

-	CO Statements	POs												PSOs			
CO4	Explain the basic concepts of LASERs along with its Engineering applications and familiarize with types of sensors for various engineering applications	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	Explain about magnetic and dielectric properties of different materials.	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Course Code	201ES1T01 BUILDING MATERIALS AND CONSTRUCTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
CO1	Explain the sources, properties and applications of common building materials.	2	-	-	-	-	2	2	-	-	-	-	-	1	1	-	
CO2	Demonstrate the properties of different materials and carry out various tests on cement and concrete.	2	-	-	-	-	2	2	-	-	-	-	1	1	1	-	
CO3	Illustrate different types of brick and stone masonry.	3	-	-	-	-	3	2	-	-	-	-	1	2	2	-	
CO4	Choose different types of structural components for constructions.	3	-	-	-	-	3	2	-	-	-	-	1	2	2	-	
CO5	Infer the concept of finishings.	2	-	-	-	-	2	2	-	-	-	-	1	1	1	-	
Course Code	201ES1I05 ENGINEERING GRAPHICS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
CO1	Sketch the polygons, conics and scales by using the principles of drawing	3	2	1	-	-	-	-	-	-	-	-	-	1	-	-	
CO2	Draw Orthographic projections of points and lines..	3	2	1	-	-	-	-	-	-	-	-	-	1	-	-	
CO3	Draw Orthographic projections of planes in various positions	3	2	1	-	-	-	-	-	-	-	-	-	1	-	-	
CO4	Draw Orthographic projections of solids in various positions.	3	2	1	-	-	-	-	-	-	-	-	-	1	-	-	
CO5	Construct isometric scale and isometric projections	3	2	1	-	-	-	-	-	-	-	-	-	1	-	-	
Course Code	201HS1L01 COMMUNICATIVE ENGLISH LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
CO1	Make use of the concepts to communicate confidently and competently in English Language in all spheres.	-	-	-	-	1	-	-	-	-	3	-	1	-	-	-	
CO2	Express Creative skills to construct Dialogues / Conversations in Spoken and Written forms.	-	-	-	-	1	-	-	-	-	3	-	2	-	-	-	
CO3	Identify Accent for intelligibility.	-	-	-	-	1	-	-	-	-	3	-	2	-	-	-	
CO4	Demonstrate communicative ability in everyday Conversation, JAM Sessions and Public Speaking.	-	-	-	-	1	-	-	-	-	3	-	1	-	-	-	
CO5	Demonstrate nuances of Language through Audio – Visual Experience and group activities.	-	-	-	-	1	-	-	-	-	3	-	1	-	-	-	
Course Code	171HS1L01 ENGLISH COMMUNICATION SKILLS LAB- I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
CO1	Make use of the concepts to communicate confidently and competently in English Language in all spheres.	-	-	-	-	1	-	-	-	-	3	-	1	-	-	-	
CO2	Express Creative skills to construct Dialogues / Conversations in Spoken and Written forms.	-	-	-	-	1	-	-	-	-	3	-	2	-	-	-	
CO3	Identify Accent for intelligibility.	-	-	-	-	1	-	-	-	-	3	-	2	-	-	-	
CO4	Demonstrate communicative ability in everyday Conversation, JAM Sessions and Public Speaking.	-	-	-	-	1	-	-	-	-	3	-	1	-	-	-	
CO5	Demonstrate nuances of Language through Audio – Visual Experience and group activities.	-	-	-	-	1	-	-	-	-	3	-	1	-	-	-	

-	CO Statements	POs												PSOs		
Course Code	171BS1L01 ENGINEERING CHEMISTRY LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Demonstrate Acid –Complexometric titrations by volumetric analysis.	2	-	-	-	-	-	-	-	1	1	-	1	-	-	-
CO2	Demonstrate Acid – Base titrations by instrumental analysis.	2	-	-	-	-	-	-	-	1	1	-	1	-	-	-
CO3	Estimate Vitamin C using volumetric analysis	2	-	-	-	-	-	-	-	1	1	-	1	-	-	-
CO4	Prepare polymer like Bakelite.	2	-	-	-	-	-	-	-	1	1	-	1	-	-	-
CO5	Prepare alternative fuel like Bio-Diesel.	2	-	-	-	-	-	1	-	1	1	-	1	-	-	-
Course Code	171ES1L01 COMPUTER PROGRAMMING LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Implement basic programs in C.	-	2	-	-	2	-	-	-	-	-	-	-	2	-	-
CO2	Use Conditional and Iterative statements to solve real time scenarios in C.	-	2	2	3	2	-	-	-	-	-	-	-	2	-	-
CO3	Implement the concept of Arrays and Modularity.	-	3	2	2	2	-	-	-	-	-	-	-	2	-	-
CO4	Apply the Dynamic Memory Allocation functions using pointers.	-	2	2	3	2	-	-	-	-	-	-	-	2	-	-
CO5	Develop programs using structures, and Files.	-	2	2	2	2	-	-	-	-	-	-	-	2	-	-
Course Code	201BS1L01 ENGINEERING PHYSICS LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Determine the rigidity and young's modulus to understand material properties.	3	2	-	-	-	-	-	-	3	-	-	1	-	-	-
CO2	Determine Acceleration due to Gravity and Radius of Gyration and spring constant by oscillatory mechanics	2	2	-	-	-	-	-	-	3	-	-	1	-	-	-
CO3	Find the strength of the magnetic field.	3	1	-	-	-	-	-	-	3	-	-	1	-	-	-
CO4	Determine wavelength of unknown source, particle size using lasers.	3	2	-	-	-	-	-	-	3	-	-	1	-	-	-
CO5	Determination of velocity of sound, moment of inertia	3	2	-	-	-	-	-	-	3	-	-	1	-	-	-
Course Code	201ES1L01 ENGINEERING WORKSHOP	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Construct the various wooden joints.	3	2	1	-	3	-	-	-	-	-	-	-	2	-	-
CO2	Develop various fitting joints.	3	2	1	-	3	-	-	-	-	-	-	-	2	-	-
CO3	Develop components for making the various sheet metal models.	3	2	1	-	3	-	-	-	-	-	-	-	3	-	-
CO4	Experiment with the various house wiring connections.	3	2	1	-	3	-	-	-	-	-	-	-	2	-	-
Course Code	201MC1T01 Environmental Science	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Outline the natural resources and their importance for the sustenance of the life	0	0	0	-	1	2	-	-	-	-	-	-	-	-	-
CO2	Explain about the biodiversity of India, threats and its conservation methods	-	-	0	-	1	2	-	-	-	-	-	-	-	-	-
CO3	Illustrate various attributes of the pollution, impacts and measures to control the pollution along with waste management practices	-	-	0	-	1	2	-	-	-	-	-	-	-	-	-
CO4	Describe social issues of both rural and urban environment to combat the challenges and the legislations of India in environmental protection	-	-	0	-	1	2	-	-	-	-	-	-	-	-	-
CO5	Explain the population growth and its implications	-	-	0	-	1	2	-	-	-	-	-	-	-	-	-
II SEM																
Course Code	201BS2T05 PARTIAL DIFFERENTIAL EQUATIONS AND VECTOR CALCULAS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Solve improper integrals using beta and gamma functions	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	Solve partial differential equations of first order.	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-

-	CO Statements	POs												PSOs		
CO3	Compute the double integral over a region and triple integral over a volume.	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	Calculate the gradient of a scalar function, divergence and curl of a vector function	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	Calculate line, surface and volume integrals	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Course Code	201BS2T08 CHEMISTRY OF MATERIALS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Compare the quality of drinking water and problems associated with hard water.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	1
CO2	Explain the fundamentals and applications of Electrochemical energy systems.	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO3	Explain fundamentals and applications of polymers and building materials.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	1
CO4	Explain the fundamentals and controlling methods of corrosion.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1
CO5	Explain the properties and applications of nano materials, conductors, Semiconductors and Super conductors.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Course Code	201ES2T06 ENGINEERING MECHANICS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Determine the resultant force and moment for a given force system.	3	2	2	-	-	-	-	-	-	-	-	-	3	-	-
CO2	Solve the member forces in trusses.	3	2	1	-	-	-	-	-	-	-	-	-	3	-	-
CO3	Apply concept of Virtual work to find the work done by force and couple.	3	2	1	-	-	-	-	-	-	-	-	-	3	-	-
CO4	Solve the centre of gravity and moment of inertia for various geometric shapes.	3	2	1	-	-	-	-	-	-	-	-	-	3	-	-
CO5	Determine the displacement, velocity and acceleration relations in dynamic systems.	3	2	1	-	-	-	-	-	-	-	-	-	3	-	-
CO6	Apply the concepts of kinematics, kinetics, work - energy and impulse –momentum methods to particle motion.	3	2	1	-	-	-	-	-	-	-	-	-	3	-	-

-	CO Statements	POs												PSOs		
Course Code	201ES1T02 PROGRAMMING FOR PROBLEM SOLVING USING C	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Develop the basic programs in C and draw the flowcharts using Raptor.	2	3	-	-	1	-	-	-	-	-	-	2	1	-	-
CO2	Make use of conditional and iterative statements to solve real time scenarios in C.	3	2	-	-	2	-	-	-	-	-	-	2	2	-	-
CO3	Apply the concept of arrays, modularity and strings to handle complex problems.	2	2	3	-	-	-	-	-	-	-	-	1	2	-	-
CO4	Apply the dynamic memory allocation functions using pointers.	2	3	-	-	2	-	-	-	-	-	-	2	2	-	-
CO5	Develop programs using structures, and Files.	3	2	2	-	-	-	-	-	-	-	-	2	3	-	-
Course Code	201ES2T12 SURVEYING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Survey the linear and angular distances using chain, compass instruments.	2	1	2	-	-	-	2	-	-	-	-	-	3	-	-
CO2	Make use of appropriate techniques in order to estimate the level of existing ground.	2	2	1	-	-	-	2	-	-	-	-	-	2	-	-
CO3	Solve height and distances problems using Theodolite and Tachometry.	2	2	1	-	1	-	-	-	-	-	-	-	2	2	-
CO4	Utilize various advanced surveying equipment for large projects.	3	2	1	-	1	-	-	-	-	-	-	-	2	2	-
CO5	Determine regular, irregular areas and volumes of given field.	3	1	1	-	1	-	-	-	-	-	-	-	3	-	2
Course Code	201ES2L05 SURVEYING FIELD WORK	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Develop the plan and map that shows the ground features.	2	1	2	-	-	-	2	-	-	-	-	-	2	-	-
CO2	Plan a contour map to estimate the levels of existing ground.	2	2	1	-	-	-	2	-	-	-	-	-	2	-	-
CO3	Analyze height and distances problems using appropriate surveying principles.	2	2	1	-	1	-	-	-	-	-	-	-	2	2	-
CO4	Utilize various advanced surveying equipment for large projects.	3	2	1	-	1	-	-	-	-	-	-	-	2	-	-
CO5	Determine areas and distances by total station of a given field	3	1	1	-	1	-	-	-	-	-	-	-	2	-	2
Course Code	201BS2L05 ENGINEERING CHEMISTRY LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Analyze and generate experimental skills.	3	-	-	-	2	-	-	-	2	-	-	1	-	2	-
CO2	Calculate the hardness of water.	3	-	-	-	2	-	-	-	2	-	-	1	-	2	-
CO3	Calculate the strength of acids & bases by instrumental analysis.	3	-	-	-	2	-	-	-	2	-	-	1	-	-	-
CO4	Prepare advanced polymer materials.	3	-	-	-	2	-	-	-	2	-	-	1	-	2	-
CO5	Prepare alternative fuel like Bio-Diesel.	3	-	-	-	2	-	-	-	2	-	-	1	-	-	-
Course Code	201ES2L10 PROGRAMMING FOR PROBLEM SOLVING USING C LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Develop the basic programs in C and draw the flowcharts using Raptor.	2	1	-	1	1	-	-	-	-	-	-	-	1	1	-
CO2	Make use of conditional and iterative statements to solve real time scenarios in C.	3	2	1	-	2	-	-	-	-	-	-	-	2	2	-
CO3	Apply the concept of arrays, modularity and strings to handle complex problems.	3	2	1	-	2	-	-	-	-	-	-	-	2	2	-

-	CO Statements	POs												PSOs		
CO4	Apply the dynamic memory allocation functions using pointers.	2	1	-	1	3	-	-	-	-	-	-	-	2	2	-
CO5	Develop programs using structures, and Files.	3	2	1	-	2	-	-	-	-	-	-	-	2	2	-
Course Code	201MC2L01 PROFESSIONAL COMMUNICATION SKILLS LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Make effective use of Body language in all situations and contexts to enhance effective communication in all aspects.	-	-	-	-	-	-	-	-	-	3	-	2	-	-	-
CO2	Identify communicative competency to respond to others in different situations.	-	-	-	-	-	-	-	-	-	3	-	2	-	-	-
CO3	Make use of effective delivery strategies to select, compile and synthesize information for oral presentation.	-	-	-	-	-	-	-	-	-	3	-	2	1	1	-
CO4	Demonstrate in mock interviews, group discussion and public speaking.	-	-	-	-	-	-	-	-	-	3	-	2	-	-	-
CO5	Illustrate interpersonal skills using English language confidently and effectively for personal and professional growth.	-	-	-	-	-	-	-	-	-	3	-	2			
Course Code	201MC2T02 CONSTITUTION OF INDIA	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO11	PO12	PSO 1	PSO 2	PSO 3
CO1	Explain historical background of the constitution making and its importance for building a democratic India.	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
CO2	Compare the functioning of three wings of the government i.e., executive, legislative and judiciary.	-	-	-	-	-	-	-	-	3	-	-	-	-	1	-
CO3	Interpret the value of the fundamental rights and duties for becoming good citizen of India.	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
CO4	Compare the decentralization of power between central, state and local self-government	-	-	-	-	-	-	-	-	3	-	-	-	-	1	-
CO5	Extend the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy.	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
III SEM																
Course Code	201BS3T12 INTEGRAL TRANSFORMS AND APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Compute the Fourier series of a function.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	Compute the Fourier transform of a function.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO3	Compute Laplace transform of a function.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO4	Apply Laplace transform to solve initial value problems.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO5	Solve one dimensional heat equation, wave equation and two dimensional Laplace equation	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-

-	CO Statements	POs												PSOs		
Course Code	201CE3T01 STRENGTH OF MATERIALS-I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Calculate the behavior of basic materials under the influence of different external loading and the support conditions.	3	2	1	-	-	-	-	-	-	-	-	-	2	-	-
CO2	Prepare the diagrams indicating the variation of the key performance features like bending moment and shear forces.	3	2	1	-	-	-	-	-	-	-	-	-	2	-	-
CO3	Compute the bending stresses in beams when subjected to bending.	3	2	1	-	-	-	-	-	-	-	-	-	2	-	-
CO4	Calculate the shear stress across various sections of a beam subjected to shear force.	3	2	1	-	-	-	-	-	-	-	-	-	2	-	-
CO5	Calculate the deflections in various beams under different loading and support conditions.	3	2	1	-	-	-	-	-	-	-	-	-	3	-	-
Course Code	201CE3T02 FLUID MECHANICS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply physical properties of fluid and buoyancy phenomenon in fluid related problem.	3	2	-	-	-	-	1	-	-	-	-	-	-	-	-
CO2	Choose equations to calculate hydrostatic forces on submerged bodies and fluid kinematic flow problems.	3	2	-	-	-	-	-	-	2	1	-	-	2	-	-
CO3	Solve fluid dynamics and flow measurement problems using appropriate equations.	3	2	-	-	2	-	-	-	2	-	-	-	2	-	-
CO4	Identify concepts on laminar and turbulent flows and various losses in pipes.	3	2	-	-	2	-	-	-	2	-	-	-	2	-	-
CO5	Solve problems on boundary layer theory.	3	2	-	-	-	-	2	-	-	-	-	-	3	-	-
Course Code	201CE3T03 STRUCTURAL ANALYSIS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Analyze propped cantilever beams and fixed beams under different loading and support conditions.	3	2	2	-	-	-	-	-	-	-	-	-	3	-	-
CO2	Analyze continuous beams under different loading and support conditions by theorem of three moments and Slope deflection method.	3	2	2	-	-	-	-	-	-	-	-	-	3	-	-
CO3	Analyze the structures using Moment distribution method and Kani's method.	3	1	2	-	-	-	-	-	-	-	-	-	3	-	-
CO4	Analyze the structures using Flexibility and Stiffness matrix methods.	3	2	1	-	-	-	-	-	-	-	-	-	2	-	-
CO5	Develop the influence line diagrams for various types of moving loads on beams/bridges and trusses.	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-
Course Code	201CE3T04 CONCRETE TECHNOLOGY	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Determine the properties of cement and aggregates.	-	3	-	-	1	-	-	2	-	-	-	-	-	-	-
CO2	Measure the workability and the mechanical properties of concrete.	-	3	-	-	2	-	-	1	-	-	-	-	2	-	-
CO3	Conduct different strength tests on concrete and non-destructive tests on concrete.	-	3	-	2	2	-	-	-	-	-	-	-	3	-	-
CO4	Design a preferred grade of concrete.	-	-	-	3	1	-	-	2	-	-	-	-	1	-	-
CO5	Use special concretes depending on the requirement.	-	3	-	-	2	-	-	1	-	-	-	-	-	-	-

-	CO Statements	POs												PSOs		
Course Code	201CE3L01 BUILDING PLANNING AND DRAWING LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Plan different types of buildings as per NBC regulations and building laws.	3	-	-	-	1	2	-	-	-	-	-	-	2	-	-
CO2	Identify the conventional signs and symbols in a master plan.	3	-	-	-	1	2	-	-	-	-	-	-	2	-	-
CO3	Sketch the various building components.	3	-	-	-	1	2	-	-	-	-	-	-	2	-	-
CO4	Prepare the plan, elevation and various sectional views of simple residential and	3	-	-	-	1	2	-	-	-	-	-	-	2	-	-
Course Code	201CE3L02 Concrete Technology Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain the importance of testing of cement and its properties	3	2	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	Examine different properties of aggregates.	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	Determine the workability of concrete.	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	Experiment with the properties of hardened concrete	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	Demonstrate the non-destructive testing procedures on concrete	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Course Code	201CE3L03 STRENGTH OF MATERIALS LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Illustrate the stress-strain relationship for mild steel/ hysd bars.	2	1	-	-	-	-	-	-	-	-	-	-	-	3	-
CO2	Determine modulus of rigidity of spring.	3	2	-	1	-	-	-	-	-	-	-	-	3	-	-
CO3	Find the hardness of metals by bhn, rockwell &vicker's apparatus.	3	2	-	1	-	-	-	-	-	-	-	-	3	-	-
CO4	Estimate the impact resistance of materials by charpy & izod tests.	3	2	-	1	-	-	-	-	-	-	-	-	3	-	-
CO5	Determine the young's modulus of the given beam material.	2	3	-	1	-	-	-	-	-	-	-	-	3	-	-
Course Code	201SC3L01 COMPUTER AIDED DRAWING/DRAFTING LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain basic terms plan, section and elevation in buildings.	3	-	-	-	2	-	-	1	-	-	2	-	2	-	2
CO2	Identify sign convention sand symbols used in civil engineering drawing.	3	-	1	-	-	-	-	1	-	-	2	-	3	-	1
CO3	Apply building bye-laws for building planning.	3	-	1	-	-	-	-	1	-	-	2	-	3	-	1
CO4	Sketch various components of building by visualizing the details.	3	-	1	-	-	-	-	1	-	-	2	-	3	-	1
Course Code	201MC3T03 BIOLOGY FOR ENGINEERS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply biological engineering principles, procedures needed to solve real-world problems.	-	-	-	-	-	-	2	1	2	-	-	3	-	1	1
CO2	Demonstrate the fundamentals of living things, their classification, cell structure and biochemical constituents.	-	-	-	-	-	-	1	2	1	-	-	2	-	2	2
CO3	Apply the concept of plant, animal and microbial systems and growth in real life Situations.	-	-	-	-	-	-	2	1	2	-	-	3	-	1	1
CO4	Explain genetics and the immune system to know the cause, symptoms, diagnosis and treatment of common diseases.	-	-	-	-	-	-	1	2	1	-	-	2	-	2	2
CO5	Demonstrate basic knowledge of the applications of biological systems in relevant industries.	-	-	-	-	-	-	1	2	1	-	-	2	-	2	2
CO1	Apply numerical methods to solve equations and interpolation of polynomials	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	Apply numerical methods to solve initial value problems and problems involving integration.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-

-	CO Statements	POs												PSOs		
CO3	Apply discrete and continuous probability distributions.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO4	Compute the components of a classical hypothesis test.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO5	Apply the statistical inferential methods based on small and large sampling tests.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
Course Code	201CE4T05 ENGINEERING GEOLOGY	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Illustrate weathering process, mass movement and their importance.	2	1	-	-	-	-	1	-	1	-	-	-	1	-	-
CO2	Distinguish between different petrological formations, rock structures and mineral identification.	3	1	-	2	-	-	-	-	1	-	-	-	3	-	-
CO3	Differentiate various secondary geological formations.	3	1	-	2	-	-	-	-	1	-	-	-	3	-	-
CO4	Identify surface, subsurface formations and groundwater potential using geophysical investigation methods.	3	2	-	1	-	-	-	-	1	-	-	-	2	-	-
CO5	Apply geological principles in natural hazards assessment and selection of sites for dams and tunnels.	3	-	-	-	-	-	1	-	-	-	-	-	2	-	-
Course Code	201CE4T06 STRENGTH OF MATERIALS-II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply physical properties of fluid and buoyancy phenomenon in fluid related problem.	3	2	-	-	-	-	-	-	-	2	-	-	-	2	2
CO2	Choose equations to calculate hydrostatic forces on submerged bodies and fluid kinematic flow problems.	3	2	-	-	-	-	-	-	2	-	-	-	-	2	2
CO3	Solve fluid dynamics and flow measurement problems using appropriate equations.	3	2	-	-	1	-	-	-	2	-	-	-	-	2	2
CO4	Identify concepts on laminar and turbulent flows and various losses in pipes.	3	2	-	-	1	-	-	-	2	-	-	-	-	2	2
CO5	Solve problems on boundary layer theory.	3	2	-	-	-	-	-	-	-	2	-	-	-	3	1
Course Code	201CE4T07 HYDRAULICS AND HYDRAULIC MACHINERY	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Illustrate different kinds of flow behaviour in open channel flow.	2	1	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	Determine length of surface profile and losses in various channels by using dynamic equations of non-uniform flows.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO3	Apply the knowledge of similitude in hydraulic model testing.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO4	Make use of working proportions to do hydraulic design of turbines.	3	2	1	-	-	-	-	-	-	-	-	-	2	2	2
CO5	Determine performance characteristics of centrifugal and reciprocating pumps.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
Course Code	201HS4T02 MANAGEMENT SCIENCE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply management and motivation theories to renovate the practice of management	1	-	-	-	-	-	-	-	-	2	-	1	-	-	-
CO2	Explain concepts of quality management and use process control charts, concepts and tools of quality engineering in the design of products and process controls	1	-	-	-	-	-	-	-	-	2	-	1	-	2	2
CO3	Appraise the functional management challenges associated with high levels of change in the organizations	1	-	-	-	-	-	-	-	2	1	-	1	-	-	-

-	CO Statements	POs											PSOs			
CO4	Identify activities with their interdependency and use scheduling techniques of project management PERT/CPM.	1	1	-	-	-	-	-	-	-	1	-	1	-	-	-
CO5	Develop global vision and management skills both at strategic level and interpersonal level.	1	-	-	-	-	-	2	-	-	1	-	1	-	-	-
Course Code	201CE4T08 SOIL MECHANICS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Learn the physical properties and classification of soil.	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	Understand the permeability and seepage characteristics of soil.	3	2	-	-	-	-	-	-	1	-	-	-	2	-	-
CO3	Estimate the stress distribution in soils.	3	2	-	-	2	-	-	-	1	-	-	-	2	2	2
CO4	Know the concepts and mechanism of compaction and consolidation in the field and laboratory.	3	2	-	-	2	-	-	-	1	-	-	-	2	2	2
CO5	Determine the shear strength of various soils at different drainage conditions.	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Course Code	201CE4L04 Engineering Geology Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply the knowledge of geology in the field of civil engineering.	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-
CO2	Explain physical properties of various minerals and rocks.	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	Interpret geological maps, topographical maps and satellite imagery.	2	1	-	-	-	-	-	-	-	-	-	3	-	-	-
CO4	Identify various geological formations.	3	2	-	1	-	-	-	-	-	-	-	-	-	-	-
CO5	Distinguish various landforms and rock formations in constructional areas through field examinations.	3	1	-	2	-	-	-	-	-	-	-	-	-	-	-
Course Code	201CE4L05 Fluid Mechanics and Hydraulic Machinery Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Examine the calibration of different flow meters.	3	-	-	2	-	-	-	-	2	-	-	-	2	-	-
CO2	Illustrate flow measuring devices used in pipes, channels and tanks.	2	-	-	-	-	-	-	-	2	-	-	-	-	-	-
CO3	Determine major and minor losses in pipes.	3	-	-	3	-	-	-	-	2	-	-	-	-	-	-
CO4	Analyze energy equation for problems on flow through pipes.	3	-	-	2	-	-	-	-	2	-	-	-	-	-	-
CO5	Identify the flow behavior in open channels and performance of turbines.	3	-	-	1	-	-	-	-	2	-	-	-	-	-	-
Course Code	201SC4L13 3D MODELLING USING REVIT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain the detailing of structure in Revit software.	3	-	-	-	1	-	-	2	-	2	-	-	2	-	-
CO2	Applying the techniques and able to draw beams, columns, slabs, footings.	3	-	1	-	-	-	-	2	-	2	-	-	3	-	-
CO3	Sketch the 3D drawing (steel structures and RCC structures).	3	-	1	-	-	-	-	2	-	2	-	-	3	-	-
CO4	Find quantities of material, bar bending schedules.	3	-	1	-	-	-	-	2	-	2	-	-	3	-	-
Course Code	201MC4T04 ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Identify the concept of Traditional knowledge and its importance.	-	-	-	-	-	-	2	1	2	-	-	1	2	-	-
CO2	Explain the need and importance of protecting traditional knowledge.	-	-	-	-	-	-	2	1	2	-	-	1	2	-	-
CO3	Illustrate the various enactments related to the protection of traditional knowledge.	-	-	-	-	-	-	2	1	2	-	-	1	2	-	-
CO4	Interpret the concepts of Intellectual property to protect the traditional knowledge.	-	-	-	-	-	-	2	1	2	-	-	1	2	-	-

-	CO Statements	POs												PSOs		
CO5	Explain the importance of Traditional knowledge in Agriculture and Medicine.	-	-	-	-	-	-	2	1	2	-	-	1	2	-	-
V SEM																
Course Code	DESIGN & DRAWING OF REINFORCED CONCRETE STRUCTURES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Utilize different types of design philosophies	-	2	1	-	-	-	-	1	-	-	-	-	-	2	2
CO2	Explain the concept of limit state design and apply it to beams	-	2	2	-	-	2	-	-	-	-	-	-	-	3	1
CO3	Design flanged sections subjected to shear, torsion and bond	-	3	2	-	-	2	-	-	-	-	-	-	-	3	1
CO4	Design different type of compression members and footings	-	3	2	-	-	2	-	-	-	-	-	-	-	3	1
CO5	Design one-way slabs and two-way slabs	-	3	2	-	-	2	-	-	-	-	-	-	-	1	1
Course Code	FOUNDATION ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Illustrate the phenomenon of soil exploration	3	2	-	-	-	-	-	-	-	-	2	-	-	2	2
CO2	Understand the various types of shallow foundation and determine their allowable bearing pressure	3	2	-	-	-	1	-	-	-	-	2	-	-	2	2
CO3	Determine the magnitude of foundation settlement and design the footing accordingly	3	2	-	-	-	1	-	-	-	-	2	-	-	2	2
CO4	Explain the load - carrying capacity of piles and design principles of well foundations	3	2	-	-	-	1	-	-	-	-	2	-	-	2	2
CO5	Solve the problems related to the concept of earth-retaining structures and slope stability	2	1	-	-	-	1	-	-	-	-	2	-	-	1	1
Course Code	REMOTE SENSING & GIS APPLICATIONS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Classify the information content of remotely sensed data.	2	1	-	-	-	-	-	-	3	-	-	-	1	-	-
CO2	Explain the energy interactions in the atmosphere and earth surface features.	2	1	-	-	-	-	-	-	3	-	-	-	1	-	-
CO3	Interpret the images for preparation of thematic maps.	2	1	-	-	-	-	-	-	3	-	-	-	-	2	-
CO4	Analyze spatial and attribute data for solving spatial problems.	3	2	-	1	-	-	-	-	2	-	-	-	-	-	-
CO5	Develop GIS and cartographic outputs for presentation	3	2	-	1	-	-	-	-	2	-	-	-	-	-	-
Course Code	PRE STRESSED CONCRETE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain methods of prestressed concrete	2	1	-	-	-	-	-	2	-	-	-	-	1	-	-
CO2	Calculate various losses in prestressed concrete sections	3	2	-	-	-	-	-	2	-	-	-	-	2	-	-
CO3	Analyse the members for flexure, shear and torsion	3	2	-	-	-	-	-	2	-	-	-	-	1	-	-
CO4	Design prestressed concrete members for deflection and crack control	3	2	2	-	-	-	-	1	-	-	-	-	1	-	-
CO5	Design of end blocks for post tensioned members	3	2	2	-	-	-	-	1	-	-	-	-	2	-	-
Course Code	SUBSURFACE INVESTIGATION AND INSTRUMENTATION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply various exploration methods in soil and rock.	3	2	-	-	-	-	-	-	-	-	1	-	-	2	2
CO2	Choose equations to calculate boring and augering methods and their usage for various projects	3	2	-	-	-	2	-	-	-	-	1	-	-	2	2
CO3	Prepare bore logs for different soil strata.	3	2	-	-	-	2	-	-	-	-	1	-	-	2	2
CO4	Identify methods and specifications of field testing of soils.	3	2	-	-	-	2	-	-	-	-	1	-	-	2	2
CO5	Solve field and laboratory data and prepare soil investigation report.	2	1	-	-	-	2	-	-	-	-	1	-	-	1	1

-	CO Statements	POs												PSOs		
Course Code	AIRPORT PLANNING AND DESIGN	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply the techniques of Airport planning.	3	2	-	-	-	-	-	-	-	-	-	-	-	2	2
CO2	Solve the Runway Design and Airport Capacity.	2	3	-	-	2	2	-	-	-	-	-	-	-	3	2
CO3	Solve the Design of Airport Pavements.	2	3	-	-	2	2	-	-	-	-	-	-	-	3	2
CO4	Apply the Air Travel Demand Analysis.	3	2	-	-	1	1	-	-	-	-	-	-	-	2	2
CO5	Apply the techniques of quality control in construction.	3	2	-	-	-	-	2	-	-	-	-	-	-	2	2
Course Code	HYDROPOWER DEVELOPMENT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understand basics of Hydropower development	-	3	-	-	1	-	-	2	-	-	-	-	-	-	-
CO2	Understand hydropower plant and its components	-	3	-	-	2	-	-	1	-	-	-	-	-	-	-
CO3	Flow of water through penstock	-	3	-	1	2	-	-	-	-	-	-	-	-	-	-
CO4	Design of surge tank	-	3	-	-	1	-	-	2	-	-	-	-	-	-	-
CO5	Hydraulic analysis of turbine and draft tube	-	3	-	-	2	-	-	1	-	-	-	-	-	-	-
Course Code	ENVIRONMENTAL POLLUTION AND CONTROL	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Choose the specific air pollutant control devices.	3	2	-	-	-	-	-	-	-	-	-	-	-	1	1
CO2	Explain the NAAQ standards and Noise pollution control strategies.	2	1	-	-	-	-	-	-	3	-	-	-	-	1	1
CO3	Classify the treatment techniques used for sewage and industrial wastewater treatment methods.	2	1	-	-	2	-	-	-	2	-	-	-	-	1	1
CO4	Determine the various characteristics of the municipal solid and hazardous waste.	1	1	-	-	3	-	-	-	1	-	-	-	-	2	2
CO5	Illustrate the methods of environmental sanitation and the management of community facilities.	2	2	-	-	-	-	-	-	-	-	-	-	-	2	2
Course Code	BASIC CONCRETE TECHNOLOGY	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Demonstrate the basic concepts of concrete.	2	1	-	-	-	-	-	1	-	-	-	-	1	-	-
CO2	Illustrate the importance of quality of concrete	2	1	-	-	-	-	-	2	-	-	-	-	1	-	-
CO3	Discuss the basic ingredients role in the production of concrete.	2	1	1	-	-	-	-	2	-	-	-	-	1	-	-
CO4	Classify the fresh and the hardened concrete properties.	3	2	1	-	-	-	-	1	-	-	-	-	2	-	-
CO5	Design the concrete mix by BIS method.	3	1	2	-	-	-	-	1	-	-	-	-	3	-	-
Course Code	WASTE WATER MANAGEMENT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Summarize the importance of sanitation and wastewater management.	2	1	-	-	-	2	2	-	-	-	-	-	-	2	-
CO2	Find the rate of sewage flow.	1	1	1	-	-	1	-	-	-	-	-	-	-	2	-
CO3	Identify the various characteristics of sewage and plan the treatment system.	3	2	-	-	-	-	1	-	-	-	-	-	-	2	-
CO4	Outline various waste water treatment technologies.	2	1	-	-	-	2	2	-	-	-	-	-	-	3	-
CO5	Explain the different treated effluent disposal methods.	2	1	-	-	-	2	2	-	-	-	-	-	-	1	-
Course Code	BASIC SURVEYING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain the various fundamental principles Geodetics	2	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	Explain the Measurement of Horizontal Distances.	3	2	1	-	-	2	-	-	-	-	-	-	2	-	-
CO3	Describe the Measurement of Directions and Angles horizontal and vertical plane.	2	3	-	-	-	-	-	-	-	-	-	-	2	-	-
CO4	Explain Plane Table Surveying	2	2	1	-	-	2	-	-	-	-	-	-	2	-	-

-	CO Statements	POs												PSOs		
CO5	Describe the compute areas and volumes. Represent 3D data on plane figures as contours.	2	2	-	-	-	2	-	-	-	-	-	-	1	-	-
Course Code	GIS & CAD LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Extend the knowledge on GIS software.	-	-	-	-	2	-	-	-	1	-	-	-	-	3	1
CO2	Classify thematic map, digitize and extract important features from satellite images.	-	2	2	3	-	-	-	-	2	-	-	-	-	2	2
CO3	Develop digital elevation model.	-	1	1	3	-	-	-	-	2	-	-	-	-	2	2
CO4	Analyze the structural components using software.	-	2	2	3	-	-	-	-	1	-	-	-	-	3	1
CO5	Design the concrete and steel structures using software.	-	2	2	3	-	-	-	-	1	-	-	-	-	3	1
Course Code	SOIL MECHANICS LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply the knowledge of soil mechanics in the field of civil engineering.	2	1	-	-	-	-	-	-	-	2	-	2	1	-	-
CO2	Determine the identification of physical properties of various soils.	1	-	-	-	2	-	-	-	-	2	-	3	1	-	-
CO3	Interpret with permeability characteristics of soils	2	-	-	-	3	-	-	-	-	3	-	2	2	-	-
CO4	Determine the identification of consolidation properties of clayey soils.	2	-	-	-	2	-	-	-	-	2	-	2	1	-	-
CO5	Distinguish various types of shear parameters by using UCS test	2	-	-	-	2	-	-	-	-	2	-	-	1	-	-
Course Code	INTELLECTUAL PROPERTY RIGHTS AND PATENTS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Compare various types of Intellectual Property rights.	-	-	-	-	-	-	3	-	-	-	2	-	-	-	-
CO2	Discuss Intellectual Property and infer rights on such Intellectual Property owners	-	-	-	-	-	-	3	-	-	-	2	-	-	-	-
CO3	Explain the process of patenting	-	-	-	-	-	-	3	-	-	-	2	-	-	-	-
CO4	Apply for trade marks and trade secrets.	-	-	-	-	-	-	3	-	-	-	2	-	-	-	-
CO5	Interpret the legal issues on Intellectual Property Rights and cyber laws	-	-	-	-	-	-	3	-	-	-	2	-	-	-	-
VI SEM																
Course Code	IRRIGATION & WATER RESOURCE ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain the major hydrological components, various abstractions of precipitation and characteristics of runoff	2	1	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	Analyze the different types of unit hydrographs, flood frequency studies and flood routing techniques.	3	1	2	-	-	-	-	-	-	-	-	-	3	-	-
CO3	Classify the various irrigation systems, sources of groundwater and diversion head works.	2	1	-	-	-	-	-	-	-	-	-	-	1	-	-
CO4	Illustrate the various design considerations of canal linings, canal structures canal regulation and cross drainage works.	3	-	1	-	-	-	-	-	-	-	-	-	2	-	-
CO5	Analyze the reservoir planning and design aspects of gravity dams, earthen dams and spillways	3	-	2	-	-	-	-	-	-	-	-	-	3	-	-
Course Code	TRANSPORTATION ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Develop geometric design of transport systems.	3	2	-	-	-	-	-	-	-	-	2	-	-	2	2
CO2	Design the traffic signaling system	3	2	-	-	-	1	-	-	-	-	2	-	-	2	2
CO3	Design highway Intersections.	3	2	-	-	-	2	-	-	-	-	2	-	-	3	1
CO4	Design of rigid and flexible pavements.	3	2	-	-	-	1	-	-	-	-	2	-	-	3	1
CO5	Explain the basic concepts of railway and airport engineering	2	1	-	-	-	2	-	-	-	-	2	-	-	1	1

-	CO Statements	POs												PSOs		
Course Code	DESIGN OF STRUCTURAL STEEL BUILDINGS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Describe the basic requirements of the IS design specifications.	-	-	-	-	-	-	-	-	-	3	-	-	-	1	1
CO2	Choose the suitable IS Rolled Steel Sections for design	-	-	-	-	-	-	-	-	-	2	-	-	-	1	1
CO3	Design of Bolted & Welded connections between the steel members	-	-	2	-	-	-	-	-	-	3	-	-	-	3	3
CO4	Design of Steel members subjected to Flexure, Tension and Compression	-	-	2	-	-	-	-	-	-	3	-	-	-	3	3
CO5	Design of Gantry Girders and Plate Girders subjected to gravity loads	-	-	2	-	-	-	-	-	-	3	-	-	-	3	3
Course Code	ENVIRONMENTAL ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply basic principles of water supply in designing of protected water for a city.	3	-	1	-	-	-	-	-	-	-	1	-	-	3	2
CO2	Illustrate various treatment methods based on the characteristics of raw water.	2	-	2	-	-	-	-	-	-	-	2	-	-	2	2
CO3	Interpret different treatment technologies of waste water base on characteristics of sewage.	1	-	1	-	-	-	-	-	-	-	1	-	-	1	1
CO4	Select an appropriate secondary and tertiary treatment method of sewage.	-	-	2	-	-	-	-	-	-	-	-	-	-	3	1
CO5	Demonstrate the concepts of sludge management and its disposal methods.	-	-	3	-	-	-	-	-	-	-	1	-	-	2	2
Course Code	REPAIR AND REHABILITATION OF STRUCTURES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Recognize the mechanisms of degradation of concrete structures and to design durable concrete structures	-	1	-	1	-	-	-	-	-	-	-	-	-	-	2
CO2	Conduct field monitoring and non-destructive evaluation of concrete structures	-	1	1	1	-	1	-	-	-	-	-	-	-	-	2
CO3	Design and suggest repair strategies for deteriorated concrete structures including repairing with composites	-	1	1	1	-	1	-	-	-	-	-	-	-	-	1
CO4	Understand the methods of strengthening methods for concrete structures	-	-	1	1	-	1	1	-	-	-	-	-	-	-	3
CO5	Assessment of the serviceability and residual life span of concrete structures by Visual inspection and in situ tests	-	-	1	1	-	1	1	-	-	-	-	-	-	-	3
Course Code	GROUND IMPROVEMENT TECHNIQUES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Interpret the concepts behind a range of ground improvement and soil remediation techniques	2	1	-	-	2	-	-	-	-	-	-	-	2	-	-
CO2	Illustrate the appropriate techniques for a range of ground and site conditions	2	1	-	-	2	-	-	-	-	-	-	-	2	-	-
CO3	Understand the concept of soil reinforcement	-	2	-	-	3	-	-	-	-	-	-	-	2	-	-
CO4	Provide solution for problematic soils with grouting and stabilization technique	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
CO5	Make use of different geosynthetics and understand their field applications	1	-	-	-	2	-	-	-	-	-	-	-	3	-	-

-	CO Statements	POs												PSOs		
Course Code	ROADWAYS, RAILWAYS & AIRWAYS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain factors affecting pavements.	3	2	-	-	-	-	2	-	-	-	2	-	2	-	-
CO2	Explain materials used for pavement	3	2	-	-	-	1	-	-	-	-	2	-	1	-	-
CO3	Explain recycling techniques used for pavement.	3	2	-	-	-	2	-	-	-	-	2	-	2	-	-
CO4	Explain the basic concepts of railway.	3	2	-	-	-	2	-	-	-	-	2	-	2	-	-
CO5	Explain the basic concepts of airport engineering.	2	1	-	-	-	2	-	-	-	-	2	-	2	-	-
Course Code	TRANSPORTATION ENGINEERING LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Characterise the highway aggregates	2	1	-	-	-	-	-	2	3	-	-	-	-	1	1
CO2	Conduct tests on suitability of bitumen.	2	1	-	-	-	-	-	3	2	-	-	-	-	2	2
CO3	Identify the parking capacity and use of parking facilities.	2	1	-	-	-	-	-	1	3	-	-	-	-	2	2
CO4	Design the marshal stability mix.	2	2	-	-	-	-	-	3	2	-	-	-	-	2	2
CO5	To Determine CBR value of soil.	2	2	-	-	-	-	-	3	2	-	-	-	-	2	2
Course Code	ENVIRONMENTAL ENGINEERING LAB	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Determine the chemical quality parameters of water.	3	-	-	-	-	2	1	-	-	-	1	1	-	3	-
CO2	Estimate the extent of pollution in the given waste water by comparing with the IS – 10500 - 2012 drinking water standards.	1	-	-	-	-	3	2	-	-	-	1	1	-	3	-
CO3	Determine the treatment methods to be followed in order to supply the water for public consumption.	2	-	-	-	-	3	1	-	-	-	2	2	-	3	-
CO4	Estimate the level of treatment methods to be followed for the given waste water sample.	3	-	-	-	-	2	1	-	-	-	2	1	-	2	-
CO5	Judge whether the given waste water sample can be disposed into the environment.	2	-	-	-	-	3	1	-	-	-	1	2	-	3	-
Course Code	EMPLOYABILITY SKILLS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Calculate the problems on Time & Work, Time & Distance by simple methods.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
CO2	Derive the conclusions, assumptions and arguments from the available information.	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-
CO3	Write technical reports and emails for professional communication.	-	-	-	-	-	-	-	-	-	3	-	-	-	-	3
CO4	Solve problems on Permutations & Combination, Probability.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
CO5	Participate confidently in a formal discussion and present themselves effectively	-	-	-	-	-	-	-	-	3	-	-	-	-	-	3
Course Code	PROFESSIONAL ETHICS AND HUMAN VALUES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Make use of values, morals and ethics in their day to day life.	-	-	-	-	-	-	-	2	-	-	-	-	2	-	-
CO2	Identify what is right and wrong through moral ethics.	-	-	-	-	-	-	-	2	-	-	-	-	2	-	-
CO3	Analyze experimental learning while developing the society with ethics.	-	-	-	-	-	-	-	2	-	-	-	-	2	-	-
CO4	Apply ethical principles to resolve the problems that arise in work place.	-	-	-	-	-	-	-	2	-	-	-	-	2	-	-
CO5	Apply adequate knowledge on global code of conduct.	-	-	-	-	-	-	-	2	-	-	-	-	3	-	-

-	CO Statements	POs												PSOs		
VII SEM																
Course Code	ESTIMATION, SPECIFICATION & CONTRACTS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Describe the importance of specifications and abstract estimate for different civil engineering works.	2	1	-	-	-	-	-	-	2	-	-	-	1	-	-
CO2	Prepare rate analysis for different civil work items.	3	2	-	-	-	2	-	-	2	-	-	-	2	-	-
CO3	Estimate the earth work quantities for roads and canals	3	1	-	-	-	2	-	-	2	-	-	-	3	-	-
CO4	Prepare bar bending schedule for different RCC components	3	2	-	-	-	2	-	-	2	-	-	-	2	-	-
CO5	Classify different types of Contracts and Tenders.	2	1	-	-	-	2	-	-	2	-	-	-	1	-	-
Course Code	CONSTRUCTION TECHNOLOGY AND MANAGEMENT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply the techniques of preliminary planning	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	Solve the networks of project	2	3	-	-	2	2	-	-	-	-	2	-	3	-	-
CO3	Apply the techniques of execution of works	2	2	-	-	3	-	-	-	1	-	-	-	2	-	-
CO4	Apply the techniques of quality management	3	2	-	-	2	-	-	-	2	-	-	-	2	-	-
CO5	Apply the techniques of quality control in construction	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
Course Code	EXPANSIVE SOILS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Identify the expansive soils in the field and laboratory	2	3	-	2	2	-	-	-	-	-	-	-	-	2	-
CO2	Illustrate the methods for the identification of soil structure and clay mineralogy	2	1	-	2	-	-	3	-	-	-	-	-	-	1	-
CO3	Design a suitable foundation for expansive soils	2	2	3	1	-	-	-	-	-	-	-	-	-	1	-
CO4	Suggest a suitable method for stabilizing the expansive soils	3	2	-	1	-	-	-	-	-	-	-	-	-	1	-
CO5	Assess and control the liquefaction problems related to expansive soils	2	3	-	-	2	-	2	-	-	-	-	-	-	1	-
Course Code	DOCK AND HARBOUR ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain the fundamentals of Harbour planning	2	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	Explain the natural forces affecting ports and general design aspects of marine structures	2	2	3	-	-	2	-	-	-	-	-	-	1	-	-
CO3	Describe various navigational aids and dock & repair facilities	2	1	-	-	-	-	-	-	-	3	-	-	2	-	-
CO4	Explain and plan port facilities	1	2	2	-	-	3	-	-	-	-	-	-	2	-	-
CO5	Describe maintenance and protection of port facilities	2	2	-	-	-	2	-	-	-	3	-	-	2	-	-
Course Code	WATER RESOURCES SYSTEM ANALYSIS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply concepts of systems analysis for planning of water resources	-	-	1	-	-	-	-	-	-	2	-	-	-	2	2
CO2	Formulate and solve deterministic optimization models for design and operation of water resources systems	-	-	2	-	-	-	-	-	-	2	-	-	-	3	1
CO3	Examine the use of non-linear optimization techniques in design problems of water resources systems	-	-	1	-	-	-	-	-	-	2	-	-	-	2	2
CO4	Perform basic economic analysis, simulation and management techniques in water resources systems planning	-	-	2	-	-	-	-	-	-	2	-	-	-	2	3
CO5	Apply and utilize advance tools for different water resource planning and management applications.	-	-	2	-	-	-	-	-	-	2	-	-	-	2	2

-	CO Statements	POs												PSOs		
Course Code	INDUSTRIAL WASTE & WASTE-WATER ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Distinguish between the quality of domestic and industrial water requirements and wastewater quantity generation.	2	-	1	-	-	-	3	-	-	-	-	-	-	2	2
CO2	Illustrate various treatment methods based on characteristics of waste water	2	-	1	-	-	3	2	-	-	-	-	-	-	2	2
CO3	Suggest treatment methods for any industrial wastewater.	3	-	1	-	-	1	1	-	-	-	-	-	-	2	2
CO4	Decide the need of common effluent treatment plant for the industrial area in their vicinity	1	-	2	-	-	1	2	-	-	-	-	-	-	3	1
CO5	Learn the manufacturing process of various industries	3	-	1	-	-	2	-	-	-	-	-	-	-	2	2
Course Code	DESIGN OF TALL BUILDINGS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain different types of concrete used in construction of tall buildings.	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	Calculate various loads acting on buildings	1	2	1	-	-	-	-	-	-	-	-	-	2	-	-
CO3	Summarize the behaviour of various structural systems	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
CO4	Design various structural systems for tall buildings.	2	3	2	-	-	-	-	-	-	-	-	-	3	-	-
CO5	Analyze stability of structural members in tall buildings	2	3	2	-	-	-	-	-	-	-	-	-	3	-	-
Course Code	ADVANCED FOUNDATION ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Compute the safe bearing capacity of footings subjected to vertical and inclined loads	3	2	-	-	-	-	-	-	-	-	1	-	-	2	2
CO2	Understand the advanced methods of settlement computations and proportion foundation footings	3	2	-	-	-	3	-	-	-	-	2	-	-	2	2
CO3	Appreciate the methods of computing the pull-out capacity and negative skin friction of piles and compute the settlements of pile groups in clays	3	2	-	-	-	2	-	-	-	-	1	-	-	2	2
CO4	Appreciate the problems posed by expansive soils and the different foundation practices devised	3	2	-	-	-	2	-	-	-	-	1	-	-	2	2
CO5	Appreciate the difference between isolated footings and combined footings and mat foundations	2	1	-	-	-	2	-	-	-	-	3	-	-	1	1
Course Code	TRAFFIC ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Identify traffic stream characteristics and studies	1	2	-	-	-	-	-	-	1	-	2	-	-	2	2
CO2	Explain traffic capacity and level of service.	3	1	-	-	-	-	-	-	1	-	2	-	-	1	1
CO3	Solve various parking problems and manage traffic regulations	3	2	-	-	1	2	-	-	-	-	-	-	-	1	1
CO4	Illustrate measures for Road safety	3	1	-	-	-	2	-	-	-	-	-	-	-	1	3
CO5	Design traffic signal cycle and Rotary Island capacity	1	2	-	-	1	2	-	-	-	-	-	-	-	2	2
Course Code	SUSTAINABLE WATER RESOURCES DEVELOPMENT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understand the importance of various water resources	2	1	-	-	-	-	-	-	3	-	-	-	1	-	-
CO2	Understand the development strategies for water resources	2	1	-	-	-	-	-	-	3	-	-	-	3	-	-
CO3	Understand how to integrate the technologies with natural resources	2	1	-	-	-	-	-	-	3	-	-	-	3	-	-
CO4	Understand Overall socio-economic & community development with reference to sustainability	2	-	-	1	-	-	-	-	3	-	-	-	2	-	-
CO5	Illustrate the various approaches towards the sustainable water resource Development	2	-	-	1	-	-	-	-	3	-	-	-	2	-	-

-	CO Statements	POs												PSOs		
Course Code	ENVIRONMENTAL IMPACT ASSESSMENT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain the basic concepts of EIA	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1
CO2	Classify the various EIA methodologies	2	-	-	-	-	-	2	-	-	-	-	-	-	2	2
CO3	Illustrate the systematic procedure of assessment of impacts of developmental activities on various sectors of environment.	2	-	-	-	-	-	-	3	-	-	-	1	-	1	3
CO4	Describe the concept of risk assessment and management in EIA	-	-	-	-	-	-	-	2	-	-	-	3	-	-	-
CO5	Apply the knowledge of EIA to day to day activities	-	-	-	-	-	-	1	3	-	-	-	2	-	-	-
Course Code	PRECAST CONSTRUCTION ELEMENTS AND SYSTEMS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Application of matrix method of analysis.	2	1	-	-	-	-	-	-	3	-	-	-	1	-	-
CO2	Usage of stiffness matrix analysis in structural analysis	3	1	-	-	-	-	-	-	1	-	-	-	2	-	-
CO3	Apply the techniques of stiffness and flexibility method for analysis of truss	-	1	2	-	-	-	-	-	-	3	-	-	3	-	-
CO4	Apply the techniques of analyzing structural behavior of frames	-	2	2	-	-	-	-	-	-	3	-	-	2	-	-
CO5	Analysis of shear wall	-	2	-	-	-	-	-	-	-	-	-	-	2	-	-
Course Code	DESIGN AND CONSTRUCTION OF PILE FOUNDATION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Compute the pre-requisites of arching and features and its applications	3	2	-	-	-	-	-	-	-	-	2	-	-	2	2
CO2	Understand the soil pressure on conduits and loads on ditch, and theory for soil pressure	3	2	-	-	-	3	-	-	-	-	2	-	-	2	2
CO3	Solve the stresses in shaft and Tunnels, lateral earth pressures, design concepts of Tie Backs	3	2	-	-	-	2	-	-	-	-	2	-	-	2	2
CO4	Understand the soil nailing and components of nailing and design of nailing	3	2	-	-	-	3	-	-	-	-	1	-	-	2	2
CO5	Understanding the anchorage systems for anchored sheet pile walls and design of anchorages	2	1	-	-	-	2	-	-	-	-	2	-	-	1	1
Course Code	METRO ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Estimate basic characteristics of traffic stream	2	3	-	2	-	-	-	-	-	-	-	-	2	-	-
CO2	Explain traffic stream models and estimate relation between traffic flow parameters	2	2	-	3	-	-	-	-	-	-	-	-	1	-	-
CO3	Analyse performance of a system using queueing analysis	2	1	-	3	-	-	-	-	-	-	-	-	2	-	-
CO4	Estimate pedestrian gaps and delays	2	2	-	3	-	-	-	-	-	-	-	-	2	-	-
CO5	Explain concept of simulation and simulation techniques	2	2	-	2	3	-	-	-	-	-	-	-	2	-	-
Course Code	WATERSHED MANAGEMENT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain the objectives and characteristics of watershed management	-	-	-	-	-	-	3	-	-	-	-	-	-	2	2
CO2	Classify the types of soil erosion and choose the methods to control soil erosion	-	-	-	-	-	2	3	-	-	-	-	-	-	2	2
CO3	Select suitable water harvesting techniques	-	-	1	-	-	2	3	-	-	-	-	-	-	3	1
CO4	Organize the land and drought management techniques	-	-	1	-	-	2	3	-	-	-	-	-	-	2	2
CO5	Make use of the watershed models	-	-	1	-	-	3	2	-	-	-	-	-	-	1	3

-	CO Statements	POs												PSOs		
Course Code	INTEGRATED SOLID WASTE MANAGEMENT FOR A SMART CITY	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Describe generation rates, composition, and issues of Solid waste	1	-	-	-	-	-	3	-	-	-	-	2	-	3	3
CO2	Explain the issues, collection, recovery, reuse, processing of Municipal solid waste	2	-	-	-	-	-	2	-	-	-	-	2	-	2	2
CO3	Illustrate the rules regarding MSW and current issues in Solid waste management	3	-	1	-	-	-	1	-	-	-	-	-	-	1	1
CO4	Interpret Construction and demolition waste management	2	-	-	-	-	-	-	-	-	-	-	1	-	-	-
CO5	Assess the issues related to E-waste generation and current management practices	3	-	2	-	-	-	1	-	-	-	-	-	-	-	-
Course Code	NATURAL DISASTER MANAGEMENT & MITIGATION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain the aspects of disaster management and adopt remedial measures	2	-	-	-	-	-	-	-	2	-	-	-	2	-	-
CO2	Explain disaster risk assessment and coping measures.	-	1	-	-	-	-	3	-	2	-	-	-	2	-	-
CO3	Explain the vulnerability conditions	-	1	-	-	-	-	-	-	2	-	-	-	1	-	-
CO4	Assess the impact of hazards on structures	2	-	-	-	-	-	3	-	2	-	-	-	1	-	-
CO5	Adopt the rehabilitation procedures	2	-	-	-	-	-	3	-	2	-	-	-	1	-	-
Course Code	BASICS OF SOIL MECHANICS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The student must know the definition of the various parameters related to soil mechanics and establish their inter-relationships.	1	2	-	-	-	-	1	-	-	2	-	-	-	-	-
CO2	The student should be able to know the methods of determination of the various index properties of the soils and classify the soils.	1	3	-	-	-	-	-	-	2	1	-	-	2	-	-
CO3	The student should be able to know the importance of the different engineering properties of the soil such as compaction, permeability	1	2	-	-	-	-	-	-	2	1	-	-	2	-	-
CO4	To understand the concept of consolidation and shear strength and determine them in the laboratory.	1	2	-	-	-	-	-	-	2	1	-	-	2	-	-
CO5	The student should be able to apply the above concepts in day-to-day civil engineering practice.	1	2	-	-	-	-	1	-	-	2	-	-	-	-	-
Course Code	CONSTRUCTION MATERIALS AND EQUIPMENTS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understand the tests on stones, cement and aggregates.	1	-	3	-	-	-	-	-	-	-	-	-	1	-	-
CO2	Understand the concepts of strength and durability testing on mortar and concrete.	1	2	1	3	-	-	-	-	-	-	-	-	2	-	-
CO3	Compare the properties of most common and advanced building materials.	-	1	-	2	-	-	-	-	-	-	-	-	1	-	-
CO4	Selection of Automation techniques in construction industry.	1	2	1	3	-	-	-	-	-	-	-	-	2	-	-
CO5	Analyze benefits of robotics versus conventional construction equipment.	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-
Course Code	COMPOSITE MATERIALS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Identify the various matrices, reinforcements and their combinations in composite materials.	-	-	-	-	-	1	1	1	-	1	-	-	1	-	-
CO2	Select composite materials for suitable applications.	1	-	-	-	-	-	2	1	-	2	-	-	1	-	-

-	CO Statements	POs												PSOs		
CO3	Develop suitable Metal Matrix Composites.	2	-	-	-	-	-	2	2	-	1	-	-	2	-	-
CO4	Identify perfect Ceramic Matrix Composites for high temperature applications.	2	-	-	-	-	-	2	1	-	1	-	-	2	-	-
CO5	Choose various combinations of fibres and resins.	2	-	-	-	-	-	2	1	-	3	-	-	2	-	-
Course Code	BASICS OF RS&GIS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Explain the evolution of Remote Sensing and GIS, the energy interactions in the atmosphere and earth surface features.	2	1	-	1	-	-	-	-	2	-	-	-	-	2	-
CO2	Elaborate on photogrammetry and various satellites.	2	1	-	1	-	-	-	-	2	-	-	-	-	3	-
CO3	Interpret the images for preparation of thematic maps.	2	1	-	1	-	-	-	-	2	-	-	-	-	1	-
CO4	Develop GIS based raster and vector data models.	3	2	-	1	-	-	-	-	2	-	-	-	-	2	-
CO5	Explain navigation applications based on GCS and GPS systems.	3	2	-	1	-	-	-	-	2	-	-	-	-	2	-
Course Code	SAFETY ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Develop management plans to prevent accidents in construction Industry.	3	2	-	-	1	-	-	-	-	1	-	-	2	-	-
CO2	Prepare plans to safe guard workers in construction of high risk Buildings.	2	3	-	-	2	-	-	-	-	1	-	-	2	-	-
CO3	Ensure safety while operating construction machinery	1	2	-	-	1	-	-	-	2	-	-	-	1	-	-
CO4	Outline safety plans for demolition of buildings	2	2	-	-	1	-	-	-	2	-	-	-	2	-	-
CO5	Prepare fire safety plans for a given building	2	2	-	-	1	-	-	-	-	1	-	-	3	-	-
VIII SEM																
Course Code	Major Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Develop technical procedure of planning and scheduling of an identified project work through technical survey in line with societal and environmental implications.	1	2	-	-	-	2	2	-	-	-	1	1	-	2	-
CO2	Demonstrate technical skills of data collection and data analysis adhering to professional ethics.	1	-	-	-	-	-	-	2	-	-	1	1	-	1	-
CO3	Design the solutions for the critical problem areas marked in data analysis.	2	2	3	2	-	-	-	-	-	-	-	1	-	2	-
CO4	Build a team of people to work together and communicate well in the critical stages of project progress.	-	-	-	-	-	-	-	-	1	2	1	1	-	2	-
CO5	Use modern tools to derive conclusions and communicating the results of the project work effectively.	-	-	-	-	3	-	-	-	-	2	1	1	-	1	-