

GUJARAT TECHNOLOGICAL UNIVERSITY

BRANCH NAME: CIVIL ENGINEERING
SUBJECT NAME: PROFESSIONAL PRACTICE AND VALUATION
SUBJECT CODE: 2170610
B.E. 7th SEMESTER

Type of course: Core Subject

Prerequisite: Civil Engineering Drawing, Construction and Construction Equipments

Rationale: A Civil Engineer is supposed to find out

- 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 C | Examination Marks | | | | | | Total Marks |
|-----------------|---|---|--------------|-------------------|-----|---------|-----------------|-----------|----|----------------|
| L | T | P | | Theory Marks | | | Practical Marks | | | |
| | | | ESE (E) | PA (M) | | ESE (V) | | PA (I) | | |
| | | | | PA | ALA | ESE | OEP | | | |
| 3 | 2 | 0 | 5 | 70 | 20 | 10 | 30 | 0 | 20 | 150 |

Content:

| Sr. No. | Content | Total Hrs | % Weightage |
|----------|---|--------------|-------------|
| 1 | Computation of areas and volumes for following objects; (i) Cylinder- Area of curved surface and volume (ii) Cone- Volume and area of curved surface (iii) Frustum of cone- Volume and curved surface area (iv) Frustum of pyramid- Volume and surface area of all sides. (v) Area of sector and segment of a circle (vi) Area and volume of sphere and segment of sphere (vii) Ellipse- Area of ellipse and Units of measurements | 04 | 10 |
| 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 | 10 | 25 |

| | | | |
|----------|--|-----------|----|
| | sheet and calculation of quantities of various items of civil works for residential , commercial and industrial buildings, Market rates of material and labour, Introduction to schedule of rates, Entering quantities and rates in abstract sheet, calculation of estimated cost. | | |
| 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. | 04 | 10 |
| 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 equipments, Determination of rate of item of civil work. Working out rates of various items of civil works like 10m ² plaster,10m ³ 1:2:4 plain and reinforced concrete, 10m ³ brick work etc. | 06 | 15 |
| 5 | Contract- Definition, legal requirements of a valid contract ,types of contracts, conditions of contract, sub contracts and contractual disputes, Arbitration. | 04 | 10 |
| 6 | Tender and Tender notice- Bidding process, Prequalification process, tender notice and its essential features, drafting tender notice, Bid submission, Analysis of tenders, Basis for evaluation and acceptance, letter of intent, work order, agreement. | 04 | 10 |
| 7 | Valuation-Definitions of value, price and cost, depreciation, sinking fund , different type of values and their significance, factor affecting value, rent and standard rent, Years purchase , valuation tables, Easement, types of easements, significance of easement in valuation, Methods of valuation of buildings and land, Estimation of values of different types of buildings and lands. | 10 | 20 |

Suggested Specification table with Marks (Theory):

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

- (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:

- (1) Work out (i) the estimated cost of any proposed civil engineering structure and
(ii) The value of any old structure
- (2) Apply the software for working out quantities of items of civil works.

List of Experiments:

- (1) Work out quantities of various items of civil works from working drawings of residential, industrial and commercial buildings.
- (2) Work out quantities of various items of civil works from drawings of culverts, L/s and C/s of Highways, etc.
- (3) To work out rates of items of civil works
- (4) Examples on valuation of land and buildings.
- (5) Drafting specifications for various items of civil works.
- (6) Use of Software Revit , BIM, etc.

Design based Problems (DP)/Open Ended Problem:

- (1) Students may carry out valuation of existing buildings with premises that are put for sale by the owner.
- (2) Students can take up the case of a proposed residential society project from the builder and work out estimated cost of the project.
- (3) Students can visit the construction site for hydraulic, transportation, environment structure and acquire enough data to find out the estimated cost.
- (4) Same project be evaluated for estimated cost or valuation as the case may be by two groups of students and there may be a debate on points where there are major differences and correcting the same as per teacher's guidance.
- (5) Student shall verify the quantities worked out manually with the help of software, for a given drawing of Construction Project.

Major Equipment:

- (1) Computer system supporting the softwares like Revit, Primavera, BIM, MS Project, etc.

List of Open Source Software/learning website: *nptel.ac.in/*

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.