Shanmuganathan Engineering College

(Approved by AICTE, Affiliated by Anna University Chennai)

Department

Of

Civil Engineering

Regulation-2017

Course Outcomes

S.No	Course Outcome
SEM-III	
MA8353 Transforms and Partial Differential Equations	
CO1	To introduce the basic concepts of PDE for solving standard partial differential equations.
CO2	To introduce Fourier series analysis which is central to many applications in engineering apart from its use in solving boundary value problems
CO3	To acquaint the student with Fourier series techniques in solving heat flow problems used in various situations.
CO4	To acquaint the student with Fourier transform techniques used in wide variety of Situations.
CO5	To introduce the effective mathematical tools for the solutions of partial differential Equations that model several physical processes and to develop Z transform techniques for discrete time systems.
CO6	After successful completion of the course, the students will have ability to solve, analyze and obtain solutions for the transforms and differential related applications in Civil Engineering
CE8301 STRENGTH OF MATERIALS I	
CO1	Understand the concepts of stress and strain, principal stresses and principal planes.
CO2	Determine Shear force and bending moment in beams and understand concept of theory of simple bending.
CO3	Calculate the deflection of beams by different methods and selection of method for determining slope or deflection.
CO4	Apply basic equation of torsion in design of circular shafts and helical springs.
CO5	Analyze the pin jointed plane and space trusses
CO6	After successful completion of the course, the students will have adequate knowledge on

CE8302 FLUID MECHANICS	
CO1	Get a basic knowledge of fluids in static, kinematic and dynamic equilibrium.
CO2	Understand and solve the problems related to equation of motion.
CO3	Gain knowledge about dimensional and model analysis.
CO4	Learn types of flow and losses of flow in pipes.
CO5	Understand and solve the boundary layer problems.
CO6	After successful completion of the course, the students will have adequate knowledge on property of fluid and behavior fluid under external loading.
CE8351 SURVEYING	
CO1	The use of various surveying instruments and mapping
CO2	Measuring Horizontal angle and vertical angle using different instruments
CO3	Methods of Leveling and setting Levels with different instruments
CO4	Concepts of astronomical surveying and methods to determine time, longitude, latitude and azimuth
CO5	Concept and principle of modern surveying.
CO6	After successful completion of the course, the students will have adequate knowledge and understanding on various techniques available in basic surveying and they will be aware of modern surveying techniques available.
CE8391 CONSTRUCTION MATERIALS	
CO1	Compare the properties of most common and advanced building materials.
CO2	Understand the typical and potential applications of lime, cement and aggregates
CO3	Know the production of concrete and also the method of placing and making of concrete Elements.
CO4	Understand the applications of timbers and other materials
CO5	Understand the importance of modern material for construction.

CE8392 ENGINEERING GEOLOGY	
CO1	Will be able to understand the importance of geological knowledge such as earth, Earthquake, volcanism and the action of various geological agencies.
CO2	Will get basics knowledge on properties of minerals.
CO3	Gain knowledge about types of rocks, their distribution and uses.
CO4	Will understand the methods of study on geological structure.
CO5	Will understand the application of geological investigation in projects such as dams, tunnels, bridges, roads, airport and harbor
CO6	After successful completion of the course, the students will have understood the importance of knowing the geology of a particular location before starting a construction activity.
CE8311 CONSTRUCTION MATERIALS LABORATORY	
CO1	Conduct Quality Control tests on Fine Aggregates
CO2	Conduct Quality Control tests on Coarse Aggregates
CO3	Conduct Quality Control tests on fresh concrete
CO4	Determine the strength properties of hardened concrete
CO5	Perform Quality Control tests on Bricks, blocks and tiles
CO6	After successful completion of the laboratory course, the students will have understood the various kinds of material testing prevailing in the construction and manufacturing industries.
CE8361 SURVEYING LABORATORY	
CO1	Gain practical knowledge on handling basic survey instruments
CO2	Gain practical knowledge on handling Theodolite, Tacheometry
CO3	Gain practical knowledge on handling Total Station and GPS
CO4	Gain adequate knowledge to carryout Triangulation and Astronomical surveying
CO5	Gain adequate knowledge on general field marking for various engineering projects and Location of site
CO6	After successful completion of the laboratory course, the students will have understood the usage of various surveying equipment and their applications in current practice.

HS8381- INTERPERSONAL SKILLS/LISTENING AND SPEAKING	
CO1	Listen and respond appropriately.
CO2	Participate in group discussions
CO3	Make effective presentations
CO4	Participate confidently and appropriately in conversations both formal and informal
CO5	Improve general and academic listening skills
CO6	After successful completion of the laboratory course, the students will have ability to communicate with confidence.
SEM-IV	
MA8491 NUMERICAL METHODS	
CO1	Understand the basic concepts and techniques of solving algebraic and transcendental equations
CO2	Appreciate the numerical techniques of interpolation and error approximations in various intervals in real life situations.
CO3	Apply the numerical techniques of differentiation and integration for engineering problems.
CO4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations
CO5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications
CO6	After successful completion of the laboratory course, the students will have adequate knowledge on applying these mathematical formulations in civil engineering applications

CE8401 CONSTRUCTION TECHNIQUES AND PRACTICES	
CO1	Know the different construction techniques and structural systems
CO2	Understand various techniques and practices on masonry construction, flooring, and roofing.
CO3	Plan the requirements for substructure construction.
CO4	Know the methods and techniques involved in the construction of various types of super structures
CO5	Select, maintain and operate hand and power tools and equipment used in the building construction sites.
CO6	After successful completion of the course, the students will have understood the different construction techniques practices being followed in the construction industry.
CE8402 STRENGTH OF MATERIALS II	
CO1	Determine the strain energy and compute the deflection of determinate beams, frames and trusses using energy principles.
CO2	Analyze propped cantilever, fixed beams and continuous beams using theorem of three moment equation for external loadings and support settlements.
CO3	Find the load carrying capacity of columns and stresses induced in columns and cylinders
CO4	Determine principal stresses and planes for an element in three dimensional state of stress and study various theories of failure
CO5	Determine the stresses due to Unsymmetrical bending of beams, locate the shear center, and find the stresses in curved beams.
CO6	After successful completion of the course, the students will have adequate knowledge and understanding on the behavior of different types of structural elements used in the day to day life.
CE 8403 APPLIED HYDRAULIC ENGINEERING	
CO1	Apply their knowledge of fluid mechanics in addressing problems in open channels.
CO2	Able to identify an effective section for flow in different cross sections.
CO3	To solve problems in uniform, gradually and rapidly varied flows in steady state conditions.
CO4	Understand the principles, working and application of turbines.
CO5	Understand the principles, working and application of pumps.
CO6	After successful completion of the course, the students will have understanding on properties of fluid flow and machines propelled by the fluid flow

CE8404 CONCRETE TECHNOLOGY	
CO1	The various requirements of cement, aggregates and water for making concrete
CO2	The effect of admixtures on properties of concrete
CO3	The concept and procedure of mix design as per IS method
CO4	The properties of concrete at fresh and hardened state
CO5	The importance and application of special concretes.
CO6	After successful completion of the course, the students will have understanding on properties of concrete and its applications.
CE8491 SOIL MECHANICS	
CO1	Classify the soil and assess the engineering properties and index properties
CO2	Understand the stress concepts in soils
CO3	Understand and identify the settlement in soils
CO4	Determine the shear strength of soil
CO5	Analyze both finite and infinite slopes
CO6	After successful completion of the course, the students will have understanding on basic properties of soil, its strength and its resistance to the external force.
CE8481 STRENGTH OF MATERIALS LABORATORY	
CO1	Acquire required knowledge in the area of testing steel rod
CO2	Acquire required knowledge in the area of testing wood
CO3	Acquire required knowledge in the area of testing metal
CO4	Acquire required knowledge in the area of testing components of structural elements
CO5	Learn deflection and compression test
CO6	After successful completion of the laboratory course, the students will have adequate knowledge on testing of wood and metals and will have idea on various testing methodologies available.

CE8461 HYDRAULIC ENGINEERING LABORATORY	
CO1	The students will be able to study the Characteristics of pumps
CO2	The students will be able to study the Characteristics of turbine
CO3	The students will be able to measure flow in pipes and determine frictional losses.
CO4	The students will be able to develop characteristics of pumps and turbines
CO5	The students will be able to verify the principles studied in theory by performing the experiments in lab.
CO6	After successful completion of the laboratory course, the students will have adequate knowledge on various hydraulic equipment used in the industry.
HS8461 ADVANCED READING AND WRITING	
CO1	Write different types of essays
CO2	Write winning job applications.
CO3	Read and evaluate texts critically.
CO4	Display critical thinking in various professional contexts.
CO5	Ability to write manuscripts and testimonials
CO6	After successful completion of the laboratory course, the students will have ability to read and write like a professional.
SEM-V	
CE8501 DESIGN OF REINFORCED CEMENT CONCRETE ELEMENTS	
CO1	Understand the various design methodologies for the design of RC elements.
CO2	Know the analysis and design of flanged beams by limit state method and sign of beams for shear, bond and torsion.
CO3	Design the various types of slabs and staircase by limit state method.
CO4	Design columns for axial, uniaxial and biaxial eccentric loadings.
CO5	Design of footing by limit state method.
CO6	After successful completion of the course, the students will have adequate knowledge on design of beam, column and footing by Limit State Method.

CE8502 STRUCTURAL ANALYSIS I	
CO1	Analyze continuous beams, pin-jointed indeterminate plane frames and rigid plane frames by strain energy method
CO2	Analyse the continuous beams and rigid frames by slope defection method.
CO3	Understand the concept of moment distribution and analysis of continuous beams and rigid frames with and without sway.
CO4	Analyse the indeterminate pin jointed plane frames continuous beams and rigid frames using matrix flexibility method.
CO5	Understand the concept of matrix stiffness method and analysis of continuous beams, pin jointed trusses and rigid plane frames.
CO6	After successful completion of the course, the students will have adequate knowledge on analysis of different structural elements.