SYLLABUS (2nd Year – 2nd Semester)

THEORETICAL SUBJECTS

1. SURVEYING-III

- Introduction to Photogrammetry: Terrestrial and Aerial.
- Principles of Aerial Photogrammetry, Stereoscopic pair, Map Projection, Co-ordinate System.
- Principles of EDM.
- Introduction to Remote Sensing.
- Energy Interaction, Satellite and Sensors, Image Correction, Enhancement and Interpretation.
- Indian Remote Sensing System.
- Application to Mapping.

2. THEORY OF STRUCTURES-I

- Theorem of Three moments: Fixed, Propped and Continuous beams.
- Influence line analysis for determinate beams, trusses and three hinged arches.
- Column and Struts: Buckling load: Euler's theory, Rankine's theory, empirical formulae, Column under eccentric load, Beam–Column.
- Buckling analysis by energy principle.
- Unsymmetrical bending; shear flow and shear centre problems.

3. COMPUTER PROGRAMMING - II

- Introduction to C and C++ programming language: Constants, variables and data type, Operators and Expressions, Input and output, Decision making and branching, Decision making and looping, array, functions, structures and unions, pointers, file management, dynamic memory allocations, object oriented programming concepts.
- Finite difference technique, Eigen value problems, Numerical integration, Solutions of Civil Engineering software commercial packages.

4. HYDROLOGY

- Introduction – Role of hydrology in Engineering
- Hydrological and water cycle; Precipitation, Measurement, rain gauges, intensity, mass curves; Evaporation, Evapotranspiration and Infiltration Losses
- Runoff measurements, stream discharge measurement, Hydrograph, Unit hydrograph, Baseflow separation
- Rudiments of hydrology: standard coefficients of permeability, coefficient of transmissibility, equilibrium equations of flow of water into wells, steady state well hydraulics, aquifer and aquifer parameters, specific yield, factors affecting ground water flow, field determination of coefficient of permeability, measurement of drawdown.
- Floods: definition and estimation

5. IRRIGATION ENGINEERING

- Types of Irrigation systems and their detailed descriptions, soil water crop relationship, types of soil
- Water requirement of crops: Delta and Base Period, Duty.
- Classification of river; River regime theory, effects of dams on river regime, river training works.
- Irrigation canals: design principles of irrigation canals, drainage canals and navigation canals, canal linings, canal outlets.
- Water logging and salt efflorescence, land reclamation.

6. VALUATION, PRICING AND CONTRACT

- Valuation: Value and cost of a property, Purposes of valuation, Capitalised value and year's purchase, Depreciation and obsolescence, Methods of finding depreciation, Reversionary value, Deferred value
- Methods of valuation: rental method and land and building method. Belting method of valuation of land, Evaluation of lessor's and lessee's interest in lease hold property.
- Pricing: Specifications of different items of works, statement of materials, rate analysis, and approximate estimate.
- Contract: Legal and technical aspects of engineering works.

SESSIONAL SUBJECTS

1. COMPUTER LABORATORY-II

- Development of C and C++ programming: Solutions of problems using finite difference techniques, Small Eigen value problems, Solutions of Civil Engineering problems.

2. CIVIL ENGINEERING LABORATORY- I

3. CONCRETE/ STRUCTURE

- Testing of Cements, Fine aggregates, Coarse aggregates and Water, Fresh and Hardened concrete, Steel bars and plates, Steel and RCC beams and columns.
- Steel truss. Testing of model structural systems.

4. SURVEYING PRACTICE (Field work)

- Field Work on Surveying I and Surveying II