



LORDS INSTITUTE OF ENGINEERING & TECHNOLOGY
Himayath Sagar - 500 091, Hyderabad.
DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES (COS)

Course Name: C211 Surveying and Geomatics **Year: II-I Sem** **A. Y: 2019-20**

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| C211.1 | Explain the terminologies and concepts involved in basic and modern surveying equipment & technologies and also defines the concepts of horizontal and vertical curves. |
| C211.2 | Demonstrate the working principles and applications of basic and modern surveying instruments like chain, prismatic compass, plane table, dumpy level, theodolite and total station. |
| C211.3 | Apply the knowledge of surveying & levelling in calculating lengths, bearings, reduced levels, elevation differences and plotting of a ground. |
| C211.4 | Apply the knowledge of theodolite and trigonometry in finding horizontal and vertical angles, heights of inaccessible points. |
| C211.5 | Use the knowledge of curves concept in surveying, in setting out both horizontal and vertical curves for the purpose of roadway and railway alignment. |
| C211.6 | Interpret survey data and compute areas and volumes, levels by different type of equipment and relate the knowledge to the modern equipment and methodologies |

Course Name: C212 Engineering Geology **Year: II-I Sem** **A.Y: 2019-20**

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| C212.1 | Explain the role of geology in the design and construction process. |
| C212.2 | Identify and classify rock using basic geologic classification systems. |
| C212.3 | Identify various types of Indian solids. |
| C212.4 | Explain the geologic literature to establish the geotechnical framework needed to properly design and construct heavy civil works rock projects. |
| C212.5 | Describe the design and construction procedures required to safely control rock behavior in underground openings. |
| C212.6 | Illustrate the topographical and GSI maps. |

Course Name: C213 Strength of Materials -I **Year: II-I Sem** **A.Y: 2019-20**

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| C213.1 | Apply the fundamental concepts of stress and strain in the analysis and design of axially loaded members. |
| C213.2 | Analyze determinate beams to determine shear forces, bending moments and determine the bending stress distribution in beams. |
| C213.3 | Determine the shear stress distribution in a beam and also the stresses in beams subjected to combined axial and bending loads. |
| C213.4 | Evaluate the stresses and strains of circular members subjected to torsion and calculate the power required for torsional revolutions of shafts. |
| C213.5 | Analyze the combined stresses at a point to evaluate principal stresses. |
| C213.6 | Analyze the applications in evaluating failure criteria in various materials and pressure vessels. |

Course Name: C224 Mathematics – III **Year: II-I Sem** **A.Y: 2019-20**

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| C214.1 | Solve problems in engineering involving PDEs. |
| C214.2 | Evaluate second-order linear equations & initial and boundary conditions. |
| C214.3 | Determine the solutions for heat diffusion and vibration problems. |
| C214.4 | Solve problems involving random variables. |
| C214.5 | Apply statistical methods and hypothesis testing for analyzing experimental data. |
| C214.6 | Discuss the Concepts of F-distribution and chi-square distribution, goodness of fit and test for dependence. |

Course Name: C215 Fluid Mechanics**Year: II-I Sem****A.Y: 2019-20**

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| C215.1 | Describe the broad principles of fluid statics, kinematics and dynamics. |
| C215.2 | Define the basic terms used in fluid mechanics and characteristics of fluids and its flow. |
| C215.3 | Tell the type of fluid flow. |
| C215.4 | Apply the continuity, momentum and energy principles to fluid flow problems. |
| C215.5 | Summarize good fundamentals of hydraulics, hydraulic machinery and hydrology. |
| C215.6 | Solve problems in uniform, gradually and rapidly varied flows in open channel in steady state conditions. |

Course Name: C216 Surveying Lab**Year: II-I Sem****A.Y: 2019-20**

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| C216.1 | Explain the terminologies and concepts involved in basic and modern surveying equipment & technologies and also defines the concepts of horizontal and vertical curves |
| C216.2 | Demonstrate the working principles and applications of basic and modern surveying instruments like chain, prismatic compass, plane table, dumpy level, theodolite and total station. |
| C216.3 | Apply the knowledge of surveying & levelling in calculating lengths, bearings, reduced levels, elevation differences and plotting of a ground |
| C216.4 | Apply the knowledge of theodolite and trigonometry in finding horizontal and vertical angles, heights of inaccessible points |
| C216.5 | Use the knowledge of curves concept in surveying, in setting out both horizontal and vertical curves for the purpose of roadway and railway alignment |

Course Name: C217 Strength of Materials Lab**Year: II-I Sem****A.Y: 2019-20**

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| C217.1 | Demonstrate the Stress-strain behavior of ductile material |
| C217.2 | Compare Young's modulus of different materials by conducting deflection test on different types of beams |
| C217.3 | Calculate rigidity modulus by spring test and torsion test. |
| C217.4 | Evaluate compressive strength of brick. |
| C217.5 | Determine Hardness number and Impact strength of given Specimens. |

Course Name: C218 Engineering Geology Lab**Year: II-I Sem****A.Y: 2019-20**

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| C218.1 | Identify the physical and engineering properties of minerals and rocks. |
| C218.2 | Analyze and measure structural aspects of rocks using models. |
| C218.3 | Demonstrate the field experiment and studies such as VES. |
| C218.4 | Discuss about the Stereoscopic study of photographs, seismic refraction survey and Slake durability test. |
| C218.5 | Summarize the topographical and GSI maps. |

Course Name: C219 Constitution of India**Year: II-I Sem****A.Y: 2019-20**

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| C219.1 | Explain the significance of Indian Constitution as the fundamental law of the land. |
| C219.2 | Apply fundamental rights in proper sense at the same time identifies responsibilities in national building. |
| C221.3 | Analyze the Indian political system, the powers and functions of the Union, State and Local Governments in detail. |
| C219.4 | Explain Electoral Process, Emergency provisions and Amendment procedure. |
| C219.5 | Describe the functioning of Union, State and Local Governments in Indian federal system. |
| C219.6 | Identify the importance of fundamental rights as well as fundamental duties. |

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COURSE OUTCOMES (COS)

Course Name: C221 Basic Electrical and Electronics Engineering Year: II-II Sem A.Y: 2019-20

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| C221.1 | Analyze and solve electrical circuits using network laws and theorems. |
| C221.2 | Analyze basic Electric and Magnetic circuits. |
| C221.3 | Discuss the working principles of Electrical Machines. |
| C221.4 | Explain the components of Low Voltage Electrical Installations. |
| C221.5 | Describe the concept of power, power factor and its improvement. |
| C221.6 | Identify and characterize diodes and various types of transistors. |

Course Name: C222 Basic Mechanical Engineering for Civil Engineers Year: II-II Sem A.Y: 2019-20

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| C222.1 | Explain the mechanical equipment for the usage at civil engineering systems. |
| C222.2 | Tell the general principles and requirement for refrigeration, manufacturing, |
| C222.3 | Apply the techniques employed to construct civil engineering systems. |
| C222.4 | Explain the Manufacturing Processes for Sheet Metal Work, Welding and Casting. |
| C222.5 | Describe about the lathe, drilling machine, milling machine, grinding machine. |
| C222.6 | Summarize Power Generation, Refrigeration, Modes and mechanisms of heat transfer. |

Course Name: C223 Building Materials and Construction planning Year: II-II Sem A.Y: 2019-20

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| C223.1 | Define the Basic terminology that is used in the industry. |
| C223.2 | Identify different building materials, properties and their uses. |
| C223.3 | Express the Prevention of damage measures and good workmanship. |
| C223.4 | Explain different building services. |
| C223.5 | Explain different construction techniques. |
| C223.6 | Name the smart building materials. |

Course Name: C224 Strength of Materials -II

Year: II-II Sem A.Y: 2019-20

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| C224.1 | Describe the concepts and principles of theory of elasticity. |
| C224.2 | Determine the strength of structures and mechanical components in particular to torsion and direct compression. |
| C224.3 | Evaluate the strains and deformation that will result due to the elastic stresses developed within the materials for simple types of loading. |
| C224.4 | Determine the stresses in the case of dams, retaining walls and chimneys. |
| C224.5 | Analyze strength and stability of structural members subjected to Direct, and Direct and Bending stresses. |
| C224.6 | Evaluate the shear center and unsymmetrical bending. |

Course Name: C225 Hydraulics and Hydraulic Machinery**Year: II-II Sem A.Y: 2019-20**

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| C225.1 | Apply the concept of fluid mechanics in addressing problems in open channels and hydraulic machinery. |
| C225.2 | Solve problems in uniform, gradually and rapidly varied flows in open channel in steady state conditions. |
| C225.3 | Apply dimensional analysis and to differentiate the model, prototype and similitude conditions for practical problems. |
| C225.4 | Discuss on different hydraulic machinery devices and its principles that will be utilized in hydropower development and for other practical usages. |
| C225.5 | analyze and design of hydraulic machinery and its modeling. |
| C225.6 | Tell the characteristics of hydroelectric power plant and its components. |

Course Name: C226 Structural Analysis-I**Year: II-II Sem A.Y: 2019-20**

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| C226.1 | Apply knowledge of mathematics, science, and engineering. |
| C226.2 | Analyze the statically indeterminate bars and continuous beams. |
| C226.3 | Calculate the Strength behavior of members for static and dynamic loading. |
| C226.4 | Calculate the stiffness parameters in beams and pin jointed trusses. |
| C226.5 | Analyze the indeterminacy aspects to consider for a total structural system. |
| C226.6 | Identify, formulate, and solve engineering problems with real time loading |

Course Name: C227 Computer Aided Civil Engineering Drawing**Year: II-II Sem A.Y: 2019-20**

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| C227.1 | Use the AutoCAD commands for drawing 2D & 3D building drawings required for different civil engineering applications. |
| C227.2 | Plan and draw Civil Engineering Buildings drawings as per aspect and orientation. |
| C227.3 | Draw the building plans as per user requirements and preparation of technical report |
| C227.4 | Develop the sections and elevations for given Single storied buildings and multi storied buildings |
| C227.5 | Apply Auto CAD in surveying, mechanics etc. |
| C227.6 | Draw the building components like walls, lintels, Doors, and Windows. using CAD software. |

Course Name: C228 Hydraulics & Hydraulic Machinery lab**Year: II-II Sem A.Y: 2019-20**

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| C228.1 | Describe the basic measurement techniques of fluid mechanics and its appropriate application. |
| C228.2 | Interpret the results obtained in the laboratory for various experiments. |
| C228.3 | Demonstrate the practical working of Hydraulic machines- different types of Turbines, Pumps, and other miscellaneous hydraulics machines. |
| C228.4 | Compare the results of analytical models introduced in lecture to the actual behavior of real fluid flows and draw correct and sustainable conclusions. |
| C228.5 | Create a technical laboratory report. |

Course Name: C229 Basic Electrical and Electronics Engineering lab Year: II-II Sem A.Y: 2019-20

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| C229.1 | Analyze and solve electrical circuits using network laws and theorems. |
| C229.2 | Analyze basic Electric and Magnetic circuits |
| C229.3 | Discuss the working principles of Electrical Machines |
| C229.4 | Explain components of Low Voltage Electrical Installations |
| C229.5 | Identify and characterize diodes and various types of transistors. |

Course Name: C2210 Gender sensitization lab Year: II-II Sem A.Y: 2019-20

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| C2210.1 | Tell basic dimensions of the biological, sociological, psychological and legal aspects of gender. |
| C2210.2 | Describe a finer grasp that how gender discrimination works in our society and how to counter it. |
| C2210.3 | Discuss the gendered division of labour and its relation to politics and economics. |
| C2210.4 | Summarize a sense of appreciation of women in all walks of life. |
| C2210.5 | Empower students to understand and respond to gender violence. |

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COURSE OUTCOMES (COS)

Course Name: C311 Concrete Technology

Year: III-I Sem A. Y: 2019-20

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| C311.1 | State the use of supplement cementitious in concrete, use of different admixture and its application as per requirement. |
| C311.2 | Explain the special concrete, its properties and application as per requirement. |
| C311.3 | Analyse the concrete mix design for required strength of concrete with different approach. |
| C311.4 | Explain about the ready-mix concrete plant. |
| C311.5 | Describe the durability of concrete, assessment and inspection of hardened concrete. |
| C311.6 | Identify the properties of hardened concrete by conducting destructive and non-destructive tests. |

Course Name: C312 Design of Reinforced Concrete structures

Year: III-I Sem A.Y: 2019-20

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| C312.1 | Apply Concepts of RC. Design - Limit State method - Working Stress Method. |
| C312.2 | Analyse and designing of Beams. Apply the concept of bond, and development length |
| C312.3 | Design of one-way, two-way slab, and continuous slabs using IS coefficients Design the doglegged Stair case. |
| C312.4 | Design of short and long columns using limit state method for uni-axial and bi axial bending |
| C312.5 | Design different types of footing. |
| C312.6 | Analyse and design of singly reinforced, doubly reinforced, T and L beam sections. |

Course Name: C313 Water Resources Engineering

Year: III-I Sem A.Y: 2019-20

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| C313.1 | Analyze hydro-meteorological data. |
| C313.2 | Estimate abstractions from precipitation. |
| C313.3 | Estimate yield from surface and subsurface basin. |
| C313.4 | Design rainfall-runoff models. |
| C313.5 | Formulate and solve hydrologic flood routing models. |
| C313.6 | Estimate runoff, design discharge from catchment. |

Course Name: C314 Fundamentals of Management

Year: III-I Sem A.Y: 2019-20

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| C314.1 | Explain the significance of Management in their Profession. |
| C314.2 | Describe The various Management Functions like Planning, Organizing, Staffing, Leading, Motivation and Control aspects. |
| C314.3 | Explain the Management Practices in their domain area. |
| C314.4 | Explain the Concepts in Practical aspects of business and development of Managerial Skills. |
| C314.5 | Describe the Leadership, Power and Authority, Behavioral Leadership, Situational Leadership, Leadership. |
| C314.6 | Demonstrate as Mentor and Coach, Leadership during adversity and Crisis; Handling Employee and Customer Complaints, Team Leadership. |

Course Name: C315 Concrete Technology lab**Year: III-I Sem A.Y: 2019-20**

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| C315.1 | Identify the physical properties of Portland cement by conducting relevant tests. |
| C315.2 | Identify the properties of fine and coarse aggregates by conducting basic tests. |
| C315.3 | Identify the properties of fresh concrete by conducting basic tests. |
| C315.4 | Identify the properties of self-compacting concrete. |
| C315.5 | Identify the properties of hardened concrete by conducting destructive and non-destructive tests. |

Course Name: C316 Geographical Information Systems Lab Year: III-I Sem A.Y: 2019-20

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| C316.1 | Explain the concepts of Photogrammetry, Principles & types of aerial photograph, stereoscopy. |
| C316.2 | Explain the concept and principles of Remote sensing, electromagnetic spectrum, energy interaction with atmosphere & surface features, sensors and satellites. |
| C316.3 | Tell the components of GIS, spatial data & attribute data, data analysis, coordinate system |
| C316.4 | Analyse Topology & its importance, shape file |
| C316.5 | Explain Raster data model, types of raster data, raster data structure, data conversion and data input. |

Course Name: C317 Hydraulics and Hydraulic Machinery lab Year: III-I Sem A.Y: 2019-20

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| C317.1 | Illustrate the flow phenomenon in open channels. |
| C317.2 | Analyze the force acting due to jets concept and its application in hydraulic machines. |
| C317.3 | Demonstrate working principles of hydraulic pumps and turbines. |
| C317.4 | Infer the specific energy diagram by tilting flume. |
| C317.5 | Determine minor losses in pipes. |

Course Name: C318 Professional Ethics**Year: III-I Sem A.Y: 2019-20**

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| C318.1 | Explain the importance of Values and Ethics in their personal lives and professional careers. |
| C318.2 | Describe The rights and responsibilities as an employee, team member and a global citizen. |
| C318.3 | Explain Work Place Rights & Responsibilities, Ethics in changing domains of Research, Engineers and Managers. |
| C318.4 | Describe Global issues in Professional Ethics. |
| C318.5 | Explain The Centrality of Responsibilities of Professional Ethics. |
| C318.6 | Summarize Organizational Complaint Procedure, difference of Professional Judgment within the Nuclear Regulatory Commission (NRC), the Hanford Nuclear Reservation. |

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COURSE OUTCOMES (COS)

Course Name: C321 Design of Steel structure **Year: III-II Sem** **A.Y: 2019-20**

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| C321.1 | Design tension and compression members. |
| C321.2 | Design beams and beam columns. |
| C321.3 | Design bolt and weld connections. |
| C321.4 | Design built up members and Column base. |
| C321.5 | Design the plate girders and Roof Trusses. |
| C321.6 | Design the eccentric connections – Framed – stiffened and seat connection. |

Course Name: C322 Environmental Engineering **Year: III-II Sem** **A.Y: 2019-20**

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| C322.1 | Analyse the basic quality and quantity parameters of water by some prescribed methods. |
| C322.2 | Analyse the different types of treatment methods and water distribution. |
| C322.3 | Discuss the characters of sewage, plumbing and sanitary. |
| C322.4 | Explain the different stages of treatment methods. |
| C322.5 | Explain the concepts of air pollution and its effects. |
| C322.6 | Describe the various gaseous pollutants and its control. |

Course Name: C323 Soil Mechanics **Year: III-II Sem** **A.Y: 2019-20**

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| C323.1 | Define the basic properties of soil formation. |
| C323.2 | Discuss the index properties of soils. |
| C323.3 | Calculate the properties and factors of permeability by conducting simple tests. |
| C323.4 | Analyse the effective stress and seepage through soils. |
| C323.5 | Demonstrate the properties of flow nets and uses. |
| C323.6 | Evaluate the various stress distribution of soils. |

Course Name: C324 Air Pollution and Control **Year: III-II Sem** **A.Y: 2019-20**

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| C324.1 | Identify the sources, causes and general effects of air pollution. |
| C324.2 | Analyse the effects of air pollution on humans, plants and animals. |
| C324.3 | Describe the plume behaviour of atmospheric stability conditions. |
| C324.4 | Identify the sampling procedure and analysis techniques for air quality assessment. |
| C324.5 | Explain various techniques to control air pollution. |
| C324.6 | Describe air quality management and methods to maintain it. |

Course Name: C325 Soil Mechanics Lab**Year: III-II Sem****A.Y: 2019-20**

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| C325.1 | Determine index properties of soils. |
| C325.2 | Describe various types of soils. |
| C325.3 | Determine engineering properties of soils. |
| C325.4 | Explain the principles of compaction and its control. |
| C325.5 | Identify shear strength parameters for field conditions. |

Course Name: C326 Computer Aided design -II Lab**Year: III-II Sem****A.Y: 2019-20**

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| C326.1 | Detailing of reinforcement in Cantilever, simply supported, Continuous Beams, canopy & columns. |
| C326.2 | Detailing of reinforcement in RC isolated footings square, rectangular, circular and combined footings, RC one-way, two-way slabs and dog-legged staircases. |
| C326.3 | Drawing of Steel bolted and welded connections. |
| C326.4 | Drawing of steel compression and tension members. |
| C326.5 | Drafting of steel beams-built-up sections. Drafting of steel plate girder, steel roof truss. |

Course Name: C327 Advanced English communication skills Lab Year: III-II Sem A.Y: 2019-20

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| C327.1 | Recall vocabulary and use it contextually. |
| C327.2 | Listen and speak effectively. |
| C327.3 | Develop proficiency in academic reading and writing. |
| C327.4 | Increase possibilities of job prospects. |
| C327.5 | Communicate confidently in formal and informal contexts. |

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COURSE OUTCOMES (COS)

Course Name: C411 Transportation Engineering Year: IV-I Sem A.Y: 2019-20

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|--------|--|
| C411.1 | Apply the knowledge of mathematics, science and engineering in the areas of traffic engineering, highway development and maintenance. |
| C411.2 | Design and conduct experiments to assess the suitability of the highway materials like soil, bitumen, aggregates and a variety of bituminous mixtures. |
| C411.3 | Design flexible and rigid highway pavements for varying traffic compositions as well as soil subgrade and environmental conditions using the standards stipulated by Indian Roads Congress. |
| C411.4 | Evaluate the structural and functional conditions of. Inservice highway pavements and provide solution in the form of routine maintenance measures or designed overlays using Indian Roads congress guidelines |
| C411.5 | Assess the issues related to road traffic and provide engineering solutions. |
| C411.6 | Analyse road user psychological and behavioural patterns |

Course Name: C412 Estimation quantity surveying and valuation Year: IV-I Sem A.Y: 2019-20

| | |
|--------|---|
| C412.1 | Explain the preparation of an Abstract Estimate and detailed estimate of building. |
| C412.2 | Determine earth work quantity for roads and canals. |
| C412.3 | Tell preparation of Notice inviting tender document for bidding, tendering process and examining rate analysis of civil works. |
| C412.4 | Design bar bending schedule for reinforcement works, identify specifications and tendering process for contracts and create various tender documents for bidding purpose. |
| C412.5 | Evaluate the valuation of building for different specifications. |
| C412.6 | Create new technologies to develop concrete estimating methods. |

Course Name: C413 Rehabilitation and Retrofitting of Structures Year: IV-I Sem A.Y: 2019-20

| | |
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| C413.1 | Summarize the mechanisms of degradation and distress of concrete in structures. |
| C413.2 | Explain the mechanism of corrosion of steel reinforcement. Fire basics. |
| C413.3 | Analyse the structure failures by following appropriate Inspection procedures and non-destructive evaluation. |
| C413.4 | Analyse the deterioration and use of repair strategies for deteriorated concrete structures. |
| C413.5 | Explain the importance of health monitoring of structures. |
| C413.6 | Evaluate the health of structures by using relevant sensors and design of SHM. |

Course Name: C414 Pre- Stressed Concrete**Year: IV-I Sem A.Y: 2019-20**

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| C414.1 | Describe the basic properties of pre-stressed concrete Constituents. |
| C414.2 | Calculate pre-stress losses for simple pre-stressed concrete beams. |
| C414.3 | Design pre-stressed concrete beam to resist shear. |
| C414.4 | Analyse flexural forces in pre-stressed concrete beams. |
| C414.5 | Explain the concept of transfer of pre-stress in pretensioned members. |
| C414.6 | Analyse for deflection of pre-stressed concrete member. |

Course Name: C415 Irrigation and Hydraulic Structures**Year: IV-I Sem A.Y: 2019-20**

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|--------|---|
| C415.1 | Apply different terminology related to water resources engineering. |
| C415.2 | Identify various types of reservoirs and their design aspects. |
| C415.3 | Design various channel systems. |
| C415.4 | Design head and cross regulator structures. |
| C415.5 | Develop cross drainage works and its design. |
| C415.6 | Design various Irrigation and Hydraulic structures. |

Course Name: C416 Transportation Engineering Lab**Year: IV-I Sem A.Y: 2019-20**

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|--------|---|
| C416.1 | Explain the Highway construction properties of highway materials. |
| C416.2 | Identify the properties of Highway materials and surveys. |
| C416.3 | Perform the tests on Road Aggregates. |
| C416.4 | Perform the tests on Bituminous Materials. |
| C416.5 | Perform the tests on Traffic Studies. |

Course Name: C417 Environmental Engineering Lab**Year: IV-I Sem A.Y: 2019-20**

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|--------|---|
| C417.1 | Measure common environmental experiments relating to water and wastewater quality. |
| C417.2 | Identify use the water and wastewater sampling procedures and sample preservations. |
| C417.3 | Explain the impact of water and wastewater treatment on people and the environment |
| C417.4 | Apply the laboratorial results to problem identification, quantification, and basic environmental design. |
| C417.5 | Engage in research and life-long learning to adapt to changing environment. |

Course Name: C418 Industry Oriented Mini Project

Year: IV-I Sem

A.Y: 2019-20

| | |
|--------|---|
| C418.1 | Generate knowledge within the chosen area of technology for project development. |
| C418.2 | Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach. |
| C418.3 | Reproduce, improve and refine technical aspects for engineering projects. |
| C418.4 | Work as an individual or in a team in development of technical projects. |
| C418.5 | Communicate and report effectively project related activities and findings. |

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Course Name: C421 Disaster Management **Year: IV-II Sem** **A.Y: 2019-20**

| | |
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| C422.1 | Explain the types and categories of Disasters. |
| C422.2 | Describe the man-made Hazards and Vulnerabilities. |
| C422.3 | Explain disaster management mechanism. |
| C422.4 | Discuss The application of Disaster Concepts to Management. |
| C422.5 | Explain the capacity building concepts. |
| C422.6 | Describe Realization of the Responsibilities to Society. Planning of disaster managements. |

Course Name: C422 Waste Management **Year: IV-II Sem** **A.Y: 2019-20**

| | |
|--------|--|
| C422.1 | Identify the physical and chemical components of wastes. |
| C422.2 | Analyse the functional elements for solid waste management. |
| C422.3 | Analyse the functional elements of liquid waste management. |
| C422.4 | Analyse the functional elements of liquid waste from different industries. |
| C422.5 | Interpret the effects and treatment methods from different industries. |
| C422.6 | Analyse the effluent treatment plant and disposal. |

Course Name: C423 Industrial waste water treatment **Year: IV-II Sem** **A.Y: 2019-20**

| | |
|--------|--|
| C423.1 | Identify the characteristics of industrial waste waters. |
| C423.2 | Describe pollution effects of disposal of industrial effluent. |
| C423.3 | Identify and design treatment options for industrial waste water. |
| C423.4 | Formulate environmental management plan. |
| C423.5 | Examine the information of waste water generation from various industries. |
| C423.6 | Design treatment options for industrial waste water. |

Course Name: C424 Major Project **Year: IV-II Sem** **A.Y: 2019-20**

| | |
|--------|---|
| C424.1 | Classify the projects and describe the phases involved in project formulation with feasibility studies and SWOT (strengths, weaknesses, opportunities, and threats) analysis. |
| C424.2 | Devise a projects development cycle and get acquainted with the different appraisals in the process of deciding the worthiness of project. |
| C424.3 | Exhibit and apply the managerial skills and knowledge of financial aspects required during the implementation of project. |
| C424.4 | Identify sources for project finance and select the method of project implementation which is best suited for a particular project. |

Coordinator

HoD