**EVEN SEMESTER COs**

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| **S. No** | **Sub Code** | **Subject Name** | **Course Outcomes (CO)** |
| 1 | 4CE1A | Strength of Materials-II | CO 1: Study the deflection of Beams using following methods: double integration method, Macaulay’s method, area moment method and conjugate beam method.  CO2: Analysis of prop cantilever structures, determinate Structure using Area moment method, Conjugate beam method and Fixed Beams & Continuous Beams by three moments Theorem and Area moment method. Study of combined direct and bending stress, middle third rule, core of a section, gravity retaining wall.  CO3: Study of Torsion, shear stress in solid and hollow circular shafts, angle of twist, power transmitted by a shaft, combined bending and torsion;  Study of following points about Springs: Stiffness of springs, springs in series and parallel, laminated plate springs, leaf spring, close coiled helical springs, open coiled springs. Vibrations.  CO4: Study of Simple Harmonic Motion and Introduction to damped and forced vibration. Acquire knowledge about Undamped free vibration of SDOF system: Newton’s law of motion, D’Almbert’s principle.  . |
| 2 | 4CE2A | CONCRETE TECHNOLOGY | CO1- to understand ingredient of concrete and its properties.  CO2- to understand different types of concrete and non destructive tests.  CO3-to understand the concrete handling in fields and concrete mix design.  CO4-to understand admixtures, formworks and type of concrete. |
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| 3 | 4CE3A | HYDRAULICS & HYDRAULIC MACHINE | Co1- to understand dimension analysis & models.  Co2- to understand laminar flow & turbulent flow.  Co3-to understand open channel flow.  Co4-to understand impact of jets , pumps and turbines. |
| 4 | 4CE4A | Surveying-I | CO 1: Study the Introduction to surveying and its Importance to engineers, Plane and geodetic surveying, Basic principle of surveying from whole to part and conventional signs. Study how to measure Distances.  CO2: To know about the Measurement of Angles & Direction, Bearing and azimuths, magnetic declination and its variation. To know how to use the following instruments: surveyors and prismatic compass. Vernier and micro-optic theodolite,  CO3: Study of different methods of traversing: chain traverse &  Compass traverse, transit-tape traverse. Methods of computations and adjustment of traverse; transit rule, Bowditch rule , graphical method, axis method. Gales traverse table..  CO4: To provide basic knowledge about Leveling and Plane Table Surveying: |
| 5 | 4CE5A | BUILDING PLANNING | Co1- to understand types of buildings & appropriate selection of site with sun consideration.  Co2- to study about bye-laws and nbc regulation along with orientation, climatic & comfort consideration.  Co3- to understand principles of planning and vastu shastra.  Co4- to understand functional design and services in buildings. |
| 6 | 4CE6A | QUANTITY SUVEYING & VALUATION | CO .1 To understand about the Estimate. Their type, method, and preparing cost of civil works.  CO 2. To understand about the analysis of rates of various items of civil engineering works and how to prepare  CO 3 TO understand about over head charges contingencies and w.c. Establishment estimate of different works.  CO. 4 To understand about the depreciation, sinking fund, valuation of civil works, rent calculation of govt building etc.. |

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| **S. No** | **Sub Code** | **Subject Name** | **Course Outcomes (CO)** |
| 1 | 6CE1A | **Theory of Structures-II** | **CO. 1** to understand the concept of moving or rolling load and analysis the beam or girder (draw SFD & BMD dia.) with ILD diagram.  **CO.2** To Understand the concept of arches and analysis of three hinged, two hinged and fixed type parabolic arches.  **CO. 3** to understand the effect of cable in the structure & analysis of cable with concentrated & continuous loading.  **CO.4** To understand the Unsymmetrical bending, theories of failure and calculate the location of neutral axis, Shear stress deflection.  **CO.5** To understand the theories of matrix method with flexibility method and stiffness method |

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| **S. No** | **Sub Code** | **Subject Name** | **Course Outcomes (CO)** |
| 1 | 6CE2A | **Geotechnical Engineering-II** | **CO1**-To understanding the concept of consolidation of soil  **CO2**- To understanding the vertical stress due applied load.  **CO3**- To analysis of earth pressure and stability of slopes.  **O4**-To understand the concept of bearing capacity and site investigation of soil. |

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| **S. No** | **Sub Code** | **Subject Name** | **Course Outcomes (CO)** |
| 1 | **6CE3A** | **ENVIRONMENTAL ENGINEERING- II** | **CO1**- TO UNDERSTAND THE BASICS OF SEWAGE AND WASTEWATER ENGINEERING.  **CO2**- TO UNDERSTAND TYPES AND COMPONENTS OF SEWERAGE SYSTEMS AND ITS MAINTENANCE.  **CO3**- TO UNDERSTAND VARIOUS SEWAGE TREATMENT METHODS  CO4- TO UNDERSTAND THE EFFECT OF AIR AND NOISE  POLLUTION |
| S. No | **Sub Code** | **Subject Name** | **Course Outcomes (CO)** |
| 1 | **6CE4A** | **DESIGN OF CONCRETE STRUCTURES- I** | CO1- To understand objective and fundamental concept and various design philosophies related to design of rc members.  Co2- to know the provision of is codes and analysis (design) of different types of beams- singly reinforced, flanged beam, and doubly reinforced using limit state method.  Co3- TO understand the codal provisions and analysis of various slabs – one way slab, two way slab and flat slab using limit state method.  Co4- To analyze the design of columns and column footings- long and short and reinforcement details. |

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| 1 | **6CE5A** | **Transportation Engineering-I** | CO1: to understand the basic knowledge of transportation system, development and planning of transportation  CO2: The basic concept of highway materials and construction of highway with geometric design  CO3: The basic knowledge of traffic engineering  CO4: Understand basic knowledge The structural design of highway pavement and hill roads |

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| **S. No** | **Sub Code** | **Subject Name** | **Course Outcomes (CO)** |
| 1 | 6CE6.3A | **Repair & Rehabilitation of Structures** | CO1: Understanding the causes of deterioration of concrete in structures & details about cracks.  CO2: Study the different types of non destructive testing & details about corrosion.  CO3: Study the materials & techniques of repair of buildings.  CO4: Understanding how to do investigation for structures & different case studies of bridge piers, canals, dam, heritage structures and corrosion damaged structures. |
| S. No | Sub Code | **Subject Name** | Course Outcomes (CO) |
| 1 | 8CE1A | **WATER RESOURCE ENGINEERING- II** | CO1- TO UNDERSTAND THE REGULATION OF WORKS & CROSS DRAINAGE STRUCTURE  CO2- TO UNDERSTAND DIVERSION HEAD WORKS  CO3- TO UNDERSTAND EMBANKMENT DAMS & GRAVITY DAMS  CO4-TO UNDERSTAND SPILLWAYS, HYDRO POWER PLANT, RESERVOIRS & OPTIMIZATION TECHNIQUES. |

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| **S. No** | **Sub Code** | **Subject Name** | **Course Outcomes (CO)** |
| 1 | 8CE2A | DESIGN OF STEEL STRUCTURE- II | C.O. 1 To Understand The Concept And Design Of Gantry Girder And Roof Trusses.  C.O. 2 To Understand The Concept And Design Criteria For Plate Girder.  C.O. 3 To Understand Different Type Of Bridges And The Provision Of Loading As Per IS Recommendation.  C.O. 4 To Analyze Water Tank And Different Geometrical Tanks. |

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| S. No | Sub. Code | Subject Name | Course Outcomes (CO) |
| 1 | 08CE4.2A | Advance Foundation Engineering | CO1. Detailed study about Shallow Foundation & IS codes recommendation for the same.  CO2. To understand the methods of estimation of settlement of footings.  CO3. To understand the different types of foundations like Pile, Raft and well foundations with the technical requirements associated with these foundation.  CO4. To study the identification of nature, behavior and types of foundation design for Soil. |

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| Sl no | Subject code | Name of the subject | Course outcomes | |
| 1 | 8ce3a | Project Planning &Construction Management | Co1 | To have knowledge over capital investment and judge the inflow and outflow of scare resources in capital budgeting |
| Co2 | Student will learn about a better method of presenting technical data thru scheduling technique ie pert, cpm and time-cost trade off to achieve target |
|  |  |  | `Co3 | Student will come to know about creation of contract on common intention of two or more parties that is enforceable by law and different type of contract is adopted to accomplish any project |
| Co4 | Student will be aware of health, safety and environment being adopted at project site when people at work |