



MACET
MARTHANDAM COLLEGE OF
ENGINEERING AND TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES



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S.No	Sem	Course Code	Course Name
1.	I	HS8151	Communicative English
2	I	MA8151	Engineering Mathematics
3	I	PH8151	Engineering Physics
4	I	CY8151	Engineering Chemistry
5	I	GE8151	Problem Solving and Python Programming
6	I	GE8152	Engineering Graphics
7	I	GE 8161	Problem Solving and Python Programming Laboratory
8	I	BS8161	Physics and Chemistry Laboratory (Group A)
9	I	BS8161	Physics and Chemistry Laboratory (Group B)
10	II	HS8251	Technical English
11	II	MA8251	Engineering Mathematics -II
12	II	PH8201	Physics for Civil Engineering
13	II	BE8251	Basic Electrical & Electronics Engineering
14	II	GE8291	Environmental Science and Engineering
15	II	GE8292	Engineering Mechanics
16	II	GE8261	Engineering Practices Laboratory (Group A)
17	II	GE8261	Engineering Practices Laboratory (Group B)
18	III	MA8353	Transforms And Partial Differential Equations
19	III	CE8301	Strength of Material-I
20	III	CE8302	Fluid Mechanics
21	III	CE8311	Construction Materials Laboratory
22	III	CE8351	Surveying
23	III	CE8361	Surveying Laboratory



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24	III	CE8391	Construction Materials
25	III	CE8392	Engineering Geology
26	III	HS8381	Interpersonal Skills Listening & Speaking
27	IV	CE 8403	Applied Hydraulic Engineering
28	IV	CE8402	Strength of Material
29	IV	CE 8461	Hydraulic Engineering Laboratory
30	IV	CE8401	Construction Techniques and Practices
31	IV	CE8404	Concrete Technology
32	IV	CE8481	Strength Of Materials Laboratory
33	IV	CE8491	Soil Mechanics
34	IV	HS8481	Advanced Reading & Writing
35	IV	MA8491	Numerical Methods
36	V	CE8501	Design of Reinforced Cement Concrete Elements
37	V	CE8502	Structural Analysis-I
38	V	CE8511	Soil Mechanics Laboratory
39	V	CE8512	Water and Waste water analysis Laboratory
40	V	CE8513	Survey Camp
41	V	CE8591	Foundation Engineering
42	V	GE8071	Disaster Management
43	V	OAI 551	Environment And Agriculture
44	V	EN8491	Water Supply Engineering
45	VI	C315	Air Pollution and Control Engineering
46	VI	CE 8603	Irrigation Engineering
47	VI	CE 8612	Irrigation and Environmental Engineering Drawing
48	VI	CE8601	Design Of Steel Structural Elements
49	VI	CE8602	Structural Analysis II
50	VI	CE8604	Highway Engineering
51	VI	CE8611	Highway Engineering Laboratory



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52	VI	EN8592	Waste Water Engineering
53	VI	HS8581	Professional Communication
54	VII	CE 8702	Railways Airports Docks & Harbour Engg
55	VII	CE8702	Estimation, Costing and Valuation Engineering
56	VII	CE8703	Structural Design And Drawing
57	VII	CE8711	Creative and Innovative Project
58	VII	CE8712	Industrial Training
59	VII	EN8591	Municipal Solid Waste Management
60	VII	OML751	Testing of Material
61	VIII	CE8018	Geo Environmental Engineering
62	VIII	CE8020	Maintenance, Repair and Rehabilitation of Structures
63	VIII	CE8811	Project Work

PROGRAM OUTCOMES (POs)

List of Program Outcomes

PO1	Graduates will demonstrate knowledge of mathematics, science and engineering.
PO2	Graduates will demonstrate an ability to identify, formulate and solve engineering problems.
PO3	Graduate will demonstrate an ability to design and conduct experiments, analyse and interpret data.
PO4	Graduates will demonstrate an ability to design a system, component or process as per needs and specifications.
PO5	Graduates will demonstrate an ability to visualize and work on laboratory and multidisciplinary tasks.
PO6	Graduate will demonstrate skills to use modern engineering tools, software and equipment to analyse problems.
PO7	Graduates will demonstrate knowledge of professional and ethical responsibilities.



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PO8	Graduate will be able to communicate effectively in both verbal and written form.
PO9	Graduate will show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues.
PO10	Graduate will develop confidence for self-education and ability for life-long learning.
PO11	Graduate will understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO12	Graduate will function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Program Specific Outcomes (PSOs)

List of Program Specific Outcomes

PSO1	Problem Identification: Proficiency in Civil Engineering problem identification, formulation, analysis, design and execution, optimizing the cost, time, quality and safety using appropriate tools.
PSO2	Sustainable Development: Support the society with solutions to various civil Engineering problems focusing on sustainable development and upholding professional ethics.
PSO3	Real world knowledge: Inculcating in students technical competencies to deal with practical aspects of civil engineering.



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I SEMESTER



Course Code & Course Name: HS8151 – Communicative English

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	To develop the basic reading and writing skills of first year engineering and technology students.
CO2	To help learners develop their listening skills, which will, enable them listen to lectures and comprehend them by asking questions
CO3	To help learners develop their speaking skills and speak fluently in real contexts.
CO4	To help learners develop vocabulary of a general kind by developing their reading skills

Course Code & Course Name: MA8151-ENGINEERING MATHEMATICS 1

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Use both the limit definition and rules of differentiation to differentiate functions.
CO2	Apply differentiation to solve maxima and minima problems.
CO3	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
CO4	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.
CO5	Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.
CO6	Determine convergence/divergence of improper integrals and evaluate convergent improper integrals.
CO7	Apply various techniques in solving differential equations



Course Code & Course Name: PH8151-ENGINEERING PHYSICS

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The students will gain knowledge on the basics of properties of matter and its applications,
CO2	The Students Will Acquire Knowledge On The Concepts Of Waves And Optical Devices And Their Applications in fibre optics,
CO3	The students will have adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers,
CO4	The students will get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes, and
CO5	The students will understand the basics of crystals, their structures and different crystal growth techniques

Course Code & Course Name: CY8151 Engineering Chemistry

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning.
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Course Code & Course Name: GE8151 Problem Solving and Python Programming

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Develop algorithmic solutions to simple computational problems Read, write, execute by hand simple Python programs.
CO2	Structure simple Python programs for solving problems.



CO3	Decompose a Python program into functions.
CO4	Represent compound data using Python lists, tuples, dictionaries.
CO5	Read and write data from/to files in Python Programs.

Course Code & Course Name: **GE8152 Engineering Graphics**

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Construct curves used in engineering practices and free and sketching
CO2	Project orthographic projections of lines and plane surfaces
CO3	Construct orthographic projections of solids
CO4	Project the section of solids and development of surfaces.
CO5	Visualize and project isometric and perspective projections of simple solids

Course Code & Course Name: **GE 8161 & Problem Solving and Python Programming Lab**

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Write, test, and debug simple Python programs.
CO2	Implement Python programs with conditionals and loops.
CO3	Develop Python programs step-wise by defining functions and calling them.
CO4	Use Python lists, tuples, dictionaries for representing compound data.
CO5	Read and write data from/to files in Python.



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Course Code & Course Name: BS8161 Physics and Chemistry Laboratory

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The students will be outfitted with hands-on knowledge in the quantitative chemical analysis of water quality related parameters.
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Course Code & Course Name: BS8161- PHYSICS AND CHEMISTRY LABORATORY

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Apply principles of elasticity, optics and thermal properties for engineering applications.
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II SEMESTER



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Course Code & Course Name: HS8251-TECHNICAL ENGLISH

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Read technical texts and write area- specific texts effortlessly.
CO2	Listen and comprehend lectures and talks in their area of Specialization successfully.
CO3	Speak appropriately and effectively in varied formal and informal contexts.
CO4	Write reports and winning job applications

Course Code & Course Name: MA8251/Engineering Mathematics -II

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Eigenvalues and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices.
CO2	Gradient, divergence and curl of a vector point function and related identities
CO3	Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification
CO4	Analytic functions, conformal mapping and complex integration
CO5	Laplace transform and inverse transform of simple functions, properties, various related theorems and application to diff



equations with constant coefficients.

Course Code & Course Name: PH8201/ Physics for Civil Engineering

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	the students will have knowledge on the thermal performance of buildings
CO2	the students will acquire knowledge on the acoustic properties of buildings
CO3	the students will get knowledge on various lighting designs for buildings
CO4	the students will gain knowledge on the properties and performance of engineering materials
CO5	the students will understand the hazards of buildings.

Course Code & Course Name: BE8251 & Basic Electrical & Electronics Engineering

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Ability to identify the electrical components and explain the characteristics of electrical machines
CO2	Ability to identify electronics components and understand the characteristics

Course Code & Course Name: GE8291 Environmental Science and Engineering

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course.
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CO2	Public awareness of environmental is at infant stage.
CO3	Ignorance and incomplete knowledge has lead to misconceptions .
CO4	Development and improvement in std. of living has lead to serious environmental disasters

CO-PO MAPPING

CO-PSO MAPPING

Course Code & Course Name : GE8292 & Engineering Mechanics

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Illustrate the vectorial and scalar representation of forces and moments
CO2	Analyse the rigid body in equilibrium
CO3	Evaluate the properties of surfaces and solids
CO4	Calculate dynamic forces exerted in rigid body
CO5	Determine the friction and the effects by the laws of friction

Course Code & Course Name:GE8261 & Engineering Practices Laboratory (Group A)

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Fabricate carpentry components, pipe connections including plumbing works & use welding equipments to join the structures.
CO2	Carry out the basic machining operations
CO3	Make the models using sheet metal works
CO4	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings



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CO5	Carry out basic home electrical works and appliances, measure the electrical quantities and elaborate on the components, gates, soldering practices.
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Course Code & Course Name: GE8261 & Engineering Practices Laboratory (Group B)

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Carry out basic home electrical works and appliances
CO2	Measure the electrical quantities
CO3	Elaborate on the components, gates, soldering practices



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III SEMESTER



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Course Code & Course Name: MA8353 & Transforms And Partial Differential Equations

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Understand how to solve the given standard partial differential equations.
CO2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.
CO3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.
CO4	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.
CO5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.

Course Code & Course Name: CE8301 – Strength of Material-I

COURSE OUTCOMES (COs)

List of Course Outcomes

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.

Course Code & Course Name: CE8302 Fluid Mechanics

COURSE OUTCOMES (COs)

List of Course Outcomes

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



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CO5	Understand and solve the boundary layer problems.
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Course Code & Course Name: CE8311 Construction Materials Laboratory

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The students will have the required knowledge in the area of testing of construction materials and components of construction elements experimentally.
CO2	Able to design and test the concrete
CO3	Able to understand about properties of building materials
CO4	Able to understand the test of building materials
CO5	Able to understand the knowledge of aggregates

Course Code & Course Name: CE8351 Surveying

COURSE OUTCOMES (COs)

List of Course Outcomes

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.

Course Code & Course Name: CE8361 Surveying Laboratory

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The ability to use modern survey equipment to measure angle and distance
CO2	Understood the basic principle and techniques about survey field
CO3	Gain design knowledge related to various structural system
CO4	Students completing this course would have acquired practical knowledge on handling basic survey instruments including Theodolite, Tacheometry



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CO5	Total Station and GPS and have adequate knowledge to carryout Triangulation and Astronomical surveying including general field marking for various engineering projects and Location of site
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Course Code & Course Name: CE8391 & Construction Materials

COURSE OUTCOMES (COs)

List of Course Outcomes

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	Know the production of concrete and also the method of placing and making of concrete elements.
CO5	Understand the importance of modern material for construction.

Course Code & Course Name: CE8392 – ENGINEERING GEOLOGY

COURSE OUTCOMES (COs)

List of Course Outcomes

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



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Course Code & Course Name: HS8381 Interpersonal Skills Listening & Speaking

COURSE OUTCOMES (COs)

List of Course Outcomes

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.



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IV SEMESTER



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Course Code & Course Name : CE 8403 Applied Hydraulic Engineering

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Apply their knowledge of fluid mechanics in addressing problems in open channels
CO2	Able to identify a 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.

Course Code & Course Name:CE8402 – Strength of Material

COURSE OUTCOMES (COs)

List of Course Outcomes

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 three0dimensional 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.



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Course Code & Course Name : CE 8461 Hydraulic Engineering Laboratory

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The students will be able to measure flow in pipes and determine frictional losses
CO2	The students will be able to Calculate the coefficient of discharge of orifice, mouthpiece and venturimeter
CO3	The students will be able to Verify the Bernoulli's energy equation.
CO4	The students will be able to Measure flow in pipes and determine frictional losses
CO5	The students will be able to Develop the characteristics curves for pumps and turbines.

Course Code & Course Name: CE8401 Construction Techniques and Practices

COURSE OUTCOMES (COs)

List of Course Outcomes

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.

Course Code & Course Name: CE8404 & Concrete Technology

COURSE OUTCOMES (COs)

List of Course Outcomes

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.



Course Code & Course Name: **CE8481 – STRENGTH OF MATERIALS LABORATORY**
COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The students will have the required knowledge about tension strength
CO2	The students will have the required knowledge in compression test
CO3	The students will be able to find modulus of rigidity of mild steel using torsion test
CO4	The students will be able to find impact strength using izod and charpy test
CO5	The students will be able to determine determine hardness number of metal using Brinell and Rockwell testing machine

Course Code & Course Name: **CE8491 Soil Mechanics**
COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	To classify the soil and assess the engineering properties, based on index
CO2	To understand the stress concepts in soils
CO3	To understand and identify the settlement in soils.
CO4	To determine the shear strength of soil
CO5	To analyze both finite and infinite slopes



Course Code & Course Name: **HS8481 Advanced Reading & Writing**

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Write different types of essays
CO2	Write job applications
CO3	Read and evaluate texts critically
CO4	Display critical thinking in various professional contexts

Course Code & Course Name: **MA8491 & Numerical Methods**

COURSE OUTCOMES (COs)

List of Course Outcomes

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



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V SEMESTER



Course Code & Course Name: CE8501 & Design of Reinforced Cement Concrete Elements

COURSE OUTCOMES (COs)

List of Course Outcomes

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
CO3	Design the various types of slabs and staircases by limit state method
CO4	Design columns for axial, uniaxial and biaxial eccentric loadings
CO5	Design of footing by limit state method

Course Code & Course Name: CE8502 STRUCTURAL ANALYSIS-I

COURSE OUTCOMES (cos)

List of Course Outcomes

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 deflection 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.



Course Code & Course Name: CE8511 Soil Mechanics Laboratory

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Performs common soil test to identify physical and mechanical properties of soil
CO2	Ability to evaluate the classify soils and state of stress in soil mass
CO3	Ability to determine various soil mechanics test needed for designing civil engineering projects.
CO4	Demonstrate the ability to write clear reports
CO5	Ability to demonstrate the ability to work in groups

Course Code & Course Name : CE8512 Water and Waste water analysis Laboratory

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Quantify the pollutant concentration in water
CO2	Quantify the pollutant concentration in wastewater
CO3	Suggest the type of treatment required and
CO4	Suggest amount of dosage required for the treatment
CO5	Examine the conditions for the growth of microorganisms

Course Code & Course Name: CE8513 & Survey Camp

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Acquired practical knowledge to carryout Triangulation including general field marking for various engineering projects and Location of site etc.
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CO2	Acquired practical knowledge to carryout levelling for various engineering projects and Location of site etc.
CO3	Acquired practical knowledge on Theodolite surveying for various engineering projects and Location of site etc.
CO4	Acquired practical knowledge on Tacheometry surveying for various engineering projects and Location of site etc.
CO5	Acquired practical knowledge on Total Station surveying for various engineering projects and Location of site etc.

Course Code & Course Name:CE8591 Foundation Engineering

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	To Understand the site investigation, methods and sampling.
CO2	To Get knowledge on bearing capacity and testing methods.
CO3	Design shallow footings.
CO4	Determine the load carrying capacity, settlement of pile foundation.
CO5	Determine the earth pressure on retaining walls and analysis for stability.

Course Code & Course Name :GE8071 Disaster Management

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Differentiate the types of disasters, causes and their impact on environment and society
CO2	Assess vulnerability and various methods of risk reduction measures as well as mitigation.
CO3	Draw the hazard and vulnerability profile of India, Scenarios in the Indian context, Disaster damage assessment and management.
CO4	Examine the mitigation measures and recovery for different types of Disaster
CO5	Assessment based on case studies



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Course Code & Course Name: **OAI 551 – ENVIRONMENT AND AGRICULTURE**
COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Ability to understand the role of environment in the current practice of agriculture and concerns of sustainability
CO2	Ability to study the various impacts of environment due to various agricultural method
CO3	Ability to understand the role of environment in the context of climate change
CO4	Ecological context of agriculture and its concerns will be understood.
CO5	Understand the role of environment in the context of emerging global issues

Course Code & Course Name: **EN8491 Water Supply Engineering**
COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	To have an insight into the structure of drinking water supply systems, including water transport, treatment and distribution
CO2	To have the knowledge in various unit operations and processes in water treatment
CO3	To have an ability to design the various functional units in water treatment
CO4	Able to understanding of water quality criteria and standards, and their relation to public health
CO5	To have ability to design and evaluate water supply project alternatives on basis of chosen criteria



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VI SEMESTER



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Course Code & Course Name: C315 Air Pollution and Control Engineering

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	An understanding of the nature and characteristics of air pollutants, noise pollution and basic concepts of air quality management.
CO2	Ability to identify, formulate and solve air and noise pollution problems.
CO3	Ability to design stacks and particulate air pollution control devices to meet applicable standards.
CO4	Ability to select control equipments.
CO5	Ability to ensure quality, control and preventive measures.

Course Code & Course Name: CE 8603 Irrigation Engineering

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Have knowledge and skills on crop water requirements.
CO2	Understand the methods and management of irrigation
CO3	Gain knowledge on types of Impounding structures
CO4	Understand methods of irrigation including canal irrigation
CO5	Get knowledge on water management on optimization of water use

Course Code & Course Name: CE 8612 Irrigation and Environmental Engineering Drawing

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The students will be able to design and draw various units of impounding structures
CO2	The students will be able to design and draw various units of cross drainage works
CO3	The students will be able to design and draw various units of canal regulation structures
CO4	The students will be able to design and draw various units of Municipal water treatment plants
CO5	The students will be able to design and draw various units of sewage treatment plants.



Course Code & Course Name: **CE8601 – DESIGN OF STEEL STRUCTURAL ELEMENTS**
COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Understand the concepts of various design philosophies
CO2	Design common bolted and welded connections for steel structures
CO3	Design tension members and understand the effect of shear lag
CO4	Understand the design concept of axially loaded columns and column base connections.
CO5	Understand specific problems related to the design of laterally restrained and unrestrained steel beams.

Course Code & Course Name: **CE8602 & Structural Analysis II**
COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Draw influence lines for statically determinate structures and calculate critical stress resultants
CO2	Understand Muller Breslau principle and draw the influence lines for statically indeterminate beams.
CO3	Analyse of three hinged, two hinged and fixed arches.
CO4	Analyse the suspension bridges with stiffening girders
CO5	Understand the concept of Plastic analysis and the method of analyzing beams and rigid frames.

Course Code & Course Name: **CE8604 & Highway Engineering**
COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Get knowledge on planning and aligning of highway.
CO2	Geometric design of highways
CO3	Design flexible and rigid pavements



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CO4	Gain knowledge on Highway construction materials, properties, testing methods
CO5	Understand the concept of pavement management system, evaluation of distress and maintenance of pavements.

Course Code & Course Name: CE8611 & Highway Engineering Laboratory

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Student will understand the properties of aggregate with different tests
CO2	Student will understand the properties of bitumen with different tests
CO3	Student will understand the properties of bituminous mixes with different tests
CO4	Student will understand the importance of marshall stability value
CO5	Student knows the techniques to characterize various pavement materials through relevant tests.

Course Code & Course Name : EN8592 WASTE WATER ENGINEERING

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	An ability to estimate sewage generation and design sewer system including sewage pumping stations
CO2	The required understanding on the characteristics and composition of sewage, self-purification of streams
CO3	An ability to perform basic design of the unit operations and processes that are used in sewage treatment
CO4	Understand the standard methods for disposal of sewage.
CO5	Gain knowledge on sludge treatment and disposal.



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Course Code & Course Name: HS8581 Professional Communication

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Enhance the Employability and Career Skills of students
CO2	Orient the students towards grooming as a professional
CO3	Make them Employability Graduates
CO4	Develop their confidence and help them attend interviews successfully.



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VII SEMESTER



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Course Code & Course Name :CE 8702 RAILWAYS AIRPORTS DOCKS & HARBOUR ENGG.
COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Understand the methods of route alignment and design elements in Railway Planning and Constructions.
CO2	Understand the Construction techniques and Maintenance of Track laying and Railway stations
CO3	Gain an insight on the planning and site selection of Airport Planning and design
CO4	Analyze and design the elements for orientation of runways and passenger facility systems
CO5	Understand the various features in Harbours and Ports, their construction, coastal protection works and coastal Regulations to be adopted

Course Code & Course Name:CE8702; Estimation, Costing and Valuation Engineering.
COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Students will be able to do Estimate the quantities for buildings.
CO2	Understand and find Rate Analysis for all Building works,
CO3	canals, and Roads and Cost Estimate
CO4	Understand types of specifications, principles for report
CO5	preparation, tender notices types.

Course Code & Course Name: CE8703 – STRUCTURAL DESIGN AND DRAWING
COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Design and draw reinforced concrete Cantilever and Counterfort Retaining Walls
CO2	Design and draw flat slab as per code provisions
CO3	Design and draw reinforced concrete and steel bridges
CO4	Design and draw reinforced concrete and steel water tanks



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CO5	Design and detail the various steel trusses and Gantry girders
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Course Code & Course Name: CE8711 & Creative and Innovative Project

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Demonstrate a sound technical knowledge of their selected project topic.
CO2	Undertake problem identification, formulation and solution.
CO3	Design engineering solutions to complex problems utilizing a systems approach
CO4	Communicate with engineers and the community at large in written and oral forms
CO5	Conduct an engineering project

Course Code & Course Name: CE8712 & Industrial Training

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The intricacies of implementation textbook knowledge into practice
CO2	The concepts of developments and implementation of new techniques
CO3	Communicate with engineers and the community at large in written and oral forms
CO4	Undertake problem identification, formulation and solution.
CO5	Demonstrate the knowledge, skills and attitudes of a professional engineer

Course Code & Course Name: EN8591 & Municipal Solid Waste Management

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Understanding of the nature and characteristics of municipal solid wastes and the regulatory requirements regarding municipal solid waste management
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CO2	Reduction, reuse and recycling of waste
CO3	Ability to plan and design systems for storage, collection, transport, processing and disposal of municipal solid waste
CO4	Knowledge on the issues on solid waste management from an integrated and holistic perspective, as well as in the local and international context.
CO5	Design and operation of sanitary landfill

Course Code & Course Name: OML751 & Testing of Material

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Identify suitable testing technique to inspect industrial component
CO2	Ability to use mechanical testing and know its applications and limitations.
CO3	Ability to use nondestructive testing and know its applications and limitations.
CO4	Ability to use material characterization testing and know its applications and limitations.
CO5	Ability to use thermal testing and know its applications and limitations.



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VIII SEMESTER

Course Code & Course Name: CE8018 & Geo0Environmental Engineering
COURSE OUTCOMES (COs)

List of Course Outcomes



CO1	Assess the contamination in the soil
CO2	Understand the current practice of waste disposal
CO3	To prepare the suitable disposal system for particular waste.
CO4	Stabilize the waste and utilization of solid waste for particular waste for soil improvement.
CO5	Select suitable remediation methods based on contamination.

Course Code & Course Name: CE8020; Maintenance, Repair and Rehabilitation of Structures

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The importance of maintenance and assessment method of distressed structures.
CO2	The strength and durability properties, their effects due to climate and temperature.
CO3	Recent development in concrete
CO4	The techniques for repair and protection methods
CO5	Repair, rehabilitation and retrofitting of structures and demolition methods.

Course Code & Course Name: CE8811 & Project Work

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Demonstrate a sound technical knowledge of their selected project topic.
CO2	Undertake problem identification, formulation and solution.
CO3	Design engineering solutions to complex problems utilizing a systems approach
CO4	Communicate with engineers and the community at large in written and oral forms
CO5	Conduct an engineering project