Estimating and Costing II
EG 3102 CE

Year: III **Total: 6 Hrs. /week**
Semester: I **Lecture: 3 Hrs./week**
Tutorial: 3 Hr./week
Practical: Hrs./week
Lab**: Hrs./week**

Course Description:
This course focuses on familiarization of estimating and costing and specifications of road works and water supply and sanitary works and valuation of existing property.

Course Objectives:
On completion of this course the student will be able to:
1. Understand the procedures, methods of measuring and quantifying the road and restoration work;
2. Calculate the quantities of earthwork of road in plan and hilly area;
3. Analyze rate of road and water supply and sanitations works;
4. Provide basic knowledge of the value of existing properly and role of computes in valuation;
5. Provide basic knowledge of specifications building and road works and
6. Prepare estimate of road and restoration works.

Course Contents:

Theory

Unit 1: Introduction: [5 Hrs.]
1.1. Terms used in Earthwork in road construction- Banking, Cutting, Side slope, Longitudinal section, Cross section, Mean Height
1.2. Terms used in Sanitary and Water supply works- Septic Tank, Soak Pit, Manhole
1.3. Distribution of water supply system (gravity and non-gravity system)

Unit 2: Estimate of Road construction: [10 Hrs.]
2.1 Various methods of earthwork calculation in road work- Mid Sectional Area method, Mean Sectional Area method, Prismoidal Formula method
2.2 Earthwork calculation of road work in plain area
2.3 Earthwork calculation of road work having vertical drop
2.4 Earthwork calculation of road work in hilly area
2.5 Estimate of different items of Flexible pavement works

Unit 3: Analysis of Rates of Road, Sanitary and Water supply Works [8 Hrs.]
3.1. Task or outturn work
3.2. Factor's affecting the cost of Road, Sanitary and Water supply works
3.3. Govt. procedure of preparing rate analysis of Road, Sanitary and Water supply works

Unit 4: Property Valuation: [10 Hrs.]
4.1. Definition
4.2. Purpose of valuation
4.3. Principle of valuation

4.4. Factors affecting the valuation of property
4.5. Definition of terms used in valuation- Value and Cost, Book value, Asset value, Distress value or Forced sale value, Replacement value, Annuity, Perpetual annuity, Differed annuity, Scrap value, Salvage value, Gross income, Outgoings, Net income, Capitalized value, Year's purchase, Sinking fund, Depreciation and its types
4.6. Method of Depreciation in property valuation- Straight line method with solved example, Constant percentage method with solved examples, Declining balance method with solved examples
4.7. Preparation of sample valuation report

Unit 5: Specifications [12 Hrs.]

5.1. Definition
5.2. Purpose of specification
5.3. Types of specification
5.4. Necessity of specification
5.5. Technique of specification
5.6. Paragraph of specification
5.7. General specification for Building work - Earthwork in excavation, Plain Cement Concrete work, Steel reinforcement, formwork, brick masonry work, stone masonry work, wood work for doors and windows frame and shutters, cement sand plaster work, CGI sheet roofing
5.8. General Specifications Road works: Embankment construction, Sub-grade, Base course, WBM road, Surface dressing using hot bitumen, Premix carpet

Tutorial: [45 Hrs.]

Taking out detailed quantities and preparing estimate for the following:

1 Calculate earthwork in road construction by three methods
2 Calculate earthwork of road in plain area
3 Calculate earthwork of road having vertical drop
4 Calculate earthwork of road in hilly area
5 Estimate metaled road of one Km
6 Evaluate report of properly valuation
7 Estimate restoration work of road

References:

1 Amarjit Agrawal "civil estimating quantity surveying and valuation, " Katson publishing house, Ludhiana, 1985.
2 M. Charkraborti' estimating, costing, specifications and valuation in civil engineering"
3 G.S. Berdie "text book of estimating and costing".

Evaluation Scheme

Unit	Title	Hrs.	Mark Distribution
1	Introduction	5	8
2	Earthwork in road construction	10	20
3	Analysis of Rates (for road, sanitary and water supply works)	8	20
4	Valuation	10	16
5	Specifications	12	16
		45 Hrs.	**80**