gemstones. 3. PPT presentation of natural and synthetic gemstones. 			

References

- Hughes, R. W. (2018). **The book of gems**.
 Hughes, R. W. (2017). **Gem identification made easy: A hands-on guide to more confident buying and selling**.
 Liddicoat, R. W. (2005). *Gemology* (6th ed.). Gemological Institute of America (GIA).
 Read, P. G. (2020). *Gemology*.
 Read, P. (2005). **Gemology**. Butterworth-Heinemann.
 Read, P. G. (2005). *Gems and gemology: A comprehensive guide to the nature, identification, and evaluation of gemstones*. Springer.
 Schumann, W. (2009). **Gemstones of the world**. Sterling Publishing.
 Webster, R. (2004). **Introduction to gemology**. Robert Webster.
 Webster, R. (2008). *Gemology* (3rd ed.). Wiley.

Course code 30444512	Course Name Traditional Indian Jewelry		Crs 2
Course Outcome	After going through the course, learners will be able to 1. Understand traditional Indian jewelry 2. Explain the cultural and historical significance of traditional Indian jewelry. 3. Demonstrate basic techniques used in traditional Indian jewelry making. 4. Compare different regional styles of traditional Indian jewelry. 5. Design a piece of jewelry inspired by traditional Indian styles.		
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Fundamentals of Jewelry		1
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to 1. Identify various types of traditional Indian jewelry 2. List the techniques used in manufacturing jewelery. 3. Examine the role of traditional jewelry in contemporary fashion.	Introduction to Traditional Indian Jewelry <ul style="list-style-type: none"> • Historical evolution and cultural significance • Materials and techniques used like Metals (gold, silver, etc.) Gemstones and their meanings. Explore regional Styles <ul style="list-style-type: none"> • North Indian jewelry • South Indian jewelry • East and West Indian jewelry Iconography and Symbolism <ul style="list-style-type: none"> • Common motifs and their meanings • Religious and cultural symbols • Visit to a local jewelry museum or workshop • Interview with a traditional jeweler 	
Module 2	Advanced Techniques and Contemporary Practices		1
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to 1. List advanced techniques used in traditional Indian jewelry making 2. Describe the impact of modern influences on traditional Indian jewelry. 3. Utilize advanced techniques in creating traditional Indian jewelry.	Advanced traditional techniques from various parts of India <ul style="list-style-type: none"> • Filigree work • Enameling • Tarakashi • Theva jewellery • Bidari work • Inlay work Modern Influences <ul style="list-style-type: none"> • Fusion styles • Global trends • Technological advancements 	

	4. Critique the integration of traditional and modern elements in jewelry design. 5. Develop a contemporary jewelry piece inspired by traditional designs.	Contemporary Applications <ul style="list-style-type: none"> Traditional jewelry in modern fashion Celebrity and bridal jewelry trends Ethical Practices <ul style="list-style-type: none"> Sustainable sourcing Fair trade practices 	
Assignments/ Activities towards CCE			
1. Design a contemporary jewelry piece incorporating traditional techniques. 2. Analyze the work of a contemporary jewelry designer who uses traditional Indian elements. 3. Discuss the ethical implications of sourcing materials for traditional jewelry. 4. Make a project report on the traditional techniques explored 5. Make a presentation and present the same			

References

Bernadette van Gelder. (2018). Traditional Indian Jewellery: The Golden Smile of India. Covers legends behind traditional Indian jewelry, exploring its significance and spiritual importance. ACC Art Books Publications.

Oppi Untracht. (2008). Traditional Jewelry of India: culmination of over 30 years of research on personal adornment significance in India. Thames & Hudson publications

3044321 (OEC)	Writing Skills (Pr)		02
Course Outcome	After going through the course, learners will be able to <ol style="list-style-type: none"> 1. Challenging preconceived assumptions and biases in writing and ideate creatively 2. Demonstrate their language skills for an enhanced reading experience 		
Sr. No.	Module Outcomes	Course Contents	01
Module 1	Writing Introduction & Ideation Development		
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to <ol style="list-style-type: none"> 1. Classify the key components of introductory, body and concluding paragraphs. 2. Examine narrative, descriptive, and expository content types using critical reading skills and evaluates and simplify them 	<ul style="list-style-type: none"> • The concept of ideas – from fire to fashion the evolution of ideas – from mundane everyday ideas • Elements of writing • Importance of Title / Heading (The hook) • Opening Lines and introduction • Writing dialogues, poetry styles • Writing the main body and the endgame • Writing short stories, developing plot and characters 	
Module 2	Specialized and Promotional Writing		01
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to <ol style="list-style-type: none"> 1. Structure paragraphs using different patterns of development to facilitate a clear flow of ideas 2. Define basic skills of CAD tools for developing basic elements of fashion. 	<ul style="list-style-type: none"> • Power of themes and their influence on readers • Framework study and analysis • Selecting simple scenes – • Descriptive scenes, Fantasy scenes, Humorous scenes, Horror scenes, • Romantic scenes, Sad / Emotional scenes • Designing and creating leaflets / mastheads / tabloid promotional page, Fashion and lifestyle product description writing • Developing content and elaborate writing with keywords 	

Assignments/ Activities towards CCE
<ol style="list-style-type: none">1. A manifest, about your first fashion memory, was it a photograph, a video, a sound or a fashion show (400 words required)2. Describing 5 -10 images in different writing styles3. Writing in 250 words about 10 different topics from day today life and experiences.

References

Pat Francis (2009). Inspiring Writing in Art and Design: Taking a Line for a Write. Intellect Books.

M. Clarke (2007). Verbalising the Visual: Translating art and design into words. Ava Publishing.

Marsh C, Guth D and Short B., (2008), "Strategic Writing: Multimedia Writing for Public Relations, Advertising and More (2nd Edition)", Pearson.

3044322 (OEC)	Metal Studies for Jewelry - (PR)		Crs
Course Outcome	After going through the course, learners will be able to <ol style="list-style-type: none"> 1. Examine the basic principles of metalworking as applied to jewellery design. 2. Identify and work with different types of precious metals and alloys. 3. Create simple jewellery designs using gold, silver, and other metals. 4. Develop an understanding of metal properties and their influence on jewellery design. 		2
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Introduction to Metals & Alloys in Jewelry Design		1
	Learning Outcomes	Module Content	
	<ol style="list-style-type: none"> 1. Explore the properties of various metals used in jewellery. 2. Learn how alloys are created and their importance in designing jewellery. 3. Discover the role of metal density and karat levels in jewellery creation. 4. Gain an overview of heat treatment techniques and their impact on jewellery design. 5. Recognize common defects in jewellery and ways to address them. 	<ul style="list-style-type: none"> • Introduction to Precious Metals in Jewelry Design • What is Metal and What is an Alloy? • Crystalline Structures in Metals • Raising and Lowering the Karat in Gold Alloys • Gold Alloys: Composition and Density • Master Alloys for Different Colors and Carats • Heat Treatment: Quenching, Annealing, Hardening, and Tempering • Common Jewelry Defects: Soldering, Setting, Polishing • Importance of Quality Control in Jewelry Design 	
Module 2	Jewelry Manufacturing and Crafting Techniques		1
	Learning Outcomes	Module Content	
	<ol style="list-style-type: none"> 1. Learn about various casting methods used in jewellery making. 2. Learn how to plan and interpret the steps involved in jewellery manufacturing. 3. Develop skills in basic metalworking techniques like shaping, cutting, and polishing. 4. Gain hands-on experience in refining 	<ul style="list-style-type: none"> • Overview of Casting Methods: Investment, Sand Casting • Jewelry Manufacturing Flowchart and Process Planning • Shaping, Drawing, Cutting, and Polishing Jewelry • Recovery, Refining, and Recycling Gold • Dust Collection and Workshop Hygiene • Assaying and Hallmarking in Jewelry 	

	and recycling precious metals.	<ul style="list-style-type: none"> • Role of BIS in Hallmarking • Sustainability Practices 	
Assignments/ Activities towards CCE			
<ol style="list-style-type: none"> 1. Practice the formulas for raising and lowering karat levels in alloys. 2. Prepare a presentation on a jewellery topic of choice. 3. Complete a multiple-choice question (MCQ) quiz on jewellery metal properties and techniques. 			

References

Callister, W. D. (2007). Materials Science and Engineering: An Introduction (7th ed.). Wiley.

Davis, J. R. (Ed.). (1993). Heat Treatment of Metals. ASM International.

McCreight, T. (1991). The Complete Metalsmith: An Illustrated Handbook. Davis Publications.

Van M L." Masters Gold: Major Works by Leading Artists" Lark Books 2006

Mann S." Design and Make ColoredAluminum Jewellery" A & C Black 2010.

0444421 OEC	Prints for Textiles (Pr)		Crs
Course Outcomes	<i>After going through the course, learners will be able to</i> <ol style="list-style-type: none"> 1. Identify the different types of traditional block printing techniques and develop a range of prints from concept to product application. 2. Identify the different types of contemporary printing techniques, their applications and develop a range of prints from concept to product application. 		2
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Types of Prints		1
	Learning Outcomes	Module Content	
	<i>After learning the module, learners will be able to</i> <ol style="list-style-type: none"> 1. Differentiate and define the different types of print designs and layouts 	Define and identify the different types of print designs and layouts <ul style="list-style-type: none"> • Floral • Geometric • Checks/Spots/Stripes • Graphic/Abstract • Animal/Skin • Conversational (status) • Scenic/Pictorial • Photographic • Classical (Paisley) • Tribal/Ethnic Creating theme based design variations for each	
Module 2	Printing Techniques and their application		1
	Learning Outcomes	Module Content	
	<i>After learning the module, learners will be able to</i>		

	<ol style="list-style-type: none"> 1. Define and analyze various printing techniques/technologies and identify the most suitable printing technique based on design and application. 2. Conceptualize and design a range of prints with product application, using a combination of contemporary techniques. 	<ul style="list-style-type: none"> ▪ Identify contemporary printing technology and their visual effects ▪ Block Printing (Ajrakh, Dabu, Sanganeri, Bagh, etc.) ▪ Stencil/Stamp printing ▪ Screen printing (flat/rotary/roller) ▪ Water Based Printing ▪ Plastisol Printing, High Density Printing, Puff Printing ▪ Metallic Gold/Silver Process ▪ Flocking Printing, Emboss Printing ▪ Laser printing ▪ Duplex printing ▪ Digital printing ▪ Discharge printing ▪ Heat Transfer printing ▪ Direct to Fabric (DTG/DTF) Printing 	
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)			
<ol style="list-style-type: none"> 1.Surface Pattern Designs (A4 size) for each type of print: <ul style="list-style-type: none"> o Floral o Geometric o Checks/Spots/Stripes o Graphic/Abstract o Animal/Skin o Conversational (status) o Scenic/Pictorial o Photographic o Classical (Paisley) o Tribal/Ethnic 2.Design Project – Choose an inspiration <ul style="list-style-type: none"> o Create a mood board o Create color board o Motif development o Pattern Development o Pattern Rendering o Product Development o Print Application to create product mock-ups o Note on suitable printing technique with applicable technical sheet o Portfolio Presentation 			

References

Barrons. (2012). *Textile Printing*. Barrons Educational Series.
Beigeleisen. (1958). *Silk Screen Techniques*. Dover Publications.
Bowles, M., & Isaac, C. (2012). *Digital Textile Design*. Laurence King Publishing.
Drudi. (2008). *Fashion Prints*. Pepin Press BV.

Fogg, M. (2006). *Print in Fashion*. Page One Publishing Pvt. Ltd.
Russell, A. (2011). *The Fundamentals of Printed Textile Design*. AVA Publishing.
Stallabrass, P. (1992). *The Creative Guide to Fabric Screen Printing*. New Holland Ltd.
Wilson, J. (2000). *Textiles – A Handbook for Designers*. Woodhead Publications.

30444422 OEC	Fabric Styling (Pr)		Crs
Course Outcomes	<i>After going through the course, learners will be able to</i> <ol style="list-style-type: none"> 1. Integrate various surface ornamentation techniques into cohesive design projects 2. Experiment with different methods to develop unique and original fabric styles. 3. Implement layering techniques to create depth and interest in fabric styling 4. Skillfully combine different fabrics to achieve desired aesthetic and functional outcomes 		2
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Fabric Styling & its different techniques		1
	Learning Outcomes	Module Content	
	<i>After learning the module, learners will be able to</i> <ol style="list-style-type: none"> 1. Execute complex designs with precision and attention to detail. 2. Demonstrate originality and innovation in applying these techniques to various design projects 	<ul style="list-style-type: none"> • Introduction to fabric styling & its different techniques • Develop creative Surface Ornamentation Techniques to develop the look of the fabric- • Creative Quilling • Creative Origami • Creative Appliqué • Creative Quilting • Creative Cutwork • Creative Patchwork • Creative Weaving • Creative Smocking 	
Module 2	Brand Analysis & Project Documentation		1
	Learning Outcomes	Module Content	
	<i>After learning the module, learners will be able to</i> <ol style="list-style-type: none"> 1. Adapt fabric styling techniques to align with the specific needs and aesthetics of different brands. 2. Identify key design elements and aesthetic principles that define various brands. 	<ul style="list-style-type: none"> • Explore national, international, and couture brands to create fabric styles that match their unique requirements and aesthetics. • Project documentation on Surface Ornamentation Techniques & fabric styling based on a design concept of International & national brands. 	

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)
<ol style="list-style-type: none">1. Study and documentation of detailed study on Surface Ornamentation Techniques & fabric styling based on a design concept of International & national brands.2. Prepare any 5 samples of Creative Surface Ornamentation Techniques mentioned in the course outline.

References

Brackett, K. (2010). *Scrap quilting, strip by strip*. That Patchwork Place.

Crabtree, C., & Shaw, C. (Eds.). (2006). *Quilting patchwork and appliqué: A world guide*. M. T. Publishing.

Fischer, A. (2016). *The fashion designer's textile directory*. Laurence King Publishing.

Rayment, J. (2010). *Creative tucks and textures for quilts and embroidery*. Search Press.

Singer, R. (2010). *Fabric manipulation: Creating textile designs with a sewing machine*. Crowood Press.

Van Niekerk, D. (2011). *Ribbon embroidery and stumpwork*. New Holland Publishers.

Wright, E. (2009). *Twist-and-turn Bargello quilts*. That Patchwork Place.

304441 OEC	Traditional textiles of India (Th/Pr)		Crs
Course Outcomes	<i>After going through the course, learners will be able to</i> <ol style="list-style-type: none"> 1. Identify the characteristics, historical significance of various traditional textiles from different regions of India. 2. Understand and evaluate the traditional techniques and processes involved in the creation of these textiles, including weaving, dyeing, and printing. 3. Demonstrate practical skills in creating or replicating traditional textile designs through hands-on projects, integrating traditional methods with modern interpretations. 		2
Sr. No.	Module Outcomes	Course Contents	Cr
Module 1	Introduction to Traditional Indian Textiles		1
	Learning Outcomes	Module Content	
	<i>After learning the module, learners will be able to</i> <ol style="list-style-type: none"> 1. Define the various types of traditional Indian textiles. 2. Differentiate between the textiles of different regions based on their techniques, materials, and motifs. 	<ul style="list-style-type: none"> • Introduction to Traditional Indian Textiles: Overview of the textiles of regions as woven, printed, painted, or embroidered. • Regional Textiles: Study of textiles from east, west, north, south & central India and its significance. • Materials and Techniques: Examination of the materials (e.g., silk, cotton, wool) and techniques (e.g., weaving, dyeing,) used. 	
Module 2	Traditional Techniques in Textile Creation		1
	Learning Outcomes	Module Content	
	<i>After learning the module, learners will be able to</i> <ol style="list-style-type: none"> 1. Adapt the traditional techniques used in the 	<ul style="list-style-type: none"> • Weaving Techniques: Detailed study of various weaving 	

	<p>creation of these textiles, including weaving, dyeing, and printing.</p> <p>2. Evaluate the influence of these techniques on contemporary design.</p>	<p>methods (e.g., ikat, brocade, jacquard).</p> <ul style="list-style-type: none"> • Dyeing and Printing: Exploration of traditional dyeing (e.g., natural dyes, indigo) and printing techniques (e.g., block printing, tie-dye). • Embroidery Styles: Examination of different Indian embroidery styles (e.g., Chikankari, Zardozi, Kantha). • Contemporary Applications: Exploration of how traditional textiles can be adapted for modern uses in fashion, interior design, and visual arts. 	
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)			
<ol style="list-style-type: none"> 1. Research and presentation on a specific traditional textile of regions of India and its significance to the region. 2. Comparative analysis of two different techniques of regions in India. 3. Motif development of various traditional Textile Techniques 4. Visit or a tour for practical exposure or experience of learning the process and techniques of weaving, printing & dyeing. 			

References

Gillow J. (2014)-"Indian Textiles: Past and Present" -Thames & Hudson
 Gillow J. & Barnard N. (1993) "Traditional Indian Textiles" -Thames & Hudson
 Karolia A. (2019) "Traditional Indian Handcrafted Textiles" -Niyogi Books
 Singh M. (2009) "The Woven Textiles of India" -Lustre

Course code	Course Name Fashion Photography (PR)		Crs 2
Course Outcome	After going through the course, learners will be able to 1. Explain the principles of fashion photography, including lighting, composition, and styling. 2. Interpret fashion photographs that demonstrate technical skill and creativity. 3. Analyze fashion photographs and identify key elements that contribute to their success.		
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	Introduction, Lighting and Composition		1
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to 1. Identify the basics of fashion photography. 2. Select appropriate gear for shoots. 3. Analyze lighting and composition techniques.	<ul style="list-style-type: none"> - Overview of fashion photography and its applications - History of fashion photography • Key photographers and trends. • Equipment overview (DSLR, mirrorless, lenses). • Lighting techniques for fashion photography • Composition principles for fashion photography 	
Module 2	Styling, Fashion Photography Studio Practice		1
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to 1. Analyze styling and model direction. 2. Explore studio practices.	<ul style="list-style-type: none"> • Fashion styling techniques • Model direction and posing • Studio lighting and equipment • Fashion photography, shoots, planning, and execution 	
Assignments/ Activities towards CCE			
1. Fashion photography shoot 2. Lighting and composition exercise 3. Styling and model direction project 4. Final fashion photography portfolio			

References

Fashion Photography" by Mario Testino

The Fashion Photographer" by Peter Lehmann

Fashion Photography 101" by Barry Huggins

Course code	Course Name Computer Aided Rendering Technique in Fashion		Crs 2
Course Outcome	After going through the course, learners will be able to 1. Demonstrate various types of textile weaves with the use of computer software. 2. Skillfully use CAD tools to utilize and apply them in rendering garments digitally. 3. Use fashion software that is specifically used in digital garment development by the industry. 4. Experiment with different CAD tools to efficiently use them for drawing technical sketches.		
Sr. No.	Module Outcomes	Course Contents	Cr.
Module 1	2D Pattern Making & Textile Design		1
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to 1. Skillfully used CAD tools that can be efficiently used in creating weaves and fabric rendering. 2. Design 2D patterns digitally.	<ul style="list-style-type: none"> • Creation of different weaves. (10 weaves) • Digital fabric Rendering. (10 Fabrics) • Creating digital patterns (blocks, drapes). • - Textile design tools (repeat patterns, brushes). • - Exporting files for production. 	
Module 2	3D Garment Rendering & Simulation		1
	Learning Outcomes	Module Content	
	After learning the module, learners will be able to 1-Visualize garments in 3D. 2. Simulate fabric behavior digitally.	<ul style="list-style-type: none"> • 3D garment construction (stitching, fitting). • Fabric simulation (draping, physics). • Creation of 10 digital garments • Development of Technical Drawings for different garments 	
Assignments/ Activities towards CCE			
1. Development of 10 digital fabrics with the help of the mentioned weaves. -Plain weave - Rib weave -Mat weave - Basket weave -Twill weave -Herringbone weave -Weft twill weave - Warp twill weave -Diamond weave Satin weave -Sateen Weave 2. Development of 5 digitalized garments with the implementation of motifs and prints. -2 men's -2 women's -1 kids 3. Development of 5 garment flats with details of construction.			

References

Anvil Graphic Design. (2005). Pattern + palette. Rockport Publishers Inc.

Bridgs, A. (2013). Printed textiles design. Lauren Kis.

Cole, D. (2007). Patterns. Laurence King Publishing.

Colussy, M. K., & Berg, S. G. (2005). *Rendering fashion, fabrics and prints*. Pearson Prentice Hall.

Kondabathini, R. (2009). *Top weave creations Vol. 1*. Top Weave Creations.

Lazear, S. M. (2008). *Adobe illustrator for fashion design*. Pearson Prentice Hall.

Tallon, K. (2006). *Creative fashion design with Illustrator*. Batsford UK.

Advance Design Software Manual. (Richpeace, Lectra, Wonderweaves, Netgraphics etc.) or equivalent.

Course Title	Batik Art (Practical)
Course Credits	02
Course Outcomes	<p>After going through the course, learners will be able to:</p> <ul style="list-style-type: none"> • Study the history, techniques, and processes of Batik art. • Develop technical skills in Batik, including wax application, dyeing, and fabric manipulation. • Gain hands-on experience in creating Batik artworks using both traditional and contemporary methods. • Identify the market and platform of Batik Art.
Module 1 (Credit 1) Introduction to Batik Art & Its Techniques	
Learning Outcomes	<p>After learning the module, learners will be able to:</p> <ul style="list-style-type: none"> • Experiment with Batik Art. • Draw forms and shapes of Human figures, animals, birds and nature in Batik Art.
Content Outline	<ul style="list-style-type: none"> • History and cultural significance of Batik art • Introduction to materials, tools, and techniques • Traditional Batik techniques e.g., canting, tainting, and brush application. • Exploring different wax-resist techniques e.g., crackling, spattering, and stamping.
Module 2 (Credit 1) Contemporary Approaches to Batik Art	
Learning Outcomes	<p>After learning the module, learners will be able to:</p> <ul style="list-style-type: none"> • Explore contemporary trends and innovations in Batik art. • Combine Batik with other art forms and techniques.
Content Outline	<ul style="list-style-type: none"> • Batik on cloth: techniques and considerations • Development of individual Batik projects

Assignments/Activities towards Open Elective Courses [OEC]

- Weekly assignments (sketches, studies, sample swatches)
- Midterm Batik project (exploration of basic techniques and design principles)
- Final Batik project (individual Batik artwork demonstrating technical skill and creative expression)

Internal Assessment: There will be no internal assessment.

External Assessment: External assessment at the end of the semester, which carries a weightage of **50 marks**. During the assessment, students will create their batik own artwork

Bibliography:

Drury, G. (2002). *Batik: The Art and Craft*.

Dover Publications.

Tirtawirya, P. (2007). *The Ancient Art of Batik: Modern Applications*.

Periplus Editions.

Van Zanten, W. (2013). *The World of Indonesian Textiles*.

Thames & Hudson.

Subject Code	Courses, Modules and Outcomes	Course Contents	Cr
	SEMESTER III		
3.5	Film Songs Based on Folk Music (Practical) OEC		2
	Course Outcomes: Learners will be able to: <ul style="list-style-type: none"> • Get knowledge of folk music. • Analyze the influence of folk music on film songs. • Identify the musical characteristics of film songs based on folk music. • Recognize folk instruments and their role in folk song. • Relate the social and cultural values through Folk Music. 		
Module 1	Forms of Folk Music Across India		1
	LOs: Learners will be able to <ul style="list-style-type: none"> • Identify various folk music forms from different regions of India. • Analyze the musical characteristics of different folk song styles. • Enhance the skill to folk instruments used in different folk traditions 	Module Contents: Forms of Folk music - 1) Maharashtra - Gawalan, Bharud 2) Uttar Pradesh - Kajri, 3) Punjab -, Bhangra, 4) Rajasthan - Ghoomar, 5) Gujarat - Garba, Dandiya, Study of Raags used in Folk music (Dhun ugam Raag)	
Module 2	Influence of Folk Music on Film Songs		1
	LOs: Learners will be able to <ul style="list-style-type: none"> • Identify film songs based on folk music. • Recognize traditional folk instruments used in film music. • Understand how rhythmic patterns and musical styles of folk music are adapted into film songs. 	Module Contents: <ul style="list-style-type: none"> • various Film songs based on Folk Music of various states Maharashtra Uttar Pradesh Punjab Rajasthan Gujarat 	
Assignments/ Activities towards CCE			
	<ul style="list-style-type: none"> • Group presentation of Folk songs of Indian • Participation in Folk song competition. 		

References:

- Kamboj, V. B. (2020). Khadi boli ke lokgeet [खड़ी बोली के लोकगीत]. Ayan Prakashan.
- Awasthi, M. P. N. (2018). Hindi ke lokgeet [हिंदी के लोकगीत]. Satyavati Prajnalo.
- Mishra, R. (2015). Bharatiya loksangeet mein jhoola geeton ki parampara [भारतीय लोकसंगीत में झूला गीतों की परंपरा]. Sahitya Akademi.
- Pandey, S. (2017). Lokgeeton mein rituchakra aur jhoola geet [लोकगीतों में ऋतुचक्र और झूला गीत]. Prakashan Vibhag.
- Tiwari, P. (2019). Jhoola geeton ka sanskritik mahatva [झूला गीतों का सांस्कृतिक महत्व]. Rajkamal Prakashan.
- Kesari, A. (2017). Gavain Kajari Malhar Naiharvam. Sahitya Akademi.
- Kautilya. (2017). Kajri: The last moments. Notion Press.
- Jain, S. (2014). Kajari (कजरी). Vishwavidyalaya Prakashan.
- Prasad, T. (2022). Kajari folk songs: Mechanism for emotional regulation. Rupkatha Journal.
- Chaturvedi, R. (2015). Oonchi Atariya Rang Bhari [ऊँची अटरिया रंग भरी]. Lokgeet Sankalan.
- Dr. Vimal, Development of Hindi Cinema and Music, Somnath Dhal Publications, New Delhi.
- Muzawar Isak, The Golden Era of Film Music (1931–1960), Teen Pratik Publications, Pune.
- Dr. Uma Garg, Aesthetic Perception of Music, Page No. 6, Sanjay Publications, Delhi.
- Shukla, Dr. Madhurani. (2018). Bhartiya Cinema ki Yatra Part 1. New Delhi: Kanishk Publishing
- Godbole, Pishvikar S. (2007). Nad vedh. Pune : Rajhans Prakashan
- Bhardwaj, V. (2020). Cinema Kal, Aaj, Kal. New Delhi : Vani Prakashan
- Deshpande, A. (2019). Kala Sangam Khand 1: Hindustani Shastriya Sangeet aur Hindi Cinema ka Sunhara Tana Bana. Nagpur : A publishing
- First Edition. (2009). Dilchasp Hindi Cinema ke Sua varsh. New Delhi: Bhartiya Pustak Parishad
- Vijaykar, Rajiv. (2010). The History Of Indian Film Music. Mumbai : Times Group Books
- Jauhari, Sima. (2002). Film Sangeet Nirdeshak Roshan V Unke Samkalin Sangeetkar. New Delli : Radha publication

OEC 3.5	Public speaking (Practical)	2
Course Outcomes:	Learners will be able to: <ul style="list-style-type: none"> • Develop effective communication skills for public speaking. • Create effective presentation and engaging the audience. • Inculcate proper body language and non-verbal communication. • Adapt their presentation style to different audiences and environments. 	
Module 1	Introduction Public Speaking	1
	LOs: Learners will be able to <ul style="list-style-type: none"> • Examine the basic elements and importance of Public Speaking. • Acquire the skills required for Public speaking. Module Contents: <ul style="list-style-type: none"> • Introduction to Public Speaking • Body Language and Non-Verbal Communication • Advanced Public Speaking Techniques • Presentation Skills 	
Module 2	Presentation	1
	LOs: Learners will be able to <ul style="list-style-type: none"> • Explore the basic elements and Importance of Presentation • Acquire the skills of required for Presentation Module Contents: <ul style="list-style-type: none"> • Introduction to Presentation Skills • Planning and Structuring Your Presentation • Creating Effective Visual Aids • Handling Q&A and Audience Interactions 	
Assignments/ Activities towards CCE Following assignments can be submitted by the students. <ul style="list-style-type: none"> • Prepare and deliver a 3- Minute speech on any topic of their own choice. • Design and deliver Presentation 		

References

Kadam, V. (2022). Encounter the Fear of Public Speaking: A Self-help Book to Master Communication skills. Notion Press. India

Kakkar Mehra, S. (2020). Business Etiquette: A guide for the Indian Professional. HarperCollins India.

Puranik, M. (2019). The Art of Public Speaking. Diamond Pocket Books. India

Patil, S. (2021). Handbook on Public Speaking, Presentation & Communication Skills. Evincepub Publishing. India

Course Title	Foundation of Early Childhood Education
Course Credits	2
Course Outcomes	After going through the course, learners will be able to: <ol style="list-style-type: none"> 1. analyse how young children develop. 2. evaluate the role of early childhood educators. 3. discuss issues related to inclusion, diversity, and technology in early childhood settings.
Module 1 (Credit 1)	Introduction to Early Childhood Education
Learning Outcomes	After learning the module, learners will be able to <ol style="list-style-type: none"> 1. compare the concept of early childhood and early childhood education 2. develop knowledge about early development domains 3. examine the historical perspectives in early childhood education
Content Outline	<ol style="list-style-type: none"> 1. Meaning of early childhood -characteristics of the early childhood stage 2. Definition, Importance, Nature of early childhood education 3. Objectives of early childhood education 4. Physical, social, emotional, and cognitive development in early years 5. Identify key historical figures (Froebel, Montessori, Mahatma Gandhi, Tarabai Modak, etc.) and their contributions
Module 2(Credit 1)	Teaching & learning in Early Childhood years
Learning Outcomes	After learning the module, learners will be able to - <ol style="list-style-type: none"> 1. evaluate features of a good early learning environment 2. design curriculum for early years 3. interpret diversity and inclusion
Content Outline	<ol style="list-style-type: none"> 1. Learning activities for 3 Rs, Creativity, Music and movement, Language, Storytelling, Science 2. Role of teacher in the planning activities and learning of young children 3. Handling children and classroom management 4. Appreciating diversity and inclusive practices in early childhood settings

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Module 1

- Participation & Discussion – Active engagement in discussions and group activities.
- Preparing lesson plans, teaching aids, and presentations
- Preparing story books, worksheets, song books for young children

Module 2

- Visits to early childhood centres, Day care, playgroup, and Schools
- Making a Journal with early years teaching learning activities
- Presentation -charts, Models

References:

1. Kaul, V. (2019). Early childhood education programme. National Institute of Public Cooperation and Child Development (NIPCCD).
2. National Council of Educational Research and Training. (2022). Preschool curriculum. NCERT.
3. National Council of Educational Research and Training. (2023). Guidelines for preschool education. NCERT.
4. National Institute of Public Cooperation and Child Development. (2020). Training manual for early childhood care and education (ECCE). NIPCCD.
5. Pankajam, S. (2005). Elementary education. Anmol Publications Pvt. Ltd.
6. Swaminathan, M., & Daniel, P. (2004). Activity-based developmentally appropriate curriculum for young children. NCERT.
7. Mangal, S. K., & Mangal, U. (2019). Early childhood care and education. PHI Learning Pvt. Ltd.
8. Pandey, R. S., & Advani, S. (1995). Perspectives in child development. NCERT.

Course Title	Value Addition Techniques for Garments & Home Textiles (Pr)
Course Credits	2 (0+2)
Course Outcomes	After going through the course, learners will be able to
	1. Apply basic garment enhancement techniques such as embroidery, crochet, macramé, and fabric manipulation.
	2. Analyze the visual and functional impact of various decorative finishes on garment aesthetics.
	3. Evaluate the suitability of different enhancement techniques for specific fabrics and design goals.
	4. Create a finished garment that incorporates multiple enhancement techniques to add value and uniqueness.
Module 1 (Credit 1): Basics of Garment Enhancement	
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> Understand the significance of garment enhancement in fashion.
Content Outline	<ul style="list-style-type: none"> Importance of garment enhancement in fashion Introduction to decorative techniques (embroidery, crochet, macramé, appliqué, etc.) Study of traditional vs. modern embellishment techniques
Module 2(Credit 1): Surface Ornamentation Techniques	
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> Learn and apply hand embroidery. Develop basic skills in fabric layering and decorative stitching.
Content Outline	<ul style="list-style-type: none"> Embroidery: Basic Hand embroidery techniques Appliqué & Patchwork: Fabric layering for decoration& its types

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Module 1: Basics of Garment Enhancement

Assignment: Research & Write-up

- Choose one traditional garment enhancement technique (Embroidery, Appliqué, Crochet, or Macramé).
- Write a 200-word summary on its history, use, and importance in fashion.

Module 2: Surface Ornamentation Techniques

Assignment: Swatch Making

- Create a small fabric swatch (6x6 inches) using Embroidery, Appliqué, or Beadwork.
- Submit with a short 100-word explanation of the technique used.

References:

- Hayes, C., & Seaton, K. (2020). *A two-dimensional introduction to sashiko*. arXiv preprint arXiv:2003.14235.
- Khounnoraj, A. (2020). *Visible mending: A modern guide to darning, stitching, and patching the clothes you love*. Quadrille Publishing.
- Mehta, S., & Gupta, A. H. (2020). *Phulkari from Punjab: Embroidery in transition*. Niyogi Books.
- Watt, M. (2019). *Macramé for beginners and beyond: 24 easy macramé projects for home and garden*. Tuva Publishing.
- Khounnoraj, A. (2019). *Punch needle: Master the art of punch needling accessories for you and your home*. Quadrille Publishing.
- Derek, P. (2015). *Fabric manipulation: 150 creative sewing techniques*. Thames & Hudson.
- Brown, D. (2013). *Embroidery: A step-by-step guide to more than 200 stitches*. DK Publishing.
- Brown, C. (2013). *Embroidered & embellished: 85 stitches using thread, floss, ribbon, beads & more*. C&T Publishing.
- Parker, M., & Gill, R. (2009). *Fabric embellishing: The basics and beyond*. Landauer Publishing.
- Dilip Ghosh. (2010). *Traditional embroidery of India*. APH Publishing.

Course Title	Basics of Food Processing (Pr)
Course Credits	2
Course Outcomes	<p>After going through the course, learners will be able to:</p> <ol style="list-style-type: none"> 1. Explain the fundamental principles and techniques involved in food processing. 2. Demonstrate the use of thermal and cold processing methods for preserving food. 3. Apply dehydration and chemical preservation techniques to enhance shelf life of food products. 4. Analyze the effectiveness of various preservation methods on food quality and safety. 5. Develop and evaluate instant food mixes using suitable food processing methods.
Module 1(Credit 1)	Introduction to Food Processing, Low and High temperature processing:
Learning Outcomes	<p>After learning the module, learners will be able to:</p> <ol style="list-style-type: none"> 1. Explain the importance of food laboratories, Good Manufacturing Practices (GMP), and hygiene in food processing 2. Demonstrate high-temperature processing techniques such as blanching, canning 3. Apply low temperature storage techniques for different foods.
Content Outline	<p>1.Introduction to food Processing:</p> <ul style="list-style-type: none"> - Introduction to food laboratory - Good manufacturing practices (GMP) - Basics of personal and area hygiene <p>2.High temperature processing:</p> <ul style="list-style-type: none"> - Blanching of vegetables and its effect on enzyme activity - Canning of fruits/vegetables in glass jars - Osmo-dehydration of fruits <p>3.Low temperature processing:</p> <ul style="list-style-type: none"> - Freezing of fruits and vegetables: Effect on texture and quality (explain the difference in slow and quick freezing techniques) - Chilling and cold storage techniques for perishable foods like fresh fruits and vegetables, dairy products.
Module 2(Credit 1)	Dehydration Techniques, Chemical Preservation and Instant mixes
Learning Outcomes	<p>After learning the module, learners will be able to:</p> <ol style="list-style-type: none"> 1. Explain the dehydration process of fruits and vegetables using sun and mechanical drying methods 2. Demonstrate the preparation of traditional dehydrated foods 3. Apply chemical preservation techniques in making jams, jellies, squashes, and tomato-based products 4. Develop instant mixes (sweet and savory) using food processing principles

Content Outline	<p>1.Dehydration process:</p> <ul style="list-style-type: none"> - Dehydration of fruits and vegetables (Sun and mechanical) - Traditional dehydrated foods like papad, sandage <p>2.Chemical preservation techniques:</p> <ul style="list-style-type: none"> - Preparation of jam, fruit jelly, squashes - Preparation of tomato products like sauce, ketchup, chutney etc. <p>3.Preparation of Instant mixes:</p> <ul style="list-style-type: none"> - Apply the knowledge of food processing in preparing different instant mixes (sweet and savory)
<p>Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):</p> <ol style="list-style-type: none"> 1. Presentation on food laboratory safety, personal hygiene, GMPs 2. Activity: Carry out osmo drying of fruit/vegetable at home and make a report on outcome 3. Activity: Identify the effect of slow and quick freezing techniques on food products by comparing slow and quick frozen foods 4. Market survey of different dehydrated foods 5. Market survey of instant foods and development of one instant food and present the report 6. Journal 	

References:

1. Arora, M. (Year of Publication). *Practical Manual Food Processing*. Nirali Prakashan
2. Singh, A. K. (Year of Publication). *Food Technology-I*. ICAR eCourse
3. National Council of Educational Research and Training (NCERT). (Year of Publication). *Food Processing and Technology*
4. Hameed, F., Ayoub, A., Gupta, N., & Anjum, N. (Year of Publication). *Fundamentals of Food Processing and Preservation*. Astral International
5. Anandharamakrishnan, C., & Ishwarya, S. P. (2019). *Essentials and Applications of Food Engineering*. CRC Press
6. Panjagari, N. R. (n.d.). *Principles of Food Processing and Preservation*. INFLIBNET Centre

Course Title	Basic Biochemistry (Pr)
Course Credits	2
Course Outcomes	<p>After going through the course, learners will be able to</p> <ol style="list-style-type: none"> 1. Develop insights regarding biomolecules and their metabolic pathways 2. Explain the fundamentals of carbohydrates and their role in metabolism. 3. Describe the structure and functions of proteins and nucleic acids in biological processes. 4. Appreciate the importance of lipids and their functions in biological systems. 5. Explain the role of enzymes and the factors affecting their activity in metabolism.
Module 1(Credit 1)	Biomolecules – Carbohydrates and Proteins
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ol style="list-style-type: none"> 1. Explain the fundamentals of carbohydrates and their role in metabolism. 2. Describe the structure and functions of proteins and nucleic acids in biological processes.
Content Outline	<ol style="list-style-type: none"> 1. Introduction to Biochemistry -Definition and scope of biochemistry 2. Carbohydrates General formula, Classification, Structure, properties and uses of monosaccharides (Glucose, Fructose), disaccharides (Lactose, Maltose and Sucrose), oligosaccharides, and polysaccharides (Starch, Glycogen). Introduction to the structure of D & L forms. Optical and stereo isomers. Anomers. Cyclic forms of monosaccharides of glucose and fructose including structures. Reactions of Monosaccharides- Oxidation and reduction reactions, esterification reaction, osazone formation 3. Proteins and Amino Acids Structure, classification, and properties of amino acids Zwitter ionic form. Peptide bond. Structure of proteins (primary, secondary, tertiary and quaternary structure. Denaturation of proteins. Salting out of proteins and isoelectric precipitation.
Module 2(Credit 1)	Lipids, Nucleic Acids, and Enzymes
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ol style="list-style-type: none"> 1. Recognize the importance of lipids and their functions in biological systems. 2. Explain the role of enzymes and the factors affecting their activity in metabolism.

Content Outline	<p>1. Lipids Definition, Introduction, and Structural formula. Classification: Simple, compound, and derived lipids Difference between saturated and unsaturated fatty acids Chemical Constants of fats-iodine value, saponification value, acid value and Richert- Miesel numbers. Rancidity Sterols-Structure and function of cholesterol, 7 dehydro-cholesterol and ergosterol.</p> <p>2. Nucleic Acid Structure: Structure and function of DNA and RNA Role of nucleic acids in protein synthesis Gene expression and regulation</p> <p>3. Enzymes: Definition and general properties Nomenclature and classification of enzymes Enzyme specificity Mechanism of enzyme action Factors affecting enzyme activity (Temperature, pH, Substrate concentration, Inhibitors) Enzyme inhibition: Competitive & Non-competitive inhibition Coenzymes and isoenzymes and their role in metabolism</p>
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE): Practical Performance	

References:

1. "Murray Harper's Illustrated Biochemistry" 29th Edition, (2012) Prentice Hall Int.
2. Apps D.K. and Cohen B.B. and Steel C.M. "Biochemistry: A Concise Text for Medical Students" (1992), Bailliere Tindall,
3. Berg J.M. Tymoczko J.L., and Stryer. L. "Biochemistry", 5th edition, (2002). W.H. Freeman.
4. Chatterjee M.N., Shinde R. "Textbook of Medical Biochemistry" 8th Edition (2012) Jaypee Brothers, Medical Publishers.
5. Debajyoti D, "Biochemistry" 2nd Edition, (1980) Academic Publishers,.
6. Finar I.L "Organic Chemistry, Volume 2": Stereochemistry and the Chemistry of Natural Products, 5th Edition, 2009.
7. Finar I.L. "Organic Chemistry Vol. I" 6th Edition, (2009), Pearson Education India.
8. Jain, J, L., S. Jain and N. Jain. "Fundamentals of Biochemistry". 6th Edition, (2005). S.Chand Company Ltd.
9. Mendham J., RC Denney - Vogel's textbook of quantitative chemical analysis -
10. Nelson DL & Cox MM. 5th Edition, 2009. "Lehninger's Principles of Biochemistry". Freeman and Co.
11. Pearson education ltd.
12. Plummer, D.T., "An Introduction to Practical Biochemistry". 2nd Edition, (1971) McGraw-Hill Publishing Co. Ltd.
13. Rastogi S.C. "Biochemistry", 2nd Edition, (2003) Tata MacGraw Hill Publishing Co. Ltd.
14. Satyanarayana U and Chakrapani U "Biochemistry", 3rd Edition, (2008), Books & Allied Publishers.
15. Textbook of practical Chemistry Std. 11 Gujarat and Maharashtra secondary education Board.

16. Vasudevan D.M. and Sreekumari S – (2007) "Textbook of Biochemistry for Medical Students". 5th Edition, Jaypee Brothers, Medical Publishers.
17. Voet D, and Voet J.G "Biochemistry" 4th Edition. (2011), John Wiley & Sons.

Course Title	Culinary Science -I (Theory)
Course Credits	2
Course Outcomes	<p>After going through the course, learners will be able to</p> <ol style="list-style-type: none"> 1. Enlist types of food commodities 2. Observe changes taking place in foods during cooking 3. Describe their role and uses in food preparations 4. Discuss Popular recipes made with them 5. Discuss Preparations made seasonally or during festivals
Module 1(Credit 1)	Cereal and Cereal products
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ol style="list-style-type: none"> 1. Enlist types of cereals, cereal products millets, pseudocereals 2. Describe their role & use in popular, seasonal and festive food preparations
Content Outline	<p>Cereal, Cereal Products, Millets, Pseudo Cereals and Uncommon Cereals</p> <ol style="list-style-type: none"> 1. Types of rice and rice products and their uses. 2. Types of wheat products and their uses. 3. Preparations as per season and festival. 4. Popular dishes made using cereals 5. Types of millets, their products and their uses. 6. Preparations as per season and festival. 7. Popular dishes made using millets, uncommon cereals.
Module 2(Credit 1)	Pulses and Legumes
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ol style="list-style-type: none"> 1. Enlist types and varieties of pulses, legumes, nuts, oilseeds, oils and other seeds 2. Describe their role & use in popular, seasonal and festive food preparations
Content Outline	<p>PULSES, LEGUMES NUTS, OILSEEDS, OILS AND OTHER SEEDS</p> <ol style="list-style-type: none"> 1. Types, products, plant protein concentrate, Textured vegetable protein and uses 2. Preparations as per season and festival. 3. Popular dishes made using legumes. 4. Types, products and uses 5. Preparations as per season and festival. 6. Popular dishes made using nuts.
<p>Assignments/Activities towards Comprehensive Continuous Evaluation (CCE): Collect samples and discuss varieties of the foods Select/plan popular, seasonal and festive recipes with the foods.</p>	

References:

1. Nambiar Vanisha. Festive Foods of India, Magnum Publications, 2024
2. Parvinder. S. Theory of cookery. Bali Oxford University. Press, 2017 ND
3. Pushpesh Pant. Indian: The Cookbook
4. S. L. Doshi. Anthropology of Foods and Nutrition. Rawat Publication, Jaipur 1995.

Course Title	Science and Society (Theory)*
Course Credits	2
Course Outcomes	After going through the course, learners will be able to -
	<ol style="list-style-type: none"> 1. Comprehend the nature of science and scientific enquiry 2. Analyze the role of science and technology in society 3. Interpret basic scientific information and evaluate basic ethical and social issues in science 4. Communicate science-related issues clearly 5. Apply scientific knowledge to real-world problems.
Module 1 (Credit 1)	Introduction to Science and Society
Learning Outcomes	<ol style="list-style-type: none"> 1. Develop awareness of the association between science and society 2. Apply scientific method to interpret societal interactions 3. Distinguish between scientific and pseudoscientific constructs
Content Outline	<ol style="list-style-type: none"> 1. The scientific method – Strengths and limitations 2. Science and technology – The historical perspective 3. Science, media and public understanding 4. Pseudoscience and misinformation
Module 2 (Credit 1)	Science, Society, and Environment
Learning Outcomes	<ol style="list-style-type: none"> 1. Apply scientific method to interpret climate and environmental changes 2. Evaluate the role of science in the formulation of public policy
Content Outline	<ol style="list-style-type: none"> 1. Climate change and environmental science 2. Science and public policy 3. Gender, race and equity in science 4. Science and Religion – Evolution versus Creation

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Individual / group projects / essays on science and society
2. Classroom debates on pseudoscience and misinformation
3. Group or individual assignments climate change, gender and equity in science.

References:

1. Avery, J. S (2016). Science and Society, World Scientific
2. Ede, A. and Cormack, L (2016). A History of Science in Society – From Philosophy to Utility (3rd Edition), University of Toronto Press
3. Pal, Y. (1993). Science and Society – Some Perspectives, Gyan Publishing House (ISBN: 9788121204583, 9788121204583)

Course Title Code No	Child in Contemporary Society (OEC)
Course Credits	2
Theory	50
Course Outcomes	<p>After completing the course, learners will be able to</p> <ol style="list-style-type: none"> 1. analyze contemporary influences on child development, including technology and societal changes. 2. apply developmental theories and frameworks in real-world contexts. 3. support inclusive and holistic approaches in caregiving, education, and community settings. 4. advocate for children's rights, welfare, and policy interventions
Module 1.: Contemporary issues Affecting Children	
Learning Outcomes	<p>After learning the module, learners will be able to:</p> <ol style="list-style-type: none"> 1. develop insights in to the influence of digital technology on child development. 2. identify common psychological health issues and symptoms in children. 3. apply knowledge of legal and ethical standards in child protection.
Content Outline	<ol style="list-style-type: none"> 1. Children and Technology: Screen time, social media, digital learning tools. Risks and benefits of early tech exposure. 2. Child and psychological health: Anxiety, depression, ADHD, autism. Identifying signs and understanding stigma. 3. Child Abuse, Neglect, and Trauma: Types of abuse, trauma- informed care, mandatory reporting. 4. Children's Rights and Legal Protections Indian context
Module 2 (Credit 1) Family, Community and Societal Influence	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ol style="list-style-type: none"> 1. estimate various family settings impact child outcomes. 2. compare effects of different parenting styles. 3. evaluate external influences such as peers, school, and media. 4. discuss intersectionality in child development.

Content Outline	<ol style="list-style-type: none"> 1. Family Structures and Dynamics: Nuclear, joint, single-parent, and blended families. Attachment and bonding theories. 2. Parenting Styles and Practices: Authoritative, authoritarian, permissive, uninvolved. Cultural influences on parenting. 3. Community and Peer Influences: Role of socialization, playgroups, and peer relationships. Influence of schools, neighborhoods, and extracurricular settings. 4. Media, Technology, and Consumer Culture: Media consumption, digital identity, and child advertising. 5. Societal Inequities and Child Development: Effects of poverty, discrimination, gender roles, and access to education.
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Module 1

1. Visits and Visit reports,
2. Child advocacy strategies
3. Designing media awareness programs in the community

Module 2

1. Creating awareness on Media consumption
2. Designing workshop on changing dimensions parent child relationship
3. Designing workshop on Parenting Styles

References:

1. Berger, K.S. (2005). The Developing Person Through Lifespan, 6th edition, Worth Publishers, USA.
2. Berk, L.E.(2004). Development Through Lifespan. 3rdedition, Pearson Education Inc and Dorling Kindersley (India) Pvt. Ltd.
3. Hurlock E.B. (1997): Child Development, Tata McGraw Hill, Delhi.
4. Mussen, Conger, Kagan and Huston (1984): Child Development and Personality, 7th edition, Harper and Row, Publishers. Inc. New York.
5. Rogers D (1997): Psychology of Adolescence, Prentice Hall, New Jersey.
6. Santrock & Yussen (1988): A Tropical Approach to Life Span Development. 3rdedition, Tata McGraw Hill Publication, New York.
7. Sigdman, C.K and Shaffer. D.R. (1995): Life Span Development, 2ndedition, Brooks/Cole Publishing Co Ltd, USA.

8. Smart M.S & Smart R.C. (1982): Children, Development and Relationship, 4th edition, Mac-Millan Publishing Co., New York.

Course Title	Applications of Basic Biotechnology for Community Development - I Sericulture I: Mulberry Silkworm Rearing
Course Credits	02 (Th)
Course Outcomes	<p>After going through the course, learners will be able to</p> <ol style="list-style-type: none"> 1. Articulate the basic concept of Sericulture, its importance, history and present status. Describe the taxonomy, morphological sex differences in pupa, larvae and adult of silkworm. 2. Differentiate between different life stages of silkworm and explain their life cycle. Discuss control and prevention of pests and diseases. 3. Demonstrate and discuss the culture methods of B.mori. Outline the silkworm rearing technology. 4. Differentiate diseases of silk worms and different methods for control. Outline the important tools and equipment's used in sericulture 5. Write about judicious use of their by-products and moriculture. Evaluate, appreciate and specify the importance of embarking on self-employment through rearing of silkworms.
Module 1 (Credit 1) (Th) Introduction to Sericulture	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ol style="list-style-type: none"> 1. Articulate the basic concept of Sericulture, its importance, history and present status. Describe the taxonomy, morphological sex differences in pupa, larvae and adult of silkworm. 2. Differentiate between different life stages of silkworm and explain their life cycle. Discuss control and prevention of pests and diseases. 3. Demonstrate and discuss the culture methods of B.mori. Outline the silkworm rearing technology.

Content Outline	1. Introduction to Sericulture 1.1 Definition, history and present status; 1.2 Silk route Types of silkworms, Distribution and Races. 1.3 Study of different classifications 1.4 Biology of Silkworm: - 1.5 Life cycle of Bombyxmori Structure of silk gland and secretion of silk 2.Rearing of Silkworms 2.1 Selection of mulberry variety and establishment of mulberry garden 2.2 Rearing house and rearing appliances 2.3 Disinfectants: Formalin, bleaching powder 2.4 Silkworm rearing technology: Early age and Late age rearing 2.5 Types of mountages Spinning, harvesting and storage of cocoons
Module 2 (Credit 1) (Th)	
Learning Outcomes	After learning the module, learners will be able to 1.Differentiate diseases of silk worms and different methods for control. Outline the important tools and equipment's used in sericulture 2.Write about judicious use of their by-products and moriculture. Evaluate, appreciate and specify the importance of embarking on self-employment through rearing of silkworms.
Content Outline	3.Cultivation of mulberry: 3.1 a) Varieties for cultivation b) Rainfed and irrigated mulberry cultivation- Fertilize schedule, Prunning methods and leaf yield 3.2 Harvesting of mulberry: a) Leaf plucking b) Branch cutting c) Whole shoot cutting 3.3 Silk worm rearing: a) Varieties for rearing b) Rearing house c) Rearing techniques 4.1 Pests of silkworm 4.2 Silkworm diseases: Protozoan, viral, fungal and bacterial (any two). 4.3 Control and prevention of pests and diseases

Assessment Criteria:

Unit. No. 1 Introduction to Sericulture:

1. Project work: Collection of different types of silkworms (preserved/photographs)
2. Presentation on Life cycle of *Bombyx mori*
3. Preparation of posters on silk gland and secretion of silk

Unit. No. 2 Rearing of Silkworms

1. Field visit and report making on Rearing house and rearing appliances
2. Survey and analysis of Disinfectants used in Sericulture
3. Assignment on Spinning, harvesting and storage techniques of cocoons

Unit. No. 3 Cultivation of mulberry

1. **Assignment on cultivation practices in the field**
2. Rearing house visits and report making
3. Group activity on Rearing techniques

Unit. No. 4 Pests of silkworm

1. PowerPoint presentation on Pests of silkworm
2. Data Collection on Control and prevention of pests and diseases

References:

1. Handbook of Practical Sericulture: S.R. Ullal and M.N. Narasimhanna CSB, Bangalore
2. Appropriate Sericultural Techniques; Ed. M. S. Jolly, Director, CSR & TI, Mysore. Handbook of Silkworm Rearing: Agriculture and Technical Manual-1, Fuzi Pub. Co. Ltd., Tokyo, Japan 1972.
3. Manual of Silkworm Egg Production; M. N. Narasimhanna, CSB, Bangalore 1988.
4. Silkworm Rearing; Wupang—Chun and Chen Da-Chung, Pub. By FAO, Rome 1988.
5. A Guide for Bivoltine Sericulture; K. Sengupta, Director, CSR & TI, Mysore 1989.
6. Improved Method of Rearing Young age silkworm; S. Krishnaswamy, reprinted CSB, Bangalore, 1986.

Course Title	Nutrition through Lifespan (Pr)
Course Credits	2
Course Outcomes	<p>After going through the course, learners will be able to</p> <ol style="list-style-type: none"> 1. Explain the physiological changes and evolving nutritional needs at various stages of the human lifespan. 2. Identify age-specific dietary requirements and relate them to growth, development, and health maintenance. 3. Apply the principles of balanced diet and meal planning to meet nutritional needs across life stages. 4. Analyze the influence of physiological, socio-economic, and cultural factors on food choices and dietary habits. 5. Design age-appropriate meal plans that address nutritional, cultural, and economic considerations.
Module 1(Credit 1) Principles of Balanced Diet and Meal Planning for Adults	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ol style="list-style-type: none"> 1. Apply the fundamental principles of meal planning and its impact on health. 2. Use food guides, pyramids, and food exchange lists to design balanced diets. 3. Identify factors that affect meal planning, including activity levels and personal preferences. 4. Maintain and interpret a dietary record to assess nutritional intake. 5. Create meal plans for individuals with varying activity levels.
Content Outline	<ol style="list-style-type: none"> 1. Overview of Nutritional Requirements: <ol style="list-style-type: none"> i. Basic principles of nutrition. ii. RDA for Macronutrient and micronutrient at various stages of life. 2. Food Guide/Food Pyramid and its Use: <ol style="list-style-type: none"> i. Understanding food groups, food pyramid and servings. ii. Practical application in meal planning. 3. Balanced Diet: <ol style="list-style-type: none"> i. Components of a balanced meal. ii. Adjusting portion sizes for various energy needs. 4. Factors Affecting Meal Planning 5. Food Exchange List: <ol style="list-style-type: none"> i. Concept of food exchange list ii. Designing diets using the food exchange system. 6. Maintaining a Dietary Record: <ol style="list-style-type: none"> i. Techniques to calculate nutrients intake from consumed food. 7. Nutrition in Adulthood: <ol style="list-style-type: none"> i. Nutritional needs of adults. ii. Planning meals for sedentary and moderate workers.
Module 2(Credit 1) Nutritional Needs Across Developmental Stages	
	After learning the module, learners will be able to

Learning Outcomes	<ol style="list-style-type: none"> 1. Examine the physiological changes during pregnancy and lactation and their impact on nutrient needs. 2. Design meal plans that meet the nutritional requirements during pregnancy and lactation. 3. Describe the nutritional needs of the different developmental stages, from infancy to adolescence. 4. Plan meals for various age groups, considering their specific growth and nutritional needs.
Content Outline	<ol style="list-style-type: none"> 1. Nutrition during Pregnancy and Lactation: <ol style="list-style-type: none"> i. Pregnancy: Nutrient needs during each trimester, common complications, and dietary modifications. ii. Lactation: Nutritional requirements for breastfeeding mothers, promoting milk production, nutrient-dense foods and galactagogues. 2. Nutrition during the Lifecycle: <ol style="list-style-type: none"> i. Infancy (0 to 2 years): Importance of breast-milk, breastfeeding. Bottle feeding and infant formula. Nutritional requirements and planning complementary feeding. ii. Childhood (3-6 years, 7-9 years and 10-12 years boys and girls): Meal planning for growing children, ensuring proper development and combating common childhood nutritional issues. iii. Adolescence (13-15 years and 16-18 years): Nutritional challenges during puberty, special needs for vitamins, minerals, and energy, and managing eating habits. Eating disorders. Meal planning for adolescents. iv.
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE): <ol style="list-style-type: none"> 1. Assignment on food pyramid 2. Assignment on 24 Hour recall 3. Planning and Cooking– Each plan to be evaluated 4. Assignments on galactagogues, packed lunches, finger foods 	

References:

1. Mudambi, S. R., & Rajagopal, M. V. (2022). *Fundamentals of foods, nutrition and diet therapy* (5th ed.). New Age International Pvt. Ltd.
2. Indian Council of Medical Research (ICMR). (2020). *Nutrient requirements and recommended dietary allowances for Indians*. National Institute of Nutrition.
3. **National Institute of Nutrition.** (2017). *Indian food composition tables (IFCT)*. Indian Council of Medical Research.
4. Guthrie, H. A. (1989). *Introductory nutrition*. Times Mirror/Mosby College Publishing.
5. Guthrie, H. A. (1994). *Human nutrition*. William C. Brown.
6. Joshi, S. (2021). *Nutrition and dietetics*. McGraw Hill Higher Education.
7. Mudambi, S. R., & Rajagopal, M. V. (2022). *Fundamentals of foods and nutrition* (7th ed.). New Age International Pvt. Ltd.
8. Robinson, C. H., & Lawler, M. R. (1990). *Normal and therapeutic nutrition* (17th ed.). Macmillan Publishing Co.
9. Roday, S. (2018). *Food science and nutrition* (3rd ed.). Oxford University Press.
10. Smith, A. M., Collene, A. L., & Spees, C. K. (2024). *Wardlaw's contemporary nutrition* (12th ed.). McGraw Hill.

Course Title	Consumer Behaviour, Rights and Redressal Strategies (Theory)
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	1. Critically analyze consumer behavior
	2. Analyze consumer rights within legal and market frameworks
	3. Evaluate the importance of Consumer Protection
	4. Develop effective strategies for consumer redressal and advocacy.
Module 1 (Credit 1) – Foundations of Consumer Rights and Behavior	
Learning Outcomes	After learning the module, learners will be able to
	1. Define and explain the key principles of consumer rights and responsibilities.
	2. Describe the theoretical frameworks that underpin consumer behavior.
	3. Analyze market research data to interpret consumer trends and decision-making processes.
	4. Evaluate the impact of economic, social, and technological factors on consumer behavior.
Content Outline	<ol style="list-style-type: none"> 1. Introduction to Consumer Rights <ul style="list-style-type: none"> ○ History and evolution of consumer protection ○ Fundamental rights and responsibilities of consumers ○ International and national legal frameworks (e.g., Consumer Protection Act) 2. Understanding Consumer Behavior <ul style="list-style-type: none"> ○ Psychological and sociological theories influencing consumer decisions ○ Factors affecting consumer behavior (cultural, economic, and social influences) ○ Market research techniques for understanding consumer preferences 3. Consumer Trends and Market Dynamics <ul style="list-style-type: none"> ○ Analysis of current trends in consumer behavior ○ Impact of digitalization on consumer decision-making ○ Emerging challenges and opportunities in the consumer market
Module 2 (Credit 1) – Redressal Strategies and Policy Interventions	
	After learning the module, learners will be able to

Learning Outcomes	1. Identify and differentiate between various consumer redressal mechanisms.
	2. Critically analyze case studies to assess the effectiveness of redressal strategies.
	3. Formulate strategic recommendations for enhancing consumer redressal systems.
	4. Develop policy proposals aimed at strengthening consumer rights and advocacy.
	5. Demonstrate the ability to communicate complex redressal strategies clearly and effectively.
Content Outline	<ol style="list-style-type: none"> 1. Consumer Redressal Mechanisms <ul style="list-style-type: none"> ○ Overview of formal and informal redressal channels ○ Role of consumer courts, regulatory bodies, and online platforms ○ Comparative analysis of redressal systems in different regions 2. Case Studies in Consumer Redressal <ul style="list-style-type: none"> ○ In-depth examination of landmark cases and successful redressal strategies ○ Lessons learned from ineffective consumer grievance redressal ○ Role of consumer advocacy groups and NGOs 3. Developing Effective Redressal Strategies <ul style="list-style-type: none"> ○ Strategic approaches to consumer advocacy and dispute resolution ○ Policy recommendations to strengthen consumer rights enforcement ○ Designing consumer education and awareness programs

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

INTERNAL ASSESSMENT:

Project 1: Consumer Behavior Case Study

- **Description of project:**

Students select a current consumer market trend or issue (e.g., digital purchasing behavior, sustainable consumption) and conduct a case study using market research methods such as surveys, interviews, or data analysis.

- **Project Output:**

- A written report (2,000–2,500 words) summarizing findings and analysis.
- A short presentation (10–15 minutes) highlighting key insights.

Project 2: Redressal Mechanism Evaluation

- **Description of project:**

In groups, students review and evaluate the effectiveness of an existing consumer redressal mechanism (e.g., a consumer court, online dispute resolution platform, or NGO-led initiative).

- **Project output:**

- A detailed analysis report (2,000–2,500 words) that includes case studies, challenges, and suggestions for improvement.
- A poster or infographic summarizing key recommendations.

EXTERNAL EVALUATION:

1. External examination: 50 marks

References:

1. Chunawala, S. A. (2012). *Commentary on consumer behaviour* (ISBN 978-93-5051-763-5). Himalaya Publishing House.
2. Gulshan, S. S. (1996). *Consumer protection and satisfaction*. Wiley Eastern Ltd.
3. Kotler, P. (1985). *Principles of marketing*. Prentice Hall of India Pvt. Ltd.
4. Kumar, N. (1999). *Consumer protection in India*. Himalaya Publishing House.
5. Nair, S. (1999). *Consumer behaviour: Text and cases*. Himalaya Publishing House.
6. Ramaswamy, V. S., & Namakumari, S. (1997). *Marketing management* (2nd ed.). McMillan India Ltd.
7. Sherlekar, S. A., Reddy, P. N., & Appannaiah, H. R. (1995). *Essentials of marketing management*. Himalaya Publishing House.
8. Sontakki, C. N., & Deshpande, R. G. (1984). *Marketing, salesmanship and advertising*. Kalyani Publishers.

Course Title	Textile Craft of India
Course Credits	0+2
Course Outcomes	After going through the course, learners will be able to
	1. To learn various textile craft and their application.
	2. To Impart knowledge of textile craft techniques.
	3. To impart income-generating skills to learners
Module 1 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Demonstrate proficiency in basic hand knitting stitches. • Construct a functional or decorative item using macrame techniques
Content Outline	<p>1. Hand Knitting</p> <ul style="list-style-type: none"> • Basic knitting stitches • Garter, Stockinette, Rib Stich, Purl stich <p>2. Macrame</p> <ul style="list-style-type: none"> • Larks Head Knot, Square Knot, Alternating Square Knot, Spiral Knot <p>(Sling bag / Mobile Pouch/ Poncho/ Chandelier/ Scarf/ Wall hanging/ Dream catcher/ Potholder/ Key Chain)</p> <p><u>One sampler of each craft and one article using any one technique</u></p>
Module 2 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Demonstrate proficiency in applique technique • Design and construct a functional or decorative item using hand quilting techniques
Content Outline	<p>1. Applique work</p> <ul style="list-style-type: none"> • Fusible Web Applique, Needle Turn Applique <p>2. Hand Quilting</p> <p>(Lamp shade/ Table runner/ Cushion Covers/ Bag/ Dupatta/ Table Mats/ Storage Box)</p> <p><u>One sampler of each craft and one article using any one technique</u></p>

Comprehensive Continuous Evaluation (CCE):

–Continuous internal evaluation of 50 marks (each module 25 marks)

References:

1. Anchor Needle and thread (2007 & 2008 series) 7. Chattopadhyaya K. (1985). Handicrafts of India. (Revised edition). New Delhi: Indian Council for Cultural Relations.
2. Creatingfashionaccessories/CyDecosseIncorporated,1993.-Minnetonka: Cowles Publishing, Inc.
3. Gillow Jand Barnad. (1991)Traditional Indian Textiles London: Thames and Hudson Ltd. 10.IrwinJ.andHallM. (1971). Indian Painted and Printed Fabrics Ahmadabad: Calico Museum of Textiles.
4. Kathryn M. K. and Munslow J.(2003). Fashion Design process, innovation and practice, published by Blackwell science LTD
5. Maria di spirito (2006). Designs for beaded Jewelry, II Castello collane 13.MurphyV.andGillR.(1991).Tie-dyedtextiles of London: Victoria and Albert Museum.

Course Title	Mathematical Techniques for Competitive Examination Paper - 1
Course Credits	2
Course Outcomes	After completing this course, learner will be able to
	1. Understand and apply foundational concepts of the speed distance and time and Calendar
	2. Analyze , evaluate, and apply advanced techniques in work, distance and time and fast track formulae effectively, demonstrating critical thinking and proficiency in solving complex mathematical problems at an advanced level.
	3. Apply formulae and simplification techniques in solving basic numerical problems.
	4. Analyze complex mathematical problem-solving strategies and obtain the solutions to the problems easily.
Module1(Credit1) – Problems based on Time	
Learning Outcomes	After learning this module, learner will be able to
	1. Demonstrate a comprehensive understanding of Work and Time.Speed, time and distance. Clock and Calendar.
	2. Apply shortcut formulae to obtain the solution to the problems, and Fundamental employ sophisticated problem-solving strategies for challenging mathematical questions.
Content Outline	<ul style="list-style-type: none"> • Work and Time. • Speed, time and distance. • Clock and Calendar. • Fast track formulae to solve the questions.
Module2(Credit1) – Problems based on water (Liquid)	
Learning Outcomes	After learning this module, learner will be able to
	1. Demonstrate proficiency to solve mathematical problems accurately. 2. Distinguish the situations for and obtain the solutions. 3. Develop the ability to analyze complex word problems, apply appropriate mathematical techniques to obtain the solutions of the problems.

Content Outline	<ul style="list-style-type: none"> • Pipes and Cisterns • Boats and Streams • Word problems based on probability
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Students have to solve questions based on the topic Speed, Distance and Time from various competitive examination question papers.
2. Solve questions based on topic Clock and Calendar from various competitive examination question papers.
3. Obtain the solutions of the problems based on Pipes and Cisterns.
4. Obtain the solutions of the problems based on Boats and Streams.

Reference Books:

1. Verma R. Fast Track Objective Arithmetic (Complete revised edition). Arihant Publications (India) Limited.
2. Aggarwal R. S. Quantitative Aptitude for Competitive Examinations.
3. Aggarwal R. S. Objective Arithmetic (SSC and Railway Exam Special).
4. Sharma A. Teach Yourself Quantitative Aptitude.
5. Dinkar Patil, Spardha Pariksha Ankaganit, Yashodin Publication, N 53 S.F. 4 /5/ 3 Uttamnagar Po. Trimurti Chowk CIDCO Nashik 422008

Course Title	ઓ ઇ સી : સ્પર્ધા પરીક્ષેસાઠી ગણિત તંત્ર ભાગ ૧
Course Credits	2
Course Outcomes	<p>સદર વિષય અભ્યાસલ્યાનંતર વિદ્યાર્થી પુઢીલ બાબીસાઠી સક્ષમ અસેલ</p> <ol style="list-style-type: none"> 1. Understand and apply foundational concepts of the speed distance and time and Calendar 2. Analyze, evaluate, and apply advanced techniques in work, distance and time and fast track formulae effectively, demonstrating critical thinking and proficiency in solving complex mathematical problems at an advanced level. 3. Apply formulae and simplification techniques in solving basic numerical problems. 4. Analyze complex mathematical problem-solving strategies and obtain the solutions to the problems easily.
Module1(Credit1) – વેલ યા સંકલ્પનેવર આધારિત પ્રશ્ન	
Learning Outcomes	<p>સદર પાઠ અભ્યાસલ્યાનંતર વિદ્યાર્થી પુઢીલ બાબીસાઠી સક્ષમ અસેલ</p> <ol style="list-style-type: none"> 1. Demonstrate a comprehensive understanding of pipes, cisterns, boats and stream, Clock and Calendar . 2. Apply shortcut formulae to obtain the solution to the problems, and Fundamental employ sophisticated problem-solving strategies for challenging mathematical questions.
Content Outline	<ul style="list-style-type: none"> • કામ વ કાલ . • વેગ, વેલ વ અંતર . • ઘડ્યાલ વ દિનદર્શિકા . • ઉદાહરણે જલદ સોડવળ્યાસાઠી સૂત્રે વ ત્યાંચા વાપર.
Module2(Credit1) – પાળી (દ્રવ) યા સંકલ્પનેવર આધારિત પ્રશ્ન	
Learning Outcomes	<p>સદર પાઠ અભ્યાસલ્યાનંતર વિદ્યાર્થી પુઢીલ બાબીસાઠી સક્ષમ અસેલ</p> <ol style="list-style-type: none"> 1. Demonstrate proficiency to solve mathematical problems accurately. 2. Distinguish the situations for and obtain the solutions. 3. Develop the ability to analyze complex word problems, apply appropriate mathematical techniques to obtain the solutions of the problems.

Content Outline	<ul style="list-style-type: none"> • पाण्याची टाकी व नळ • बोट, नाव व प्रवाह • चलन (सम चलन व व्यस्त चलन) • वयवारी
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. विद्यार्थ्यांनी एम पी एस सी च्या मागील वर्षीच्या प्रश्नपत्रिकेमध्ये विचारलेले प्रश्न सोडवणे
2. विद्यार्थ्यांनी पोलीस भरती व तलाठी भरती च्या मागील वर्षीच्या प्रश्नपत्रिकेमध्ये विचारलेले प्रश्न सोडवणे
3. विद्यार्थ्यांनी बँक भरती च्या मागील वर्षीच्या प्रश्नपत्रिकेमध्ये विचारलेले प्रश्न सोडवणे
4. विद्यार्थ्यांनी मागील वर्षीच्या स्पर्धा परीक्षेच्या प्रश्नपत्रिकेमध्ये विचारलेले प्रश्न सोडवणे.

संदर्भ पुस्तके:

1. दिनकर पाटील , स्पर्धा परीक्षा अंकगणित , यशोदिन पब्लिकेशन्स नाशिक
2. सिद्धेश्वर हाडबेज , अंकगणित व बुद्धिमत्ता , भारती प्रकाशन पुणे
3. पंढरीनाथ राणे, **Sampurna Ganit** , चैताली प्रकाशन .

Course Title	Reasoning For Competitive Examination Part 1
Course Credits	2
Course Outcomes	After completing this course, the learner will be able to
	1. Understand and apply foundational concepts of reasoning to solve the problems in various competitive examinations
	2. Analyze , evaluate, and apply advanced techniques in reasoning and fast-track formulae effectively, demonstrating critical thinking and proficiency in solving complex mathematical problems at an advanced level.
	3. Apply formulae and simplification techniques in solving problems in various competitive examinations like Banking, Railway recruitment, LIC. Police examinations.
	4. Analyze complex mathematical problem-solving strategies and obtain the solutions to the problems easily.
Module1(Credit1) – Nonverbal Reasoning Tests:1	
Learning Outcomes	After learning this module, the learner will be able to
	1. Demonstrate a comprehensive understanding of pipes, cisterns, boats and streams, clocks and calendars.
	2. Apply shortcut formulae to obtain the solution to the problems and fundamentally employ sophisticated problem-solving strategies for challenging mathematical questions.
Content Outline	<ol style="list-style-type: none"> 1. Completion of series (Sequence/order) 2. Classification 3. Analogical Nonverbal Reasoning 4. Pattern comparison between two sets of figures 5. Arranging figures in sequence 6. Detection of figures out of series 7. Mirror reflection of a pattern 8. Detection of the hidden figure in a given pattern 9. Figure rotation 10. Pattern completion test 11. Pattern comparison 12. Grouping of identical figures 13. Application of given rules to a set of figures
Module2(Credit1) – Nonverbal Reasoning Tests:2	
Learning Outcomes	After learning this module, learner will be able to
	1. Demonstrate proficiency to solve mathematical problems accurately.
	2. Distinguish the situations for and obtain the solutions.
	3. Develop the ability to analyze complex word problems, apply appropriate mathematical techniques to obtain the

	solutions of the problems.
Content Outline	<ol style="list-style-type: none"> 1. Pattern rearrangement 2. Paper cutting 3. Making blocks by paper folding 4. Completing a given block from broken pieces 5. Making a key figure from given components 6. Folded views of paper 7. Deciphering opposite view of a design 8. Making a perfect square of a given design from cutup pieces 9. Cubes and Dices 10. Multidimensional figures/ blocks 11. Magic Square 12. Clock movements

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Students have to solve questions appeared in Last two years bank recruitment competitive examination question papers.
2. Solve questions appeared in various police Bharti competitive examination question papers of last year.
3. Obtain the solutions of the problems asked in various questions papers of M.P.S.C. Examinations.
4. Obtain the solutions of the problems on reasoning of Various railway recruitment examinations.

Reference Books:

1. Edgar Thorpe; Test of reasoning for competitive examinations, Third Edition, Tata McGraw Hill, Section 2 and 3.
2. Dr. R.S. Aggarwal; A modern Approach to verbal and Nonverbal reasoning, S. Chand.
3. Jaykishan and Premkishan; How to Crack Test of Reasoning in all Competitive Examinations, Arihant.

Course Title	Financial Mathematics
Course Credits	2
Course Outcomes	<p>After completing this course, learner will be able to</p> <ol style="list-style-type: none"> 1. Understand the functioning of the banking system and related terminologies. 2. Compute simple and compound interest and understand their applications. 3. Apply knowledge of GST and taxation in financial calculations. 4. Evaluate financial statements and investment options. 5. Make informed decisions on personal finance and budgeting. 6. Implement the various concept of taxation for real life applications.
Learning Outcomes	<p>After learning this module, learner will be able to</p> <ol style="list-style-type: none"> 1. Demonstrate a basic concept of finance towards budgeting 2. Apply shortcut formulae to obtain the solution to the problems of finding interests, tax, GST etc.
Content Outline	<p><u>Module 1: Basics of Banking</u> [8 Hours] Types of Bank account: Saving, Current, FD, RD and their differences Cheque, ATM, Debit and Credit Card: Meaning and their uses Concepts: KYC, IFSC, MICR meaning and their uses</p> <p><u>Module 2: Interest Calculations</u> [8 Hours] Simple and Compound Interest: Differences and Applications, Annual and Half Yearly Calculation PAN and TAN: Meaning, Difference and use</p> <p><u>Module 3: Goods and Service Tax</u> [8 Hours] GST: CGST, SGST, IGST meaning and uses Calculation of GST in billing, Practical billing examples</p> <p><u>Module 4: Taxation and Budget</u> [6 Hours] Income Tax: Basics and Slabs ITR: Basic concepts in Form 16 and ITR form Practical of finding income tax according to various tax slabs</p>

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Students have to solve questions based on the topic interest, GST
2. Solve questions based on topic TAX.
3. Obtain the solutions of the problems based on finding suitable tax slabs for simple word problems.
4. Obtain the solutions of the problems based on finding suitable tax slabs under GST for simple word problems.

Recommended Books / Materials:

1. "Mathematics for Economics and Finance" by Martin Anthony and Norman Biggs
2. "Practical Financial Mathematics" by C. B. Gupta
3. Online GST Portal and Income Tax India Portal
4. RBI Financial Literacy Materials.

Course Title	Microbes in environment
Course Credits	2
Course Outcomes	<p>After going through the course, learner will be able to,</p> <ol style="list-style-type: none"> 1. Recognize and analyze the role of microorganism in the ecosystem. 2. Categorize microorganism into different types and their distinctive features 3. Acquainted common microbial waste and microbial bio remediation 4. Detect various methods for water potability
Module 1 (Credit 1) - Microbes in environment I	
Learning Outcomes	<p>After learning the module, learner will be able to,</p> <ol style="list-style-type: none"> 1. Introduce to environmental microbes and their natural habitat 2. Understand the brief biogeochemical cycling of microbes 3. Evaluate and differentiate the microbial interaction between plants and animal
Content Outline	<ul style="list-style-type: none"> ● Microorganism and their Habitat <ol style="list-style-type: none"> A. Structure and function of ecosystems B. Terrestrial Environment: Soil profile and soil microflora C. Aquatic Environment: Microflora of fresh water and marine habitats D. Atmosphere: Aeromicroflora and dispersal of microbes E. Animal Environment: Microbes in/on human body (Microbiomics) & animal (ruminants) body. F. Extreme Habitats: Extremophiles: Microbes thriving at high & low temperatures, pH, high hydrostatic and osmotic pressures, salinity, & low nutrient levels. ● Biogeochemical Cycling <ol style="list-style-type: none"> A. Carbon cycle: Microbial degradation of cellulose, hemicelluloses, lignin and chitin B. Nitrogen cycle: Nitrogen fixation, ammonification, nitrification, denitrification and nitrate reduction C. Phosphorus cycle: Phosphate immobilization and solubilisation D. Sulphur cycle: Microbes involved in sulphur cycle E. Other elemental cycles: Iron and manganese ● Microbial Interaction <ol style="list-style-type: none"> A. Microbe interactions: Mutualism, synergism, commensalism, competition, amensalism, parasitism, predation B. Microbe-Plant interaction: Symbiotic and non symbiotic interactions C. Microbe-animal interaction: Microbes in ruminants, nematophagus fungi and symbiotic luminescent bacteria
Module 2 (Credit 1) - Microbes in environment II	
Learning Outcomes	<p>After learning the module, learner will be able to,</p> <ol style="list-style-type: none"> 1. Summarize microbial bioremediation and waste management 2. Demonstrate the different methodologies for water potability

Content Outline	<ul style="list-style-type: none"> ● Water Management <ul style="list-style-type: none"> A. Solid Waste management: Sources and types of solid waste, Methods of solid waste disposal (composting and sanitary landfill) B. Liquid waste management: Composition and strength of sewage (BOD and COD), Primary, secondary (oxidation ponds, trickling filter, activated sludge process and septic tank) and tertiary sewage treatment ● Microbial Bioremediation <ul style="list-style-type: none"> A. Principles and degradation of common pesticides, hydrocarbons (oil spills). ● Water Potability <ul style="list-style-type: none"> A. Treatment and safety of drinking (potable) water B. Methods to detect potability of water samples: (a) standard qualitative procedure: presumptive test/MPN test, confirmed and completed tests for faecal coliforms (b) Membrane filter technique and (c) Presence/absence tests
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Project work:

- Prepare a poster presentation on Microbial Bioremediation.
- Carry out a laboratory test to evaluate water potability.
- Determine COD from lake water to quantify amount of oxidisable pollutants found in water bodies.

2. Seminar Presentation:

- Water Management.
- Biogeochemical cycling in Microbes

References:

1. Maier RM, Pepper IL and Gerba CP. (2009). Environmental Microbiology. 2nd edition, Academic Press.
2. Okafor, N (2011). Environmental Microbiology of Aquatic & Waste systems. 1st edition, Springer, New York.
3. Singh A, Kuhad, RC & Ward OP (2009). Advances in Applied Bioremediation. Volume 17, Springer-Verlag, Berlin Hedeilberg Barton LL & Northup DE (2011).
4. Microbial Ecology. 1st edition, Wiley Blackwell, USA.
5. Campbell RE. (1983). Microbial Ecology. Blackwell Scientific Publication, Oxford, England.
6. Atlas RM and Bartha R. (2000). Microbial Ecology: Fundamentals & Applications. 4th edition. Benjamin/Cummings Science Publishing, USA.
7. Madigan MT, Martinko JM and Parker J. (2014). Brock Biology of Microorganisms. 14th edition. Pearson/ Benjamin Cummings.
8. Subba Rao NS. (1999). Soil Microbiology. 4th edition. Oxford & IBH Publishing Co. New Delhi.
9. Willey JM, Sherwood LM, and Woolverton CJ. (2013). Prescott's Microbiology. 9th edition. McGraw Hill Higher Education.

Course Title	Prevention of Food Spoilage (Theory)
Course Credits	2
Course Outcomes	<p>After going through the course, learner will be able to,</p> <ol style="list-style-type: none"> 1. Identify the major causes and types of food spoilage. 2. Explain the principles and methods used to prevent or delay food spoilage. 3. Analyze the effectiveness of preservation techniques for different food categories. 4. Apply appropriate food handling, packaging, and storage techniques to minimize spoilage. 5. Recommend food preservation methods considering safety, shelf life, and nutritional value.
Module 1 (Credit 1) - : Fundamentals of Food Spoilage and Microbial Activity	
Learning Outcomes	<p>After learning the module, learner will be able to,</p> <ol style="list-style-type: none"> 4. Define food spoilage and categorize its types and identify microbial, chemical, enzymatic, and physical causes of spoilage. 5. Explain the role of bacteria, yeasts, and molds in food spoilage and evaluate the factors influencing spoilage, including temperature, pH, moisture, and oxygen.
Content Outline	<ol style="list-style-type: none"> 1. Introduction to Food Spoilage <ul style="list-style-type: none"> • Definition and importance • Signs and consequences of spoilage 2. Types and Causes of Spoilage <ul style="list-style-type: none"> • Microbial (bacterial, yeast, fungal) • Chemical (oxidation, rancidity) • Enzymatic and physical changes 3. Spoilage in Different Food Types <ul style="list-style-type: none"> • Perishables (meat, milk, fruits, vegetables) • Semi-perishables and non-perishables 4. Factors Influencing Spoilage <ul style="list-style-type: none"> • Environmental (humidity, temperature, light) • Intrinsic (water activity, pH, nutrients) 5. Spoilage Indicators and Testing Methods <ul style="list-style-type: none"> • Sensory and microbiological analysis
Module 2 (Credit 1)-: Food Preservation Techniques and Spoilage Prevention Strategies	
Learning Outcomes	<p>After learning the module, learner will be able to,</p> <ol style="list-style-type: none"> 1. Describe and compare the traditional and modern preservation techniques. 2. Analyze the impact of preservation on food quality and safety and to design storage and handling plans to reduce spoilage risks.

Content Outline	<ol style="list-style-type: none"> 1. Overview of Food Preservation <ul style="list-style-type: none"> • Objectives and scope • Role in food safety and security 2. Physical Methods <ul style="list-style-type: none"> • Refrigeration and freezing • Dehydration and drying • Heat treatment (pasteurization, sterilization, canning) 3. Chemical Methods <ul style="list-style-type: none"> • Preservatives (organic acids, nitrites, antioxidants) • Food additives and labeling regulations 4. Biological and Emerging Techniques <ul style="list-style-type: none"> • Fermentation • Use of bacteriocins and probiotics • High-pressure processing, irradiation 5. Packaging and Storage Strategies <ul style="list-style-type: none"> • Modified Atmosphere Packaging (MAP) • Vacuum sealing • Cold chain logistics 6. Hygiene and Sanitation <ul style="list-style-type: none"> • Good Manufacturing Practices (GMP) • Hazard Analysis and Critical Control Points (HACCP)
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

- Case studies on spoilage incidents (e.g., canned food recall)
- Lab demonstrations on microbial growth in foods
- Field visits to food processing or storage units
- Small group projects on preservation strategies for local foods

References:

- Potter, N. N., & Hotchkiss, J. H. *Food Science*
- Jay, J. M. *Modern Food Microbiology*
- Fellows, P. J. *Food Processing Technology: Principles and Practice*

Course Title	Fascinating Physics
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	1. Apply the principles of classical and modern physics to solve real-world problems involving motion, energy, and electromagnetism. (Bloom's Level: Apply)
	2. Analyze the behavior of physical systems using conceptual and mathematical models in areas such as optics, thermodynamics, and quantum mechanics. (Bloom's Level: Analyze)
	3. Evaluate the effectiveness of scientific methods and experimental data in explaining physical phenomena and validating theories. (Bloom's Level: Evaluate)
	4. Create innovative solutions or devices by integrating interdisciplinary physics concepts with technology and engineering tools. (Bloom's Level: Create)
	5. Evaluate current advancements in physics and assess their implications on society, technology, and the environment.
Module 1(Credit 1)	Physical Science
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the fundamental ideas and goals of science and its role in shaping human understanding of the natural world. (Understanding level)
	2. Describe the key concepts of Aristotelian science and contrast them with the principles of modern scientific thinking. (Understanding/Analyzing level)
	3. Trace the historical development of science from ancient civilizations to the present, highlighting key contributions and shifts in perspective. (Understanding/Applying level)
	4. Define physics and illustrate its scope by citing real-life examples and applications across various domains. (Understanding/Applying level)
	5. Justify the importance of studying physics in the context of technological advancement, critical thinking, and

	societal development. (<i>Evaluating level</i>)
Content Outline	Introduction, Aristotelian science, Science - tracing back its origin, what is physics, why physics, the three fundamental entities of reality –Space, time and matter.
Module 2 (Credit 1) Space	
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the evolution of cosmological thought from early worldviews to twentieth-century models and recent advancements in understanding the universe. (<i>Understanding level</i>)
	2. Analyze the structure and significance of the Big Bang model, including the concept of a fine-tuned universe and the law of cause and effect. (<i>Analyzing level</i>)
	3. Evaluate various tools and techniques used in modern cosmology and astronomy to observe, measure, and interpret celestial phenomena. (<i>Evaluating level</i>)
	4. Describe major discoveries in the solar system and compare the characteristics of exoplanets and other celestial bodies. (<i>Understanding/Analyzing level</i>)
	5. Interpret the life cycle of massive stars, including phenomena such as supernovae and black holes, and their role in shaping the cosmos. (<i>Applying/Understanding level</i>)
Content Outline	1. Universe by design: From backyard to the big bang – A brief history of cosmology; worldviews in science and cosmological models, twentieth century cosmology, more recent developments in cosmology, tools for explaining the universe, the big bang model, fine-tuned universe, the law of cause and effect, A pale blue dot but a privileged planet. 2. Frontiers of Astronomy: From dawn to dusk, exploring the night sky, recent discoveries in the solar system, other worlds, cosmological distance and measurements, death of massive stars – supernova and black holes
References: -	1. Aslamazov, L. G., Varlamov, A. (2001). The Wonders of Physics. Singapore: World Scientific Publishing Company. 2. Hoyle, F. (1955). Frontiers of Astronomy. United Kingdom: Harper. 3. Concepts of Matter in Science Education. (2013). Netherlands: Springer Netherlands

Format of Question Paper: for the final examination For OE:

Internal – No Internal Examination

External – 50 Marks (2 Credits) which includes ,Question paper may carry 8 questions out of which Learner has to attempt any 5. It should cover both modules.

Course Title	Animal Behaviour
Course Credits	2
Course Outcomes	After going through the course, learners will be able to :
	1. Analyze and evaluate different types of learned behaviour with examples
	2. Analyze and evaluate different types of innate behaviour with examples
	3. Interpret the significance of different types of animal behaviour from various examples
Module 1(Credit 1) : Learned behaviour	
Learning Outcomes	After learning the module, learners will be able to
	<ol style="list-style-type: none"> 1. Analyze and evaluate different types of learned behaviour with examples 2. Relate the various types of behaviour through everyday life observations
Content Outline	<ul style="list-style-type: none"> • Definition, History and Scope of Animal Behaviour • Types of Animal behaviour - Innate and Learned behaviour • Learned Behaviour: <ul style="list-style-type: none"> ○ Habituation ○ Sensitization ○ Imprinting ○ Classical Conditioning ○ Operant conditioning ○ Insight learning
Module 2(Credit 1) : innate & social behaviour	
Learning Outcomes	After learning the module, learners will be able to:
	1. Analyze and evaluate different types of innate behaviour with examples
	2. Interpret the significance of different types of animal behaviour from various examples
Content Outline	<ul style="list-style-type: none"> • Introduction to innate behaviour <ul style="list-style-type: none"> ○ Types of innate behaviour <ol style="list-style-type: none"> a) Fixed Action pattern b) Reflexes c) Taxis d) Instincts • Introduction to social behaviour in animals <ul style="list-style-type: none"> Aggression <ul style="list-style-type: none"> ○ Schooling in fishes ○ Flocking in birds ○ Herding in mammals ○ Social organization in Insects and Primates

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

- Project based on observation of a given species in its natural habitat: Select a species to observe in its natural habitat (e.g. dog, cat, birds in a park, squirrels, or insects / spiders) Spend time observing the animal(s) over a period of two weeks. Record different types of behaviors such as feeding, social interactions, territorial behaviors, and grooming. Record your observations in detail, noting the time of day, the animal's surroundings, and any stimuli that might trigger certain behaviors. Compile the findings into a report discussing key observations and linking them to biological principles like survival, adaptation, and communication.
- Study of Animal Communication: Vocalizations and Body Language: Record the bird calls, barking of dogs etc. Analyze the different calls as per the time of the day, and relate them to the body gestures such as flight and perching (birds) or while barking (dogs).
- Mini research project based on how environmental factors like light, temperature, or the presence of other animals affect the behavior of an animal species. Aquarium fish species or zebrafish could be used as model organism and subjected to manipulated environmental factors. Observations could be recorded for 10 minutes, data to be analyzed and report to be submitted with conclusions drawn from the experimental studies.

References:

1. Arora M. (2019). Animal Behaviour. (8th ed.). Himalaya Publications.
2. Eibl-Eibesfeldt, I. (1970). The biology of Behaviour. Ethology. Holt, Rineheart & Winston Publication, New York.
3. Manning A. and Dawkins M.S. (2012). An introduction to Animal Behaviour (6th ed.). Cambridge University Press.
4. McFarland D. (1999). Animal Behaviour Psychobiology, Ethology and Evolution. (3rd ed.). Longman Publication.
5. Vessey S., Jacob E., Vessey S. H. and Drickamer L. C. (2002). Animal Behaviour: Mechanisms, Ecology and Evolution. (5th ed.). McGraw-Hill.

Course Title	Intellectual Property Rights and Cyber Law
Course Credits	2 Credits
Course Outcomes	After Completion of this Course, students will be able
	1. Evaluate the importance of Intellectual property.
	2. Apply knowledge of Intellectual property to protect creative work.
	3. Apply Patent Registration Procedure.
	4. Evaluate how to protect intellectual property.
	5. Evaluate the concept of cyber law and IT Act.
Module 1 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> ● Identify the use of Intellectual Property. ● Ability to use Intellectual property to protect their work.
Content Outline	<p>Intellectual Property Rights:</p> <p>Intellectual Property Rights and its types. Basic principles, objectives of Copyrights, Trademark, Design Rights, Patent & Patent Registration Procedure. International Background of Intellectual Property.</p> <p>Ownership and Enforcement: Copyrights, Patent, Trademark, Design Right.</p> <p>Practical Aspects of Licensing: Benefits, important clauses, licensing clauses.</p>
Module 2 (Credit 1)	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ul style="list-style-type: none"> ● Identify Cyber Law and Cyber Crime in detail. ● Identify Objective of IT Act 2000

Content Outline	<p>Cyber Law: Introduction, Basic Concepts of Cyber Law, Scope of Cyber Laws, Cyber Jurisprudence. Cyber Security Regulations, Role of International Law, Cyber Security Standards, Indian Cyber Space, National Cyber Security Policies.</p> <p>Law of Digital Contracts: The Essence of Digital Contracts, The System of Digital Signatures, The Role and Function of Certifying Authorities,</p> <p>Information Technology Act 2000: Objectives of IT Act 2000. Following sections to be explained in detail Sections 43(Penalty for damage to the computer), Section 66(Hacking of computer systems), Section 67(publishing of obscene information), Section 72(penalty for breach of privacy), Section 73(penalty for publishing false digital signature certificates).</p> <p>Cyber Crimes: Cyber Crimes and Types of Cyber Crimes</p> <p>Ethical hacking: Introduction to Ethical Hacking.</p>
Activities to be done in the class towards Comprehensive Continuous Evaluation	
<p>Module 1: Define Intellectual Property Rights (IPR). Explain the major types of IPR with real-world examples. Discuss the objectives and basic principles of Copyright, Trademark, Design Rights, and Patent. How do they protect creative and commercial work? Explain the Patent Registration Procedure in India. Include the steps and authorities involved. Evaluate the practical aspects of licensing intellectual property. What are the key clauses in a typical licensing agreement? Analyze the international framework of intellectual property protection. How do treaties like TRIPS influence national IPR laws?</p>	
<p>Module 2: Explain the scope and significance of Cyber Law in India. How does it address challenges in the digital world? Discuss the objectives and key provisions of the Information Technology Act, 2000. Explain the relevance of Sections 43, 66, 67, 72, and 73. Differentiate between various types of cybercrimes with examples. What are the possible legal remedies? Explain the concept of digital contracts and the role of digital signatures. How do certifying authorities ensure trust and security? What is ethical hacking? How can it be used as a tool in cybercrime prevention and cybersecurity enhancement?</p>	

Reference Books

1. A Complete Manual on Intellectual Property Rights & Cyber Laws in India by by [Dr. Anusuya Yadav](#)
2. Essential Reading: Title: "Cyber Crimes and Laws: An Introduction" by Dr. Pavan Duggal, Publisher: Universal Law Publishing , 2022 edition.

3. Supplementary Reading: Title: "Cyber Crime and Cyber Laws" by: V. K. Ahuja , Publisher: Taxmann Publications 2021 edition
4. Title: "Cyber Laws: A Comprehensive Guide" by Rohas Nagpal , Publisher: McGraw Hill Education , 2020 edition.
5. Title: "Cyber Crime and the Law: Challenges, Issues, and Response" by Yogesh K. Dwivedi, Himanshu Gupta, and Matthew K. O. Lee , Publisher: Springer India , 2019 edition.

Assessment:

External Assessment: (50 Marks)

End Semester examination of 50 marks for 2 hours duration will be conducted

Course Title	Digital Marketing
Course Credits	2 Credits
Course Outcomes	<p>After Completion of this Course, students will be able</p> <ol style="list-style-type: none"> 1. Understand the fundamentals of digital marketing and its role in the business environment 2. Develop digital strategies including SEO, SEM, email, and content marketing 3. Design and execute performance-based digital ad campaigns 4. Analyze campaign metrics using web and social analytics. 5. Use social media tools and analytics platforms to plan and measure marketing campaigns
Module 1 (Credit 1)	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ol style="list-style-type: none"> 1. Describe the evolution and scope of digital marketing 2. Identify key components of a digital marketing strategy 3. Apply the basics of search engine optimization (SEO) and search engine marketing (SEM). 4. Use tools like Google Ads and Google Analytics
Content Outline	<p>Introduction to Digital Marketing: Definition, Importance, Traditional vs. Digital Marketing, Latest Trends</p> <p>Digital Marketing Channels: Owned, Earned, and Paid Media</p> <p>Search Engine Optimization (SEO): On-page & Off-page SEO, Keywords, Backlinks, SEO tools</p> <p>Search Engine Marketing (SEM): Google Ads, PPC, Keyword Planning, Ad Creation, Bidding Strategies</p> <p>Digital Marketing Tools: Introduction to Google Analytics, Google Search Console, SEMrush</p>

Module 2 (Credit 1)	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <ol style="list-style-type: none"> 1. Create effective content and email marketing campaigns 2. Develop marketing strategies using customer segmentation 3. Automate digital communication using CRM tools 4. Comply with ethical and legal standards in digital marketing
Content Outline	<p>Content Marketing: Blogging, Video Marketing, Influencer Marketing, Content Strategy</p> <p>Email Marketing: Campaign Planning, Tools (Mailchimp), A/B Testing, GDPR Compliance</p> <p>Customer Relationship Management (CRM): Email Automation, Segmentation, Lead Scoring</p> <p>Digital Ethics and Laws: Data Privacy, Intellectual Property, Digital Advertising Laws</p>
Activities to be done in the class towards Comprehensive Continuous Evaluation	
<p>Module 1: Define Digital Marketing. How does it differ from traditional marketing in terms of reach, measurability, and cost? Explain the three types of digital marketing channels: Owned, Earned, and Paid Media. Provide examples of each. Discuss the importance of SEO in digital marketing. Differentiate between On-page and Off-page SEO with techniques used in each. What is Google Ads and how does Pay-Per-Click (PPC) advertising work? Explain the process of keyword planning and bidding strategies. Identify and explain the role of three major digital marketing tools (e.g., Google Analytics, Google Search Console, SEMrush) in campaign performance evaluation.</p>	
<p>Module 2: Design a sample content marketing strategy for a new product launch using blogging, video marketing, and influencer outreach. Create an outline for an email marketing campaign using tools like Mailchimp. Include segmentation, A/B testing, and GDPR compliance considerations. What is CRM in digital marketing? Explain how email automation and lead scoring improve customer engagement. Evaluate the ethical and legal issues in digital marketing. How do data privacy laws like GDPR affect online advertising practices? Explain how customer segmentation can enhance marketing strategies. Provide an example of segmentation based on demographics or behavior.</p>	

Reference Books

1. Digital Marketing: Strategy, Implementation, and Practice – Dave Chaffey & Fiona Ellis-Chadwick
2. Marketing 5.0: Technology for Humanity – Philip Kotler, Hermawan Kartajaya & Iwan Setiawan
3. Contagious: Why Things Catch On – Jonah Berger
4. Jab, Jab, Jab, Right Hook – Gary Vaynerchuk
5. SEO 2024 – Adam Clarke
6. Digital Marketing for Dummies – Ryan Deiss & Russ Henneberry
7. Google Ads (AdWords) Workbook 2024 – Jason McDonald
8. Social Media Marketing Workbook 2024 – Jason McDonald

Assessment:

External Assessment: (50 Marks)

End Semester examination of 50 marks for 2 hours duration will be conducted.

Course Title	E-Commerce
Course Credits	2 Credits
	1. Identify and explain an analytical framework to understand the emerging world of e-commerce 2. To make the learners familiar with current challenges and issues in e-commerce. 3. To develop the understanding of the learners towards various business models. 4. Analyze the impact of e-payment, legal, and security issues in E-Commerce. 5. Evaluate different digital marketing strategies.
Module 1 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to <ol style="list-style-type: none"> 1. Analyze the historical evolution, scope, and business models of E-Commerce (B2B, B2C, B2G), and explain the roadmap of E-Commerce development in India by identifying its main activities, functions, and benefits and challenges; and illustrate how different models apply to real-world marketing, sales, and promotional strategies. 2. Apply E-Commerce concepts to design a basic business model by evaluating the E-Commerce Sales Life Cycle (ESLC), comparing alternative B2B/B2C processes, and recommending strategies for effective online operations aligned with Indian market trends and technological advancements.
Course Outline	Introduction to Electronic Commerce–Evolution and Models: Evolution of E-Commerce-Introduction, History/ Evolution of Electronic Commerce, Roadmap of E-Commerce in India, Main activities, Functions and Scope of E-Commerce. Benefits and Challenges of E-Commerce, E-Commerce Business Strategies for Marketing. Business Models of E-Commerce- Characteristics of Business to Business(B2B), Business to Consumers (B2C), Business to Government(B2G) Concepts of other models of E-commerce Business to Consumer E-Commerce process, Business to Business E-Commerce-Need and Importance, alternative Models of B2B E-Commerce. E-Commerce Sales Product Life Cycle (ESLC)Model

Module 2 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	<ol style="list-style-type: none"> 1. Explain the scope and techniques of E-Marketing—including traditional web promotion methods, web counters, advertisements, and social media—and evaluate customer strategies, support activities, and digital planning approaches; further, justify the feasibility of launching an Internet business by weighing the pros and cons of online shopping. 2. Explain the scope and techniques of E-Marketing—including traditional web promotion methods, web counters, advertisements, social media—and evaluate customer strategies, support activities, and digital planning approaches; further, justify the feasibility of launching an Internet business by weighing the pros and cons of online shopping.
Course Outline	<p>E-marketing and Electronic Payment System</p> <p>E-Marketing-Scope and Techniques of E-Marketing, Traditional web promotion; Web counters; Web advertisements, Role of Social media.</p> <p>E-Commerce Customer Strategies for Purchasing and Support activities, Planning for Electronic Commerce and its initiatives, The pros and cons of online shopping, Justify an Internet business.</p> <p>Electronic Payment System-Characteristics of E-payment system, SET Protocol for credit card payment, prepaid epayment service, post-paid E-payment system, Types of payment systems.</p> <p>Operational, credit and legal risks of E-payment system, Risk management options for E-payment systems, Set standards/principles for E-payment</p>

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE) for Numerical Methods

Module 1:

1. Quiz: Key concepts, models, and history of E-Commerce.
2. Group Discussion: Benefits and limitations of E-Commerce in India.
3. Case Study: Comparative analysis of Amazon (B2C) vs. IndiaMART (B2B).

Module 2:

1. Create a table comparing Traditional Web Promotion (e.g., banners, web counters) and Social Media Marketing (e.g., Instagram ads, influencer partnerships).
2. Include examples from at least two current E-Commerce platforms (e.g., Flipkart and Nykaa).
3. Identify at least 3 benefits and 3 limitations of each approach.

Reference Books:

1. K Laudon, Kenneth C. and Carol Guercio Traver E-commerce: business, technology, society. (New Delhi : Pearson Education).
2. Awad, Elias M., Electronic Commerce: From Vision to Fulfillment (New Delhi : Pearson Education).
3. Kalakota, Ravi and Marcia Robinson . Business 2.0: Roadmap for Success (New Delhi : Pearson Education).
4. Smith, P.R. and Dave Chaffey, eMarketing eXcellence; The Heart of eBusiness (UK : Elsevier Ltd.)
5. Vivek Sood Cyber Laws Simplified-TMH
6. Vakul Sharma Handbook of cyber Laws-Macmillan
7. Sundeep Oberoi e Security and you-TMH
8. Greenstein & Feinman Electronic Commerce-Security, Risk Mgt and Control-TMH

Course Title	Basics of Data Analysis using Spreadsheet
Course Credits	2 Credits
Course Outcomes	After Completion of this Course, students will be able
	1. Familiarize with basics of data analysis and its importance in decision-making.
	1. Explain the importance of data collection, organization, and cleaning in data analysis
	2. Apply data visualization, statistical analysis, and data interpretation techniques to perform basic data analysis tasks.
	3. Analyze data and determine the most effective visualization to use to communicate insights and trends.
	4. Create a report that incorporates the application of basic statistical concepts, including mean, median, mode, and standard deviation, to solve a real-world problem
Module 1 (Credit 1)	Introduction to Data Analysis, Data Collection and Organization, Data Visualization
Learning Outcomes	After learning the module, learners will be able to
	<ul style="list-style-type: none"> • Identify the different types of data analysis (descriptive, inferential, predictive) • Understand the basic features and functions of spreadsheet software (cells, rows, columns, formulas, functions) • Learn how to use spreadsheet software to perform basic data manipulation tasks (e.g., calculating sums, averages, counts) • Understand the importance of data cleaning and preprocessing in data analysis • Define data visualization and its importance in communicating data insights
Content Outline	Overview of data analysis, Importance of data analysis in decision-making, Introduction to spreadsheet software (Microsoft Excel/Google Sheets)
	Collecting data from various sources, organizing data in a spreadsheet, Data cleaning and preprocessing, Introduction to data visualization, Creating charts and graphs in spreadsheet software
	Best practices for data visualization
Module 2 (Credit 1)	Statistical Analysis, Data Interpretation and Communication, Case Studies and Project Work
Learning Outcomes	After learning the module, learners will be able to <ul style="list-style-type: none"> • Calculate and interpret basic statistical measures • Analyze and interpret data results • Communicate data insights effectively

	<ul style="list-style-type: none"> • Apply data analysis concepts to real-world scenarios • Create informative and interactive reports and dashboards
Content Outline	<p>Introduction to basic statistical concepts (mean, median, mode, standard deviation)</p> <p>Calculating statistical measures in spreadsheet software, interpreting statistical results, Interpreting data results, Communicating data insights.</p> <p>Creating reports and dashboards in spreadsheet software, applying data analysis concepts to real-world case studies, working on individual/group projects to analyze and interpret data</p>
Assignments towards Comprehensive Continuous Evaluation	
<p>Module 1:</p> <ul style="list-style-type: none"> • Data Collection Project (Group Activity) • Understanding Terminology of Data Analytics • Error Detection in Data (Worksheet) 	
<p>Module 2:</p> <ul style="list-style-type: none"> • Statistical Analysis • Data Interpretation and Communication • Case Studies (Real-World Data Analysis) • Project Work (Independent Research) 	

Text Books

1. Jeeva Jose, (2024). Beginner's Guide for Data Analysis using R Programming. Khanna Publishing House.
2. V.K. Jain, (2024). Data Analytics. Khanna Book Publishing Company.
3. Stephen L. Nelson and E. C. Nelson, John Wiley & Sons, 3rd edition, (2016). Excel Data Analysis For Dummies.
4. Michael R. Middleton, Thomson, Brooks/Cole, 3rd edition, (2004). Data Analysis Using Microsoft Excel.

Reference Books

1. Michael Alexander, Richard Kusleika, and John Walkenbach, John Wiley & Sons, (2018). Excel 2019 Bible.
2. Cliff T Ragsdale, Cengage learning asia pet. (2015). Spreadsheet Modeling and Decision Analysis: A Practical Introduction to Business Analytics.

Assessment:

External Assessment: (50 Marks)

End Semester examination of 50 marks for 2 hours duration will be conducted

Course Title	AI Tools
Course Credits	2 Credits
	1: To introduce students to the concept and scope of Artificial Intelligence (AI)
	2: To explore user-friendly AI tools with minimal coding
	3: To encourage practical application of AI in creative and productive tasks
	4: To build foundational awareness of ethical and responsible AI use
Module 1 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	Remember and define basic concepts and types of Artificial Intelligence.
	Understand how no-code AI tools work and their relevance in real-life applications.
	Apply simple AI tools like Teachable Machine, Canva AI, and ChatGPT to perform tasks such as image classification, content generation, and design.
Content Outline	<p>What is AI?</p> <ul style="list-style-type: none"> History, scope, and types of AI (Narrow, General, Super) Real-world examples in mobile apps, websites, and social media <p>Simple AI Tools and Applications</p> <ul style="list-style-type: none"> Google Teachable Machine: Train image/audio classifiers in minutes Microsoft Lobe.ai: Create image-based ML apps visually Canva AI (Magic Write, Magic Design): AI-powered design and content Bing Image Creator / DALL-E: Generate images from text prompts Quillbot: AI writing and paraphrasing tool Google AutoDraw: Sketch-to-image AI ChatGPT: AI assistant for content, code, and answers <p>Responsible AI Use</p> <ul style="list-style-type: none"> Bias in AI Deepfakes and fake content Privacy and data ethics
Module 2 (Credit 1)	

Learning Outcomes	After learning the module, learners will be able to
	Apply user-friendly AI tools to create original content and designs
	Analyze the features, strengths, and limitations of various AI applications
	Create a mini project using one or more AI tools to solve a simple problem or create digital content
Content Outline	Exploring AI Tools <ul style="list-style-type: none"> • Design.AI: Revolution in Poster Design • Site123,Weebly: Essential tools for Web Development • LogoAI, Logomaker.ai: Creative Logo creation • OpenAI,Codeium: Coding becomes easier • ResumeA.I.: Write effective resume • Consensus: AI tools for research Mini Project <ul style="list-style-type: none"> • Choose any AI tool. • Create a small project (e.g., a poster, presentation, chatbot mockup, image classifier, text rewriter, etc.)

References:

- 1.Kelkar B, Pangarkar A,.(2023) 'AI YO tools - Leveraging Power of Artificial Intelligence'.Newflex Talent Solutions Pvt. Ltd.
- 2.Kumar, P. (2021). *AI Basics for Schools and Colleges*. BPB Publications.
– A practical guide for students, covering simple AI tools and their ethical implications in the Indian context.
- 3.**Markiewicz, T., & Zheng, J.** (2017). *Getting Started with Artificial Intelligence*. O'Reilly Media.– Focuses on applying AI services in real-life scenarios using cloud-based tools.
- 4.<https://www.lobe.ai>
- 5.<https://www.canva.com/designschool>
- 6.<https://chat.openai.com>

Classroom Activities:

Worksheet to be prepared by Teachers on each module and given to students for practice. The correction of the worksheets to be done by the teachers and feedback to be given to the class for better improvement in their end semester examination.

Q: Design a poster/banner on “Future of AI” using only AI tools.

External Assessment: (Marks 50)

End Semester examination of 50 marks for 2 hours duration will be conducted

Course Title	E-Commerce Technologies
Course Credits	2 Credits
	1: To introduce the fundamental concepts and models of e-commerce
	2: To familiarize students with tools and platforms used in e-commerce
	3: To provide basic practical skills in building and managing online stores
	4: To understand online payments and e-commerce security essentials
Module 1 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	Understand the scope and types of e-commerce models
	Identify key components of an e-commerce platform
	Apply simple tools to set up a basic e-commerce website
Content Outline	<ul style="list-style-type: none"> • What is E-Commerce? Its strengths and weaknesses. • Types: B2B, B2C, C2C, C2B, G2C • E-Commerce vs Traditional Commerce • Overview of E-Commerce Platforms (Shopify, WooCommerce, WordPress) • Setting up a basic online store (WordPress or Shopify demo)
Module 2 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	Explain digital payment systems and gateway integration basics
	Identify security measures in online commerce
	Apply simple digital marketing tools for product promotion
Content Outline	<ul style="list-style-type: none"> • Online Payment Methods (UPI, cards, wallets) • Payment Gateway Overview (Razorpay, PayPal – sandbox demo) • Basic E-Commerce Security (SSL, safe transactions) • Introduction to E-Commerce Marketing: SEO, Email campaigns, Social media • Demo: Creating a digital flyer or ad for an online store (using Canva)

References:

1. **Chan, H., Lee, R., Dillon, T., & Chang, E.** (2007). *E-Commerce: Fundamentals and Applications*. Wiley India Pvt. Ltd.
2. **Schneider, G. P.** (2020). *Electronic Commerce*. Cengage Learning, 13th Edition.
3. **Pandey, U. S., & Shukla, S.** (2019). *E-Commerce and Mobile Commerce Technologies*. S. Chand Publishing.
4. **Laudon, K. C., & Traver, C. G.** (2021). *E-Commerce: Business, Technology, Society*. Pearson Education, 16th Edition.
5. **Larson, J., & Draper, S.** (2022). *Digital Marketing Essentials*. Stukent Inc.
6. <https://wordpress.com>
7. <https://woocommerce.com>
8. <https://shopify.com>
9. <https://razorpay.com>
10. <https://canva.com>

Classroom Activities:

Worksheet to be prepared by Teachers on each module and given to students for practice. The correction of the worksheets to be done by the teachers and feedback to be given to the class for better improvement in their end semester examination.

Q: Creating a sample product page using WordPress or Shopify (free version)

Q: Designing a poster or ad for an online business using Canva

External Assessment: (Marks 50)

End Semester examination of 50 marks for 2 hours duration will be conducted

Course Title	Study of Cells and Tissues
Credit	2
Course Outcomes	<p>After going through the course, learners will be able to -</p> <ol style="list-style-type: none"> 1. Identify and describe the microscopic structure of normal cells and tissues in various organs and systems 2. Recognize the microscopic changes in cells and tissues caused by diseases. 3. Understand the principles and applications of various histopathological techniques.
Module-1 (Credit 1): Introduction & orientation to Histopathology and cytological, Techniques.	
Learning Outcomes	<p>After learning the module, learners will be able to -</p> <ol style="list-style-type: none"> 1. Understand the tissue processing techniques, sectioning, staining and microscopy techniques 2. Learn to use a light microscope to examine tissue slides and identify microscopic structure 3. Illustrate different types of fixatives
Content Outline	<ul style="list-style-type: none"> ● The cell- i) Structure ii) cell division iii) Colloidal conception of tissue. Methods of examination of tissues and cells. ● Gross examination of organs. ● Fixation - Introduction, aim of fixation. ● Fixatives – Reagents used, advantages, disadvantages. ● Gross fixation of different organs. ● Decalcification – Technique, different types of fluids used. ● Processing of tissue by manual methods. ● Processing of tissue by using automatic tissue processor.
Module-2 (Credit 1): Processing of Tissue by Using Automated Tissue Processor	
Learning Outcomes	<p>After learning the module, learners will be able to -</p> <ol style="list-style-type: none"> 1. Prepare tissue samples and properly handle autoanalyzer 2. Develop the ability to interpret histopathological findings
	<ol style="list-style-type: none"> 1. Examine different types of procedure methods in histopathology.

Content Outline	<ul style="list-style-type: none"> ● Paraffin section cutting. ● Different types of cryostats. ● Theory of staining. ● Mountants, basic staining and mounting procedures. ● Routine staining procedures and frozen section techniques. ● Special staining techniques. ● Exfoliative cytology techniques. ● Museum techniques. ● Immuno-histochemistry, introduction & techniques. ● Electron microscopic techniques & recent advances.
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Group discussion around challenging cases or controversial topics in histopathology.
2. Prepare and present a slide on finding, offer a diagnosis and justify their reasoning.
3. Present students with clinical scenarios and accompanying histopathology images.
4. Assignments focusing on defining terms, explaining processes and using correct nomenclature are important.

References:

1. Histological Techniques, a practical manual by Dr. K. Laxminarayana 3rd edition, Published 2020.
2. Textbook of medical laboratory technology: Dr. P. B. Godkar, 3rd edition, Published 2018.
3. Techniques in Histopathology & Cytopathology by Jaypee Brothers Medical Publisher 1st Edition 2017
4. Histopathology Techniques and Its Management by Ramdas Nayak, 1st Edition 2017
5. Histopathology (For Paramedical Students) by Poonam Bacceti and Arun Singh, 2nd edition 2018

Course Title	Environmental Pollution
Course Credits	4 / 2
Course Outcomes	After going through the course, learners will be able to
	<ol style="list-style-type: none"> 1. This course introduces the Environmental pollution, its types and sources of Pollution. 2. Identify various types of environmental pollution and their impacts on health. 3. Apply relevant environmental policies and ethical considerations to real World scenarios. 4. Students should be able to gain the knowledge about the environmental pollution. 5. Apply the principles of key environmental treaties and legislation to case studies
Module 1(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	<p>Identify and explain the major sources and types of air pollutants, including both primary and secondary pollutants.</p> <p>Analyze the environmental and human health consequences of exposure to air pollutants. Identify and explain the major sources and types of air pollutants, including both primary and secondary pollutants.</p> <p>Describe the characteristics and health impacts of key criteria pollutants (CO, Pb, NO_x, O₃, PM, SO₂) as well as other significant pollutants such as VOCs, PAN, PAHs, and POPs.</p>
Content Outline	<ul style="list-style-type: none"> • Sources of air pollution; Primary and secondary pollutants; • Criteria pollutants- carbon monoxide, lead, nitrogen oxides, ground-level ozone, particulate matter and sulphur dioxide; • Other important pollutants- Volatile organic compounds (VOCs), Peroxyacetyl nitrate (PAN), Polycyclic aromatic hydrocarbons and Persistent organic compounds (POPs); • Adverse health impacts air pollutants.
Module 2(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	<ol style="list-style-type: none"> 1. Understand and explain the microbially mediated aquatic reactions, including the nitrogen cycle and roles of iron and manganese bacteria.

	<p>2. Classify water pollutants and distinguish between organic and inorganic contaminants such as pesticides, detergents, and heavy metals.</p> <p>3. Analyze key water pollution issues including eutrophication, marine pollution, oil spills, and acid mine drainage, along with associated remedial and mitigation strategies.</p>
Content Outline	<ul style="list-style-type: none"> • Water resources; Microbially mediated aquatic reactions, nitrogen cycle, iron and manganese bacteria; • Classification of water pollutants; • Organic and Inorganic pollutants: • Pesticides, detergents, eutrophication, marine, oil, acid mine drainage, remedial measures.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Module I: Air Pollution and Its Impact

Activity Title: Investigating Common Air Pollutants

Assignment Type: Report + Case-Based Analysis

Tasks:

1. Identify and describe **any 3 major air pollutants**, such as:
 - Carbon monoxide (CO)
 - Nitrogen oxides (NO_x)
 - Particulate matter (PM)
 - Volatile organic compounds (VOCs)
 - Sulphur dioxide (SO₂)
2. For each pollutant:
 - Mention source (natural/man-made)
 - Effects on human health and environment
 - Control measures and legal limits (BIS/WHO norms)
3. Optional: Discuss a case (e.g., Delhi smog, Bhopal gas tragedy) with pollutant-specific relevance.

Module II: Water Pollution and Microbial Reactions

Activity Title: Analysis of Water Pollution Sources and Effects

Assignment Type: Thematic Report + Flow Diagrams

Topics to Include:

- Classification of pollutants (organic/inorganic, industrial/agricultural)
- Microbial roles in aquatic ecosystems:
 - Nitrogen cycle
 - Iron & manganese bacteria
- Issues like:
 - Eutrophication
 - Marine oil spills

- Acid mine drainage

Reference:

1. Shrader-Frechette, K. (1993). Burying Uncertainty: Risk and the Case Against Geological Disposal of Nuclear Waste.
2. Carson, R. (1962). Silent Spring.
3. Pimentel, D. (2001). Environmental and Economic Costs of the Application of Pesticides.
4. National Academy of Sciences (2009). On Being a Scientist: A Guide to Responsible Conduct in Research.
5. NCERT EVS Class XI – Chapters on Sustainable Technology & Science
6. Royal Society of Chemistry – Green Chemistry articles