

GUJARAT TECHNOLOGICAL UNIVERSITY
BRANCH NAME: B.ARCH.
SUBJECT CODE: 2X65005
SUBJECT NAME: ESTIMATION AND COSTING
3rd Year, SEMESTER: VI

Type of course: B.Arch.

Prerequisite: Building Construction

Rationale:

- 1) Estimated cost of a proposed structure.
- 2) The value of the existing structure.
- 3) Rates of items of civil engineering works.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE (E)	PA (M)	ESE (V)	PA (I)		
2	1	0	3	50	50	0	0	100

Content:

Sr. No.	Topics	Teaching Hrs.	Weightage %
1	Computation of areas and volumes for following objects: - Square, Rectangular, Triangle, Cylinder, Cone, Frustum of cone, Frustum of pyramid, circle, sphere and segment of sphere, Ellipse	02	08
2	Estimates: - Definition, Units of measurements, types of estimates, Different methods to find the quantities of civil works. Estimated cost and its importance. Provisions of IS-1200, for working out quantities and deductions in civil works. Entering the measurements in quantity sheet and calculation of quantities of various items of civil works of small residential building (concrete, Steel, Shuttering, brickwork, wooden work), and Small Industrial Shed with Market rates of material and labour, Introduction to schedule of rates, Entering quantities and rates in abstract sheet, calculation of estimated cost. Estimate of Septic Tank, Soak Pit, Sanitary item – Plumbing, Electrification. Rate analysis of all major items to be prepared.	15	30
3	Specifications: - Definition, importance of specification, Types of specification, Care to be taken while drafting specifications, Drafting general specifications, and detailed specifications for various civil work items.	05	20
4	Rate Analysis: - Definition of rate analysis, Definition of task, Determination of man power and material requirement for a given quantity of items of civil works, study of present wages of labour and prices of material in the market. Study of market rents of different construction equipment, Determination of rate of item of civil work. Working out rates of various items of civil works like 10 m ² plaster, 10 m ³ 1:2:4 plain and reinforced concrete, 10 m ³ brick work etc.	07	20

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
30	30	20	10	10	-

**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/ Indian Standards:

- (1) B. N. Dutta, Estimation and Costing in Civil Engineering, Ubs Publishers Distributors, Ltd.
- (2) S. C. Rangwala, Estimating and Costing, Charotar Publishing House.
- (3) G. S. Birdi, Textbook of Estimating & Costing, Dhanpat Rai and Sons, Delhi.
- (4) M. Chakraborti, Estimating, Costing, Specification and Valuation.
- (5) P.W.D. Handbook and SOR, IS Code – 1200.
- (6) A. S. Kotadia, Professional Practice and Valuation, Mahajan Publications.
- (7) S. C. Rangwala, Valuation of Real Properties, Charotar Publication.

Course Outcome:

After learning the course, the students should be able to:

Work out

- (1) the estimated cost of any proposed civil engineering structure and
- (2) The value of any old structure

Term Work:

- (1) Work out quantities of various items of civil works from working drawings of residential, industrial and industrial buildings.
- (2) Work out quantities of various items of civil works from drawings.
- (3) To work out rates of items of civil works
- (4) Examples on valuation of buildings.
- (5) Drafting specifications for various items of civil works