



M.I.E.T. ENGINEERING COLLEGE

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai)
UG - CSE, EEE & MECH Programs Accredited by NBA, New Delhi
Accredited with 'A+' grade by NAAC
An ISO 9001:2015 Certified Institution
Recognized by UGC under section 2(f) & 12(B) of UGC Act, 1956
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DEPARTMENT OF CIVIL ENGINEERING

Regulation – 2021 UG

Course Outcome

S.No	COURSE OUTCOME
SEMESTER - I	
C101- HS3151- Professional English-I	
At the end of the course, the student will able to	
C101.1	Engage learners in meaningful language and activities to improve their LSRW skills
C101.2	Enhance learners awareness of general rules of writing for specific audience.
C101.3	Help learners understand the purpose audience contexts of different types of writing
C101.4	Develop analytical thinking skills for problem solving in communication contexts
C101.5	Demonstrate an understanding of job application and interview for internship and placement
C101.6	Enable learners of Engineering and Technology to develop their basic communication skill in English
C102- MA3151-Matrices And Calculus	
At the end of the course, the student will able to	
C102.1	Use the matrix algebra methods for solving practical problems.
C102.2	Apply differential calculus tools in solving various application problems.
C102.3	Able to use differential calculus ideas on several variable functions.
C102.4	Understand different methods of integration in solving practical problems.
C102.5	Apply multiple integral concepts in solving areas, volumes and other practical problems.
C102.6	Apply matrix and calculus in solving engineering problems.

C103- PH3151-Engineering Physics

At the end of the course, the student will able to

C103.1	Understand the static and dynamic behaviour of the objects.
C103.2	Understand the wave motion and the properties of electromagnetic waves
C103.3	Gain knowledge on laser and its working principle in fiber optic communication.
C103.4	Get adequate information on electron particles in metals.
C103.5	Gain knowledge on the application of quantum theory.
C103.6	Gain knowledge about waves and particles in nature under various conditions.

C104- CY3151-Engineering Chemistry

At the end of the course, the student will able to

C104.1	Understand the process of various water treatment and its remedial measure
C104.2	Know about the various methods of preparation of nano materials
C104.3	Gain the knowledge of phase rule and composites for material selection
C104.4	Recommend suitable fuels for industries
C104.5	Recognize various form of energy resources and its applications
C104.6	Gain the various applications of nano materials in various field

C105 - GE3151- Problem Solving And Python Programming

At the end of the course, the student will able to

C105.1	Demonstrate algorithm, flowchart for various programs
C105.2	Do simple programs using python programming basics
C105.3	Illustrate programs by using arrays and string functions
C105.4	Develop simple programs using functions and pointers
C105.5	Design mini projects with structures.
C105.6	Develop applications using python Programming Language

C106 - GE8161- Problem Solving And Python Programming laboratory

At the end of the course, the student will able to

C106.1	Understand the problems to develop the algorithm and the solutions for a simple computational problems
C106.2	Know the basic programming construction in Python
C106.3	Understand the Python programs using conditionals and loops for solving problems
C106.4	Use the data structures to decompose the python program.
C106.5	Initialize the Python packages for developing software applications
C106.6	Solve the various computing techniques for Python-based solutions to real world problems

C107 - BS3171- Physics And Chemistry Laboratory

At the end of the course, the student will able to

C107.1	Analyze the physical principle involved in the functioning of various measuring instruments
C107.2	Access, process and analyze the data using mathematical models in describing physical reality
C107.3	Determine the physical parameters in mechanics and optics that will nurture the students in all branches of Engineering
C107.4	Determine the DO content in water sample by winkler's method
C107.5	Determine the amount of ions through volumetric techniques.
C107.6	Determine the strength of acid using pH meter.

SEMESTER – II

C108 - HS3251- Professional English-II

At the end of the course, the student will able to

C108.1	Engage learners in meaningful language and activities to improve their LSRW skills
C108.2	Enhance learners awareness of general rules of writing for specific audience.
C108.3	Help learners understand the purpose audience contexts of different types of writing
C108.4	Develop analytical thinking skills for problem solving in communication contexts
C108.5	Demonstrate an understanding of job application and interview for internship and placement
C108.6	Enable learners of Engineering and Technology to develop their basic communication skill in English

C109 - MA3251- Statistics And Numerical Methods

At the end of the course, the student will able to

C109.1	Apply the concept of testing of hypothesis for small and large samples in real life problems.
C109.2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
C109.3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
C109.4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
C109.5	Solve the partial and ordinary differential equations with initial and bound condition by using certain techniques with engineering applications.
C109.6	Apply the knowledge of classification of design experiments and various types differential equations.

C110 - PH3201-Physics For Civil Engineering

At the end of the course, the student will able to

C110.1	Gain knowledge of heat transfer mechanism in different materials for engineering applications
C110.2	Gain knowledge on the ventilation and air conditioning of buildings

C110.3	Understand the concepts of sound absorption, noise insulation and lighting designs
C110.4	Know about the processing and applications of composites, metallic glasses, shape memory alloys and ceramics
C110.5	Get an awareness on natural disasters such as earth quake, cyclone, fire and safety measures
C110.6	Gain knowledge on thermal , optical properties of various materials and the protection from natural disasters with safety measures

C111- BE3252-Basic Electrical, Electronics And Instrumentation Engineering

At the end of the course, the student will able to

C111.1	Know about the functions of various electrical components and parameters measurement using electrical circuits
C111.2	Design magnetic circuits and installation of various electrical circuit devises
C111.3	Understand the working of various types of electric motors and transformers
C111.4	Understand the basics of semiconducting materials and their applications in analog devices
C111.5	Understand the function of various sensors and transducers and their applications.
C111.6	Gain knowledge on working principle of various types of electrical machines

C112 -GE3251-Engineering Graphics

At the end of the course, the student will able to

C112.1	Use BIS conventions and specifications for engineering drawing.
C112.1	Construct the conic curves, involutes and cycloid.
C112.1	Solve practical problems involving projection of lines.
C112.1	Sketch all the views of engineering objects in free hand.
C112.1	Draw the development of simple solids.
C112.1	Draw the orthographic, isometric and perspective projections of simple solids

C113-GE3271-Engineering Practices Laboratory

At the end of the course, the student will able to

C113.1 Gets an exposure of joining operations of engineering materials.

C113.2 Carry out the basic machining operations in engineering materials.

C113.3 Carry out basic home electrical works and appliances

C113.4 Measure the electrical quantities

C113.5 Understand basic electronic components.

C113.6 Integrate the components and gates using soldering practices.

C114 - BE3272- Basic Electrical, Electronics And Instrumentation Engineering Laboratory

At the end of the course, the student will able to

C114.1 Use experimental methods to verify ohms law and kirchaff's law for electrical and electronic devices

C114.2 Gain practical experience in obtaining the characteristics of electronic devices and rectifiers

C114.3 Analyze the load characteristics of electrical machines

C114.4 Analyze the characteristics of Diodes, full wave and half wave rectifiers

C114.5 Measure three phase power and displacement

C114.6 Analyze the characteristics of basic electrical machines and electronic devices

SEM-III**C201 MA3351- Transforms and partial Differential Equations**

At the end of the course, the student will be able to

C201.1	Solve the given standard partial differential equations.
C201.2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.
C201.3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.
C201.4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.
C201.5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.

C202 ME3351-Engineering Mechanics

At the end of the course, the students will be able to

C202.1	Illustrate the vectorial and scalar representation of forces and moments.
C202.2	Analyze the rigid body in equilibrium
C202.3	Evaluate the properties of distributed forces
C202.4	Determine the friction and the effects by the laws of friction.
C202.5	Calculate dynamic forces exerted in rigid body.
C202.6	Understand the concept of statics of particles, equilibrium of rigid bodies, distributed forces, friction, dynamics of particles.

C203 CE3301-Fluid Mechanics

At the end of the course, the students will be able to

C203.1	Demonstrate the difference between solid and fluid, its properties and behaviour in static conditions.
C203.2	Apply the conservation laws applicable to fluids and its application through fluid kinematics and dynamics.
C203.3	Formulate the relationship among the parameters involved in the given fluid phenomenon and to predict the performance of prototypes by model studies.
C203.4	Estimate the losses in pipelines for both laminar and turbulent conditions and analysis of pipes connected in series and parallel.
C203.5	Explain the concept of boundary layer and its application to find the drag force exerted by the fluid on the flat solid surface.
C203.6	Acquire knowledge on properties and behavior of fluids.

C204 CE3302 – Construction Materials and Technology

At the end of the course, the students will be able to

C204.1	Identify the good quality brick, stone and blocks for construction.
C204.2	Recognize the market forms of timber, steel, aluminum and applications of various composite materials.
C204.3	Identify the best construction and service practices such as thermal insulations and air conditioning of the building
C204.4	Select various equipments for construction works conditioning of building
C204.5	Understand the construction planning and scheduling techniques
C204.6	Acquire knowledge on the materials and technology used in the construction industry.

C205 CE3303 – Water supply and Wastewater Engineering

At the end of the course, the students will be able to

C205.1	Understand the various components of water supply scheme and design of intake structure and conveyance system for water transmission
C205.2	Design the various functional units in water treatment.
C205.3	Design and evaluate water storage and distribution system.
C205.4	Understand the concept of Planning and designing of sewerage system
C205.5	Understand various treatment system of sewage and disposal methods
C205.6	Acquire knowledge on water supply and wastewater engineering

C206 CE3351 – Surveying and Levelling

At the end of the course, the students will be able to

C206.1	Introduce the rudiments of various surveying and its principles
C206.2	Impart knowledge in computation of levels of terrain and ground features
C206.3	Impart concepts of Theodolite Surveying for complex surveying operations
C206.4	Understand the procedure for establishing horizontal and vertical control
C206.5	Impart the knowledge on modern surveying instruments.
C206.6	Acquire knowledge and understanding on various techniques available in basic surveying, levelling and modern surveying techniques available.

C207 CE3361 - Surveying and Levelling Laboratory

At the end of the course, the students will be able to

C207.1	Acquire practical knowledge on handling chain survey.
C207.2	Gain practical knowledge on handling compass survey.
C207.3	Gain knowledge on Levelling
C207.4	Gain practical knowledge on handling Theodolite
C207.5	Gain adequate knowledge to carryout Triangulation and Tachometry survey.
C207.6	Acquire knowledge on handling Total Station and GPS for surveying

C208 CE3311 – Water and Wastewater Analysis Laboratory

At the end of the course, the students will be able to

C208.1	Quantify the characteristics of water and wastewater.
C208.2	Conduct tests to determine Chemical dosage test.
C208.3	Conduct tests to determine Chloride and residual test.
C208.4	Examine the conditions for the growth of micro-organisms

SEM-IV

C209 CE3401 Applied Hydraulic Engineering

At the end of the course, the students will be able to

C209.1	Apply their knowledge of fluid mechanics in addressing problems in open channels.
C209.2	Identify an effective section for flow in different cross sections.
C209.3	Solve problems in uniform, gradually and rapidly varied flows in steady state conditions.
C209.4	Design turbines and explain the working principle.
C209.5	Differentiate pumps and explain the working principle with characteristic curves and design centrifugal and reciprocating pumps.
C209.6	Understand the properties of fluid flow and machines propelled by the fluid flow

C210 CE3402 Strength of Materials

At the end of the course, the students will be able to

C210.1	Understand the concepts of stress and strain, principal stresses and principal planes.
C210.2	Determine Shear force and bending moment in beams and understand concept of theory of simple bending.
C210.3	Calculate the deflection of beams by different methods and selection of method for determining slope or deflection.
C210.4	Analyze propped cantilever, fixed beams and continuous beams for external loadings and support settlements.
C210.5	Determine the stresses due to Unsymmetrical bending of beams, locate the shear center, and study the various theories of failure
C210.6	Acquire knowledge on materials strength and its behavior under external loading.

C211 CE3403 Concrete Technology

At the end of the course, the students will be able to

C211.1	Know the various requirements of cement, aggregates and water for making concrete
C211.2	Understand the effect of admixtures on properties of concrete
C211.3	Acquire knowledge on the concept and procedure of mix design as per IS method
C211.4	Classify the properties of concrete at fresh and hardened state
C211.5	Understand the importance and application of special concretes.
C211.6	Understand the properties of materials, concrete, admixtures and its applications.

C212 CE3404 Soil Mechanics

At the end of the course, the students will be able to

C212.1	Classify the soil and assess the engineering properties and index properties
C212.2	Understand the stress concepts in soils
C212.3	Identify various settlements in soils
C212.4	Determine the shear strength of soil
C212.5	Analyze both finite and infinite slope stability
C212.6	Understand the basic properties of soil, its strength and its resistance to the external force.

C213 CE3405 Highway and Railway Engineering

At the end of the course, the students will be able to

C213.1	Plan a highway according to the principles and standards adopted in various institutions in India.
C213.2	Design the geometric features of road network and components of pavement.
C213.3	Test the highway materials and construction practice methods and know its properties and able to perform pavement evaluation and management
C213.4	Understand the methods of route alignment and design elements in railway planning and constructions.
C213.5	Understand the construction techniques and maintenance of track laying and railway stations
C213.6	Understand the planning, designing, construction and maintenance of highway and railway engineering.

C214 GE3451 Environmental Science and Sustainability

At the end of the course, the students will be able to

C214.1	Recognize and understand the functions of environment, ecosystems and biodiversity and their conservation.
C214.2	Identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society.
C214.3	Identify and apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.
C214.4	Recognize the different goals of sustainable development and apply them for suitable technological advancement and societal development.
C214.5	Demonstrate the knowledge of sustainability practices and identify green materials, energy cycles and the role of sustainable urbanization.
C214.6	Acquire Knowledge on environmental sciences and sustainability.

C215 CE3411 Hydraulic Engineering Laboratory

At the end of the course, the students will be able to

C215.1	Study the measurement of flow
C215.2	Measure flow in pipes and determine frictional losses.
C215.3	Develop characteristics of pumps.
C215.4	Study the Characteristics of turbine.
C215.5	Determine Metacentric height of floating bodies.

C216 CE3412 Materials Testing Laboratory

At the end of the course, the students will be able to

C216.1	Determine the mechanical properties of steel.
C216.2	Determine the physical properties of cement
C216.3	Determine the physical properties of fine and coarse aggregate
C216.4	Determine the workability and compressive strength of concrete
C216.5	Determine the strength of brick and wood.

C217 CE3413 Soil Mechanics Laboratory

At the end of the course, the students will be able to

C217.1	Conduct tests to determine index properties of soils.
C217.2	Conduct tests to determine in situ density and compaction characteristic of soil.
C217.3	Conduct tests to determine Engineering properties of soil.

SEM-V

C301 CE3501 – Design of Reinforced concrete structural Element

At the end of the course, the students will be able to

C301.1	Understand the various design methodologies for the design of RC elements.
C301.2	Know the analysis and design of beams by limit state method.
C301.3	Design the various types of slabs and staircase by limit state method.
C301.4	Design of columns for axial, uniaxial and biaxial eccentric loadings.
C301.5	Design of footings by limit state method.
C301.6	Acquire knowledge on design of reinforced cement concrete elements.

C302 CE3502 – Structural Analysis I

At the end of the course, the students will be able to

C302.1	Analyze determinate and indeterminate trusses
C302.2	Analyse the continuous beams and rigid frames by slope deflection method.
C302.3	Understand the concept of moment distribution and analysis of continuous beams and rigid frames with and without sway.
C302.4	Analyse the indeterminate pin jointed plane frames continuous beams and rigid frames using matrix flexibility method.
C302.5	Understand the concept of matrix stiffness method and analysis of continuous beams, pin jointed trusses and rigid plane frames.
C302.6	Acquire knowledge on analysis of beams, frames and trusses.

C303 CE3503 – Foundation Engineering

At the end of the course, the students will be able to

C303.1	Carry out soil investigation for Civil Engineering construction
C303.2	have sufficient knowledge on bearing capacity of soils
C303.3	Analyze and design the shallow foundation.
C303.4	Analyze and design the deep foundation.
C303.5	Analyze and design the earth retaining structures for any kind of soil medium
C303.6	Acquire knowledge on site investigation and will be able to design various types of foundations.

C304 CE3025 Airports and Harbour

At the end of the course, the students will be able to

C304.1	Gain an insight on the planning and site selection of Airport Planning and design.
C304.2	Understand the various Airport components and their design methods.
C304.3	Analyze and design the elements for orientation of runways and passenger facility systems.
C304.4	Understand the various features in Ports and Harbours, their construction methods, coastal protection works and coastal Regulations to be adopted.
C304.5	Gain knowledge on various environmental regulations and EIA.
C304.6	Acquire knowledge on airports and harbour Engineering.

C305 CE3013 – Advanced Construction Techniques

At the end of the course, the students will be able to

C305.1	Understand the modern construction techniques used in the sub structure construction.
C305.2	Demonstrate knowledge and understanding of the principles and concepts relevant to super structure construction for buildings
C305.3	Understand the concepts used in the construction of special structures
C305.4	Knowledge on Various strengthening and repair methods for different cases.
C305.5	Identify the suitable demolition technique for demolishing a building.
C305.6	Understand the various advanced construction techniques practices being followed in the construction industry.

C306 CE3027 – Urban Planning and Development

At the end of the course, the students will be able to

C306.1	Describe basic issues in urban planning
C306.2	Formulate plans for urban and rural development
C306.3	Acquire knowledge to develop and formulation of urban plans.
C306.4	Design of urban development projects
C306.5	Manage urban development projects.
C306.6	Know regulations and laws related to urban planning.

C307 CE3511 Highway Engineering Laboratory

At the end of the course, the students will be able to

C307.1	Understand the test on aggregates
C307.2	Acquire knowledge on quality test on bitumen
C307.3	Evaluate the Consistency and Properties of Bitumen
C307.4	Know about tests on bituminous mixes

C308 CE3512 – Survey camp

At the end of the course, the students will be able to

C308.1	Acquire knowledge on using total station for surveying.
C308.2	Prepare contour maps
C308.3	Prepare building offsets and plotting the location.
C308.4	Determine the azimuth.
C308.5	Prepare topographical map on an area using GPS.
C308.6	Curve setting.

C309 CE3601 Design of Steel Structural Elements

At the end of the course, the students will be able to

C309.1	Recognize the design philosophy of steel structures and identify the different failure modes of bolted and welded connections, and determine their design strengths
C309.2	Select the most suitable section shape and size for tension and compression members and beams according to specific design criteria
C309.3	Apply the principles, procedures and current code requirements to the analysis and design of steel tension members, columns, column bases and beams
C309.4	Identify and compute the design loads on Industrial structures, and gantry girder
C309.5	Find out ultimate load of steel beams and portal frames using plastic analysis
C309.6	Design of steel structural elements and connections.

C310 CE3602 Structural Analysis II

At the end of the course, the students will be able to

C310.1	Draw influence lines for statically determinate structures.
C310.2	Understand Muller Breslau's principle and draw the influence lines for statically indeterminate beams.
C310.3	Analyse the different types of arches.
C310.4	Analyse the suspension bridges and space trusses.
C310.5	Understand the concept of approximate analysis of frames.
C310.6	Be capable of analysing beams, frames, arches, space trusses and suspension bridges.

C311 AG3601 Engineering Geology

At the end of the course, the students will be able to

C311.1	Knowing the internal structure of earth and its relation to earthquakes. Landforms created by various geological agents and their importance in civil engineering
C311.2	Getting knowledge on various minerals and rocks that can be used as construction materials and road aggregates. In addition, testing the suitability of rocks for foundation purposes.
C311.3	Studying various geological structures and their impact in engineering constructions. Further, learning the geomechanical properties of rocks and their significance in engineering projects.
C311.4	Gaining knowledge on the role of geological mapping, remote sensing and geophysics for surface and subsurface investigations. In addition, students will also gain knowledge on borehole logging techniques and their applications in civil engineering.
C311.5	Applying geological knowledge for designing and constructing major civil engineering structures, and also mitigating various geological hazards such as earthquakes, landslides and tsunamis.
C311.6	Learn the techniques of surface and subsurface investigations using geological, geophysical and geomechanical methods.

C312 CE3003 Prefabricated Structures

At the end of the course, the students will be able to

C312.1	Understand concepts about principles of prefabrication, production, transportation, erection.
C312.2	Acquire knowledge about panel systems, slabs, beams, shear walls and columns used in precast construction.
C312.3	Learn about design of cross section, joint flexibility.
C312.4	Acquire knowledge about joints and connection in precast construction.
C312.5	Gain knowledge about structural stability.
C312.6	Impart knowledge about the prefabricated structures.

C313 CE3033 Solid and Hazardous Waste Management

At the end of the course, the student will be able to

C313.1	Understand the nature and characteristics of municipal solid wastes and the regulatory requirements regarding municipal solid waste management.
C313.2	Know about the reduction, reuse and recycling of waste.
C313.3	Plan and design systems for storage, collection, transport, processing and disposal of municipal solid waste.
C313.4	Gain knowledge on the issues of solid waste management from an integrated and holistic perspective, as well as in the local and international context.
C313.5	Design and understand the operation of sanitary landfill
C313.6	Acquire knowledge on solid waste management and will be able to find new solutions to the waste disposal.

C314 CCE331 Air and Noise Pollution Control Engineering

At the end of the course, the students will be able to

C314.1	Understand various types and sources of air pollution and its effects
C314.2	Know the dispersion of air pollutants and their modeling
C314.3	Know about the principles and design of control of particulate pollutants
C314.4	Understand the principles and design of control of gaseous pollutant
C314.5	Know the sources, effects and control of vehicular, indoor air and noise pollution.
C314.6	Impart knowledge on the sources, effects and control techniques of air pollutants and noise pollution.

C315 CE3611 Building Drawing and Detailing Laboratory

At the end of the course, the students will be able to

C315.1	Draft the plan, elevation and sectional view of the load bearing and framed buildings
C315.2	Draw the structural detailing of RCC elements
C315.3	Draw the structural detailing of RCC water tanks, footings and retaining walls
C315.4	Draw the structural detailing of steel structures
C315.5	Draft the structural detailing of Industrial structures
C315.6	Impart knowledge and skill relevant to Building drawing and Detailing lab using computer software