

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**Environmental Engineering**  
**B. E. SEMESTER: VI**

Subject Code: 161303

Subject Name: **Estimating, Specifications and Project Management**

Sr. No.	Course Contents	Total Hrs
1.	<p><b>Construction Technology:</b></p> <ul style="list-style-type: none"> <li>a. Subsurface investigation</li> <li>b. Foundations</li> <li>c. Masonry Construction</li> <li>d. Plain and Reinforced Concrete construction</li> <li>e. Plastering</li> </ul>	6
2.	<p><b>(a) Elements of Estimating and Costing:</b>  Types of estimate: Detailed estimate and approximate estimate,  Methods of estimate: Long wall short wall method and centre line method  Units of measurement: Modes and units of measurement for different types of trades  Quantity survey, Uses of estimates.</p> <p><b>(b) Rate Analysis:</b>  Prerequisites, factors affecting rate analysis; procedure for rate analysis; schedule of rates; task work; revision of rates.</p> <p><b>(c) Detailed estimation of full scale water treatment/sewage treatment/effluent treatment plant.</b></p>	16
3.	<p><b>Specifications:</b></p> <p>Importance: requisites of good specifications; classification of specifications; specifications of typical items; standard specification.</p>	4
4.	<p><b>Contracts:</b></p> <p>Meaning and important legal aspects of contracts; types of contracts and their suitability; contract documents; termination of contracts; contractual disputes and arbitration, standing contracts.</p>	4
5.	<p><b>Conditions Of Contract:</b></p> <p>Important requisites of conditions of contract; subject matter of conditions of contract; typical conditions of contract.</p>	4
6.	<p><b>Tenders:</b></p> <p>Meaning, types, content, procedure, tender documents, unbalanced tender; scrutiny and acceptance of tender.</p>	2

7.	<b>Project Management with Network Technique:</b> Project planning, scheduling, controlling, bar chart and mile stone charts, elements of network, development of network, time estimates, time computation, network analysis-PERT and CPM	12
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### **Term work:**

1. Construction Technology: Sketches related to brick masonry, Foundation
2. Methods of Quantity estimates : Long-wall short wall method and centre line method
3. Examples: Rate Analysis
4. Specifications
5. Contracts and condition of contracts
6. Tenders
7. Project management: PERT,CPM (examples)
8. Detailed estimate of full scale water treatment/sewage treatment/effluent treatment plant.

### **Reference Books:**

1. Estimation & Costing in civil Engineering - B.N. Dutta.
2. Project Planning and Control with PERT & CPM- Dr. B.C. Punamia.
3. Elements of Estimation & Costing – Rangwala.
4. Estimation, costing, specification & valuation in civil Engg. By M.Chakroborti.