CE4101PC: ESTIMATION QUANTITY SURVEYING AND VALUATION

(Professional Elective III)

B. Tech. IV Year I Sem. **L T/P/D C**

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Prerequisites: Concrete Technology, RC Design, Design of Steel Structure

Course Objectives: The subject provide process of estimations required for various work in

Construction. To have knowledge of using SOR & SSR for analysis of rates on various works and basics of planning tools for a construction projects.

Course Outcomes: On completion of the course, the students will be able to:

- Understand the technical specifications for various works to be performed for a project and how they impact the cost of a structure.
- Quantify the worth of a structure by evaluating quantities of constituents, derive their cost rates and build up the overall cost of the structure.
- Understand how competitive bidding works and how to submit a competitive bid proposal.
- An idea of how to optimize construction projects based on costs
- An idea how construction projects are administered with respect to contract structures and issues.
- An ability to put forward ideas and understandings to others with effective communication processes.

UNIT – I

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.

UNIT – II

Reinforcement bar bending and bar requirement schedules Earthwork for roads and canals.

UNIT – III

Rate Analysis – Working out data for various items of work over head and contingent charges.

UNIT- IV

Contracts – Types of contracts – Contract Documents – Conditions of contract, Valuation – Standard specifications for different items of building construction.

UNIT- V

Construction project planning- Stages of project planning: pre-tender planning, pre-construction planning, detailed construction planning, role of client and contractor, level of detail. Process of development of plans and schedules, work break-down structure, activity lists, assessment of work content, concept of productivities, estimating durations, sequence of activities, activity utility data; Techniques of planning- Bar charts, Gantt Charts.

Networks: basic terminology, types of precedence relationships, preparation of CPM networks: activity on link and activity on node representation, computation of float values, critical and semi critical paths, calendaring networks. PERT- Assumptions underlying PERT analysis, determining three-time estimates, analysis, slack computations, calculation of probability of completion

NOTE: NUMBER OF EXERCISES PROPOSED:

1. Three in flat Roof & one in Sloped Roof

2. Exercises on Data – three Nos.

TEXT BOOKS:

1. Estimating and Costing by B.N. Dutta, UBS publishers, 2000.
2. Estimating and Costing by G.S. Birdie
3. Punmia, B.C., Khandelwal, K.K., Project Planning with PERT and CPM, Laxmi Publications,2016
4. Chitkara, K. K. Construction Project Management. Tata McGraw-Hill Education, 2014

REFERENCE BOOKS:

1. Standard Schedule of rates and standard data book by public works department.
2. S. 1200 (Parts I to XXV – 1974/ method of measurement of building and Civil Engineering works B.I.S.)
3. Estimation, Costing and Specifications by M. Chakraborthi; Laxmi publications.
4. Peurifoy, R.L. Construction Planning, Methods and Equipment, McGraw Hill, 2011
5. Nunnally, S.W. Construction Methods and Management, Prentice Hall, 2006
6. Jha, Kumar Neeraj., Construction Project management, Theory & Practice, Pearson Education India, 2015