

**COURSE STRUCTURE & SYLLABUS OF
BACHELOR OF TECHNOLOGY (B.TECH)**

In

Civil

Course Structure

Fourth Year

Seventh Semester

Syllabus

ELECTIVE – I

Paper Code	Name of the Subject
BEC5-I	Water Resource System & Planning
BEC5-II	Valuation of real property
BEC5-III	Design of Industrial Structure & bridge
BEC5-IV	Highway Maintenance & Management System

BEC5-I : WATER RESOURCE SYSTEM & PLANNING

1. Introduction :- Methods of irrigation – Water requirements for crops – Hydrology
2. Ground water :- Well irrigation – Reservoir planning – General Dams- Gravity dams – Arch & buttress dams – Earth and rock fill dams – Spill ways dam – Diversion head works.
3. Flow irrigation – irrigation channels – Silt theories – Design procedure of an irrigation channel – water logging and canal linking – canal out lets – canal regulation works – Cross drainage works .
4. River Engineering – Water power engineering – Water resources planning.

BEC5-II : VALUATION OF REAL PROPERTY

1. **INTRODUCTION:** General, Doctrine of estate, Types of estates in England, Land systems in India, Cost, Price and valuation, Concept of the term value, Purposes of valuations, Different forms of value, Supply and demand forces, Occupation value and investment value, Factors affecting changes in market value, Concepts of right of compulsory purchase and value in India, Emergence of profession of real estate valuation in India, Role of the valuer, New horizons of valuation
2. **INVESTMENT IN REAL PROPERTY:** General, Characteristics of land, Investment, Investment market, Investment opportunities, Characteristics of ideal investment, Interest on capital, Nature of real property, Factors affecting real property market, Determination of value of real property, Estate brokers
3. **INTERESTS IN REAL PROPERTY:** General, Types of interests, Freehold interests, Leasehold interests, Mortgage, Development process
4. **METHODS OF VALUATION:** General, Methods of valuation for open lands, Methods of valuations for lands with buildings, conclusion

5. **OUTGOINGS:** Definition, Usual types of outgoings, Conclusion
6. **DEPRECIATION:** Meaning of the term, Depreciation as cost in operation, Depreciation as decrease in worth, Methods for estimating cost depreciation, Cost of construction, Cost depreciation and value depreciation, Reproduction cost and replacement cost, Conclusion
7. **VALUATION OF LICENSED PREMISES:** General principle of valuation, Valuation of a cinema, valuation of a hotel
8. **VALUATION OF LIFE INTERESTS:** General, Types of life interest, Mortality tables, Compilation of mortality tables, Application of mortality tables, Jellicoe's formula
9. **VALUATION FOR RATING:** General, Definitions, Principles of rating, Rent as evidence of annual value, Hypothetical tenant and hypothetical rent, Exemptions from ratability, Process of assessment, Methods of assessment, Conclusion
10. **VALUATION OF AGRICULTURAL LANDS:** General, Importance, Factors affecting value of agricultural land, Methods of valuation of agricultural lands, Agricultural land and direct tax laws
11. **FINANCE FOR INVESTMENT IN REAL PROPERTIES:** General, Terms of borrowing, Sources of borrowing, Genaring and equity, Conclusion
12. **VALUATION TABLES:** General, Valuation tables I to VIII
13. **MISCELLANEOUS TOPICS:** General, Capitalized value, Cost inflation index, Deferred or reversionary land value, Discounted cash flow, encumbrance factor, Floating F.S.I. , Forms of rent, life of structures, Mobilization fund, Rate of interest, Record of rights, Valuation as a going concern, Year's Purchase
14. **EASEMENTS:** General, Definition, Essential characteristics of easements, Creation of easements, Extinguishment of easements, Easements and natural rights, Effect on valuation due to easement
15. **STANDARD RENT:** General, Objects of Rent Act, Meaning of standard rent, Exemptions from the Rent Act, Process of fixing standard rent, Methods of ascertaining standard rent, Important factors, Inheritance of tenancy right, Paying guests and Rent Act, Recovery of possession from tenant by landlord, Conclusion
16. **COMPULSORY ACQUISITION OF LAND:** General, The land Acquisition Act, 1894, Important aspects of the L. A. Act, 1894, Conclusion
17. **THE TRANSFER OF PROPERTY ACT:** General, Meaning of transfer, Definition of transfer of property, Requirements of a valid transfer, Contingent interest, Conditional transfer, Sales of immoveable property, Mortgages of immovable property, Leases of immoveable property, Exchanges, Gifts, Actionable claims
18. **URBAN LAND CEILING ACT:** General, Selection of towns, Objects of the Act, Important provisions in the Act, Effects of the U.L.S. Act, Summary

BEC5-III : DESIGN OF INDUSTRIAL STRUCTURE & BRIDGE

I) HYDRAULIC DESIGN

Introduction, Catchments, River Channels,

II) STRUCTURAL DESIGN

Introduction, Masonry Arch Bridges, Pipe Culverts, Slab Bridges, Box Culverts, Beam and Slab Bridges, Plate Girder Bridges, Composite Bridges, Substructures, Bridge Foundations, Bearing and Expansion Joints.

BEC5-IV : HIGHWAY MAINTENANCE & MANAGEMENT SYSTEM

1. Maintenance Of Road Surface, Shoulders, Roadway Drainage, Bridge and Other Structure, Roadside, Amenity, Equipment.
2. High Profile Maintenance
3. Carriageway Maintenance.
4. Footways /Shoulders
5. Street Lightening and Illuminated Traffic Signs

6. Aid To Movement.
7. Road Assessment & Management System
8. Accident Precaution
9. Winter Maintenance.
10. Maintenance Of Highway Structure.
11. Maintenance and Management System Include Development Of Annual Work Programme Budgeting and Allocation Recovery, Work Authorization and Control, Scheduling, Performance Evaluation, Fiscal Control
12. Maintenance Of Approaches.
13. Vegetation Management and Control, Maintenance Of Rest Area.
14. Maintenance and Traffic Control & Safety Devices
15. Pavement Rehabilitation
16. Milling Of Pavement.
17. Pavement Recycling
