



SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

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Sheriguda(Vill), Ibrahimpatnam(Mdl), R. R. Dist – 501510

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COURSE OUTCOMES (COs)

Course Outcomes (COs) describe what students can able to do after completion of the course.

Program : B.Tech-Civil Engineering	Academic Year : 2021-22	Semester : I & II
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S.No	Year/ Sem	Course Code	Course Name	Course Outcomes (After completion of the course student can able to :)
1	II/I	CE301PC	Surveying and Geomatics	CO1: Define the principles of surveying and its phases and measure the directions by using chain and prismatic compass.
				CO2: Analyzing the levels of ground and computing the area and volumes.
				CO3: Explain the theodolite surveying and analyse the methods of traversing.
				CO4: Explain the principles of tachometry surveying and differentiate types of curves.
				CO5: Explain the total station and global positioning system.
				CO6: Define contouring and study its characteristics and its uses.
2	II/I	CE302PC	Engineering Geology	CO1: Write about importance of geology from civil engineering point of view.
				CO2: Distinguish weathered rocks from fresh rocks.
				CO3: Identify geological structures and processes for rock mass quality.
				CO4: Identify subsurface information and groundwater potential sites through geophysical Investigations.
				CO5: Apply geological principles for mitigation of natural hazards and select sites for dams and tunnels.
				CO6: Develop understanding on impact of geological features on civil engineering projects.
3	II/I	CE303PC	Strength of Materials - I	CO1: Describe the basic concept of stress and strain.
				CO2: Draw SFD and BMD for different beams subjected to different loads.
				CO3: Formulate flexural stresses, shear stresses and its distribution for various sections.
				CO4: Assess slope and deflection of beams subjected to loads.



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				<p>CO5: Apply the principal stresses and strains in structural members.</p> <p>CO6: Analyze of the principles and basics of strength of materials in the civil engineering structures.</p>
4	II/I	MA304BS	Probability and Statistics	<p>CO1: Describe the use of Baye's theorem techniques when solving the problems.</p> <p>CO2: Discuss the properties of Discrete and continuous probability distributions.</p> <p>CO3: Solve the problems on Binomial and Geometric distributions and also normal distribution.</p> <p>CO4: Determine the testing of Hypothesis by using Type- I and Type- II errors.</p> <p>CO5: Identify the different types of hypothesis.</p> <p>CO6: Create the new problems on correlations and Regressions.</p>
5	II/I	CE305PC	Fluid Mechanics	<p>CO1: Explain the properties of the fluids.</p> <p>CO2: Describe and classification of the flows.</p> <p>CO3: Identify the discharge through the various discharge meters.</p> <p>CO4: Explain the How to move the fluid various flows and finding the discharge.</p> <p>CO5: Differentiate the fluid flow in layer by layer.</p>
6	II/I	CE306PC	Surveying Lab	<p>CO1: Prepare the surveying of an area by chain, and compass survey (closed traverse) & plotting.</p> <p>CO2: Solve and Calculation of areas, Drawing plans and contour maps using different measuring equipment at field level.</p> <p>CO3: Recognize Trigonometric leveling using theodolite.</p> <p>CO4: Apply the principle of surveying for civil Engineering Applications.</p> <p>CO5: Draw determination of height, remote elevation, and distance between inaccessible points using total station.</p>
7	II/I	CE307PC	Strength of Materials Lab	<p>CO1: Identify modulus of rigidity using spring test.</p> <p>CO2: Examine the properties of steel under different loads like tension, compression etc.</p> <p>CO3: Distinguish between simply supported beams and cantilever beams under shear stresses.</p>



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				<p>CO4: Assess the deflection of beams under given loads.</p> <p>CO5: 5 Investigate the hardness of materials like stainless steel, aluminium, brass etc.</p> <p>CO6: Judge the resistance of mild steel under impact loads.</p>
8	II/I	CE308PC	Engineering Geology Lab	<p>CO1: Study of physical properties and identification of minerals referred under theory.</p> <p>CO2: Mega scopic and microscopic identification of minerals.</p> <p>CO3: Interpretation and drawing of sections for geological maps showing titled beds, faults, Uniformities, etc.</p> <p>CO4: Solve simple structural geology problems.</p>
9	II/I	*MC309	Constitution of India	<p>CO1: Understand meaning, features, characteristics of constitution law and constitutionalism.</p> <p>CO2: Describe fundamental rights, fundamental duties and its legal status.</p> <p>CO3: Describe The constitution powers and status of the President of India.</p> <p>CO4: Understand Emergency Provisions: National Emergency, President Rule, And Financial Emergency.</p> <p>CO5: Understand Fundamental Right to Equality, Fundamental Right to certain Freedom under Article 19.</p> <p>CO6: Describe the Scope of the Right to Life and Personal Liberty under Article 21.</p>
10	II/II	EE401ES	Basic Electrical and Electronics Engineering	<p>CO1: Understand the basic electrical circuit elements and different ac circuits.</p> <p>CO2: Understand the installation of different electrical equipments.</p> <p>CO3: Describe the working of different transformers.</p> <p>CO4: Understand the principles of DC motors.</p> <p>CO5: Analyze the different diodes, rectifiers and filters.</p> <p>CO6: Understand the principle, applications of BJT and FET.</p>
11	II/II	CE402ES	Basic Mechanical Engineering for Civil Engineers	<p>CO1: Understand the Mechanical equipment for the usage cams, riveted joint and discuss the materials.</p> <p>CO2: Analyze the working of power transmission elements like gears, belt drive, chain drive & material handling equipment.</p> <p>CO3: Illustrate the working features of IC engines, the basic principles of refrigeration and laws of heat transfer.</p>



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				<p>CO4: Describe different types of welding process for joining & classify the process of casting.</p> <p>CO5: Differentiate understand working of lathe, drilling, milling & grinding machines.</p>
12	II/II	CE403PC	Building Materials, Construction and Planning	<p>CO1: Identification of suitable construction materials building stones properties and bricks wood structures.</p> <p>CO2: Apply the manufacture type of cements, cement hydration properties and field test and uses of admixtures minerals.</p> <p>CO3: Identify the components of building and differentiate various types of building materials depending on its function.</p> <p>CO4: Prepare of various construction related activities like stone masonry, plastering, painting, Form work.</p> <p>CO5: Classify the principles of building planning and building by laws.</p> <p>CO6: Illustrate the various precautionary measures pertaining to construction materials.</p>
13	II/II	CE404PC	Strength of Materials - II	<p>CO1: Illustrate the various precautionary measures pertaining to construction materials.</p> <p>CO2: Asses to understand the behaviour of columns and struts under axial loading.</p> <p>CO3: Evaluate the strains and deformation that will result due to the elastic stresses developed within the materials for simple types of loading.</p> <p>CO4: Analyze strength and stability of structural members subjected to Direct, and Direct and Bending stresses.</p> <p>CO5: Understand and evaluate the shear center and unsymmetrical bending.</p> <p>CO6: Appraise strengths of different materials.</p>
14	II/II	CE405PC	Hydraulics and Hydraulic Machinery	<p>CO1: Explain the properties of the fluids.</p> <p>CO2: Describe and classification of the flows.</p> <p>CO3: Identify the discharge through the various discharge meters.</p> <p>CO4: Explain the How to move the fluid various flows and finding the discharge.</p> <p>CO5: Differentiate the fluid flow in layer by layer.</p> <p>CO6: Discuss the classification of fluid and its properties find out the discharge & amp various conditions flows in fluids.</p>
15	II/II	CE406PC	Structural Analysis - I	<p>CO1: Analyze perfect, imperfect and redundant frames.</p> <p>CO2: Compare different frames.</p>



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				<p>CO3: Apply classical methods for one dimensional and two dimensional problems.</p> <p>CO4: Analyze indeterminate structures.</p> <p>CO5: Apply slope-deflection and moment distribution method for continuous beams with and without settlement of supports.</p> <p>CO6: Analyze structures for gravity loads, moving loads and lateral loads.</p>
16	II/II	CE407PC	Computer aided Civil Engineering Drawing	<p>CO1: Summarize the AutoCAD commands for drawing 2D & 3D building drawings required for different civil engineering applications.</p> <p>CO2: Plan and draw Civil Engineering Buildings as per aspect and orientation.</p> <p>CO3: Categorize drawings as per user requirements and preparation of technical report.</p> <p>CO4: Draw a plan of a Building and with dimensioning the plan.</p> <p>CO5: Define the tools like Draw tools, Modify tools which are used in AutoCAD.</p> <p>CO6: Develop sections and elevations for given Single storied buildings, multi storied buildings.</p>
17	II/II	CE409PC	Hydraulics and Hydraulic Machinery Lab	<p>CO1: Understand the properties of the fluids.</p> <p>CO2: Describe and classification of the flows.</p> <p>CO3: Identify the discharge through the various discharge meters.</p> <p>CO4: Understand the How to move the fluid various flows and finding the discharge.</p> <p>CO5: Differentiate the fluid flow in layer by layer.</p>
18	II/II	EE409ES	Basic Electrical and Electronics Engineering Lab	<p>CO1: Understand behavior of different electrical components.</p> <p>CO2: Formulate and solve AC,DC circuits.</p> <p>CO3: Realize the requirement of transformers.</p> <p>CO4: Explain the properties of electromagnetic circuit.</p> <p>CO5: Understand the principles of various electrical circuits.</p> <p>CO6: Understand working principles of various analogue electrical measuring instruments.</p>
19	II/II	*MC409	Gender Sensitization Lab	<p>CO1: Develop sensibility with regard to issues of gender in contemporary India.</p> <p>CO2: Provide a critical perspective on the socialization of men and women.</p> <p>CO3: Determine information about some key biological aspects of genders.</p> <p>CO4: Debate on the politics and economics of work.</p>



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				<p>CO5: Reflect critically on gender violence.</p> <p>CO6: Expose more egalitarian interactions between men and women.</p>
20	III/I	CE501PC	Structural Analysis-II	<p>CO1: Analyze the two hinged arches.</p> <p>CO2: Solve statically indeterminate beams and portal frames using classical methods</p> <p>CO3: Draw the shear force and bending moment diagrams for indeterminate structures</p> <p>CO4: Formulate the stiffness matrix and analyze the beams by matrix methods.</p> <p>CO5: Solve the approximate and numerical methods of analysis for indeterminate structures</p> <p>CO6: Design the variation of S.F and B.M when a moving load passes on indeterminate structure.</p>
21	III/I	CE502PC	Geotechnical Engineering	<p>CO1: Distinguish the properties and classification of the Soils.</p> <p>CO2: Describe the Factors affecting permeability of the Soils</p> <p>CO3: Develop the Stress Distribution of the compaction effects on soil properties</p> <p>CO4: Develop the Stress Distribution of the Consolidation effects on soil properties.</p> <p>CO5: Classify the Shear Strength Of Soils Importance of parameters</p> <p>CO6: Describe the classification of soil and its properties find out the permeability various conditions flows in soil.</p>
22	III/I	CE503PC	Structural Engineering –I (RCC)	<p>CO1: Analyze of the Reinforced concrete beams using limit state design</p> <p>CO2: Design the Reinforced concrete structural slabs</p> <p>CO3: Design the Reinforced concrete structural elements</p> <p>CO4: Design the different types footings</p> <p>CO5: Design of the staircases</p> <p>CO6: Explain about the structures for serviceability</p>
23	III/I	CE504PC	Transportation Engineering	<p>CO1: Highway Development in India.</p> <p>CO2: Importance of Geometric Design.</p> <p>CO3: Introduction to traffic and Design of Traffic Signals.</p> <p>CO4: Explain the Intersection Design and Types of Intersections.</p> <p>CO5: Explain the Design of Pavements.</p> <p>CO6: Explain the highway engineering and design of pavements and to analysis the traffic signals.</p>



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24	III/I	CE602PE	Concrete Technology (Professional Elective-I)	CO1. Define the properties of concrete material
				CO2: Describe the behaviour of concrete properties of fresh concrete
				CO3: Describe the behaviour of concrete properties of hardened concrete
				CO4: Recognize the Workability of freshly mix concrete
				CO5: Apprise the difference between Self Compacting Concrete and normal
				CO6: Examine the Non Destructive test's on concrete.
25	III/I	SM505MS	Engineering Economics and Accountancy	CO.1: The students will understand the concepts of economics, demand, supply and various methodology of economics and the methods and theories.
				CO.2: Understand the various macroeconomic concepts like national income, methods of estimation, inflation, deflation and new economic policy.
				CO.3: Understand the significance of capital budgeting, time value of money, methods of appraisal techniques, payback period, average rate of return, profitability index.
				CO.4: Understands the concepts of equity and debt financing, leverages and types of leverages.
				CO.5: To adopt the principles of accounting to record, classify and summarize various transactions in books of accounts for preparation of final accounts.
				CO.6: Understand the concept of cost and break-even analysis, application and limitations.
26	III/I	CE506PC	Highway Engineering and Concrete Technology Lab	CO.1 Define the properties of concrete material.
				CO.2 Describe the behaviour of concrete & properties of fresh concrete.
				CO.3 Describe the behaviour of concrete & properties of hardened concrete
				CO.4 Recognize the Workability of freshly mix concrete
				CO.5 Apprise the difference between Self Compacting Concrete and normal
				CO.6 Examine the Non Destructive test's on concrete
27	III/I	CE507PC	Geotechnical Engineering Lab	CO.1 calculate and analyze the stresses on soil and be able to draw the stress paths
				CO.2 evaluate the compressibility of soils
				CO.3 suggest suitable ground improvement techniques for expansive soils
				CO.4 execute various field tests and sampling techniques



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28	III/I	EN508HS	Advanced Communication Skills Lab	CO.5 obtain and analyze the shear strength of soils
				CO1: Speak effectively.
				CO2: Express and communicate fluently and appropriately in social professional contexts.
				CO3: Develop the comprehensive ability through English language enables the students in understanding and assimilating other engineering subjects.
				CO4: The awareness of English lab enriches their communication and soft skills contributing to their overall development and success.
				CO5: Draft various letters and reports for all official purpose.
29	III/I	*MC509	Intellectual Property Rights	CO1: Analyze different types of intellectual property.
				CO2: Express function of trademarks.
				CO3: Understand law of copy rights.
				CO4: Understand law of patents.
				CO5: Explain trade secrets.
				CO6: Understand the development of intellectual property.
30	III/II	CE601PC	Hydrology & Water Resources Engineering	CO.1 Know types of water retaining structures for multiple purposes and its key parameters considered for planning and designing
				CO.2 Understand details in any Irrigation System and its requirements
				CO.3 Know types of a irrigation system components
				CO.4 Analyze of a irrigation system
				CO.5 Design of a irrigation system components
				CO.6 Design principles of Notch Fall and Sarada type Fall.
31	III/II	CE602PC	Environmental Engineering	CO.1 Assess characteristics of water and wastewater and their impacts
				CO.2 Estimate quantities of water and waste water and plan conveyance components
				CO.3 Design components of water and waste water treatment plants
				CO.4 Examine conversant with issues of air pollution and control.
				CO.5 Explain about classification of air pollution
				CO.6 Discuss Meteorological parameters affecting air pollution.
32	III/II	CE603PC	Foundation Engineering	CO1: Identify a suitable foundation system for a structure.



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				<p>CO2: Evaluate the importance of raft foundation and principles of design for buildings and tower structures.</p> <p>CO3: Analyze and design pile foundations.</p> <p>CO4: Examine and discuss various machine foundations.</p> <p>CO5: Analyze and design Sheet piles and cofferdams.</p>
33	III/II	CE604PC	Structural Engineering –II	<p>CO1: Analyze of the built up members and Column base</p> <p>CO2: Analyze of the plate girders and Roof Trusses</p> <p>CO3: Define the beams and beam columns</p> <p>CO4: Design the tension and compression members</p> <p>CO5: Design of the bolt and weld connections</p> <p>CO6: Explain about the Plastic beams</p>
34	III/II	CE612PE	Prestressed Concrete (Professional Elective-II)	<p>CO1 : Explain different types of Pre-stressing materials and methods of pre-stressing</p> <p>CO2 : Write about different losses of pre-stress</p> <p>CO3 : Flexure & Shear analysis of pre-stressed concrete</p> <p>CO4 : Examining the Transmission of pre-stressing force</p> <p>CO5: Analysis of composite beams & Deflection concept</p>
35	III/II	CS601OE	Fundamentals of Management for Engineers (Open Elective –I)	<p>CO1: Understand what is management</p> <p>CO2: Analyze organization structure and HRM</p> <p>CO3: Explain operational management</p> <p>CO4: Write about quality management</p> <p>CO5: Examine quality management</p> <p>CO6: Explain about project management steps.</p>
36	III/II	CE605PC	Environmental Engineering Lab	<p>CO1: Define physical, chemical, biological characteristics of water and wastewater.</p> <p>CO2: Examine break-point chlorination.</p> <p>CO3: Assess optimum dosage of coagulant.</p> <p>CO4: Assess the quality of water and wastewater.</p> <p>CO5: Examine the use of Nephlo turbidity meter.</p> <p>CO6: Analyze the difference of Total Solids, Total Dissolved Solids and Settle able solids.</p>
37	III/II	CE606PC	Computer Aided Design Lab	<p>CO1: Model the geometry of real-world structure Represent the physical model of structural element/structure</p> <p>CO2: Analysis design of space frames subjected to DL & LL</p> <p>CO3: Interpret from the Post processing results</p> <p>CO4: Design the structural elements and a system as per IS Codes</p>



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				<p>CO5: Design the structural elements like RCC beam and RCC slab</p> <p>CO6: Detailing of Steel built up compression member</p>
38	III/II	*MC609	Environmental Science	<p>CO1: Get the information about ecosystem and also about its functions like Food chain, Ecological pyramids etc.,</p> <p>CO2: Get the knowledge about the different types of resources like land, water, mineral and energy and also about the effects of environment by the usage of these resources.</p> <p>CO3: Gain the knowledge about the ecosystem diversity, its values and also about the importance of the endemic species and different techniques involved in its conservation</p> <p>CO4: Gain the knowledge about the different types of pollutions and their control technologies, Waste water treatment, Bio medical waste management etc.,</p> <p>CO5: Get the complete information about EIA-Environmental Impact Assessment,</p> <p>CO6: Gain the knowledge about environmental policies and regulations.</p>
39	IV/I	CE701PC	Estimation, Costing and Project Management	<p>CO1: Understand the technical specifications for various works to be performed for a project and how they impact the cost of a structure</p> <p>CO2: Quantify the worth of a structure by evaluating quantities of constituents, derive their cost rates and build up the overall cost of the structure.</p> <p>CO3: Understand how competitive bidding works and how to submit a competitive bid proposal.</p> <p>CO4: An idea of how to optimize construction projects based on costs.</p> <p>CO5: An idea how construction projects are administered with respect to contract structures & issues.</p> <p>CO6: An ability to put forward ideas and understandings to others with effective communication processes</p>
40	IV/I	CE712PE	Ground Improvement Techniques (Professional Elective-III)	<p>CO1: Identify the type of problems in problematic soils and solve their problems using different ground improvement techniques.</p> <p>CO2: Design of reinforced earth retaining structures.</p> <p>CO3: Design drainage and dewatering systems for various civil engineering problems.</p> <p>CO4: Apply knowledge on ground improvement techniques such as reinforced earth, drainage and dewatering and grouting techniques on stabilization of expansive soils.</p> <p>CO5: Understand the need of ground improvement for stable engineered structures using various techniques.</p> <p>CO6: Understand the ground improvement techniques such as ground anchors, rock bolting and soil nailing.</p>



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41	IV/I	CE721PE	Irrigation and Hydraulic Structures (Professional Elective –IV)	CO1: Know types of water retaining structures for multiple purposes and its key parameters considered for planning and designing.
				CO2: Explain different topics related to Gravity Dams.
				CO3: Analyze different topics related to Earth Dams.
				CO4: Understand details in any Irrigation System and its requirements.
				CO5: Know, Analyze and Design of a irrigation system components
42	IV/I	ME700OE	Basic Mechanical Engineering (Open Elective –II)	CO1: Understand basic concepts of Thermodynamics and Heat transfer.
				CO2: Examine different IC Engines and Air Condition.
				CO3: Analyze the concepts of power transmission.
				CO4: Understand the basic concepts of hydraulic & pneumatic power devices.
				CO5: Know the importance of Kinematics of mechanics.
				CO6: Demonstrate Rotodynamic and Vibratory Machines.
43	IV/I	SM702MS	Professional Practice law & Ethics	CO1: Define Professional Ethics.
				CO2: Understand law of contract and essential elements of valid contract.
				CO3: Describe Arbitration, Conciliation and ADR system.
				CO4: Explain the importance of Dispute Resolution Boards like Lok Adalats.
				CO5: Differentiate construction related laws.
				CO6: Describe law related to Intellectual Property.
44	IV/I	CE703PC	Industrial Oriented Mini Project	CO1: Assess the quality of water and wastewater.
				CO2: Examine the use of Nephlo turbidity meter.
				CO3: Analyze the difference of Total Solids, Total Dissolved Solids and Settle able solids.
45	IV/I	CE704PC	Seminar	CO1: Adapt a factual approach to decision making
				CO2: Effectively communicate by making an oral presentation before an evaluation committee.
				CO3: Analyze new technologies in all engineering fields.
46	IV/I	CE705PC	Project Stage - I	CO1: Learn to work as a team and to focus on getting a working project done within a stipulated period of time.
				CO2: demonstrate the understanding of impact of engineering solutions on the society.
				CO3: Plan, analyze, design and implement using different tools.



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47	IV/II	CE813PE	Air Pollution (Professional Elective –V)	CO1:Identify sampling and analysis techniques for air quality assessment
				CO2:Describe the plume behavior for atmospheric stability conditions
				CO3:Apply plume dispersion modelling and assess the concentrations
				CO4:Design air pollution controlling devices
				CO5: Describe Automobile and Indoor Pollution
48	IV/II	CE821PE	Airport, Railways, And Waterways (Professional Elective –VI)	CO1: Design of runways and taxiways
				CO2: Design the infrastructure for large and small airports
				CO3: Design various crossings and signals in Railway Projects.
				CO4: Plan the harbors and ports projects including the infrastructure required for new ports and harbors.
				CO5: Design railway tracks
				CO6: Analyze types of water transportation.
49	IV/II	MT802OE	Total Quality Management (Open Elective –III)	CO1: Understand what is Total Quality Management
				CO2: Analyze the concept of customer focus and Satisfaction.
				CO3: Analyze TQM organization.
				CO4: Explain seven tools of TQM.
				CO5: Understand the cost of quality.
				CO6: Understand the ISO 9000 Standard.
50	IV/II	CE801PC	Project Stage-II	CO1: Learn to work as a team and to focus on getting a working project done within a stipulated period of time.
				CO2: Demonstrate the understanding of impact of engineering solutions on the society.
				CO3: Plan, analyze, design and implement the idea using different tools.


HOD/CIVIL


PRINCIPAL