

6.3 PROGRAMME ELECTIVE I

6.3.1. TENDERING AND VALUATION

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RATIONALE

At the end of this subject, the student shall be able to estimate the material quantities, prepare a bill of quantities, make specifications and prepare tender documents. Student will also be able to prepare value estimates.

COURSE OUTCOMES

After undergoing the subject, the students will be able to:

- CO1 Explain various types of contract and their uses.
- CO2 Prepare the typical Tender document for the given civil engineering work.
- CO3 Decide type of payment for the executed work.
- CO4 Justify the rent fixation and valuation of given civil structure.

DETAILED CONTENTS

UNIT – I

Procedure to Execute the Work and Specifications

Organization of P.W.D., Functions of their Personnel.

P.W.D. procedure of initiating the work: Administrative approval, Technical sanction, Budget provision, Expenditure sanction.

Methods for carrying out works: Contract method, Departmental method, Rate list method, Piece work method, Day's work method, Employing labours on daily wages basis.

Specifications: Necessity and importance of specifications of an items, Points to be observed in framing specifications of an item, types of specification – Brief and Detailed, Standard and Manufacturers Specification, Preparing detailed specifications of items in civil engineering works, Standard specification book, Legal Aspects of Specification.

UNIT – II

Contracts

Definition and objectives of contract, Requirements of contract, Overview of Indian Contract Act.

Types of engineering contract with advantages, disadvantages and their suitability - Lump sum contract, Item rate contract, Percentage rate contract, Cost plus percentage, Cost plus fixed fee, Cost plus variable percentage and Cost plus variable fee contract, Labour contract, Demolition contract, Target contract, Negotiated contract, Engineering Procurement Construction Contract (EPC), Annuity Contract.

Introduction of FIDIC Conditions of contract.

Classification of contractor on basis of financial limits, Requirement of documents for registration of contractor.

Build Operate Transfer (BOT) Project, BOT Toll contract, BOT (Annuity) contract, Design, Build, Finance, Operate and Transfer (DBFOT) contract, Hybrid Annuity contract, Operate Maintain and Transfer (OMT) contract, Operation & Maintenance contract (Introduction only).

UNIT III

Tender and Tender Documents

Definition of tender, necessity of tender, Types of tender- Local, Global and Limited.

E-Tendering System – Online procedure of submission and opening of bids (Technical and Financial).

Notice to invite tender (NIT) - Points to be included while drafting tender notice, Drafting of tender notice.

Procedure of submitting filled tender documents (Two envelope system), procedure of opening tender, Comparative statement, Scrutiny of tenders, Award of contract, Letter of award.

Meaning of terms - Earnest Money Deposit (EMD), Performance Security Deposit, Validity period, Corrigendum to tender notice and its necessity, Unbalanced bid.

Tender documents – Index, Tender notice, General instructions, Special instructions, Schedule A, Schedule B, Schedule C etc.

Terms related to tender documents: Contract conditions - Time limit, Time extension, Penalty, Defective material and workmanship, Termination of contract, Suspension of work, Subletting of contract, Extra items, Price variation clause (escalation), Defect liability period, Liquidated damages.

Arbitration: Meaning, Qualification of an arbitrator, Appointment, Dispute and settlement of disputes, Arbitration and conciliation act, Arbitration award.

UNIT – IV

Accounts

Various account forms and their uses – Measurement books, E- Measurement book (E- MB), Nominal

Muster Roll (NMR), Imprest cash, Indent, Invoice, Bill, Vouchers, Hand receipt, Cash Book, Temporary Advance. Heads of accounts.

Mode of Payment to the contractor and its necessity - Interim Payment, Advance Payment Secured Advance, Petty advance, Mobilization Advance, Running Account Bill, Final Bill, Retention Money, E - payment.

UNIT – V

Valuation

Principle and purpose of valuation, Role of valuer. Definition - Cost, Price and Value, Characteristics of value, Factors affecting value.

Types of value - Book Value, Scrap Value, Salvage Value, Speculative Value, Distress Value, Market Value, Monopoly Value, Sentimental Value. Factors affecting value.

Depreciation, Obsolescence, Sinking Fund, Fair Rent, Year's Purchase.

Methods of calculation of depreciation – Straight Line Method, Sinking Fund Method, Constant Percentage Method.

Methods of valuation – Replacement Cost Method, Rental Return Method

Fixation of rent, Lease – Types of lease, Lease hold property and Free hold property. Mortgage – Mortgage deed, Precautions to be taken while making mortgage.

RECOMMENDED BOOKS

1. Datta, B. N., Estimating and Costing in Civil engineering, UBS Publishers Pvt. Ltd., New Delhi
2. Raina, V. K., Construction Management and Contract Practices, Shroff Publishers & Distributors Pvt. Ltd.
3. Rangawala, S. C., Estimating and Costing, Charotar Publishing House PVT. LTD., Gujrat
4. Birdie, G. S., Estimating and Costing, Dhanpat Rai Publishing Company(P) Ltd., New Delhi
5. Patil, B. S., Civil Engineering Contracts and Estimates, Orient Longman, Mumbai
6. Chakraborti, M., Estimating and Costing, Specification and Valuation in Civil Engineering, Monojit Chakraborti, Kolkata.

RECOMMENDED WEBSITES

1. <https://swayam.gov.in/>
2. <https://www.udemy.com/>
3. <https://www.upgrad.com/>
4. <https://www.khanacademy.org/>

INSTRUCTIONAL STRATEGY

The teachers should use teaching aids for classroom teaching. Arrange industry visits to augment classroom teaching-learning process. Arrange expert lectures from the industry experts. This subject contains five units of equal weightage.