

Course Outcomes	Computational structural mechanics - 18CSE11
C01	Formulate force displacement relation by flexibility and stiffness method
CO2	Analyze the plane trusses, continuous beams and portal frames by transformation approach
CO3	Analyse the structures by direct stiffness method
Course Outcomes	Advanced design of RCC structures - 18CSE12
C01	Achieve Knowledge of design and development of problem solving skills.
CO2	Understand the principles of Structural Design
CO3	Design and develop analytical skills.
CO4	Summarize the principles of Structural Design and detailing
CO5	Understands the structural performance.
Course Outcomes	Mechanics of deformable bodies - 18CSE13
C01	a. Achieve Knowledge of design and development of problem solving skills
CO2	b. Understand the principles of stress-strain behaviour of continuum
CO3	c. Design and develop analytical skills
CO4	d. Describe the continuum in 2 and 3- dimensions
CO5	e. Understand the concepts of elasticity and plasticity.
Course Outcomes	Structural dynamics – 18CSE14
C01	a. Achieve Knowledge of design and development of problem solving skills.
CO2	b. Understand the principles of Structural Dynamics
CO3	c. Design and develop analytical skills.
CO4	d. Summarize the Solution techniques for dynamics of Multi-degree freedom systems
CO5	e. Understand the concepts of damping in structures.
Course Outcomes	SPECIAL CONCRETE - 18CSE15
C01	Identify the functional role of ingredients of concrete and apply this knowledge to mix design philosophy
CO2	Acquire and apply fundamental knowledge in the fresh and hardened properties of concrete for special properties.
CO3	Evaluate the effect of the environment on service life performance, properties and failure of structural concrete and demonstrate techniques of measuring the Non Destructive Testing of concrete structure.
CO4	Understand the concepts, mix proportioning and methods of special concreting operations.
Course Outcomes	Structural engineering lab 1 -18CSEL16
C01	Achieve Knowledge of design and development of experimenting skills.
CO2	Understand the principles of design of experiments
CO3	Design and develop analytical skills.
CO4	Summarize the testing methods and equipments.
Course Outcomes	RESEARCH METHODOLOGY AND IPR -18RMI17
C01	Discuss research methodology and the technique of defining a research problem
CO2	Explain the functions of the literature review in research, carrying out a literature search, developing

	theoretical and conceptual frameworks and writing a review.
CO3	Explain various research designs and their characteristics.
CO4	Explain the art of interpretation and the art of writing research reports
CO5	Discuss various forms of the intellectual property, its relevance and business impact in the changing global business environment and leading International Instruments concerning IPR
Course Outcomes	ADVANCED DESIGN OF STEEL STRUCTURES - 18CSE21
C01	Able to understand behavior of Light gauge steel members
CO2	Able to understand design concepts of cold formed/unrestrained beams
CO3	Able to understand Fire resistance concept required for present days.
CO4	Able to analyze beam column behavior
Course Outcomes	Finite element method of analysis - 18CSE22
C01	Explain the basic theory behind the finite element method.
CO2	Formulate force-displacements relations for 2-D elements
CO3	Use the finite element method to analyze real structures.
CO4	Use a Finite Element based program for structural analysis
Course Outcomes	EARTHQUAKE RESISTANT STRUCTURES - 18CSE23
C01	Achieve Knowledge of design and development of problem solving skills.
CO2	Understand the principles of engineering seismology and concepts of earthquake resistance of reinforced concrete buildings.
CO3	Design and develop analytical skills.
CO4	Summarize the Seismic evaluation and retrofitting of structures.
Course Outcomes	ADVANCED DESIGN OF PRE- STRESSED CONCRETE STRUCTURES (Elective 1) - 18CSE241
C01	Analyse , Design and detail PSC elements
Course Outcomes	STABILITY OF STRUCTURES (Elective 1) - 18CSE242
C01	Achieve Knowledge of design and development of problem solving skills.
CO2	Understand the principles of strength and stability
CO3	Design and develop analytical skills.
CO4	Appraise the Stability analysis by finite element approach.
CO5	Understand the concepts of Lateral buckling of beams.
Course Outcomes	RELIABILITY ANALYSIS OF STRUCTURES (Elective- 1) - 18CSE244
C01	Understand the concepts of statistics for probabilistic analysis and importance of uncertainty (randomness) in structural analysis and design.
CO2	Apply the theoretical principles of randomness of variables in structural engineering through density functions.
CO3	Analyze components of structure to assess safety using concepts related to structural reliability by various methods.
CO4	Evaluate the safety reliability index at system level.
Course Outcomes	ADVANCED STRUCTURAL ANALYSIS (Elective 2) - 18CSE251
C01	Apply Winkler Bach and Strain Energy principles to obtain stresses and deformation in curved members

CO2	Derive the expressions to Foundation pressure, Deflection, Slope, BM and SF of infinite and semi-infinite Beams resting on Elastic Foundation
CO3	Obtain the equations for the shear centre for symmetrical and unsymmetrical from fundamental
CO4	Extrapolate the bending theory to calculate the stresses and deformations in unsymmetrical bending
CO5	Develop the characteristic equation for the buckling load of compound column and stresses and deformations in beam-column
Course Outcomes	DESIGN OF HIGH RISE STRUCTURES (Elective 2) - 18CSE252
C01	Achieve Knowledge of design and development of problem solving skills.
CO2	Understand the principles of strength and stability
CO3	Design and develop analytical skills.
CO4	Summarize the behavior of various structural systems.
CO5	Understand the concepts of P-Delta analysis
Course Outcomes	DESIGN OF INDUSTRIAL STRUCTURES (Elective 2) - 18CSE253
C01	Achieve Knowledge of design and development of problem solving skills.
CO2	Understand the industrial building and the components.
CO3	Design and develop analytical skills
CO4	Summarize the principles of Structural Design and detailing
CO5	Understands the concept of Pre- engineered buildings.
Course Outcomes	Structural Engineering lab 2 - 18CSEL26
C01	Achieve Knowledge of design and development of programming skills.
CO2	Understand the principles of structural analysis and design
CO3	Design and develop analytical skills.
Course Outcomes	DESIGN OF CONCRETE BRIDGES - 18CSE31
C01	Describe historical growth, select ideal site and bridge, calculate values of design parameters of slab culvert at critical section as per IRC, design and detailing required for the execution of the project.
CO2	Carry out analysis of box culvert as per IRC to obtain the values of design parameters and to design and detail the components following IS code procedure.
CO3	Demonstrate the use of Pigeauds Method and Courbon's Method in the analysis of T beam bridge as per IRC, design to obtain the safe dimensions various components, optimum reinforcement required following IS code procedure.
CO4	Display the use of Courbon's Method in the analysis of PSC bridge as per IRC, design to obtain the safe value of pre stressing force, obtain the dimensions of various components to keep the stresses within codal provisions following IS code procedure.
CO 5	Analysis a balanced cantilever bridge as per IRC and to obtain the safe values of design parameters and to design and detail the components as per IS code procedure
Course Outcomes	DESIGN CONCEPTS OF SUBSTRUCTURES (Elective- 1) - 18CSE321
C01	Achieve Knowledge of design and development of problem solving skills
CO2	Understand the principles of subsoil exploration
CO3	Design and develop analytical skills.
Course	REPAIR AND REHABILITATION OF STRUCTURES (Elective -1) - 18CSE322

Outcomes	
CO4	Identify and evaluate the soil shear strength parameters
CO1	Achieve Knowledge of design and development of problem solving skills
CO2	Understand the cause of deterioration of concrete structures
CO3	Design and develop analytical skills
CO4	Summarize the principles of repair and rehabilitation of structures
CO5	Understands the concept of Serviceability and Durability
Course Outcomes	THEORY OF PLATES AND SHELLS (Elective 1) - 18CSE323
CO1	Achieve Knowledge of design and development of problem solving skills
CO2	Understand the principles of Analysis and Design
CO3	Design and develop analytical skills.
CO4	Summarize the performance of shells
CO5	Understand the concepts of energy principle
Course Outcomes	FRACTURE MECHANICS APPLIED TO CONCRETE (Elective 2) - 18CSE331
CO1	Apply principles of fracture mechanics.
CO2	Design concrete structures using fracture mechanics approach.
CO3	Explain the importance of fracture mechanics.
CO4	Take special care of very large sized structures
Course Outcomes	DESIGN OF MASONRY STRUCTURES (Elective 2) - 18CSE332
CO1	Achieve Knowledge of design and development of problem solving skills.
CO2	Understand the principles of design and construction of masonry structures
CO3	Design and develop analytical skills
CO4	Summarize the masonry Characteristics
CO5	Evaluate the strength and stability of the masonry structures
Course Outcomes	COMPOSITE MATERIALS (Elective 2) - 18CSE334
CO1	Define and classify the composite materials.
CO2	Analyze the macro-mechanical behaviour of composites.
CO3	Derive the engineering constants of composites.
CO4	Select the appropriate constituent materials for composite manufacture