



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3163513

Semester – VI

**Subject Name: Estimating, Specifications and
project management**

Type of course: Professional Elective Course

Prerequisite: ----

Rationale: Estimating the cost for construction of treatment plant structures along with the mechanical equipment's and the project management techniques.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE (E)	PA (M)	ESE (V)	PA (I)		
3	1	0	4	70	30	0	0	100

Content:

Sr. No.	Content	Total Hrs
1	Construction Technology: a. Subsurface investigation b. Foundations c. Masonry Construction d. Plain and Reinforced Concrete construction e. Plastering	4
2	(a) Elements of Estimating and Costing: 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. (b) Rate Analysis: Prerequisites, factors affecting rate analysis; procedure for rate analysis; schedule of rates; task work; revision of rates. (c) Detailed estimation of water treatment/sewage treatment/effluent treatment plant units.	14
3	Specifications: Importance: requisites of good specifications; classification of specifications; specifications of typical items; standard specification.	4
4	Contracts: Meaning and important legal aspects of contracts; types of contracts and	4



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Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
5	15	20	15	15	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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

Course Outcomes: After learning this course students will be able to

Sr. No.	CO statement	Marks % weightage
CO-1	Workout the quantities of materials used in environmental engineering units.	15
CO-2	Prepare rate analysis using the schedule of rates.	20
CO-3	Prepare an estimate of the total cost for each unit.	25
CO-4	List out the specifications and Conditions of contract.	20
CO-5	Apply the Bar chart, CPM and PERT network analysis method in environmental engineering project	20

List of Practicals:

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 based on Rate Analysis
4. Specifications relating to civil works
5. Contracts and condition of contracts
6. Tenders
7. Project management: PERT,CPM (examples)