

IV Year I Semester

COURSE OUTCOMES – CIVIL ENGINEERING

Remote Sensing and GIS

At the end of the course, the student will be able to:

- CO 1:-** Retrieve the information content of remotely sensed data
- CO 2:-** Interpret the images for preparation of thematic maps
- CO 3:-** Apply problem specific remote sensing data for civil engineering applications
- CO 4:-** Understand the GPS components
- CO 5:-** Preparation of geospatial features in computing environment
- CO 6:-** Create GIS and cartographic outputs for presentation
- CO 7:-** Understand the software/hardware requirements for implementing a GIS Project

Transportation Engineering –II

At the end of the course, the student will be able to:

- CO 1:-** Understand the importance of railway infrastructure planning and design
- CO 2:-** Identify the factors governing design of railway infrastructures
- CO 3:-** Design and analyze the railway track system
- CO 4:-** fix the orientation of the runways
- CO 5:-** Carryout the geometrical design of the airport infrastructure
- CO 6:-** Prepare structural designs of runway, taxiway, and apron-grate area
- CO 7:-** Prepare a plan of the sea port
- CO 8:-** Provide solution to protect coastal erosion

Estimating & Costing

On completion of the course, the students will be able to:

- CO 1:-** Apply diverse types of estimates in different situations
- CO 2:-** Carry out analysis of rates and bill preparation at various locations
- CO 3:-** Demonstrate the concepts of specification writing
- CO 4:-** Carries out valuation of assets

Water Resources Engineering-II

At the end of the course, the student will be able to:

- CO 1:-** Design irrigation canals and canal network
- CO 2:-** Plan and design diversion head works
- CO 3:-** Design irrigation canal structures
- CO 4:-** Analyze gravity and earth dams
- CO 5:-** Design spillways and energy dissipations works

Finite Element Methods

At the end of the course, the student will be able to:

- CO 1:-** Develop shape functions and stiffness matrices for spring and bar elements
- CO 2:-** develop global stiffness matrices and global load vectors
- CO 3:-** Apply natural and arial coordinate systems to constant strain triangle and linear strain triangle element
- CO 4:-** Analyze planar structural systems using finite element modeling

Air Pollution and Control

At the end of the course, the student will be able to:

- CO 1:-** Identify sampling and analysis techniques for air quality assessment
- CO 2:-** Design air pollution controlling devices
- CO 3:-** Analyze the effects of pollutants on the environment.
- CO 4:-** Understand meteorological aspects of air pollution
- CO 5:-** Understand air pollution control methods

CO6:- Select treatment technologies for water/wastewater/solid waste.

Advanced Foundation Engineering

At the end of the course, the student will be able to:

CO 1:- Understand the behavior of problematic soil

CO 2:- Design foundations on expansive soils

CO 3:- Analyze the lateral stability of piles and wells

CO 4:- Determine the earth pressures on foundations and retaining structures

CO 5:- Calculate the bearing capacity of soils and foundation settlements

Watershed Management

After completion of the course, student will be able to:

CO 1:- Identify the causes of soil erosion

CO 2:- Plan and design soil conservation measures in a watershed

CO 3:- Plan and design water harvesting and groundwater recharging structures

CO 4:- Plan measures for reclamation of saline soils

CO 5:- Plan irrigation systems and command area development programs

Advanced Structural Design

At the end of the course, the student will be able to:

CO 5:- Formulate Equilibrium and compatibility equations for structural members

CO 2:- Analyse structures for gravity loads, moving loads and lateral loads

CO 3:- Analyze cables and suspension bridges

CO 4:- Design steel gantry girders and portal frames

CO 5:- Design connections for different loading conditions

CO 6:- Design storage structures, bunkers and silos

CO 7:- Design light weight metal structures

Earth and Rock Fill Dams and Slope Stability

At the end of the course, the student will be able to:

CO 1:- Identify the problems associated with underground excavations

- CO 2:-** Classify the rock mass using the reference data
- CO 3:-** Understand the failure criteria of rock
- CO 4:-** Apply seismic coefficient and response spectrum methods for analysis of multi storied buildings
- CO 5:-** Understand the concepts of base isolation

Water Resources Systems Analysis

At the end of the course, the student will be able to:

- CO 1:-** Understands the techniques of water resources system analysis
- CO 2:-** Evaluate the performance of an irrigation system
- CO 3:-** Plan measures for reclamation of water logged lands
- CO 4:-** Identify the characteristics and objectives of water resources systems
- CO 5:-** Perform basic economic analysis to evaluate the economic feasibility of water resources projects
- CO 6:-** Formulate and solve deterministic optimization models for design and operation of water resources systems
- CO 7:-** Formulate and solve stochastic and fuzzy optimization problems for decision making under uncertainty

Industrial Waste Water Treatment

At the end of the course, the student will be able to:

- CO 1:-** Identify the characteristics of industrial wastewaters
- CO 2:-** Describe pollution effects of disposal of industrial effluent
- CO 3:-** Identify and design treatment options for industrial wastewater
- CO 4:-** Formulate environmental management plan

Concrete & Highway Materials Lab

At the end of the course, the student will be able to:

- CO 1:-** Conduct Quality Control tests on concrete making materials
- CO 2:-** Conduct Quality Control tests on fresh & hardened concrete
- CO 3:-** Design and test concrete mix
- CO 4:-** Conduct Non-destructive tests on concrete

Environmental Engineering Lab

At the end of the course, the student will be able to:

CO 1:- Determine physical, chemical and biological characteristics of water and wastewater

CO 2:- Determine optimum dosage of coagulant

CO 3:- Determine break - point chlorination

CO 4:- Assess the quality of water and wastewater