



# ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

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## DEPARTMENT OF CIVIL ENGINEERING

### Course Outcomes

Year/Sem: II B.Tech I SEM

A.Y:2019-2020

<b>Course Name: Probability &amp; Statistics</b>	
<b>Course Code: CE2101</b>	
<b>CE2101.1</b>	Analyse and compare various Probability distributions for both discrete and continuous random variables
<b>CE2101.2</b>	Describe and compute confidence intervals for the mean of a population
<b>CE2101.3</b>	Compute confidence intervals for the proportion and the variance
<b>CE2101.4</b>	Understand population and test the hypothesis concerning mean, proportion
<b>CE2101.5</b>	Able to know the variance and perform ANOVA test
<b>CE2101.6</b>	Differentiate a curve to the numerical data

<b>Course Name: Basic Electrical and Electronics Engineering</b>	
<b>Course Code: CE2102</b>	
<b>CE2102.1</b>	Understand the basic principles of electrical law's and analysis of networks
<b>CE2102.2</b>	Able to know principle of operation and construction details of DC machines.
<b>CE2102.3</b>	Classify the principles of operation and construction details of transformer
<b>CE2102.4</b>	Analyse the operation and construction details of alternator and 3-Phase induction motor
<b>CE2102.5</b>	Define the operation of PN junction diode, half wave, full wave rectifiers and OP-AMPs
<b>CE2102.6</b>	To learn the operation of PNP and NPN transistors and various amplifiers

<b>Course Name: Strength of materials-I</b>	
<b>Course Code: CE2103</b>	
<b>CE2103.1</b>	Understand the basic materials behaviour under the influence of different external loading conditions and the support conditions
<b>CE2103.2</b>	Able to draw the diagrams indicating the variation of the key performance features like bending moment and shear forces
<b>CE2103.3</b>	Knowledge of bending concepts and calculation of section modulus
<b>CE2103.4</b>	Determination of stresses developed in the beams and deflections due to various loading conditions
<b>CE2103.5</b>	To classify cylinders based on their thickness and to derive equations for measurement of stresses across the cross section when subjected to external pressure
<b>CE2103.6</b>	Analysis stresses across section of the thin and thick cylinders to arrive at optimum sections to withstand the internal pressure using Lamé's equation



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<b>Course Name: Building Materials &amp; Construction</b>	
<b>Course Code: CE2104</b>	
<b>CE2104.1</b>	Able to identify different building materials and their importance in building construction
<b>CE2104.2</b>	Differentiate brick masonry, stone masonry in building construction
<b>CE2104.3</b>	Understand to use of lime and cement in various constructions
<b>CE2104.4</b>	Analyse the importance of building components and finishing's
<b>CE2104.5</b>	Able to know the classification of aggregates, sieve analysis and moisture content
<b>CE2104.6</b>	Knowledge of basic building materials and their properties

<b>Course Name: Surveying</b>	
<b>Course Code: CE2105</b>	
<b>CE2105.1</b>	To Apply the knowledge to calculate angles, distances and levels
<b>CE2105.2</b>	Identify data collection methods and prepare field notes
<b>CE2105.3</b>	Understand the working principles of survey instruments, measurement errors and corrective measures
<b>CE2105.4</b>	Determination of survey data and compute areas and volumes, levels by different type of equipment
<b>CE2105.5</b>	Apply the surveying principles to determine areas and volumes and setting out curves
<b>CE2105.6</b>	Able to Identification of source of errors and rectification methods

<b>Course Name: Fluid Mechanics</b>	
<b>Course Code: CE2106</b>	
<b>CE2106.1</b>	Understand the various properties of fluids and their influence on fluid motion and analyse a variety of problems in fluid statics and dynamics
<b>CE2106.2</b>	Calculate the forces that act on submerged planes and curves
<b>CE2106.3</b>	Ability to analyse various types of fluid flows
<b>CE2106.4</b>	Apply the integral forms of the three fundamental laws of fluid mechanics to turbulent and laminar flow through pipes and ducts
<b>CE2106.5</b>	Determination of order to predict relevant pressures, velocities and forces
<b>CE2106.6</b>	Able Measure the quantities of fluid flowing in pipes, tanks and channels

<b>Course Name: Survey field work –I Lab</b>	
<b>Course Code: CE2107</b>	
<b>CE2107.1</b>	To understand the various types of surveying methods
<b>CE2107.2</b>	Determination of the areas by applying the chain surveying
<b>CE2107.3</b>	Analyse the area calculations by triangulations methods
<b>CE2107.4</b>	Finding the area boundaries by plane table survey
<b>CE2107.5</b>	Determination of distance between two inaccessible points by using compass
<b>CE2107.6</b>	To understand the Height of the instrument method



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<b>Course Name: Strength of materials Lab</b>	
<b>Course Code: CE2108</b>	
<b>CE2108.1</b>	Determination of Tension test on Mild steel bar by UTM
<b>CE2108.2</b>	Understand the Bending test on cantilever beam of steel / wood
<b>CE2108.3</b>	Analyse the torsion test on specimen sample
<b>CE2108.4</b>	Able to know the Compression test on wood or concrete
<b>CE2108.5</b>	Apply the Brinnell's / Rock well's hardness testing machine for hardness of specimen
<b>CE2108.6</b>	Define the Verification of Maxwell's Reciprocal theorem on beams



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Year/Sem: II B.Tech II SEM

<b>Course Name: Building planning and Drawing</b>	
<b>Course Code: CE2201</b>	
CE2201.1	Able to plan various buildings as per the building by-laws
CE2201.2	Distinguish the relation between the plan, elevation and cross section
CE2201.3	Able to know the identify the form and functions among the buildings
CE2201.4	Learn the skills of drawing building elements and plan the buildings as per requirements
CE2201.5	Classification of learn the skills of drawing building elements and plan the buildings as per requirements
CE2201.6	Differentiate the sign conventions and symbols of drawings

<b>Course Name: Strength of materials -II</b>	
<b>Course Code: CE2202</b>	
CE2202.1	Determination of Principal stresses and strains developed in cross section of the beams
CE2202.2	Understand the concepts of torsion and governing torsion equation, and there by calculate the power transmitted by shafts and springs
CE2202.3	To classify columns and calculation of load carrying capacity and to assess stresses due to axial and lateral loads
CE2202.4	Analyse the unsymmetrical bending in beams Location of neutral axis Deflection of beams under unsymmetrical bending
CE2202.5	Knowledge about different engineering applications like shafts, springs, columns and struts subjected to different loading conditions
CE2202.6	Classify the concepts of failures in the material by theories of failures

<b>Course Name: Hydraulics and Hydraulic Machinery</b>	
<b>Course Code: CE2203</b>	
CE2203.1	Differentiate uniform and non-uniform open channel flow problems
CE2203.2	Apply the principals of dimensional analysis and similitude in hydraulic model testing
CE2203.3	Understand the working principles of various hydraulic machineries and pumps
CE2203.4	Analyse the characteristics of hydraulic jump
CE2203.5	Determination of dimensional analysis for fluid flow problems
CE2203.6	Classify the various types of various types of hydraulic machines and Pumps



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<b>Course Name: Concrete Technology</b>	
<b>Course Code: CE2104</b>	
<b>CE2104.1</b>	Understand basic concepts of concrete
<b>CE2104.2</b>	Analyse the basic ingredients of concrete and their role in concrete and their behaviour in the field
<b>CE2104.3</b>	Classify the fresh concrete properties and hardened concrete properties
<b>CE2104.4</b>	Understand the behaviour of concrete in various environments
<b>CE2104.5</b>	Evaluate ingredients of concrete through lab tests. design concrete mix by IS method
<b>CE2104.6</b>	To understand durability properties of concrete

<b>Course Name: Structural Analysis-I</b>	
<b>Course Code: CE2105</b>	
<b>CE2105.1</b>	Differentiate the between the determinate and indeterminate structures
<b>CE2105.2</b>	Analyse behaviour of structures due to the expected loads, including the moving loads, acting on the structure
<b>CE2105.3</b>	Classify the bending moment and shear forces in beams for different fixity conditions
<b>CE2105.4</b>	Understand the continuous beams using various methods
<b>CE2105.5</b>	Determination of three moment method, slope deflection method, energy theorems
<b>CE2105.6</b>	Able to know the influence line diagrams for various types of moving loads on beams/bridges

<b>Course Name: Transportation Engineering-I</b>	
<b>Course Code: CE2106</b>	
<b>CE2106.1</b>	Able to draw a Plan highway network for a given area
<b>CE2106.2</b>	To Determine Highway alignment
<b>CE2106.3</b>	Design Intersections and prepare traffic management plans
<b>CE2106.4</b>	Judge suitability of pavement materials and design flexible and rigid pavements
<b>CE2106.5</b>	To classify the different concepts in the field of Highway Engineering
<b>CE2106.6</b>	Able to know the types and classification of roads and intersections

<b>Course Name: Fluid Mechanics &amp; Hydraulics Machinery Lab</b>	
<b>Course Code: CE2207</b>	
<b>CE2207.1</b>	Understand the Calibration of Venturi meter & Orifice meter
<b>CE2207.2</b>	Determination of Coefficient of discharge for a small orifice and mouth piece by a constant head and variable head method
<b>CE2207.3</b>	Able to know the Verification of Bernoulli's equation
<b>CE2207.4</b>	Define the Performance test on Pelton wheel turbine
<b>CE2207.5</b>	Analyse the Calibration of contracted Rectangular Notch and /or Triangular Notch
<b>CE2208.6</b>	Apply the Hydraulic jump test setup to study of Study of Hydraulic jump



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<b>Course Name: Surveying Field Work-II Lab</b>	
<b>Course Code: CE2108</b>	
<b>CE2108.1</b>	Determination Horizontal and Vertical Angles by the method of repetition method by theodolite
<b>CE2108.2</b>	Define the distance between two inaccessible points
<b>CE2108.3</b>	Able to know the curve setting method
<b>CE2108.4</b>	Apply the total station method to know the distance between two inaccessible points
<b>CE2108.5</b>	Analyse the Contouring maps
<b>CE2108.6</b>	Understand the Heights and distance problems using tachometric principles

<b>Course Name: Managerial Economics &amp; Financial Analysis</b>	
<b>Course Code: CE2209</b>	
<b>CE3209.1</b>	Able to know the knowledge of estimating the Demand and demand elasticity's for a product
<b>CE3209.2</b>	The knowledge of understanding of the Input-Output-Cost relationships
<b>CE3209.3</b>	Estimation of the least cost combination of inputs
<b>CE3209.4</b>	Prepare Financial Statements and the usage of various Accounting tools for Analysis
<b>CE3209.5</b>	evaluate various investment project proposals with the help of capital budgeting techniques for decision making
<b>CE3209.6</b>	Understand the concept of Capital, Capital Budgeting and the techniques used to evaluate Capital Budgeting proposals



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Year/Sem: III B.Tech I SEM

<b>Course Name: Management Science</b>	
<b>Course Code: CE3101</b>	
CE3101.1	Analyse process of management and to provide basic insight into select contemporary management practices
CE3101.2	Able to know conceptual knowledge on functional management and strategic management
CE3101.3	Define the Evaluation of Management thought
CE3101.4	Understand Global Leadership and Organizational behaviour Effectiveness(GLOBE) structure
CE3101.5	Classify the Principles and Types of Management
CE3101.6	Development of Network by CPM/PERT

<b>Course Name: Engineering Geology</b>	
<b>Course Code: CE3102</b>	
CE3102.1	Able to Identify and classify the geological minerals
CE3102.2	Understand and Measure the rock strengths of various rocks
CE3102.3	Classify and measure the earthquake prone areas to practice the hazard zonation
CE3102.4	Prepares, analyses and interpret the Engineering Geologic maps
CE3102.5	Investigate the project site for mega/mini civil engineering projects
CE3102.6	Site selection for mega engineering projects like Dams, Tunnels, disposals

<b>Course Name: Structural Analysis-II</b>	
<b>Course Code: CE3103</b>	
CE3103.1	Differentiate Determinate and Indeterminate Structures
CE3103.2	Analyse the Carryout lateral Load analysis of structures
CE3103.3	Understand the Cable and Suspension Bridge structures
CE3103.4	Define structures using Moment Distribution method
CE3103.5	Classify the structures by kani's method
CE3103.6	Able to know the characteristics cables and portal frames

<b>Course Name: Design and Drawing of Reinforced Concrete Structures</b>	
<b>Course Code: CE3104</b>	
CE3104.1	Able to understand the various design methods in RCC
CE3104.2	Differentiate the over and under reinforced structures with loading
CE3104.3	Analysis and design of flexural members and detailing
CE3104.4	Classification of various types slabs in RCC
CE3104.5	Design different type of compression members and footings
CE3104.6	Understand different types of footings and design





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<b>Course Name: Transportation Engineering-II</b>	
<b>Course Code: CE3105</b>	
CE3105.1	Understand the various components and their functions in a railway track
CE3105.2	Able to know design principles of geometrics in a railway track
CE3105.3	Apply the Plan track layouts and control movement of trains
CE3105.4	Classify the Functions of various Components like Rails, Sleepers and Ballast
CE3105.5	Design airport geometrics and airfield pavements
CE3105.6	Plan, construct and maintain Docks and Harbours

<b>Course Name: Concrete Technology Lab</b>	
<b>Course Code: CE3106</b>	
CE3106.1	Determination of normal Consistency and fineness of cement
CE3106.2	Able to know the initial setting time and final setting time of cement
CE3106.3	Determination of specific gravity and soundness of cement
CE3106.4	Understand the properties of concrete
CE3106.5	Define the bulking of sand
CE3106.6	Classify workability of concrete by compaction factor method

<b>Course Name: Engineering Geology Lab</b>	
<b>Course Code: CE3107</b>	
CE3107.1	Able to identify the Megascopic types of Ore minerals & Rock forming minerals
CE3107.2	Classify the types of Igneous, Sedimentary, Metamorphic rocks
CE3107.3	To identify the topography of the site & material selection
CE3107.4	Able to Know the occurrence of materials using the strike & dip problems
CE3107.5	Define the site parameters such as contour, slope & aspect for topography
CE3107.6	Differentiate the physical and chemical properties of specimens

<b>Course Name: Transportation Engineering lab</b>	
<b>Course Code: CE3108</b>	
CE3108.1	Able to know penetration value, ductility value, softening point
CE3108.2	To understand the test the stability for the given bituminous mix
CE3108.3	Define the carry out surveys for traffic volume, speed and parking
CE3108.4	Obtain the optimum bitumen content for Bituminous Concrete
CE3108.5	Determine the traffic volume, speed and parking characteristics
CE3108.6	Draw highway cross sections and intersections





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Year/Sem: III B.Tech II SEM

<b>Course Name: Design And Drawing of Steel Structures</b>	
<b>Course Code: CE3201</b>	
CE3201.1	Understand the various Work relevant IS codes
CE3201.2	Analysis and design of flexural members and detailing
CE3201.3	Able to Design compression members of different types with connection detailing
CE3201.4	Understand Design of tension and compression members in trusses
CE3201.5	Differentiate the Plate girder and Gantry Girder and their Design
CE3201.6	Apply the drawings pertaining to different components of steel structures

<b>Course Name: Geotechnical engineering -I</b>	
<b>Course Code: CE3202</b>	
CE3202.1	Able to know the definition of the various quantities related to soil mechanics and Establish their inter-relationships.
CE3202.2	Determination of the various index properties of the soils and classify the soils
CE3202.3	Understand the importance of the different engineering properties of the soil
CE3202.4	Classify the properties of compaction, permeability, consolidation and shear strength and determine them in the laboratory
CE3202.5	understand the concept of shear strength of soils
CE3202.6	Differentiate the shear parameters of sands and clays and the areas of their application

<b>Course Name: Environmental Engineering-I</b>	
<b>Course Code: CE3203</b>	
CE3203.1	Analyse source based on quality and quantity and Estimate design population and water demand
CE3203.2	Design a water treatment plant for a village/city
CE3203.3	Estimation of the Sewage Treatment Plant for a town/city
CE3203.4	Classify the sewers and plumbing systems for building
CE3203.5	Apply the various methods to treatment the water
CE3203.6	Able to know the distribution systems of the water



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<b>Course Name: Water Resource Engineering-I</b>	
<b>Course Code: CE3204</b>	
<b>CE3204.1</b>	Able to understanding of the theories and principles governing the hydrologic processes
<b>CE3204.2</b>	Analyse the quantify hydrological components
<b>CE3204.3</b>	Apply concepts in hydrologic design of water resources projects
<b>CE3204.4</b>	Define Intensity-Duration-Frequency and Depth-Area Duration curves to design hydraulic structures
<b>CE3204.5</b>	Differentiate flow mass curve and flow duration curve
<b>CE3204.6</b>	Develop unit hydrograph and synthetic hydrograph

<b>Course Name: Waste Water Management</b>	
<b>Course Code: CE3205</b>	
<b>CE3205.1</b>	Know the quality and quantity of water for various industries and Advanced water treatment methods
<b>CE3205.2</b>	Learn the common methods of treatment of wastewaters and Biological treatment methods
<b>CE3205.3</b>	Analyse methods to reduce impacts of disposal of wasters into environment and CETPs
<b>CE3205.4</b>	Classify the treatment of wastewaters from specific industries like steel plants
<b>CE3205.5</b>	Able to know methods of treatment of wastewaters from industries like Aqua, dairy, sugar plants, and distilleries that imply biological treatment methods
<b>CE3205.6</b>	Applying the neutralization methods for water treatment

<b>Course Name: Geotechnical Engineering Lab</b>	
<b>Course Code: CE3206</b>	
<b>CE3206.1</b>	Able to know the permeability of soils
<b>CE3206.2</b>	Understand the Compaction, Consolidation and shear strength characteristics
<b>CE3206.3</b>	Analyse the index properties of the soils
<b>CE3206.4</b>	Differentiate the various types and classifications of the soils
<b>CE3206.5</b>	Apply Atterberg's Limits to know plasticity of soils
<b>CE3206.6</b>	Differentiate the Permeability, Compaction, consolidation, shear strength parameters & CBR value



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<b>Course Name: Environmental Engineering Lab</b>	
<b>Course Code: CE3207</b>	
<b>CE3207.1</b>	Estimate some important characteristics of water, wastewater and soil
<b>CE3207.2</b>	Classify the conclusion and decide whether the water is suitable for Drinking/Construction /Agriculture/ Industry
<b>CE3207.3</b>	Estimate Chloride, EC and Salinity of Soil and suggest their suitability
<b>CE3207.4</b>	Able to know the COD & BOD Values in water
<b>CE3207.5</b>	Classifying the various methods to treatment of water
<b>CE3207.6</b>	Demonstration of various instruments used in testing of water and soil and study of Drinking water standard

<b>Course Name: Computer Aided Engineering Lab</b>	
<b>Course Code: CE3208</b>	
<b>CE3208.1</b>	Understand Model the geometry of real-world structure Represent the physical model of structural element/structure
<b>CE3208.2</b>	Analyse the Perform analysis of the frame
<b>CE3208.3</b>	Able to Design and detailing of built up steel beam
<b>CE3208.4</b>	Developing a design programme for foundation
<b>CE3208.5</b>	Differentiate the Interpret from the Post processing results
<b>CE3208.6</b>	Analysis & Design of Roof Trusses



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## Year/Sem: IV B.Tech I SEM

<b>Course Name: Environmental Engineering - II</b>	
<b>Course Code: CE4101</b>	
<b>CE4101.1</b>	Plan and design the sewerage systems
<b>CE4101.2</b>	Able to Select the appropriate appurtenances in the sewerage systems
<b>CE4101.3</b>	Analyze sewage and suggest and design suitable treatment system for sewage treatment
<b>CE4101.4</b>	Identify the critical point of pollution in a river for a specific amount of pollutant disposal into the river
<b>CE4101.5</b>	Able to know suitable disposal method with respect to effluent standards
<b>CE4101.6</b>	Differentiate the one pipe & two pipe methods

<b>Course Name: Water Resource Engineering-II</b>	
<b>Course Code: CE4102</b>	
<b>CE4102.1</b>	Able to understanding of the theories and principles governing the hydrologic processes
<b>CE4102.2</b>	Analyse the quantify hydrological components
<b>CE4102.3</b>	Apply concepts in hydrologic design of water resources projects
<b>CE4102.4</b>	Define Intensity-Duration-Frequency and Depth-Area Duration curves to design hydraulic structures
<b>CE4102.5</b>	Differentiate flow mass curve and flow duration curve
<b>CE4102.6</b>	Develop unit hydrograph and synthetic hydrograph

<b>Course Name: Geotechnical Engineering-II</b>	
<b>Course Code: CE4103</b>	
<b>CE4103.1</b>	Able to understand the various types of shallow foundations
<b>CE4103.2</b>	Analyse and compute the magnitude of foundation settlement and decide on the size of the foundation accordingly
<b>CE4103.3</b>	Define the field test data and arrive at the bearing capacity
<b>CE4103.4</b>	Design the principles of bearing capacity of piles
<b>CE4103.5</b>	Differentiate the principles of important field tests such as SPT and Plate bearing test
<b>CE4103.6</b>	Able to know the concepts of pile foundations and determine their load carrying capacity



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<b>Course Name: Remote Sensing &amp; GIS Applications</b>	
<b>Course Code: CE4104</b>	
CE4104.1	Understand the basic principles of Remote Sensing and GIS techniques
CE4104.2	Able to learn various types of sensors and platforms
CE4104.3	Differentiate the aerial photographs and satellite imageries
CE4104.4	Create and input spatial data for GIS application
CE4104.5	Apply RS and GIS concepts for application in Civil Engineering
CE4104.6	Classify the spatial data structures, raster and vector data formats

<b>Course Name: Ground Improvement Techniques</b>	
<b>Course Code: CE4105</b>	
CE4105.1	Able to possess the knowledge of various methods of ground improvement and their suitability
CE4105.2	Differentiate to learn the concepts, purpose and effects of grouting
CE4105.3	Understand the position to design a reinforced earth embankment and check its stability
CE4105.4	Classify the various functions of Geosynthetics and their applications in Civil Engineering practice
CE4105.5	Able to know reinforced earth technology and soil nailing can obviate the problems posed by the conventional retaining walls
CE4105.6	Defining the improvement of engineering performance of soils

<b>Course Name: Environmental impact assessment and management</b>	
<b>Course Code: CE4106</b>	
CE4106.1	To impart knowledge on different concepts of Environmental Impact Assessment
CE4106.2	Able to Prepare EMP, EIS, and EIA report
CE4106.3	Analyse and Identify the risks and impacts of a project
CE4106.4	Define and Evaluation the EIA report
CE4106.5	Estimate the cost benefit ratio of a project
CE4106.6	Know the role of stakeholder and public hearing in the preparation of EIA

<b>Course Name: GIS &amp; CAD Lab</b>	
<b>Course Code: CE4107</b>	
CE4107.1	Able to understand the Work comfortably on GIS software
CE4107.2	Define Digitize and create thematic map and extract important features
CE4107.3	Classifying the Develop digital elevation model
CE4107.4	Use structural analysis software to analyse and design 2D and 3D frames
CE4107.5	Design and analyse retaining wall and simple towers using CADD software
CE4107.6	learn to apply GIS software to simple problems in water resources and transportation engineering



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**Course Name: Irrigation Design and Drawing Lab**

**Course Code: CE4108**

**CE4108.1** To understand design principle of various irrigation structures

**CE4108.2** Design and analyse the surplus weir

**CE4108.3** Able to know design and working of Tank sluice with a tower head

**CE4108.4** Draw a plan of Canal drop-Notch type and working principles

**CE4108.5** Understand the efficiency of Canal regulator

**CE4108.6** Classify the design of Syphon aqueduct type III



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Year/Sem: IV B.Tech II SEM

<b>Course Name: Estimation Specifications and Contracts</b>	
<b>Course Code: CE4201</b>	
CE4201.1	Able to determine the quantities of different components of buildings
CE4201.2	Analyse position to find the cost of various building components
CE4201.3	Understand the capable of finalizing the value of structures
CE4201.4	Differentiate various specifications and components of the buildings
CE4201.5	Understand the quantity calculations of different components of the buildings
CE4201.6	Classifying the types of contracts & documents

<b>Course Name: Construction Technology &amp; Management</b>	
<b>Course Code: CE4202</b>	
CE4202.1	Analyse the importance of construction planning
CE4202.2	Define the functioning of various earth moving equipment
CE4202.3	Able to know the methods of production of aggregate products and concreting
CE4202.4	Apply the gained knowledge to project management and construction techniques
CE4202.5	Classify the importance of safety in construction projects
CE4202.6	Understand the concept of project management including network drawing and monitoring

<b>Course Name: Pre stressed Concrete</b>	
<b>Course Code: CE4203</b>	
CE4203.1	Able to know the concepts of pre stressing
CE4203.2	Understand different pre stressing systems and devices
CE4203.3	Analyse the losses of pre stress including short and long term losses
CE4203.4	Analysis and design of pre stressed concrete members under flexure, shear and torsion
CE4203.5	Analyse and design pre stressed concrete beams under flexure and shear
CE4203.6	Understand the relevant IS Code provisions for pre stressed concrete

<b>Course Name: Solid and Hazardous Waste Management</b>	
<b>Course Code: CE4204</b>	
CE4204.1	Able to Design the collection systems of solid waste of a town
CE4204.2	Understand the Design treatment of municipal solid waste and landfill
CE4204.3	Analyse to Know the criteria for selection of landfill
CE4204.4	Define the Characterise the solid waste and design a composting facility
CE4204.5	Differentiate the Method of treatment and disposal of Hazardous wastes
CE4204.6	Classifying the methods of solid disposal methods