



ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

B. Tech. Scheme of Examination & Syllabus 2025-26

CIVIL ENGINEERING

Annexure – I

CREDIT FRAMEWORK STRUCTURE

Semester		I	II	III	IV	V	VI	VII	VIII	Total Credits
Basic Science Course	BSC/ESC	7	7							14
Engineering Science Course		6	6							12
Program Core Course (PCC)	Program Courses	2	2	13	10	7	4	6		44
Program Elective Course (PEC)						4	6	6	4	20
Multidisciplinary Minor (MDM)	Multidisciplinary Courses			2	3	3	3	3		14
Open Elective (OE) Other than a particular program						2	3	3		8
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	2		1	1	2	2			8
Ability Enhancement Course (AEC -01, AEC-02)	Humanities Social Science and Management (HSSM)	1	1			2				4
Entrepreneurship/Economics/Management Courses				2	2					4
Indian Knowledge System (IKS)			2							2
Value Education Course (VEC)				2	2					4
Research Methodology	Experiential Learning Courses								4	4
Comm. Engg. Project (CEP)/ Field Project (FP) Project					2					2
Project							2	2		4
Internship/OJT									12	12
Co-curricular Courses (CC)	Liberal Learning Courses	2	2							4
Total Credits (Major)		20	20	20	20	20	20	20	20	160

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THIRD SEMESTER

Sr. No.	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				Minimum Passing marks	No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total		
1	PCC	25CV301T	Solid Mechanics	3	-	-	3	20	20	60	100	45	3
2	PCC	25CV301P	Solid Mechanics Lab	-	-	2	1	-	25	25	50	25	-
3	PCC	25CV302T	Concrete Technology	3	-	-	3	20	20	60	100	45	3
4	PCC	25CV302P	Concrete Technology Lab	-	-	2	1	-	25	25	50	25	-
5	PCC	25CV303T	Environmental Engineering	3	-	-	3	20	20	60	100	45	3
6	PCC	25CV303P	Environmental Engineering Lab	-	-	2	1	-	25	25	50	25	-
7	PCC	25CV304P	Computer Aided Civil Engineering Drawing	-	-	2	1	-	25	25	50	25	-
8	VEC	25CV305T	Environmental Science	2	-	-	2	10	10	30	50	23	1.5
9	HSSM	25CV306T	Fundamentals of Economics and Management	2	-	-	2	10	10	30	50	23	1.5
10	SEC	25CV341P	Career Development I	-	-	2	1	-	50	-	50	-	-
11	MDM	25CV331M	MDM – I (Refer MDM basket)	2	-	-	2	10	10	30	50	23	1.5
Total				15	0	10	20	90	240	370	700	-	-

From above any one PCC course to be mapped with NPTEL/SWAYAM/MOOC offered course in that Session. Exam will be conducted by NPTEL/Institute. The course will be notified one month prior to commencement of semester.

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Basket for Multi-Disciplinary Minor Courses (MDM)

A. Civil Engineering

Semester	Course Category	Course Code	Name of Course	Subject Expert Name	Weeks	Credits
III	MDM-I	25CV331M	Sustainable Engineering Concepts and Life Cycle Analysis	Prof. Brajesh Kumar Dubey	8	2
			Plastic Waste Management	Prof. Brajesh Kumar Dubey	8	2
IV	MDM-II	25CV431M	Air pollution and Control	Prof. Bholu Ram Gurjar	12	3
			Physico-Chemical Processes of Waste Water Treatment	Prof. V. C. Shrivastava	12	3
V	MDM-III	25CV531M	Integrated Waste Management for a Smart City	Prof. Brajesh Kumar Dubey	12	3
			Wastewater Treatment and Recycling	Prof. Manoj Kumar Tiwari	12	3
VI	MDM-IV	25CV631M	Water and waste water treatment	Prof. Bhanu Prakash Vellanki	12	3
			Environmental Quality Monitoring and Analysis	Prof. Ravi Krishna R	12	3
VII	MDM-V	25 CV731M	Environmental Science	Prof. Shamik Chowdhury, Prof. Sudha Goel	12	3
			Basic environmental Engineering and pollution Abatement	Prof. P. Mondal	12	3
Total Credit						14

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation			
						MSE 20	CA 20	ESE 60	Total 100
25CV301T	Solid Mechanics	3	-	-	3				
Course Objectives					Course Outcomes				
1. To learn the fundamental principles of strength of materials. 2. To calculate stresses, strains and deformations of structural elements under the external forces.					At the end of the course, the students will be able to- 1. Recognize the concepts of stress and strain for deformable bodies 2. Sketch shear force & bending moment diagrams for beams. 3. Compute bending stress, shear stresses and deflection for a beam under various loads. 4. Understand the shear stress distribution within shafts subjected to torsion. 5. Compute combined stresses for structural members and sketch Mohr's circle of stress.				

Unit I	[11 Hrs]
Concept of simple stresses and strains: Introduction, stress, strain, types of stresses, stress and strain diagram for brittle & ductile material, elastic limit, Hooks law, modulus of elasticity, modulus of rigidity, factor of safety, analysis of tapered rod, analysis of composite section, thermal stress and strain. Longitudinal strain & stress, lateral stresses and strains, Poisson's ratio, volumetric stresses and strain with uni-axial, bi-axial & tri-axial loading, bulk modulus, relation between Young's modulus and modulus of rigidity, Poisson's ratio and bulk modulus. Basic concepts used in design of pressure vessels.	
Unit II	[9 Hrs]
Shear force and bending moment: Types of beam (cantilever beam, simply supported beam, overhung beam etc.). Types of loads (Concentrated and UDL), shear force and bending moment diagrams for different types of beams subjected to different types of loads as well as couple. Relation between load and shear force and bending moment.	
Unit III	[11 Hrs]
Bending stresses in simple beams, assumptions and derivations of simple bending theory, relation between bending moment, bending stress and curvature, homogenous and composite beams Shear stress in simple beams, shear flow and shear stress distribution. Combined effect of BM and shear force. Section modulus for various shapes of beam sections. Deflection of beams: Derivation of differential equation of elastic curve with the assumptions made in it. Deflection and slope of cantilever, simply supported, overhung beams subjected to concentrated load UDL, Relation between slope, deflection and radius curvature in Macaulay's method to determine deflection of beam. Buckling of columns and strut columns. Euler's and Rankine's formula.	
Unit IV	[6 Hrs]
Torsion of circular sections, assumptions and derivation of relations between torsional moment, shear stress and angle of twist, Torsional stress in solid circular sections, torsion in thin walled hollow sections closely coiled, helical spring, Leaf spring. Introduction of torsion in rectangular section.	
Unit V	[8 Hrs]
Principal stresses and strains: Definition of principal planes & principal stresses, analytical method of determining stresses on oblique section when member is subjected to direct stress in one plane in mutually perpendicular two planes, when member is subjected to shear stress and direct stresses in two mutually perpendicular planes, Mohr's circle for representation of stresses.	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Strength of Materials	R K Bansal	4 th Edition	Laxmi Publications
2	Strength of Materials	S. Ramamrtham	20 th Edition	Dhanpat Rai and Sons
3	Strength of Material	R. K. Rajput	7 th Edition	S. Chand Publications

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Mechanics of Material	Beer and Johnston	8 th Edition	Tata McGraw Hill
2	Strength of Materials	U. C. Jindal	2 nd Edition	Umesh Publications

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
25CV301P	Solid Mechanics Lab	-	-	2	1	CA	ESE	Total
						25	25	50
Course Objectives		Course Outcomes						
1. To investigate the mechanical properties of engineering materials through standardized tests like tension, compression, shear, and torsion. 2. To analyze material behavior and structural integrity using hardness and impact testing, spring stiffness evaluation, and Mohr's Circle analysis.		At the end of the course, the students will be able to- 1. Perform tension, compression, bending, shear and torsion tests on specimens. 2. Perform impact and hardness tests on specimens. 3. Sketch stress diagrams using Mohr's Circle method. 4. Demonstrate stiffness determination of a helical spring						

Expt. No.	Title of the experiment
1	To perform Tension test for a metal specimen.
2	To perform Hardness test on a metal specimen.
3	To perform Impact test on a metal specimen.
4	To perform Torsion test on a metal specimen.
5	To perform Compression test on Bricks
6	To perform Shear test on a metal specimen
7	To perform Bending test on a wooden specimen
8	To perform a test for calculation of deflection of a beam.
9	To determine stresses using Mohr's Circle method.
10	To demonstrate stiffness determination of a helical spring.

Text Books

S.N	Title	Authors	Edition	Publisher
1	Relevant BIS Codes	-	-	-
2	Virtual Labs	-	-	-

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation			
						MSE	CA	ESE	Total
25CV302T	Concrete Technology	3	-	-	3	20	20	60	100

Course Objectives	Course Outcomes
<ol style="list-style-type: none">To develop a fundamental understanding of the properties, composition, and behavior of concrete and its individual constituents including cement, aggregates, water, and admixtures.To explain the behavior of fresh and hardened concrete, including workability, setting time, strength gain, and durability characteristics.To provide knowledge and practice in proportioning concrete mixes using Indian (IS), American (ACI), and British (Road Note No. 4) mix design methods.	<p>At the end of this course, student will be able to,</p> <ol style="list-style-type: none">1.Explain physical properties of the cement and aggregates.2.Identify various methods of batching, mixing, also explain the significance of the water-cement (w/c) ratio and workability.3.Identify standard tests for hardened concrete and non-destructive testing (NDT) methods.4.Define the basic principles and terminology of concrete mix design and apply the IS method to design concrete mix.5.Explain shrinkage, cracks and their role in concrete also various durability aspects in concrete.

Content	
Unit I Cement And Aggregate	[9 Hrs]
Main constituents of cement Hydration of cement, Physical properties and testing of cement, Soundness test, Hardening and compressive strength, Grades and different types of cements. Aggregates: Coarse and fine aggregate, normal, light and heavy weight aggregates. Aggregate characteristics and their significance in properties of concrete. Sampling, Particle shape and texture, Bond of aggregate, size & grading of aggregate, strength of aggregate. Mechanical properties and tests, bulking of sand. Crushed sand. Alkali aggregate reaction.	
Unit II Fresh Concrete	[10 Hrs]
Batching, Mechanical mixers, automatic batching and mixing plants. Efficiency of mixing, Workability and its Measurement, Factor affecting workability, setting time, Significance of w/c ratio, cohesiveness of concrete, Segregation, bleeding, voids, permeability. Hot weather concreting, Conveyance of concrete, placing of concrete, compaction, vibrators, curing of concrete, significance and methods, temperature effects on curing and strength gain, Maturity of concrete, Formwork for concrete. Introduction to Ready mix, pumped and self-compacting concrete.	
Unit III Strength of Concrete	[9 Hrs]
Strength gain, factors affecting compressive strength, Tensile and flexural strengths, relation between compressive and tensile strength. Failure modes in concrete, cracking in compression. Impact strength, fatigue strength, shear, elasticity, Poisson's ratio. Testing of Hardened Concrete: Compression test, cube strength and cylinder strength and their relation, effect of aspect ratio on strength. Flexural strength of concrete, determination of tensile strength, indirect tension test, splitting test, abrasion resistance, accelerated curing test. Non-Destructive Test: Significance, rebound hammer, ultra-sonic pulse velocity test, and Advanced concrete testing equipment.	
Unit IV Mix Design	[9 Hrs]
Mix Design Process, statistical relation between main and characteristic strength, variance, standard deviation, factors affecting mix properties, grading of aggregates, water/cement ratio etc. Degree of quality control, design of mix by IS method, introduction to road Note No. 4 (BS) and ACI method. Introduction of Admixtures.	
Unit V Durability of Concrete	[8 Hrs]
Shrinkage: Early volume changes, drying shrinkage, mechanism and factors affecting shrinkage, influence of curing conditions, differential shrinkage, carbonation, creep- factors influencing, relation between creep and time, nature of creep, effect of creep. Durability of concrete, permeability of concrete, efflorescence, resistance to corrosion, sulphate attack and its control.	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Concrete Technology	M.L.Gambhir	Second Edition, 1995.	Tata McGraw Hill
2	Concrete Technology	M.S. Shetty	Second Edition	S. Chand & Company

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Properties of Concrete	A.M.Neville		Pearson Education
2	Concrete Technology	P Kumar Mehta,		Indian Concrete Institute

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25CV302P	Concrete Technology Lab	-	-	2	1	25	25	50

Course Objectives	Course Outcomes
1. Recall standard procedures and relevant IS codes for testing cement, aggregates, and concrete. 2. Assess the quality of concrete materials and mixes. 3. Design concrete mixes tailored to specific requirements and environmental conditions.	At the end of the course, the student will be able to 1. Demonstrate the physical properties of cement, fine and coarse aggregates. 2. Perform tests on fresh concrete to evaluate workability. 3. Design concrete mix proportions using standard mix design methods and determine the properties of hardened concrete.

Minimum EIGHT experiments to be performed from the list as below.

List of Experiments

Expt. No.	Title of the experiment
1	Determination of the normal consistency of cement.
2	Determination of initial setting time and final setting time by Vicat's apparatus.
3	Determination of soundness test of cement.
4	Determination of compressive strength of cement mortar cube.
5	To perform sieve analysis and particle size distribution of aggregate.
6	Determination of bulking of sand.
7	Determination of Water Absorption and Specific Gravity of aggregates.
8	Designing a concrete mix using I.S. Method.
9	Determination of Workability - Slump test, Compaction factor test.
10	Determination of Compressive strength of concrete cube.
11	Determination of quality of concrete by using Rebound hammer/ Ultrasonic Pulse Velocity Instrument.

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1	Concrete Technology	M.L.Gambhir	Second Edition, 1995.	Tata McGraw Hill
2	Concrete Technology	M.S. Shetty	Second Edition	S. Chand & Company

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S.N	Title	Authors	Edition	Publisher
1	Properties of Concrete	A.M.Neville	-	Pearson Education
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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation			
						MSE	CA	ESE	Total
25CV303T	Environmental Engineering	3	-	-	3	20	20	60	100
Course Objectives		Course Outcomes							
1. To describe the physical, chemical and bacteriological characteristics of water and waste water. 2. To describe the basic principles and processes of various units involved in water and wastewater treatment.		At the end of the course, the students will be able to- 1. Recognize the necessity of water treatment based on its characteristics. 2. Recognize the units processes involved in water treatment plants. 3. Explaining hydraulic design concepts and conveyance of treated water. 4. Recognize the units processes involved in primary treatment of wastewater. 5. Understand the unit processes involved in secondary treatment of wastewater and working.							
Unit I		[9 Hrs]							
Introduction to water and its Treatment: Importance and necessity of water supply scheme. All types of water demand, empirical formulae, factors affecting per capita demand, variation in demand, design period, population forecasting methods and examples. Water quality: Physical, Chemical and bacteriological characteristics of water, Drinking water quality criteria and standards.									
Unit II		[9 Hrs]							
Water treatment Objectives, Unit operations and processes in surface Water treatment – Typical layouts and water distribution. water Principles, functions and preliminary design of flash mixers, clariflocculators, sedimentation tanks, Slow and Rapid sand filters, Aeration, Iron and Manganese removal, Defluoridation and Demineralization – water softening, Disinfection.									
Unit III		[9 Hrs]							
Conveyance of water: Intake Structures, Types of pipes, joints, fittings, valves & appurtenances. Hydraulic design aspects: Friction, Manning's, Darcy Weishbach & Hazen Williams equation and problem. Concept of rising main, Classification, working, merits and demerits, selection of pumps.									
Unit IV		[9 Hrs]							
Introduction to Waste Water Treatment – Study of waste water, black water & grey water. Physical and chemical characteristics of wastewater, significance of BOD, COD, BOD rate constant, Quantity and flow variation. Primary treatment- Principles, functions and preliminary design of screen, grit chambers and primary sedimentation tanks.									
Unit V		[9 Hrs]							
Secondary Treatment of Waste Water - Activated Sludge Process and Trickling filter; Other treatment methods – –Stabilization Ponds, Oxidation ditch, oxidation pond, Sequencing Batch Reactor Design of Imhoff Tank, Septic Tank, RBC etc.									

Text Books

S.N.	Title	Authors	Edition	Publisher
1.	Theory and Practice of water & wastewater treatment	Droste R.L.	-	John Wiley & sons.
2.	Environmental Engineering	S. K. Garg	-	Khanna Publishers
3.	Water supply & Sanitary Engineering	Rangwala S. C.	-	Charotar Publishers
4.	Water Supply Engineering	Dr. B. C. Punmia	-	Laxmi Publications
5.	Wastewater Engineering	Dr. B. C. Punmia	-	Laxmi Publications

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Environmental Engineering	Peavy H.S., Rowe D.R and George T	-	McGraw Hill
2	Wastewater Engineering, Treatment and reuse	Metcalf and Eddy	-	Tata McGraw Hill

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						CA	ESE	Total
25CV303P	Environmental Engineering Lab	-	-	2	1	25	25	50
Course Objectives		Course Outcomes						
To provide practical skills in analyzing physical and chemical parameters of water and wastewater to evaluate their quality and understand industrial treatment processes through field visits.		At the end of the course, students will be able to- 1. Assess the quality of water. 2. Assess the quality of wastewater. 3. Summarize the treatment processes based on site visit(s).						

Expt. No.	Title of the experiment Part A (Any ten experiments out of the following)
1	Determination of TS, TDS and TSS of Water/Wastewater sample.
2	Determination of alkalinity of Water/Wastewater sample.
3	Determination of hardness of Water sample.
4	Determination of Chloride of Water/Wastewater sample.
5	Determination of Iron of Water/Wastewater sample.
6	Determination of pH of Water/Wastewater sample.
7	Determination of Biochemical Oxygen Demand of Wastewater sample.
8	Determination of Chemical Oxygen Demand of Wastewater sample.
9	Determination of optimum dose of coagulant of water sample.
10	Determination of breakpoint chlorination of water sample.
11	Determination of sulphates of water sample.
12	Determination of fluoride in water sample.
13	Determination of Dissolved Oxygen (D.O.) of water/wastewater sample.
14	Determination of Turbidity of water/wastewater sample.
15	Determination of acidity of water/wastewater sample.
16	Part B : Brief Report on Water Treatment and Waste Water Treatment Plant Visit.

Text Books

S.N	Title	Authors	Edition	Publisher
1	Water supply and Sanitary Engineering	Birdie G.S.	-	Dhanpat Rai Publications
2	Water supply & Sanitary Engineering	B. C. Punmia	-	Laxmi Publications
3	Other relevant BIS codes	-	-	-

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25CV304P	Computer Aided Civil Engineering Drawing	-	-	2	1	50	50	100

Course Objectives	Course Outcomes
<ol style="list-style-type: none">1. Familiarize students with the AutoCAD workspace, tools, and user interface for efficient navigation.2. Enable students to use various tools for creating, modifying, and annotating drawings.3. Learn to organize and manage drawing components using layers for clarity and control.	<ol style="list-style-type: none">1. Students will gain hands-on experience and become proficient in using AutoCAD for 2D drafting.2. Ability to create precise and professional-quality engineering and architectural drawings.3. Skills to organize and manage complex drawings using layers, layouts, and viewports.

Topic No.	Title of Practicals
1	Introduction to AutoCAD:- Overview of AutoCAD software, Interface, tools, and workspace, File management (creating, saving, and opening files), Coordinate systems: Cartesian and Polar.
2	Basic Drawing Tools:- Line, Polyline, Circle, Arc, and Ellipse, Rectangle, Polygon, and Hatch, Creating Points and Splines, object Snap (OSNAP) and Grid Snap, Using Dynamic Input
3	Editing Tools:- Erase, Copy, Move, and Rotate, Offset, Trim, Extend, and Mirror, Fillet and Chamfer, Stretch, Scale, and Array (Rectangular and Polar), Grips and Properties for Editing
4	Annotation and Text:- Adding and formatting text, Single-line and Multi-line text (MTEXT), Dimensioning tools (Linear, Aligned, Angular, Radial, Diameter), Leaders and Multi-leaders, Text styles and Dimension styles
5	Layers and Properties:- Creating and managing layers, Layer properties (Color, Line type, Line weight), Freezing, Locking, and Hiding layers, Using Match Properties
6	Layouts and Plotting:- Model space and Paper space, Creating and managing Layouts, Viewports: Creating and modifying, Plotting and Printing (to PDF or printer)

Text Books

S.N	Title	Authors	Edition	Publisher
1	Autodesk AutoCAD Certified user study Guide	Danial John Stine, William Wyatt	Autocad 2025 edition	SDC, Publication
2	Technical Drawing 101 with Aucocad	Ashleigh Congdon-Fuller, Douglas Smith	Autocad 2024 edition	SDC, Publication

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Learn Autocad in Simple way	Sunil K.Pandey	-	Unitech Books
2	Resedential Design using Autocad 2024	Danial John Stine, William Wyatt	Autocad 2024 edition	SDC, Publication

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation			
						MSE	CA	ESE	Total
25ES401T	Environmental Sciences	2	0		2	10	10	30	50

Course Objectives

This course is intended

- To provide knowledge** of natural resources, their classification, utilization, and the importance of conservation for sustainable development.
- To create awareness** about climate change issues such as global warming, ozone depletion, acid rain, and their environmental impacts along with mitigation strategies.
- To introduce** the fundamental concepts of **Sustainable Science** and promote awareness of eco-friendly technologies

Course Outcomes**Students will be able to**

- Describe natural resources, their classification, and the importance of conservation, including the role of individuals and public awareness in sustainable resource management.
- Analyze climate change and assess their environmental impacts and mitigation strategies.
- Examine different types of environmental pollution, their causes, effects, and control measures, along with solid waste management practices and disaster management techniques.
- Apply concepts of sustainable practices to evaluate environmentally friendly materials, processes, and technologies in engineering applications

UNIT I – Natural Resources & Climate Changes**[10 Hrs.]**

Natural Resources- Definition, scope and importance; Need for public awareness -Institutions in environment, people in environment. Renewable and non-renewable and associated problems; Role of an individual in conservation of natural resources; equitable use of resources for sustainable lifestyles. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. **Climate Changes** Global warming and greenhouse effect, Climate change impacts and mitigation strategies.

UNIT II - Environmental Pollution**[10 Hrs.]**


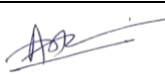
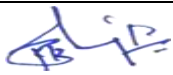
Definition Cause, effects and control measures of a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards. **Solid waste Management:** Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. **Disaster management:** floods, earthquake, cyclone and landslides, Ozone layer depletion, Acid rain.

UNIT II – Sustainable Science**[10 Hrs.]**

Introduction, Principles of Green Chemistry with example, Green Reagents- Super Critical Fluid (CO₂)- Properties and Applications, Green Building-Introduction, Components, Reuse and safety of building material and its environmental impact., Green Crackers- Introduction, Advantages. Carbon Credit, Carbon Sequestration, Carbon Capture and Storage CCS.

Reference Books-

S.N	Title	Authors	Edition	Publisher
1	Environmental Problems and solutions	D.K.Asthana, Mira Asthana		S.Chand.
2	Bio-Diversity	M.S.Swaminathan		Macmillan India Ltd.
3	Essentials of Ecology & Environmental Science	Rana		Prentice Hall of India
4	Environmental Chemistry	A.K.De		New Age International
5	Environmental Pollution Monitoring & Control	Khopkar S. M.		New Age International

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B.Tech. Scheme of Examination & Syllabus 2025-26

CIVIL ENGINEERING

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation			
						MSE	CA	ESE	Total
25ES402T	Fundamentals of Economics and Management	2	-	-	2	10	10	30	50

Course Objectives	Course Outcomes
1. The course examines how the economics, business and industrial management practices are related and how business decision is taken.	Students will be able to: 1. Apply economic principles for business decisions by understanding production cost relationships 2. Assess impact of macroeconomics and government policies on business and economy. 3. Recognize key management, marketing, and financial functions and their role in effective business decision-making

Unit I	[10Hrs]
Economics, Classification of economics, Industrial economics, Consumer demand, Law of Demand, Determinants of demand, Demand forecasting, Law of supply, Types of Elasticity of demand, Concept of Production, Factors of Production, types of cost, cost curves.	
Unit II	[10Hrs]
Market Structures: Perfect competition, Monopoly, and Monopolistic competition, Functions of central bank, Inflation, Deflation, Recession, National income, GDP, GNP, Liberalization, Privatization and Globalization	
Unit III	[10Hrs]
Definition of management, functions of management, Functions of human resources Management, Marketing Management, Functions of Marketing Management. Methods of pricing, advertising and sales promotion. Financial Management, functions of financial management, Sources of finance.	

Text Books

S. N	Title	Authors	Edition	Publisher
1.	Managerial Economics	D.N. Dwivedi	8th	Vikas Publishing
2.	Modern Economic Theory	K.K. Dewett	2005	S. Chand Publisher
3.	Industrial Management	Dr.I.K. Chopde, Dr.A.M. Sheikh	Revised edition	S. Chand Publisher

Reference Books

S. N	Title	Authors	Edition	Publisher
1.	Industrial Organization and Industrial economics	T.R. Banga, S.C. Sharma	2006	Khanna Publishers

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CIVIL ENGINEERING

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25CV341P	Career Development - I	-	-	2	1	50	-	50

Course Objectives	Course Outcomes
To develop students' quantitative aptitude, logical reasoning, verbal communication, critical thinking, self-management, and professional employability skills required for academic success, competitive examinations, and workplace readiness.	<p>CO1. Students will be able to solve problems related to number systems, logical series, equations, ratios, proportions, and arrangement-based reasoning with accuracy and logical understanding.</p> <p>CO2. Students will be able to apply concepts of percentage, partnership, profit and loss, discount, simple interest, and compound interest to solve practical and business-oriented numerical problems.</p> <p>CO3. Students will be able to perform SWOC analysis, formulate SMART goals, and demonstrate professional verbal communication skills in workplace environments.</p> <p>CO4. Students will be able to construct logical arguments, participate effectively in debates, and deliver coordinated group presentations with confidence and clarity.</p> <p>CO5. Students will be able to demonstrate proficiency in grammar, vocabulary, reading comprehension, and professional communication while exhibiting consistent participation, individual responsibility, collaborative teamwork, and professional classroom conduct.</p>

Unit I (10 marks)	[7Hrs]
Number System: - Divisibility Test, LCM/HCF Problems, Factorization, Successive Division, Number Series:- Missing Number Series, Wrong Number series, Letter Series, Analogy (Number, Letter, Word, Non Verbal analogy), Simple Equations :- Two digit, 3 digit, ages and puzzles questions, Ratio & Proportion:- Joining of two ratios, Proportion, Mean Proportions, Problems on ages Linear, circular Arrangement	
Unit II (15 marks)	[7Hrs]
Percentage: - Percentage to ratio conversion, Successive Percentage, Increase Decrease of Percentage, etc. Partnership Problems, Profit Loss:- Concept of Profit loss, Relation between CP ,SP Profit and Loss, Problems on Profit Loss. Discount:- Successive Discount, Relation between MP Discount and Selling Price, Problems based on Discount, Simple Interest, Compound Interest	
Unit III (5 marks)	[5Hrs]
SWOC Analysis and SMART Goal Setting for Personal and Professional Development Corporate Communication I – Professional Verbal Communication in Workplace Environments-	
Unit IV (10 marks)	[6Hrs]
Debating Skills – Logical Thinking, Argument Building, and Public Speaking Group Presentation Skills – Team Coordination, Public Speaking, and Presentation Techniques	
Unit V (10 marks)	[3Hrs]
Verbal Ability Quiz – Grammar, Vocabulary Building, and Reading Comprehension for Professional Communication Continuous Assessment - Attendance, Individual Engagement & Team Dynamics	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Quantitative Aptitude By R. S. Aggarwal	R.S. Aggarwal		
2	Quantitative Aptitude	Shripad Deo		Allied Publishers Pvt Ltd
3	A Modern Approach to Verbal & Non-Verbal Reasoning	R.S. Aggarwal		

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Quantitative Aptitude for CAT by Arun Sharma	Arun Sharma		
2	How to Develop Self-Confidence & Influence People by Public Speaking	Dale Carnegie	2004	Sulabh Publications
3	Professional Communication Skills	Alok Jain	2006	S Chand & Company Ltd
4	Soft Skills & Employability Skills	Sabina Pillai	2008	Cambridge

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