

7 th Semester	RCI7D003	Estimating, Costing and Professional Practice	L-T-P 3-0-0	3 Credits
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Module-I:**(08 hours)**

Quality estimation:

Principles of estimation, methods and units, Estimation of materials in buildings, Culverts and bridges.

Module-II:**(08 hours)****Specifications**-Types, requirements and importance, detailed specifications for buildings, roads, minor bridges and industrial structures.**Rate analysis**-Purpose, importance and necessity, factors affecting Analysis of rates, Prime cost, Schedule rates, Analysis of rates for various types of works.**Tender**- Types of Tender, Preparation of tender documents, inviting tenders, general and special conditions, contract types. termination of contracts, penalty and liquidated charges, Settlement of disputes, Arbitration, R.A. Bill & Final Bill, Payment of advance, insurance, claims, price variation, Introduction to e-tendering.**Module-III:****(08 hours)**

Objective and functions of management in construction.

Project Management: Project Planning, Scheduling and Controlling, Bar charts: Development of Bar charts and its shortcomings. Network techniques: Event, activity, Dummy activity. Network rules, Numbering of events, Critical Path Method, Critical activities, Slack, Project Evaluation and Review Techniques (PERT): Time estimates, Different types of Float of activity, Probability of meeting schedule date for the project.**Module-IV:****(08 hours)****Cost Model:** Project cost, indirect and direct cost, slope of direct cost curve, optimum project duration, contracting the network for cost optimization. Introduction to updating, resources smoothing and resources leveling**Module-V:****(08 hours)****Quality Control:** Quality Control by Statistical Methods, Sampling Plan, Control Charts, X Chart, R Chart, C chart and P Chart. Introduction to construction safety.**Books:**

- [1] Estimating and Costing in Civil Engineering Theory & Practice, B.N. Dutta, UBS Publishers
- [2] PERT and CPM, L.S. Sreenath, East West Press
- [3] Civil engineering contracts and estimates by B.S. Patil, University Press
- [4] Construction Management and Planning, B Sengupta & H Guha, Tata McGraw Hill
- [5] PERT & CPM, L. S. Sreenath. East - West Press
- [6] Relevant IS Code: National Building Code-2016

Digital Learning Resources:

Course Name: Construction Economics and Finance
 Course Link: <https://nptel.ac.in/courses/105/103/105103023/>
 Course Instructor: Dr. Bulu Pradhan, IIT Guwahati.