

Estimation and Costing

Course objective:

To provide the knowledge of basic tools and methodology of estimating and costing of a construction work. After completion of this course, the students can prepare detailed estimate of Building, Agricultural Roads & Farm Buildings and can prepare BOQ. They can also write specification of building materials and building works.

1. Introduction (2 hours)

- a. General
- b. System of Units
- c. Units of Measurement and Payments for different items of Works and Materials
- d. Requirements of Estimating and Costing

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2. Methods of Estimating (4 hours)

- a. Methods of Measurement of Building and Agricultural Engineering Works
- b. Subheads of item of works
- c. Methods of Taking out Quantities:
 - i. Center Line Method
 - ii. Long Wall and Short Wall Method
 - iii. Crossing Method
- d. Abstracting Bill of Quantities

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3. Preparation of Detail Estimate (3 hours)

- a. Cost of Item
- b. Transportation cost, other expenses and overheads
- c. Contingency

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4. Types of Estimates (4 hours)

- a. Approximate Estimate
- b. Detailed Estimate
- c. Revised Estimate
- d. Supplementary Estimate
- e. Annual Repair & Maintenance Estimate
- f. Extension and Improvement Estimate
- g. Complete Estimate
- h. Split of Costs of Building Works

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5. Analysis of Rates (6 hours)

- a. Introduction
- b. Purpose of Rate Analysis
- c. Importance of Rate Analysis
- d. Requirements of Rate analysis
- e. Factors affecting Rate Analysis
- f. Procedure of Rate Analysis for
 - i. Building works
 - ii. Water supply Works
 - iii. Rural Road Works
 - iv. Irrigation Works

6. Detailed Estimate (18 hours)

- a. Estimate for Walls
- b. Estimate for a single room building
- c. Estimate for a two room building
- d. Estimate for Earthwork in road
- e. Estimate for RCC slab culvert
- f. Estimate for Septic Tank and Soak pits

7. Specification (5 hours)

- a. Purpose of Specification
- b. Types of Specification – General Specification and Detailed specification
- c. Importance of Specification
- d. Specification writing – Techniques, Use of International and Local Standards, Code of Practice.

Tutorial:

Six Estimation Assignments on following Projects:

- 1. A single storied residential building
- 2. Dairy Cattle Housing
- 3. Rural Roads
- 4. A canal fall
- 5. A Biogas Plant
- 6. Writing Specification of – Brickwork, RCC work, Cement, Sand, Aggregate, Steel reinforcement and Earth work.

References:

- 1. Estimating and costing by BN Dutta – latest edition.
- 2. A text book of Estimating and Costing by G.S. Birdie – latest edition.
- 3. Estimating and Project Management for Small Construction Firms by Seymour Berger and Jules B. Godel – latest edition.
- 4. Civil Estimation, Quantity Surveying and Valuation by Amarjeet Agrawal – latest edition.
- 5. BSP Publications.