Koneru Lakshmaiah Education Foundation
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Department of Civil Engineering
Program: M. Tech – Structural Engineering
Academic Year: 2021-2022

Course Code	Course Name	Description of Course Outcome
20CE5101	Advanced Mechanics of Solids	Interpret the theory of elasticity including strain/displacement and Hooke's law relationships in two dimensional planes
		Able to analyse the two-dimensional problems in polar coordinates
		Able to analyse the Three-dimensional problems in polar coordinates
		Able to analyse the Plasticity deformations of stress and strain.
20CE5102	Advanced Prestressed Concrete Design	Understand the concepts of prestressed concrete and analyze the prestressed concrete beams.
		Analyze losses in prestressed concrete and deflection of the prestressed concrete members
		Design reinforcement for Ultimate shear, torsion and bending of prestressed concrete members.
		Design end blocks as per IS 1343 recommendations.
		Design of prestressed members, composite sections, continuous prestressed beams
20CE5103	Advanced Concrete Technology	Able to analyse the Characteristics of the Concrete Making Materials
		Able to design Concrete Mixes as per the Different Codal Provisions
		Able to design Concrete Mixes for Special Concretes
		Able to analyse the Durability Issues of Concrete and the Service Life of Concrete.
		Able to Design the Concrete Mix for various structures and able to cast and test the structural elements
20CE5104	Structural Dynamics	Solve response of free and forced vibrations
		Solve response to Arbitrary, Step and Pulse Excitations (SDOF)
		Solve Earthquake Response of Linear Systems (SDOF)
		Build Generalized Single Degree of Freedom Systems
20CE5205	Theory of Plates and Shells	Derive the pure bending and curvature of plates
		Derive the differential equation for laterally loaded rectangular plates
		Derive the deformation of shells without bending
		Understand the general theory of Cylindrical shells
		Derive the pure bending and curvature of plates

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20CE5206	Finite Element Analysis	Understand the Basic Finite Element Concepts
		Analysis of Trusses, Beam Bending, Structural Frames and Column buckling using Finite Element Methods
		Analysis of Higher order elements for one dimensional problems and Isometric quadrilateral elements and triangular elements
		Analyse the applications based on general two-dimensional boundary value problem
		Demonstrate the ANSYS software to develop the models using Finite element method
20CE5207	Bridge Engineering	Introduction to different types of bridges and codal provisions for designing the bridge components.
		Analysis and Design of slab Culvert.
		Analysis and Design of T-Beam, sub-structure components and bearings
		Understanding the designing of cable supported bridges.
20CE5208	Earthquake Resistant Design of Structures	Understanding the designing of cable supported bridges.
		Understand the system of base isolation in structures for resistance towards earthquakes and general detailing requirements of ductile structure.
		Analyze a structure for earthquake forces onto the structure under static and dynamic behavior.
		Design the structure for earthquake forces on 2 –storey building
20CE51A1	Pre-Engineered structures	Introduction to PES
		Design Of Industrial Buildings And Shell Roofs
		Design Of Pre-Engineered Structures
		Applications & Pratical Orientation
20CE51A2	Design of offshore structures	Analysis of Wave theories
		Analysis Forces of offshore structures
		Design of offshore structure & Analysis of offshore structures
		Design of offshore structures
20CE51B1	Design and detailing of RCStructures	Design of RC members
		Analysis, design and detailing of flat slab, grid slab
		Design and detailing of Elevated water tanks, cantilever and counterfort retaining walls
		Earthquake resistant design, Ductile detailing
20CE51B2	Repair and Rehabilitation ofstructures	Understand the concept of Deterioration of structures with aging, Need for rehabilitation
		Understand the damage level of structures affected due to seismic loads, Damage assessment and evaluation models
		Understand procedure of rehabilitation methods like Grouting; Detailing; Imbalance of structural stability
		Understand the retrofitting methodology and procedure
20CE52C1	Fracture Mechanics	Understanding the basic concepts of Fracture and Linear Elastic Fracture Mechanics (LEFM)
		Understanding the concept of Crack Tip Plasticity
		Understanding the concept Elastic Plastic Fracture Mechanics (EPFM)
		Understanding the concept of Fatigue Crack Growth and practical problems of fracture mechanics
20CE52C2	Design of Tall	Understanding the design criteria of Tall structures
		Understanding the Loadings On Tall Structures
		Understanding the behaviour of Rigid-Frame Structures and Shear Wall Structures

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	Structures	Understanding the behaviour of Tubular Structures
20CE52D1	Green Buildings	Understand the concept of Green Building Materials and Equipment in India
		Understand Benefits Experienced in Green Buildings, Launch of Green Building Rating Systems, Residential Sector; Opportunities of Green Building
		Understand HVAC System design, Chiller selection, pump selection, Selection of cooling towers, Selection of air handing units
		Understand about Air Conditioning, Material conservation, Indoor Environment Quality and Occupational Health
20CE52D2	Stability of Structures	Introduction to buckling of columns
		Analysis of lateral buckling of beams
		Analysis of lateral buckling of plates and shells
		Understanding the Mathematical treatment of stability problems

Academic Professor I/C

HOD-CE

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