

Table I
Groups for UC Courses
2023-24 onwards

GROUP A	School of Management, School of Commerce, School of Arts Humanities and Social Sciences, School of Law and Legal Studies, School of Performing Arts, School of Journalism and Mass Communication, School of Design.													
GROUP B	School of Sciences, SIRT- Pharmacy , SAGE College of Nursing , School of Computer Application , School of Advanced Computing, School of Engineering and Technology, School of Agriculture													
Semester	Course Code	Course Name Group A	CONTACT hours/week			Credits	Type	Course Code	Course Name Group B	CONTACT hours/week			Credits	Type
			L	T	P					L	T	P		
I	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC	TR23UC003	Communication Skills	1	0	2	2	AEC
	AH23UC002	Hindi	2	0	0	2	SEC	CA23UC004	MS Office	0	0	4	2	SEC
II	TR23UC003	Communication Skills	1	0	2	2	AEC	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC
	CA23UC004	MS Office	0	0	4	2	SEC	AH23UC002	Hindi	2	0	0	2	SEC
III	TR23UC005	Professional Skills-I	0	0	4	2	AEC	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC
	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC
IV	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC	TR23UC005	Professional Skills-I	0	0	4	2	AEC
	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC
V	TR23UC009	Professional Skills-II	0	0	4	2	AEC	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC
	MG23UC010	Research Methodology	2	0	0	2	SEC	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC
VI	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC	TR23UC009	Professional Skills- II	0	0	4	2	AEC
	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC	MG23UC010	Research Methodology	2	0	0	2	SEC

COURSE CODE	ENVIRONMENTAL STUDIES AND DISASTER MANAGEMENT	Total Lec: 30
SC23UC001		2-0-0-2
Course Objectives:	The course prepares students for careers as leaders in understanding and addressing complex environmental issues from a problem-oriented, interdisciplinary perspective. Students will <ul style="list-style-type: none"> • Understand the transnational nature of environmental problems and ways of addressing them. • Apply, analyze and understand interactions between social, and environmental processes. • Reflect critically on their roles and identities as citizens, consumers, and environmental actors in a complex, interconnected world. 	
Pre-requisites:	Basic understanding of high school chemistry and biology	
Unit	Contents	Hours
1	Definition, components of the environment, the relationship and interconnection between different components, man–environment relationship, the impact of technology on the environment, environmental degradation, sustainable development and its significance, environmental education.	4
2	Ecology: Introduction and objectives. Ecosystem: structure and function of ecosystem, components of the ecosystem: producers, consumers, decomposers, energy flow in the ecosystem: ecological succession, food chains, food webs, and ecological pyramids, forest ecosystem, grassland ecosystem, desert ecosystem, aquatic ecosystems and their types, bio-geo-chemical cycles: hydrological cycle, carbon cycle, oxygen cycle, nitrogen cycle, sulfur cycle.	7
3	Composition of air, atmosphere structure, ambient air quality standards, classification of air pollutants, sources of common air pollutants like SPM, SO _x , NO _x , natural & anthropogenic sources of air pollution, effects of common air pollutants, air pollution episodes. Sound and noise measurements, sources of noise pollution, ambient noise levels, effects of noise pollution, noise pollution control measures. Water quality standards, sources of water pollution, classification of water pollutants, effects of water pollutants, eutrophication, water pollution episodes. Global warming and the greenhouse effect, acid rain, depletion of the ozone layer.	8
4	Resources of energy: renewable resources and non-renewable resources and India's status. Conventional energy sources and problems associated with them, non-conventional energy sources: Wind Energy, Hydroelectric, Solar energy, geothermal energy, Tidal energy, etc., advantages and limitations of non-conventional sources of energy.	4
5	Natural disasters and their types, accidental disasters, the impact of disasters on trade: national and international trade, natural disasters: earthquakes, hurricanes, tornadoes, floods, drought, tsunami, volcanoes, cyclones and storms, forest fires, severe heat waves, landslides and avalanches, epidemics and insect infestations. Technological and social disasters, types of technological hazards, social disasters, political and crowd disasters, war and terrorism, components of disaster management, Actors in disaster management, organizing relief measures at the national and local levels, psychological issues, carrying out rehabilitation work, government's role in disaster management.	7
	Course Outcomes per Bloom's Taxonomy	
CO1	Students will be able to understand ² the natural environment and its interconnections with human activities.	

CO2	They will be able to characterize ² and analyze ⁴ the impacts of human activities on the environment.
CO3	They will be able to integrate facts, concepts, and methods from multiple disciplines and apply ' them to environmental problems.
CO4	They will be able to integrate knowledge and analyze ⁴ , evaluate ' and manage the different public health aspects of disaster events at local and global levels.
CO5	They will be able to obtain, analyze ⁴ , and communicate information on risks, relief needs and lessons learned from earlier disasters to formulate mitigation strategies in future scenarios.
Text Books	<ul style="list-style-type: none"> • Dr. N. S. Varandani, Basics of Environmental Studies, India Publications. • Mukesh Dhunna, Disaster Management, Vayu Education of India, Delhi Publication.
Reference Books	<ul style="list-style-type: none"> • R. Rajagopalan, Environmental Studies, Oxford University Press Publication. • Richard T Wright and Bernard J Nebel, Environmental Science, Prentice Hall India Publication. • Daniel B Botkin and Edward A Keller, Environmental Science, Wiley Publications.

Course Code	हिंदी	Total Lecture: 30
AH23UC002		2-0-0-2
Course Objectives:	<ul style="list-style-type: none"> हिंदी साहित्य के आदिकालीन और भक्तिकालीन साहित्य से अवगत कराना। हिंदी साहित्य के दो प्रमुख कवियों- अमीर खुसरो और विद्यापति की विशिष्ट भूमिका रही है। इस से विद्यार्थियों को अवगत कराना। हिंदी साहित्य के अंतर्गत संत काव्य, प्रेमाख्यानक काव्य, राम काव्य और कृष्ण काव्य के प्रमुख कवियों कबीर, तुलसीदास और सूरदास का अध्ययन करना और हिंदी साहित्य में उनके योगदान की चर्चा करना। हिंदी साहित्य में मीरा का महत्वपूर्ण स्थान है। स्त्री-विमर्श की दृष्टि से भी मीरा काव्य विशिष्ट है। 	
Pre-requisites:	None	
इकाई	CONTENT	HOURS
१	<ol style="list-style-type: none"> स्वतंत्रता पुकारती (कविता) - जयशंकर प्रसाद पुष्प की अभिलाषा - माखन लाल चतुर्वेदी वाक्य संरचना और अशुद्धियाँ (संकलित) 	6
२	<ol style="list-style-type: none"> पूस की रात (कहानी) प्रेमचंद अप्प दीपो भव (लेख) स्वामी श्रद्धानन्द पर्यायवाची, विलोम, एकार्थी, अनेकार्थी एवं शब्दयुग्म शब्द (संकलित) 	6
३	<ol style="list-style-type: none"> भगवन बुद्ध (निबंध) - स्वामी विवेकानंद कछुआ धर्म - चंद्रधर शर्मा गुलेरी नहीं रुकती है नदी - हेरालाल बाछोटिया पल्लवन 	6
४	<ol style="list-style-type: none"> अफसर (व्यंग्य) - शरद जोशी हमारी सांस्कृतिक एकता (निबंध) - रामधारीसिंह दिनकर (एक भारत श्रेष्ठ भारत के अंतर्गत) संक्षेपण (संकलित) 	6
५	<ol style="list-style-type: none"> 1 नैतिक मूल्य परिचय एवं वर्गीकरण (आलेख) - डॉ शशि राय आचरण की सभ्यता (निबंध) - सरदार पूरणसिंह अंतर्ज्ञान एवं नैतिक जीवन (लेख) - डॉ सर्वपल्ली राधाकृष्णन 	6
Course Outcomes per Bloom's Taxonomy		
CO1	आदिकाल के परिवेश में - राजनैतिक, सामाजिक, धार्मिक, सांस्कृतिक परिस्थितियों से भलीभांति परिचित हो सकेंगे।	
CO2	आदिकाल में अमीर खुसरो के साहित्यिक और संगीत के क्षेत्र में योगदान से परिचित हो सकेंगे।	
CO3	भक्तिकाल हिंदी साहित्य का स्वर्ण युग है। इसके अध्ययन से मानवीय और नैतिक मूल्यों का विकास होगा।	
CO4	भक्तिकाल साहित्य सामंती व्यवस्था का विरोध हुआ। यह इस काव्य की विशिष्ट उपलब्धि है।	

CO5	भारतीय जनमानस में गोस्वामी तुलसीदास एवं उनकी कालजयी कृतियों श्रीरामचरितमानस, कवितावली एवं विनयपत्रिका के महत्त्व को समझ सकेंगे।
सहायक ग्रन्थ	<p>कबीर - हजारीप्रसाद द्विवेदी</p> <p>सूरदास - रामचंद्र शुक्ल</p> <p>भक्ति आंदोलन और सूरदास का काव्य - मैनेजर पांडेय</p> <p>गोस्वामी तुलसीदास - रामचंद्र शुक्ल</p> <p>कबीर की विचारधारा - गोविन्द त्रिगुणायत</p> <p>सूर और उनका साहित्य - हरवंशलाल शर्मा</p>
सन्दर्भ ग्रन्थ	<p>सूरदास - ब्रजेश्वर शर्मा</p> <p>तुलसी-काव्य -मीमांसा - उदयभानु सिंह</p> <p>मध्ययुगीन प्रेमाख्यानक - श्याम मनोहर पांडेय</p> <p>मीरा: जीवन और काव्य - सी एल प्रभात</p> <p>राष्ट्रीय एकता, वर्तमान समस्याएं और भक्ति साहित्य: कैलाश नारायण तिवारी</p> <p>मध्यकालीन 'कृष्ण काव्य की सौन्दर्यचेतना' : पूरनचंद टंडन</p>

COURSE CODE	COMMUNICATION SKILLS	Total: 45 hrs Lecture: 15 Practical: 30
TR23UC003		1– 0– 2– 2
Course Objectives:	<p>Effective communication is critical for success in both personal and professional relationships. This course will introduce students to the key principles of effective communication, including verbal and nonverbal communication, active listening, and feedback. Students will also have the opportunity to reflect on their communication strengths and weaknesses and develop strategies for improvement.</p> <p>By the end of this course, students will be able to:</p> <ul style="list-style-type: none"> Explain the key principles of effective communication. Identify common communication barriers and strategies for overcoming them. Use verbal and nonverbal communication effectively in different contexts. Apply active listening and feedback skills in interpersonal and group communication. Develop effective writing skills for different types of written communication. Analyze communication strategies for addressing specific challenges. Develop effective negotiation and conflict resolution strategies. 	
Pre-requisites:	Nil	
UNIT	CONTENT	HOURS
1	Grammar I Sentence Structure Prepositions Articles and Punctuation	3
2	Grammar II Subject-verb Agreement Prefixes and Suffixes Synonyms and Antonyms	3
3	Introduction to Effective Communication Key principles of effective communication Barriers to communication and strategies to overcome them Cross-Cultural Communication (Bias, Prejudice, Stereotypes)	3
4	Verbal and Nonverbal Communication Different types of verbal and nonverbal communication The importance of active listening and feedback in communication Understanding the impact of tone, body language, and facial expressions on communication	3
5	Written & Spoken Communication The importance of clear and concise writing Public speaking and group communication Developing effective speaking skills	3

	LANGUAGE LAB AND PRACTICAL SESSIONS	15
Course Objectives:	<p>The objective of this course is to provide practical training in the use of English language for communication as well as to develop students' personalities through language laboratory activities.</p> <p>Improve their English language skills, including listening, speaking, reading, and writing.</p> <p>Gain confidence in communicating in English in a variety of situations.</p> <p>Expand their vocabulary and use idiomatic expressions.</p> <p>Develop their pronunciation, stress, and intonation patterns to speak English more naturally.</p> <p>Understand and use different grammatical structures accurately.</p> <p>Learn the strategies to learn and practice English beyond the classroom.</p>	
	SELF PRACTICE	15
	Self practice through any online Language Learning software or as prescribed by the University.	
Course Outcomes (as per Bloom's Taxonomy)		
At the end of the course the students will be able to:		
CO 1	To identify the barriers to communication and strategies to overcome them	
CO 2	To interpret and analyze different types of communication and styles	
CO 3	To apply effective listening and feedback techniques to improve communication in different contexts.	
CO 4	To evaluate the effectiveness of different communication strategies in achieving specific goals.	
CO 5	To develop and design communication strategies to address specific communication challenges in personal and professional settings.	
Text Books	<p>Garner, Bryan A. Garner's Modern English Usage. 4th ed., Oxford University Press, 2016.</p> <p>Hamilton, Cheryl. Communicating for Results: A Guide for Business and the Professions. Cengage Learning, 2018.</p> <p>Belmont, Judith. The Communication Skills Workbook: Self-Assessments, Exercises & Educational Handouts. PESI Publishing & Media, 2018.</p>	
Reference Books	<p>Gupta, S.C. Practical English Grammar & Composition Paperback. Arihant, 2012.</p> <p>Adler, Ronald B., et al. Interplay: The Process of Interpersonal Communication. Oxford University Press, 2018.</p> <p>DeVito, Joseph A. The Interpersonal Communication Book. Pearson, 2016.</p> <p>Knapp, Mark L., and Judith A. Hall. Nonverbal Communication in Human Interaction. Wadsworth, 2016.</p> <p>Beebe, Steven A., and Susan J. Beebe. Public Speaking: An Audience-Centered Approach. Pearson, 2019.</p>	

COURSECODE	MS OFFICE	Total Lecture: 60
CA23UC004	(0-0-4=2)	
Course Objectives:	<ol style="list-style-type: none"> 1. To Create and manage professional documents using word. 2. Analyze, manage and present data using excel. 3. Create and manage presentation using power point. 4. To insert a table, picture, or drawing into the document. 5. Create and manage database using MS Access. 	
UNIT	CONTENTS	HOURS
1	Introduction of Computer: What is Computer, Basic Applications of Computer; Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Concept of Computing, Data and Information; Applications of IECT; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply.	6
2	MS Word: Introduction, Features & area of use. Working with MS Word: Ribbon tabs-Home, Insert, Page Layout, References, Mailings, Review and View, Using word to create a new document, open, save and print a document, edit and format text, change the page layout, background and borders, insert headers and footers, insert and edit tables, insert clip art and pictures to documents. Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in Word. Creating project abstract Features to be covered:-Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check Track Changes	6
3	MS Excel: Spreadsheet basics, Creating, editing, saving and printing spreadsheets, Working with functions & formulas, Modifying worksheets with color & autoformats, Graphically representing data : Charts & Graphs, Speeding data entry : Using Data Forms, Analyzing data Data Menu, Subtotal, Filtering Data, Formatting worksheets, Securing & Protecting spreadsheets	6
4	MSPower Point Opening, viewing, creating, and printing slides ,Applying auto layouts ,Adding custom animation ,Using slide transitions ,Graphically representing data : Charts & Graphs ,Creating Professional Slide for Presentation.	6
5	MS Access: Access Basics, Design a Database, Build a Database, Work with Forms, Sort, Retrieve, Analyze Data, Work With Reports, Access with Other Applications, Manage an Access Database	6
	Hands on Practices/ Practicals Design a Greeting Card using Word Art for different festivals. Create your Bio-data and use page borders and shading. Create a document and insert header and footer, page title etc. Prepare a mark sheet of your class subjects. To create a document, set the margins, orientation, size, column, water mark, page color and page borders.	
Course Outcomes as per Bloom's Taxonomy		

At the end of the course the students should be able to:	
CO1	Demonstrate an understanding of the role and function of computers and use the computer to solve problems.
CO2	Working knowledge of using Word's themes and clip art to create a variety of visual effects. Performing basic editing functions, formatting text, copy and moving objects and text.
CO3	Learning the use and utility of functions and formulas on excel spreadsheet.
CO4	Analyzing formatting techniques and presentation styles.
CO5	Examine database concepts and explore the Microsoft Office Access environment.
Text Books	Microsoft Office 2010 Introductory, Gary B. Shelly, Misty E. Vermaat Exploring Microsoft Office 2019 Introductory, Mary Poatsy, Keith Mulbery, Lynn Hogan, Jason Davidson Microsoft Office 365: The Essentials" by Chris Kelly
Reference Books	"Microsoft Office 2013: The Complete Guide" by John R. Nicholson Mastering MS Office, Kumar Bittu

COURSE CODE	PROFESSIONAL SKILLS I	Total: 60 hrs Lecture: 0 Practical: 60
TR23UC005		0- 0- 4-2
Course Objectives:	<p>1. The aim of the course is to provide core suite of professional skills to the students for holistic development. The modules will bring about personality development with regard to different behavioral dimensions that have far reaching significance in the direction of being employable and developing organizational effectiveness. This module helps students to realize their full potential and acquire 21st Century skills that are increasingly important for success. The broader objectives are</p> <p>2. To Understand who you are at a deeper level</p> <p>3. To identify short term and long-term goals</p> <p>4. To familiarize with 21st Century Skills required for success</p> <p>5. To discover the right mindset required for personal and professional growth</p>	
Pre-requisites:	Nil	
UNIT	CONTENT	HOURS
1	<p>Self Awareness and Goal Setting</p> <p>Self Awareness: Who am I, life map, self-concept, personality traits, values, emotions, needs, self-esteem and self-efficacy, strength and blockage analysis, SWOT analysis, self-reflection journal.</p> <p>Goal Setting: Identifying goals (short term, long Term, life time Goals), creating vision, SMART goals, creating and implementing action plan, monitoring, evaluating and adjusting the plan</p>	3
2	<p>Etiquettes and Social Graces</p> <p>Grooming and dressing, introductions— formal, informal and casual, handshakes, body language, workplace etiquettes, telephone etiquettes, internet etiquettes, dining etiquettes</p>	3
3	<p>Self Management</p> <p>Time Management: Importance of time management, tools and techniques of time management</p> <p>Stress management: Understanding stress, stressors and its impact, Techniques to manage stress.</p> <p>Leadership skills: concept of leadership, traits and skills of a leader, developing leadership skills</p>	3
4	<p>People Management</p> <p>Interpersonal skills: Introduction to interpersonal skills, Johari window, transactional analysis (ego states, transactions, strokes, life positions.)</p> <p>Problem solving and decision making.: Defining a problem, idea generation, brainstorming. SCAMPER, mind Mapping and De Bono's 6 Thinking Hats. Evaluate and select solution. Implement solution and create an action plan.</p>	3
5	<p>Presentation Skills</p> <p>Preparing effective Power-point presentation, designing the content of presentation; Making presentations; Strategies of creating confidence, Handling questions and Audience management</p>	3
Course Outcomes as per Bloom's Taxonomy		

At the end of the course the students will be able to:

CO 1	Identify1 dimensions of self for deeper understanding
CO 2	Apply3and Analyze4various skills for personal and professional development
CO 3	Develop6 professionals with values ready to work in diverse environment
CO 4	Identify1 personal and professional goals and develop specific action plan to achieve them.
CO 5	Understand2 and apply principles of group dynamics and team processes in day to day operations
Text Books:	Dr K. Alex, “Soft Skills” S Chand Publications
Reference Books:	Hector Garcia and Francesc Miralles “IKIGAI” Hutchinson London Covey Sean, “ Seven Habits of Highly Effective Teens”, New York. Fireside Publishers. Carnegie Dale, How to win Friends and Influence People, New York: Simon & Schuster, 1998. Thomas A Harris, “I am ok , You are ok ”. New York-Harper and Row.The Leader in You by Carnegie Dale

COURSECODE	ENTREPRENEURSHIP DEVELOPMENT	Total Lecture: 30
MG23UC006		2-0-0-2
Courses Objectives:	Develop understanding and confidence in students to venture into entrepreneurship by giving them baseline understanding of the various aspects impacting decision making on various frontiers as faced by an enterprise.	
UNIT	CONTENT	HOURS
1	Entrepreneurship Development Introduction: Concept and importance, qualities, nature, types, traits, Goal determination – Problems Challenges and solutions. Role of Entrepreneur in Indian economy and developing economies with reference to Self-Employment Development, Entrepreneurial Culture.	6
2	Entrepreneurial Process: Environment, culture and stages in entrepreneurial process, changing dimensions in entrepreneurship – Digital entrepreneurship. Entrepreneur Vs. Intrapreneur, Entrepreneur Vs. Entrepreneurship, Entrepreneur Vs. Manager; Role of Regulatory Institutions; Role of Development Organizations; Self Employment Oriented Schemes; Various grant schemes.	6
3	Business Ideation & Planning: Meaning and Objectives of a Business Plan, Advantages and cost of preparing a Business Plan, Elements, Critical Assessment Generating business idea–sources of new ideas, methods of generating ideas, opportunity recognition. Choice of the organization: Sole Proprietorship, partnerships, Joint Stock Co., Co-Operatives Family Business – meaning, characteristics, importance, types and models.	6
4	Entrepreneurship Training & Promotion: Training Preparation and Development Programme. Evaluating entrepreneurial development programs. Developing support system. Feasibility study–market, technical/operational, financial feasibility, environmental scanning, competitor and industry analysis. Role of Central Government and State Government in promoting Entrepreneurship-Introduction to various incentives, subsidies and grants.	6
5	Project Preparation and Proposal: Need and Objects; Nature of organization, Production Management; Financial Management; Marketing Management; Consumer Management and Planning and Monitoring entrepreneurship. Entrepreneurs before independence and entrepreneurial growth after independence under planning system.	6
Course Outcomes as per Bloom's Taxonomy		
CO1	The student will be able to develop managerial qualities and competencies of an entrepreneur	
CO2	The student will be able to acquaint himself with the challenges of starting a new venture And the process of setting up a business.	
CO3	The student will be able to build essential skills and creativity needed to build teams and working and with them.	
CO4	The students will know the essential procedure and funding a venues for setting up a new	

CO5	The student will be able to learn the various government initiatives and accordingly plan for his business.
Text Books:	<p>Dr. GK Varshainey, Fundamental of Entrepreneurship Sahitya Bhawan Publications.</p> <p>Dr. A N Bharti, Dr. Pramodh Kumar Tripathi, Fundamental of Entrepreneurship Rajeev Sahitya Bhawan Publication, SBPD Publication H Nandan, Fundamental of Entrepreneurship Third Edition, PHI Learning.</p> <p>Sangram Keshari Mohanty, Fundamental of Entrepreneurship PHI Learning.</p> <p>K Nagarajan, Project Management New Age International, Second Edition</p> <p>Vasant Desai, Dynamics of Entrepreneurship Development, Himalaya Publishing House, 2011.</p> <p>Dr. P C Shejwalkar, Entrepreneurship Development, Everest Publishing House, 2011.</p> <p>Dr. Priya k. Dubey, Entrepreneurship Development & Management, Sapna Ashok Prakashn Durgakund Varanasi, First Edition, 2018</p>
Reference Books:	<p>Hisrich Peters, Mc Graw Hills, Entrepreneurship Tenth Edition</p> <p>Brigitte Berger, The Culture of Entrepreneurship ICS Pt., 1991.</p> <p>Steven Brandt Entrepreneurship, 3rd Ed.</p> <p>Gurmit Narula, The Entrepreneurial Connection Tata McGraw Hills.</p>

COURSE CODE	QUANTITATIVE APTITUDE AND LOGICAL REASONING	Total Lecture:30
TR23UC007		2- 0- 0-2
Course Objectives:	1. To enhance the problem solving skills 2. To improve the basic mathematical skills 3. To manage the placement challenges more effectively	
Pre-requisites:	Nil	
UNIT	CONTENT	HOURS
1	Numbers , HCF and LCM, Average and Ages, Coding-Decoding, Direction Sense, Data Sufficiency	6
2	Percentage , Profit and Loss, Ratio and Proportion, Mixtures and Allegations, Simple and Compound Interest, Sitting Arrangement	6
3	Time and Work , Time Speed and Distance, Problems on Trains and Boats, Mensuration, Clock and Calendar, Blood Relations	6
4	Set Theory , Permutation & Combination, Probability, Logarithms, Number Series, Cube and Dice	6
5	Data Interpretation , Tabulation, Bar Graphs, Pie-Chart and Line Graphs, Deductive Reasoning (Syllogism), Puzzles, Analogy and Venn Diagrams	6
Course Outcomes (as per Bloom's Taxonomy)		
At the end of the course the students will be able to:		
CO 1	Students will be able to analyze 5 data.	
CO 2	Students will be able to understand 2 mathematical and statistical concepts.	
CO 3	Students will be able to construct 6 hypothesis and solve problems.	
CO 4	Students will be able to solve 3 QA and LR Problems within short span of time by using shortcuts and tricks.	
CO5	Students will be able to Interpret 2 and compare 2 data.	
Text Books:	Aggarwal R.S. "Quantitative Aptitude for Competitive Examinations", New Delhi: S Chand Publication Gupta D.P., Burnwal. "General Quantitative Aptitude for Competitive Exams", New Delhi: Disha Publication	

Reference Books:	Agrawal D., Gupta D.P. "Rapid Quantitative Aptitude: With Shortcuts & Tricks for Competitive Exams", New Delhi: Disha Publication Guha A. "Quantitative Aptitude for All Competitive Examinations", Uttar Pradesh: McGraw Hill Education
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COURSECODE	DESIGN & CRITICAL THINKING	Total Lecture: 30
ET23UC008		(2-0-0-2)
Course Objectives:	1. To familiarize students with design thinking concept sand principles 2. To ensure student scan practices the methods, processes and tools of design thinking. 3. To ensure students can apply the design thinking approach and have ability to model real world situations. 4. To enable students to analyse primary and secondary research in the introduction to design thinking and develop ideas. 5. To develop an advance innovation and growth mind set form of problem identification and re framing, foresight, hind sight and in sight generation.	
UNIT	CONTENTS	HOURS
1	ENTERPRISE DESIGN THINKING –HISTORY, OVERVIEW Introduction to Design Thinking, understand what came before Design Thinking, Design making: Design making: concepts and prototyping; Design breaking; Identifying and using design principles; Identify who did what to bring it about, Learn how it built upon previous approaches, Need of design thinking; An approach to design thinking, Design thinking Process, Enterprise Design Thinking, Understand the principles, loop, and keys. Determine what is most important.	6
2	ENTERPRISE DESIGN THINKING–7 KEYHABITS, THE LOOP, USER RESEARCH 7 key habits of effective design thinkers, Iteration: understand the importance; Learn how to observe, reflect,& make. An Overview on Loop:- Its principles and keys. Determine what is most important. User Research Its Importance, Empathy through listening.	6
3	THE LOOP–MAKE, USER FEEDBACK Understand how Make fits into the Loop, learn how to leverage Observe information, Learn Ideation, Story boarding, & Prototyping. Understand user feedback and the Loop, Learn the different types of user feedback, learn how to carry out getting feedback.	6
4	DEVELOPING IDEAS & GENERATING INNOVATIONS Create Thinking, Generating Design Ideas, Lateral Thinking, Analogies, Brainstorming, Mind mapping, National Group Technique, Synectic’s , Development of work, Analytical Thinking, Group Activities Recommended; What is design innovation? A mindset for innovation, and asking " what if?" asking "what wows?" and "what works?"	6
5	REVERSE ENGINEERING Introduction - Forward Engineering Design, Design Thought and Process, Design Steps; Reverse Engineering Leads to New Understanding about Products; Schematic Drawings and Analysis; Reverse Engineering in Computer Applications; Reasons for Reverse Engineering - Reverse Engineering Process-Step by Step -Case Study.	6
Course Outcomes as per Bloom’s Taxonomy		
At the end of the course the students will be able to:		
CO1	Examine Design Thinking concepts and principles	
CO2	Understand and apply enterprise Design thinking	

CO3	Experiment the methods ,processes, and tools of Design Thinking
CO4	Apply the Design Thinking approach and model to real world situations
CO5	Apply and Understand Reverse and Forward Engineering
Text Books:	Yayici Emrah (2017): Design Thinking Methodology. Ling Daniel (2016): Complete Design Thinking Guide.
Reference Books:	West David, Rikner Rebecca (2017): Design Thinking: The Key to Enterprise Agility, Innovation, and Sustain ability: Author'spress International. Raja Vinesh and Fernandes Kiran J.(2008): Reverse Engineering: An Industrial Perspective, London: Springer.

COURSE CODE	PROFESSIONAL SKILLS II	Total Practical :60
TR23UC009		0- 0- 4-2
Course Objectives:	<p>1. This course is designed to help students develop advanced professional skills required for success in the modern workplace hence hone the overall persona of the students. The aim of the modules is to create an environment to share and build perspectives, prepare and practice for job search, placement, recruitment and selection from a job seeker’s perspective.</p> <p>2. The course is meant to not only help succeed with campus placement but be able to use skills to explore jobs in future. The course is meant to combine knowledge with action and experience.</p> <p>3. To develop skills required for personal and professional success</p> <p>4. To understand the process and prepare for job search, recruitment, and selection from job seeker’s perspective.</p> <p>5. To enable safe environment to practice behaviors and skills needed during placement process, identify gaps, and receive developmental feedback.</p> <p>6. To encourage candidates to reflect and explore.</p>	
Pre-requisites:	Nil	
UNIT	CONTENT	HOURS
1	Career Self-Assessment and Job Search Process: Identifying interests, values, personality, skills; linking goals with career, setting a road map Job Search: Job search process, sources, networking, exploration.	3
2	Portfolio Building and Reaching Out. Building Resume/portfolio/CVs, cover letters, work products and testimonials. Researching target employer, role of social media, online job portals and networking.	3
3	Preparing for Selection. Written tests, group discussion, case discussion. Interviews: Self-Audit, job audit, the personal job fit, functional/transferable skills checklist, major strengths identification worksheet, professional goals, selecting traits, skills and abilities for emphasis. Mock interview practice. Negotiation. Post interview follow ups. Managing disappointments. Learning and moving on.	3
4	Team Building and Conflict Resolution Team Building: Groups and teams, effective teams, stages of team development, building effective teams. Conflict resolution: Conflicts, causes and signals of conflicts, stages of conflicts and conflict resolution techniques	3
5	Emotional Intelligence Emotional Intelligence: introduction to emotional intelligence, working with emotions, emotional intelligence models, developing emotional intelligence	3
Course Outcomes as per Bloom’s Taxonomy		

At the end of the course the students will be able to:	
CO 1	Identify1 dimensions of behavior for personal and professional success
CO 2	Demonstrate2 a clear understanding of career exploration process.
CO 3	Analyse4 job opportunities in the intended career path and target specific jobs that match current skills and career goals.
CO 4	Evaluate5 the environmental fit of a variety of work settings and roles
CO 5	Create6 an effective plan to market through written documents, online presence and skillful interviews.
Text Books:	Dr K. Alex, “Soft Skills” S Chand Publications
Reference Books:	Daniel Goleman, Emotional Intelligence, Bloomsbury Publishing India Private Limited Martin Yate CPC. Knock ‘em Dead: The Ultimate Job Search Guide. Adams Media. ISBN 978-150-7205358. Orville Pierson. The Unwritten Rules of the Highly Effective Job Search: The proven Program Used by World’s Leading Career Services Company. McGraw Hills Education. ISBN 978-0071464048. Get That Job: The Quick and Complete Guide to a Winning Interview by Thea Kelley What won’t get you your Dream Job by Roopesh Tiwari

Course Code:	RESEARCH METHODOLOGY	Total lecture: 30
MG23UC010		2-0-0-2
Course Objectives:	1. To familiarize students with basic of research and the research process. 2. Students should understand a general definition of research design. 3. Students should be able to identify the overall process of design in gear search study from its inception to its report. 4. Students should be familiar with ethical issues in educational research, include in those issues that arise in using quantitative and qualitative research. 5. Students should know the primary characteristics of quantitative research and qualitative research.	
UNIT	Contents	Hours
1.	Introduction to Research Methodology – Meaning, Objectives, Significance of Research in Management; Importance and scope of Research Methodology; Research Process.	6
2.	Hypothesis Testing – Defining hypothesis; Setting of Hypothesis; Types of Error. Testing and Analysis of Data and Report Writing - Selection of Appropriate Statistical Techniques; Parametric Test for hypothesis testing – t - test, Chi – Square test; Characteristics of Non Parametric Test;One- way ANOVA;	6
3.	Sampling Design and Research Design – Steps in Sampling Design; Criteria of Selecting a Sampling Procedure, Characteristics of Good Sample Design; Types of Sample Design; Research Design– Exploratory, Descriptive and Experimental Research Designs.	6
4.	Data Collection Methods- Primary and Secondary Data; Observational, Interview, field study, focus groups, experimental, Delphi, Ethnography, Survey Methods; Questionnaire Design; Processing of Data – Editing, Coding, Classification, Field Work and Tabulation of Data.	6
5.	Report Writing Fundamentals of research methods, Writing a research proposal, Problem Identification: Review of literature, broadening knowledge base in the specific research area, bringing clarity and focus to the research problem, Writing a research proposal, Writing a research report.	6
Course Outcome(s) as per Blooms Taxonomy		
At the end of the course the students should be able to:		
C01	Have an understanding of various kinds of research, objectives of doing research, research process research designs and sampling.	
C02	Be able to formulate research problem and develop a sufficiently coherent research design.	
C03	Have basic knowledge on qualitative, quantitative as well as measurement & scaling techniques.	
C04	Have a basic awareness of data analysis, including descriptive & inferential measures.	

C05	Be able to write & develop independent thinking for critically analyzing research reports.
TextBooks:	<p>Ranjit Kumar,(2019),Research Methodology: A Step-by-Step Guide for Beginners, SAGE Publication, Fifth Edition.</p> <p>WillieTan,(2018),Research Methods: A Practical Guide for Students and Researchers, World Scientific Publication, First Edition.</p> <p>Dwivedi R.S. Research Methods in Behavioural Sciences", Macmillan.</p> <p>Bennel , Roger; Management Research", ILO.</p> <p>Gupta,S.P.,,StatisticalMethods",30thed.,SultanChand,NewDelhi,2001.</p>
Reference Books:	<p>Srivastava, T.N. and Rego, Shailja, Business Research Methodology,Tata Mc Graw Hill.</p> <p>WilliamG. Zikmund, Business Research Methods, Thomson.</p> <p>Damodar Gujarati, Dawn, C. Porter and Sangeetha Gunasekar, Basic Econometrics, Publisher Tata McGraw Hill.</p> <p>HarperW.Boyd, Ralph Westfall and Stanley F.Stasch, Marketing research, Text and Cases, Home wood,I11:Irwin.</p>

COURSE Code	BASIC FINANCIAL LITERACY	Total Lecture: 30
CM23UC011		2-0-0-2
Course Objectives:	1. To promote financial well-being 2. To understand the relevance and process of financial planning 3. To familiarity with different aspects of financial literacy such as savings, investment, taxation, and insurance.	
UNIT	CONTENTS	HOURS
1	Personal Finance: Financial Planning- Meaning, Setting Financial Goals, Household financial Expense, Health checkup, Investor's Age and Assets Allocation, Budgeting, Medical and other Emergencies, Retirement planning. Whatever you save is what you earn, Ownership of your financial decision, Take care of your old ones, Tax Payment, Insider Trading, Up Keep your Financial records, Financial need after retirement.	6
2	Financial Modeling: Preparation of Income statement, Balance sheet, Ratio Analysis, Break Even Point, Margin of safety, Statement of Profit Margin, Cash Flow Statement, registration of company, Gumasta.	6
3	Banking: Banking structure in India and Role of Reserve Bank of India, Personal Role of Bank in growth of saving and Investment, Types of banks , Services offered by banks, Deposits and Types of Deposits-Saving Bank Accounts, KYC norms, Banking products and services, Calculating Interests – Saving, FD, Simple and Compound Interest, Power of compounding Loans, Types of loans, taking a home loan, Definition of EMI, Calculation of EMI, Credit Cards Terminology, Credit Cards Math, Reading a Credit Card Statement, Post office-Account and transactions, Online Banking, Transaction cycle, Password protection NEFT and RGTS, ATM, Online trading, Internet banking, Need for keeping mobile number with banks, Need of protecting your online account, CIBIL,UPI, Digital payment, SEBI-What are Indices (SENSEX and NIFTY),Stock market, Repo rate and Reverse Repo Rate, Bank Rate , CRR, SLR.	6
4	Income Tax: Types of taxes, Tax rates, How taxes impact income, Tax planning v/s tax evasion, Tax saving investment - Government Schemes-National Saving Certificates, Public Provident Fund, Post Office Schemes, Equity Linked Savings Schemes, Retirement Benefits Schemes- NPS (New Pension System), Tax free bonds. Section – 80, Impact of Budget. PAN and its utility ,Aadhar card, Demat Account, Bank statements and passbooks, Insurance policies, Tax return, Property documents, Helpline numbers of services.	6
5	Behavior Aspects: Concept of Needs and Wants, Helping the needy, Spend wisely v/s waste spending, Conscious Consumption – lavish, Impulsive spending, Using money responsibly, Avoiding cash payments, Insisting on Bills, Dangers of excessive borrowing, Repayment of loans, Make informed choices, Making a will, Free advise may be injurious, Filing a complaint, Protection from Inflation, Scams, Frauds Schemes, Money laundering, Phishing mail about winning a lottery.	6
	Hands on Practices/ Practical's Income tax Portal MCA PAN Portal Financial Modeling	
Course Outcomes as per Bloom's Taxonomy		

At the end of the course the students should be able to:	
CO1	Develop proficiency for personal and family financial planning
CO2	Apply the concept of investment planning
CO3	Ability to analyze banking and insurance products
CO4	Personal tax planning
CO5	Understand the behavior of finance in our life.
Text Books	Pandit, Amar The Only Financial Planning Book that You Will Ever Need, Network 18 Publications Ltd.
Reference Books	Halan, Monika, and Let's Talk Money: You've Worked Hard for It, Now Make It Work for You, July 2018 Harper Business. Introduction to Financial Planning (4th Edition 2017)- Indian Institute of Banking & Finance.

COURSE CODE	INDIAN CULTURE AND HUMAN VALUES	Total Lecture: 30
CM23UC011		2-0-0-2
Course Objectives:	To understand the main currents of Indian history, especially in its cultural context. To recognize the evolution of Indian civilization from the Stone Age to the emergence of Indo-Islamic culture. To analyse dimensions of human values. To explore the ethical values suited for the modern world. To examine the values and ethics to be acquired, pursued and imparted to the future generations.	
UNIT	CONTENTS	HOURS
1	Indian Culture: An Introduction 1. Characteristics of Indian culture, Significance of Geography on Indian Culture. 2. Society in India through ages- Ancient period- Varna and Jati, family and marriage in India, position of women in ancient India, Contemporary Period; Caste system and Communalism. 3. Religion and Philosophy in India: Ancient Period: Pre-Vedic and Vedic Religion, Buddhism and Jainism, Indian philosophy – Vedanta and Mimansa School of Philosophy.	6
2	Indian Languages and Literature 1. Evolution of script and languages in India: Harappan Script and Brahmi Script. 2. Short History of the Sanskrit literature: The Vedas, The Brahmanas and Upanishads & Sutras, Epics: Ramayana and Mahabharata & Puranas. 3. History of Buddhist and Jain Literature in Pali, Prakrit and Sanskrit, Sangama literature & Odia literature.	6
3	Spread of Indian Culture Abroad 1. Causes, Significance and Modes of Cultural Exchange - Through Traders, Teachers, Emissaries, Missionaries and Gypsies 2. Indian Culture in South East Asia 3. India, Central Asia and Western World through ages	6
4	A Brief History of Indian Arts and Architecture 1. Indian Art & Architecture: Gandhara School and Mathura School of Art; Hindu Temple Architecture, Buddhist Architecture, Medieval Architecture and Colonial Architecture. 2. Indian Painting Tradition: Ancient, Medieval, Modern Indian Painting and Odishan painting tradition 3. Performing Arts: Divisions of Indian classical music: Hindustani and Carnatic, Dances of India: Various Dance forms: Classical and Regional, Rise of Modern Theatre and Indian Cinema.	6
5	Indian Values & Ethics 1. Nationalism: Indian Culture, Richness of Indian Culture, 2. Principles for Harmony: Truthfulness – Customs and Traditions, Human Dignity – Human Rights – Fundamental Duties, Aspirations and Harmony (I, We & Nature) 3. Gender Bias, Emotional Intelligence – Mayer Model – Emotional Competencies – Conscientiousness	6
Course Outcomes as per Bloom's Taxonomy		
At the end of the course the students should be able to:		

CO 1	understand the concept and meaning of culture;
CO 2	establish the relationship between culture and civilization;
CO 3	explain the points of diversity and underlying unity in it
CO 4	discuss the role and impact of culture in human life.
CO 5	describe the distinctive features of India & Indian culture;
Text Books	Radha, Kumud Mookerji (2016). Ancient Indian Education, Eighth edition, Motilal Banarasi dass Swami Satyananda, Saraswati (1969). Asana Pranayama Mudra Bandha, Bihar School of Yoga. Kireet, Joshi (1997). Education for Character Development, Dharma Hinduja Center of Indic Studies.
Reference Books	Sri Aurobindo Ghosh (1998). The Foundations of Indian Culture. Pondicherry: Sri Aurobindo Ashram. Avinash, Patra (2012). The Spiritual Life and Culture of India, Oxford University Press. Shanti, kumar, Ghosh (2004). Universal Values. The Ramakrishna Mission, Kolkata. Bakshi P.M. (2000). The Constitution of India Universal Law Publishing Co.Pvt.Ltd. Basham A.L. (2007). The illustrated cultural history of India; Indian Culture and Human Values Basham A.L. (2004). The wonder that was India;Picador;London Mazumdar R.C, Dutta K.K., Rai Chowdhury (2008). An Advanced history of India; Macmillan; Delhi Mazumdar R.C. (2003). Ancient India; Motilal Banarsidass publishers Pvt.Ltd.,Delhi Radhakrishnan S. (2009). Indian Philosophy (Vol. I), 2nd Edition,OUP, Delhi Smith VA.(ed) Spear P.;1981; The Oxford history of India; OUP,U.S.A. Tammitta-Delgoda S. (2003). A Traveller's History of India; Series Editor Denis Judd,NewYork,,U.S.A. Tylor E.B. (1974). Primitive culture: researches into the development of mythology, philosophy, religion, art, and custom. New York: Gordon Press

COURSE CODE	PROJECT BASED LEARNING-I	Practical: 30
SC23PR001		(LTP=0-0-4=2)
Course Objectives:		
<ul style="list-style-type: none"> Integrating the knowledge and skills of various courses on the basis of multidisciplinary projects Develop the skill of critical thinking and evaluation. To develop 21st century success skills such as critical thinking, problem solving, communication, collaboration and creativity/innovation among the students. To enhance deep understanding of academic, personal and social development in students. Employ the specialized vocabularies and methodologies. 		
Course Outcome as per Bloom's Taxonomy		
At the end of the course the students will be able to:		
CO 1	Apply³ a sound knowledge/skills to select and develop their topic and project respectively.	
CO 2	Develop⁶ plans and allocate roles with clear lines of responsibility and accountability.	
CO 3	Design⁶ solutions to complex problems following a systematic approach like problem identification, formulation and solution.	
CO 4	Collaborate with professionals and the community at large in written and in oral forms	
CO 5	Correlate⁴ the knowledge, skills and attitudes of a professional.	
General Guidelines:	<ul style="list-style-type: none"> PBL will be an integral part of UG/PG Programs at different levels. Each semester offering PBL will provide a separate Course Code, two credits will be allotted to it. Faculty will be assigned as mentor to a group of 30 student's minimum by HoS. Faculty mentor will have 4 hours/week to conduct PBL for assigned students. Student will select a topic of their choice from syllabus of any course offered in respective semester (in-lines with sustainable development goals): Student may work as a team maximum 3 or minimum 2 members for single topic. For MSE, student's performance will be assessed by panel of three experts either from other department/school, or from same department/school based on chosen topic. This will be comprised of a presentation by student followed by viva-voce. It will be evaluated for 30 marks. 20 marks would be allotted for continuous performance assessment by concerned guide/mentor. <p>For ESE, student will need to submit a project report in prescribed format, duly signed by concerned guide/mentor and head of the school. The report should be comprised of following components:</p> <ol style="list-style-type: none"> Introduction Review of literature Methodology Result and Discussion Conclusion and Project Outcomes References <ul style="list-style-type: none"> Student will need to submit three copies for <ol style="list-style-type: none"> Concerned School Central Library Self 	

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| | <ul style="list-style-type: none">• The integrity of the report should be maintained by student. Any malpractice will not be entertained.• Writing Ethics to be followed by student, a limit of 10 % plagiarism is permissible. Plagiarism report is to be attached along with the report.• Project could be a case study/ analytical work /field work/ experimental work/ programming or as per the suitability of the program. |
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COURSE CODE	PROJECT BASED LEARNING-II	Practical: 30
SC23PR002	(LTP=0-0-4=2)	
Course Objectives:		
<ul style="list-style-type: none"> ● Integrating the knowledge and skills of various courses on the basis of multidisciplinary projects ● Develop the skill of critical thinking and evaluation. ● To develop 21st century success skills such as critical thinking, problem solving, communication, collaboration and creativity/innovation among the students. ● To enhance deep understanding of academic, personal and social development in students. ● Employ the specialized vocabularies and methodologies. 		
Course Outcome as per Bloom's Taxonomy		
At the end of the course the students will be able to:		
CO 1	Apply³ a sound knowledge/skills to select and develop their topic and project respectively.	
CO 2	Develop⁶ plans and allocate roles with clear lines of responsibility and accountability.	
CO 3	Design⁶ solutions to complex problems following a systematic approach like problem identification, formulation and solution.	
CO 4	Collaborate⁶ with professionals and the community at large in written and in oral forms	
CO 5	Correlate⁴ the knowledge, skills and attitudes of a professional.	
General Guidelines:	<ul style="list-style-type: none"> ● PBL will be an integral part of UG/PG Programs at different levels. ● Each semester offering PBL will provide a separate Course Code, two credits will be allotted to it. ● Faculty will be assigned as mentor to a group of 30 student's minimum by HoS. ● Faculty mentor will have 4 hours/week to conduct PBL for assigned students. ● Student will select a topic of their choice from syllabus of any course offered in respective semester (in-lines with sustainable development goals): ● Student may work as a team maximum 3 or minimum 2 members for single topic. ● For MSE, student's performance will be assessed by panel of three experts either from other department/school, or from same department/school based on chosen topic. This will be comprised of a presentation by student followed by viva-voce. It will be evaluated for 30 marks. ● 20 marks would be allotted for continuous performance assessment by concerned guide/mentor. <p>For ESE, student will need to submit a project report in prescribed format, duly signed by concerned guide/mentor and head of the school. The report should be comprised of following components:</p> <ol style="list-style-type: none"> 1. Introduction 2. Review of literature 3. Methodology 4. Result and Discussion 5. Conclusion and Project Outcomes 6. References <ul style="list-style-type: none"> ● Student will need to submit three copies for 1. Concerned School 	

2. Central Library

3. Self

- The integrity of the report should be maintained by student. Any malpractice will not be entertained.
- Writing Ethics to be followed by student, a limit of 10 % plagiarism is permissible. Plagiarism report is to be attached along with the report.
- Project could be a case study/ analytical work /field work/ experimental work/ programming or as per the suitability of the program.

COURSE CODE	PROJECT BASED LEARNING-III	Practical: 30
SC23PR003	(LTP=0-0-4=2)	
Course Objectives:		
<ul style="list-style-type: none"> ● Integrating the knowledge and skills of various courses on the basis of multidisciplinary projects ● Develop the skill of critical thinking and evaluation. ● To develop 21st century success skills such as critical thinking, problem solving, communication, collaboration and creativity/innovation among the students. ● To enhance deep understanding of academic, personal and social development in students. ● Employ the specialized vocabularies and methodologies. 		
Course Outcome as per Bloom's Taxonomy		
At the end of the course the students will be able to:		
CO 1	Apply³ a sound knowledge/skills to select and develop their topic and project respectively.	
CO 2	Develop⁶ plans and allocate roles with clear lines of responsibility and accountability.	
CO 3	Design⁶ solutions to complex problems following a systematic approach like problem identification, formulation and solution.	
CO 4	Collaborate⁶ with professionals and the community at large in written and in oral forms	
CO 5	Correlate⁴ the knowledge, skills and attitudes of a professional.	
General Guidelines:	<ul style="list-style-type: none"> ● PBL will be an integral part of UG/PG Programs at different levels. ● Each semester offering PBL will provide a separate Course Code, two credits will be allotted to it. ● Faculty will be assigned as mentor to a group of 30 student's minimum by HoS. ● Faculty mentor will have 4 hours/week to conduct PBL for assigned students. ● Student will select a topic of their choice from syllabus of any course offered in respective semester (in-lines with sustainable development goals): ● Student may work as a team maximum 3 or minimum 2 members for single topic. ● For MSE, student's performance will be assessed by panel of three experts either from other department/school, or from same department/school based on chosen topic. This will be comprised of a presentation by student followed by viva-voce. It will be evaluated for 30 marks. ● 20 marks would be allotted for continuous performance assessment by concerned guide/mentor. <p>For ESE, student will need to submit a project report in prescribed format, duly signed by concerned guide/mentor and head of the school. The report should be comprised of following components:</p> <ol style="list-style-type: none"> 1. Introduction 2. Review of literature 3. Methodology 4. Result and Discussion 5. Conclusion and Project Outcomes 6. References <ul style="list-style-type: none"> ● Student will need to submit three copies for 1. Concerned School 	

2. Central Library

3. Self

- The integrity of the report should be maintained by student. Any malpractice will not be entertained.
- Writing Ethics to be followed by student, a limit of 10 % plagiarism is permissible. Plagiarism report is to be attached along with the report.
- Project could be a case study/ analytical work /field work/ experimental work/ programming or as per the suitability of the program.

COURSE CODE	PROJECT BASED LEARNING-IV	Practical: 30
SC23PR004	(LTP=0-0-4=2)	
Course Objectives:		
<ul style="list-style-type: none"> ● Integrating the knowledge and skills of various courses on the basis of multidisciplinary projects ● Develop the skill of critical thinking and evaluation. ● To develop 21st century success skills such as critical thinking, problem solving, communication, collaboration and creativity/innovation among the students. ● To enhance deep understanding of academic, personal and social development in students. ● Employ the specialized vocabularies and methodologies. 		
Course Outcome as per Bloom's Taxonomy		
At the end of the course the students will be able to:		
CO 1	Apply ³ a sound knowledge/skills to select and develop their topic and project respectively.	
CO 2	Develop ⁶ plans and allocate roles with clear lines of responsibility and accountability.	
CO 3	Design ⁶ solutions to complex problems following a systematic approach like problem identification, formulation and solution.	
CO 4	Collaborate ⁶ with professionals and the community at large in written and in oral forms	
CO 5	Correlate ⁴ the knowledge, skills and attitudes of a professional.	
General Guidelines:	<ul style="list-style-type: none"> ● PBL will be an integral part of UG/PG Programs at different levels. ● Each semester offering PBL will provide a separate Course Code, two credits will be allotted to it. ● Faculty will be assigned as mentor to a group of 30 student's minimum by HoS. ● Faculty mentor will have 4 hours/week to conduct PBL for assigned students. ● Student will select a topic of their choice from syllabus of any course offered in respective semester (in-lines with sustainable development goals): ● Student may work as a team maximum 3 or minimum 2 members for single topic. ● For MSE, student's performance will be assessed by panel of three experts either from other department/school, or from same department/school based on chosen topic. This will be comprised of a presentation by student followed by viva-voce. It will be evaluated for 30 marks. ● 20 marks would be allotted for continuous performance assessment by concerned guide/mentor. <p>For ESE, student will need to submit a project report in prescribed format, duly signed by concerned guide/mentor and head of the school. The report should be comprised of following components:</p> <ol style="list-style-type: none"> 1. Introduction 2. Review of literature 3. Methodology 4. Result and Discussion 5. Conclusion and Project Outcomes 6. References <ul style="list-style-type: none"> ● Student will need to submit three copies for 1. Concerned School 	

2. Central Library

3. Self

- The integrity of the report should be maintained by student. Any malpractice will not be entertained.
- Writing Ethics to be followed by student, a limit of 10 % plagiarism is permissible. Plagiarism report is to be attached along with the report.
- Project could be a case study/ analytical work /field work/ experimental work/ programming or as per the suitability of the program.

COURSE CODE	SUMMER INTERNSHIP / FIELD ACTIVITY	Practical:60
SC23PR005	(LTP =0 – 0 – 8 = 4)	
Learning Objective:	<ul style="list-style-type: none"> ● Integrating the knowledge and skills gain through industry exposure/field activities. ● Develop the skills of critical thinking and evaluation. ● To make students to learn themselves by choosing the internship as per there area of interest. 	
General Guidelines:	<ul style="list-style-type: none"> ● STUDENT’S DIARY The main purpose of writing daily diary is to cultivate the habit of documenting and to encourage the students to search for details. It develops the students’ thought process and reasoning abilities. The students should record in the daily training diary the day to day account of the observations, impressions, information gathered and suggestions given, if any. It should contain the sketches & drawings related to the observations made by the students. The daily training diary should be signed after every day by the supervisor/ in charge of the section where the student has been working. The diary should also be shown to the Faculty Mentor visiting the industry from time to time and got ratified on the day of his visit. Student’s Diary and Internship Report should be submitted by the students along with attendance record and an evaluation sheet duly signed and stamped by the industry to the Institute immediately after the completion of the training. It will be evaluated on the basis of the following criteria: • Regularity in maintenance of the diary. • Adequacy & quality of information recorded. • Drawings, sketches and data recorded. • Thought process and recording techniques used. • Organization of the information. ● INTERNSHIP REPORT After completion of Internship, the student should prepare a comprehensive report to indicate observations and learning in the training period. The student may contact Industrial Supervisor/ Faculty Mentor for assigning special topics and problems and should prepare the final report on the assigned topics. Daily diary will also help to a great extent in writing the industrial report since much of the information has already been incorporated by the student into the daily diary. The training report should be signed by the Internship Supervisor, CPDD and Faculty Mentor. The Internship report will be evaluated on the basis of following criteria: i. Originality. ii. Adequacy and purposeful write-up. iii. Organization, format, drawings, sketches, style, language etc. iv. Variety and relevance of learning experience. Practical 	

	<p>applications, relationships with basic theory and concepts taught in the course.</p> <ul style="list-style-type: none">● INTERNAL EVALUATION OF INTERNSHIP Evaluation by faculty supervisor on the basis of internship report received by industry.● EXTERNAL EVALUATION OF INTERNSHIP Evaluation through seminar presentation/viva-voce at the Institute by external examiner.	
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COURSE CODE	MINOR PROJECT	Practical:60
SC23PR006	(LTP =0 – 0 – 8 = 4)	
<p>Course Objectives:</p> <ul style="list-style-type: none"> • Minor Project represents the culmination of study towards the degree. Projects offer the opportunity to apply and extend material learned throughout the program. Assessment is by means of a seminar presentation, submission of a report, and a public demonstration of work undertaken. • In contrast to the majority of courses studied elsewhere in the program, projects are undertaken individually or in small groups. This necessarily introduces the dimension of workload management into the program to enable completion of a large, relatively unstructured "assignment" over the course of the semester. • The projects undertaken span a diverse range of topics, including theoretical, simulation and experimental studies, and vary from year to year. The emphasis is necessarily on facilitating student learning in technical, project management and presentation spheres. 		
<p>Guidelines for Submission of Minor Project</p> <p>All the students are required to submit a project report (As per SOP-06) based on the work done by him/her during the project period.</p> <p>THE GUIDE</p> <p>Each of the student/group will be assigned a faculty member as project guide.</p> <p>PROJECT TIME / MAN-HOURS</p> <ul style="list-style-type: none"> • The Final Projects would be of 60 man-hours in the semester carries a total of 04 credits. • The Project topics should be based on syllabus or as per the requirement of specific industry in sync with the program. • Every student has to prepare and submit the project work separately. • Plagiarism would not be accepted under any circumstances. • Project Report should compulsorily include the software development, soft copy should also be submitted in CD along with Hard Bound Project report. <p>Project Evaluation Guidelines.</p> <p>The project is evaluated on the basis of following aspects:</p> <p>Presentation - 25% of total marks.</p> <p>Viva - 20% of total marks.</p> <p>Thesis/Project report - 30% of total marks.</p> <p>Software Coding</p>		

i) **Documentation** - 10% of total marks.

ii) **Software** - 15% of total marks.

Passing criteria is 50% of overall marks allotted to the project

Course Outcomes as per Bloom's Taxonomy

At the end of the course the students should be able to:

Understand² an engineering project.

Plan⁶ and design engineering solutions to complex problems utilising a systems approach.

Define² and identify various migrating strategies that can be used for a given scenario.

Apply³ and undertake problem identification, formulation and solution.

Apply³ a sound technical knowledge of their selected project topic.

COURSE CODE	MAJOR PROJECT	Practical:120
SC23PR007	(LTP =0 – 0 – 16 = 8)	
<p>Course Objectives:</p> <ul style="list-style-type: none"> ● Major Project represents the culmination of study towards the degree. Projects offer the opportunity to apply and extend material learned throughout the program. Assessment is by means of a seminar presentation, submission of a report, and a public demonstration of work undertaken. ● In contrast to the majority of courses studied elsewhere in the program, projects are undertaken individually or in small groups. This necessarily introduces the dimension of workload management into the program to enable completion of a large, relatively unstructured "assignment" over the course of the semester. ● The projects undertaken span a diverse range of topics, including theoretical, simulation and experimental studies, and vary from year to year. The emphasis is necessarily on facilitating student learning in technical, project management and presentation spheres. 		
<p>Guidelines for Submission of Minor Project</p> <p>All the students are required to submit a project report (As per SOP-06) based on the work done by him/her during the project period.</p> <p>THE GUIDE</p> <p>Each of the student/group will be assigned a faculty member as project guide.</p> <p>PROJECT TIME / MAN-HOURS</p> <ul style="list-style-type: none"> ● The Final Projects would be of 120 man-hours in the semester carries a total of 08 credits. ● The Project topics should be based on syllabus or as per the requirement of specific industry in sync with the program. ● Every student has to prepare and submit the project work separately. ● Plagiarism would not be accepted under any circumstances. ● Project Report should compulsorily include the software development, soft copy should also be submitted in CD along with Hard Bound Project report. <p>Project Evaluation Guidelines.</p> <p>The project is evaluated on the basis of following aspects:</p> <p>Presentation - 25% of total marks.</p> <p>Viva - 20% of total marks.</p> <p>Thesis/Project report - 30% of total marks.</p> <p>Software Coding</p>		

i) **Documentation** - 10% of total marks.

ii) **Software** - 15% of total marks.

Passing criteria is 50% of overall marks allotted to the project

Course Outcomes as per Bloom's Taxonomy

At the end of the course the students should be able to:

Understand² an engineering project.

Plan⁶ and design engineering solutions to complex problems utilising a systems approach.

Define² and identify various migrating strategies that can be used for a given scenario.

Apply³ and undertake problem identification, formulation and solution.

Apply³ a sound technical knowledge of their selected project topic.

COURSE CODE	MOOCs	Practical:60
CA23MO001	(LTP=0-0-8=4)	
Learning Objective:	<ul style="list-style-type: none"> ● Integrating the knowledge and skills of various courses available in online mode. ● Develop the skills of critical thinking and evaluation. ● To make students to learn themselves by choosing the course as per there area of interest. 	
	CONTENTS	HOURS
General Guidelines:	<ul style="list-style-type: none"> ● This course creates an excellent opportunity for students to acquire the necessary skill set for research, employability through massive open online courses (MOOCs) where the rare expertise of world famous experts from academics and industry are available. ● The MOOCs course must be taken only from NPTEL/SWAYAM or from any government agency. ● In this semester 04 credits will have to be acquired with online courses (MOOCs). Students will have to complete 01 MOOC of their choice. ● Students have to take prior approval of the course from the HOS/HOD before registering the MOOC. 	60

COURSE CODE	RESEARCH PROJECT / INTERNSHIP	Practical:240
SC23PR008	(LTP=0-0-32=16)	
Learning Objective:	The research project/internship work will help in acquiring the necessary skill sets required to solve an engineering related problem and work in a team environment.	
	CONTENTS	HOURS
General Guidelines:	<ul style="list-style-type: none"> ● The research project/internship work should be submitted in the form of thesis (As per SOP-06). ● The primary evaluation of the work should be done by the supervisor. ● The DRC will examine the overall progress of the thesis work and decide whether or not the thesis is eligible for final submission. ● After approval from the DRC, a soft copy of the thesis should be submitted for anti-plagiarism check and the plagiarism report should be submitted to the University and be included in the final thesis. The Thesis will be accepted for submission, if the similarity index is less than 15%. If the similarity index has more than the required percentage, the student is advised to modify accordingly and re-submit the soft copy of the thesis after one month. The maximum number of re-submissions of thesis after plagiarism check is limited to two. ● Three copies of the thesis certified by the supervisor shall be submitted to the College/School/Institute, after submission of a 01 research paper related to the thesis work in a UGC care, SCOPUS or SCI journal. A copy of the submitted research paper shall be attached to thesis. ● The thesis shall be adjudicated by an external examiner selected by the University. For this, the Principal of the College/School/Institute shall submit a panel of three examiners from among the list of experts in the relevant specialization as submitted by the supervisor concerned and Head of the Department. ● If the report of the external examiner is unsatisfactory, the candidate shall revise and resubmit the Thesis. If the report of the examiner is unsatisfactory again, the thesis shall be summarily rejected. Subsequent actions for such dissertations may be considered, only on the specific recommendations of the external examiner and /or Dissertation work Review Committee. No further correspondence in this matter will be entertained, if there is no specific recommendation for resubmission. ● If the report of the examiner is satisfactory, the Head of the Department shall coordinate and make arrangements for the conduct of Dissertation Viva- Voce examination. The Dissertation VivaVoce examination shall be conducted by a board consisting of the Supervisor, Head of the Department and the external examiner who adjudicated the Thesis, with an external marks of 250. The candidate has to secure a minimum of 50% of marks in Dissertation Evaluation (Viva-Voce) examination. 	60

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| | <ul style="list-style-type: none">● If he fails to fulfill the requirements as specified in previous point he will reappear for the Viva-Voce examination only after three months. In the reappeared examination also, if he fails to fulfill the requirements, he will not be eligible for the award of the degree, unless he is asked to revise and resubmit his dissertation work by the board within a specified time period (within four years from the date of commencement of his first year first semester).● The Dissertation Viva-Voce External examination marks must be submitted to the University on the day of the examination. | |
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COURSE CODE SC23UC001	ENVIRONMENTAL STUDIES AND DISASTER MANAGEMENT	Total Lec: Hours 30
Learning Objectives:	The course prepares students for careers as leaders in understanding and addressing complex environmental issues from a problem-oriented, interdisciplinary perspective. Students will <ul style="list-style-type: none"> • Understand the transnational nature of environmental problems and ways of addressing them. • Apply, analyze and understand interactions between social, and environmental processes. • Reflect critically on their roles and identities as citizens, consumers, and environmental actors in a complex, interconnected world. 	2-0-0
Pre-requisites:	Basic understanding of high school chemistry and biology	
Unit	Contents	Hours
1	Definition, components of the environment, the relationship and interconnection between different components, man–environment relationship, the impact of technology on the environment, environmental degradation, sustainable development and its significance, environmental education.	4
2	Ecology: Introduction and objectives. Ecosystem: structure and function of ecosystem, components of the ecosystem: producers, consumers, decomposers, energy flow in the ecosystem: ecological succession, food chains, food webs, and ecological pyramids, forest ecosystem, grassland ecosystem, desert ecosystem, aquatic ecosystems and their types, bio-geo-chemical cycles: hydrological cycle, carbon cycle, oxygen cycle, nitrogen cycle, sulfur cycle.	7
3	Composition of air, atmosphere structure, ambient air quality standards, classification of air pollutants, sources of common air pollutants like SPM, SO _x , NO _x , natural & anthropogenic sources of air pollution, effects of common air pollutants, air pollution episodes. Sound and noise measurements, sources of noise pollution, ambient noise levels, effects of noise pollution, noise pollution control measures. Water quality standards, sources of water pollution, classification of water pollutants, effects of water pollutants, eutrophication, water pollution episodes. Global warming and the greenhouse effect, acid rain, depletion of the ozone layer.	8
4	Resources of energy: renewable resources and non-renewable resources and India's status. Conventional energy sources and problems associated with them, non-conventional energy sources: Wind Energy, Hydroelectric,	4

	Solar energy, geothermal energy, Tidal energy, etc., advantages and limitations of non-conventional sources of energy.	
5	Natural disasters and their types, accidental disasters, the impact of disasters on trade: national and international trade, natural disasters: earthquakes, hurricanes, tornadoes, floods, drought, tsunami, volcanoes, cyclones and storms, forest fires, severe heat waves, landslides and avalanches, epidemics and insect infestations. Technological and social disasters, types of technological hazards, social disasters, political and crowd disasters, war and terrorism, components of disaster management, Actors in disaster management, organizing relief measures at the national and local levels, psychological issues, carrying out rehabilitation work, government's role in disaster management.	7

Course Outcomes per Bloom's Taxonomy

CO1	Students will be able to understand ² the natural environment and its interconnections with human activities.
CO2	They will be able to characterize ² and analyze ⁴ the impacts of human activities on the environment.
CO3	They will be able to integrate facts, concepts, and methods from multiple disciplines and apply ⁷ them to environmental problems.
CO4	They will be able to integrate knowledge and analyze ⁴ , evaluate ⁷ and manage the different public health aspects of disaster events at local and global levels.
CO5	They will be able to obtain, analyze ⁴ , and communicate information on risks, relief needs and lessons learned from earlier disasters to formulate mitigation strategies in future scenarios.

Books

Text Books	<ul style="list-style-type: none"> ● Dr. N. S. Varandani, Basics of Environmental Studies, India Publications. ● Mukesh Dhunna, Disaster Management, Vayu Education of India, Delhi Publication.
Reference Books	<ul style="list-style-type: none"> ● R. Rajagopalan, Environmental Studies, Oxford University Press Publication. ● Richard T Wright and Bernard J Nebel, Environmental Science, Prentice Hall India Publication. ● Daniel B Botkin and Edward A Keller, Environmental Science, Wiley Publications.