

ESTIMATION, COSTING AND VALUATION

VI Semester: CE

Course Code	Category	Hours / Week			Credits	Maximum Marks		
ACEC26	Elective	L	T	P	C	CIA	SEE	Total
		3	0	0	3	30	70	100

Contact Classes: 45 Tutorial Classes: Nil Practical Classes: Nil Total Classes: 45

Prerequisite: Building Materials – Planning and Construction

I. COURSE OVERVIEW:

This course is a vital part of any construction project after preparation of engineering drawings and bill of materials. The project cost estimates are prepared for budget approval and sanction. Detailed Project Report (DPR) is mandatory for project approvals. The total cost of project involves material cost, Operational cost and overhead charges. The entire cost of construction and the infrastructure used for the purpose of construction is estimated and the final costing is carried out on the basis of which a certain percentage of the project cost is paid to the architect and other consultants involved in the project. This course enables to estimate the quantities of item of works involved in buildings, water supply and sanitary works, road works and irrigation works, and also to equip the student with the ability to do rate analysis, Bar Bending Schedule (B.B.S), valuation of properties and preparation of reports for estimation of various items used in the civil engineering structures.

II. COURSE OBJECTIVES:

The student will try to learn:

- I. The importance and fundamentals of estimation and costing for measuring quantities of construction materials using methods involved in project works.
- II. The basic concept of earth work related to roads and canals for estimating earth work quantity using sectional area methods.
- III. The concept of bar bending schedule and rate analysis applied for determining quantity of steel and construction costs.
- IV. The knowledge of structural valuation, tender documentation and conditions of contract for obtaining required information to file a contract bid in real time

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to:

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| CO 1 | Choose the stages involved in construction activities for estimating the quantities and cost incurred in the project. | Remember |
| CO 2 | Make use of the mid sectional area and mean sectional area methods for determining earth work quantities of road and canal embankment. | Apply |
| CO 3 | Analyze the quantities of materials of various components used in construction works such as beams, slabs, columns, and footings, as per specifications for preparation of Rate analysis | Analyze |
| CO 4 | Outline the quantities of steel and concrete for preparing bar bending schedule, quantities of various elements of Reinforced cement concrete structures. | Understand |
| CO 5 | Identify the use of contract documents, tender documents and specifications for preparation of bill of quantities and bidding details of the projects. | Apply |
| CO 6 | Classify the different methods of valuation to assess the actual value of the property. | Understand |

IV. COURSE SYLLABUS:

MODULE –I: ESTIMATION OF GENERAL ITEMS IN BUILDINGS (9)

General items of work in building, standard units principles of working out quantities for detailed and abstract estimates, approximate method of estimating. Detailed estimates of buildings.

MODULE -II: EARTHWORKS (9)

Introduction to earth works, earthwork calculations for roads and canals.

MODULE -III: RATE ANALYSIS AND CONTRACTS (9)

Rate analysis - Working out data for various items of work over head. Rate analysis, contingent charges.

Contracts, types of contracts, contract documents, conditions of contract.

MODULE -IV: BAR BENDING SCHEDULE (9)

Reinforcement bar bending and bar requirement schedules.

MODULE -V: VALUATION (9)

Valuation of buildings, standard specifications for different items of building construction. Need for tendering, process of tendering in construction, tendering models and strategies, prequalification of bidders, documents forming a BID, agreements and bonds in tendering process.

IV. TEXT BOOKS:

1. B. N. Dutta, "Estimating and Costing", UBS publishers, 2000.
2. G. S. Birdie., "Estimating and Costing", Dhanpat Rai publications, 1988.
3. S. C. Rangwala, Estimating And Costing, Charotar Publishing House, 2002.

V. REFERENCE BOOKS:

1. Standard schedule of rates and standard data book by public works department, 2015.
2. I.S. 1200 (Parts I to XXV – 1974 / method of measurement of building and Civil Engineering works – B.I.S)
3. M. Chakraborti, "Estimation, Costing and Specifications", Laxmi publications, 1982.
4. National building code, 2015.

VI. WEB REFERENCES:

1. https://onlinecourses.swayam2.ac.in/nou20_cs11/preview
2. <https://en.wikipedia.org/wiki/Estimation>
3. <https://theconstructor.org/practical-guide/quality-control/>

VII. E-TEXT BOOKS:

1. <https://www.google.com/search?tbm=bks&q=estimation+and+costing&oq=estimation>