Gyanmanjari Innovative University

Course Syllabus
Gyanmanjari Institute of Technology
Semester-6 (B. Tech.)

Subject: Professional Practice and Valuation– BETCV16326
Type of Course: Professional Core
Prerequisite: Knowledge of Civil Engineering Drawing and Building Construction Technology

Rationale: This course is designed to develop the ability in the students of the basic knowledge of engineering economics, materials of construction, construction technology, building planning and drawings. In the construction of any structure, specifications of civil work are the significant parameters in deciding the cost of the project. In construction, it is often required to use the local materials for which the rates are varying to a greater extent across the country. Therefore, there emerges a need for discipline to suggest a specific scientific technique to determine the quantity and cost of the materials along with its justification. Today being the era of technology, a provision has also been made to use the various software's for more accuracy and speedy determination of estimation and costing.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
				Theory Marks		Practical Marks		CA	
CI	T	P	C	ESE	MSE	V	P	ALA	
4	0	2	5	60	30	10	20	30	150

Legends: CI-Classroom Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.

Course Content:

Sr. No.	Course Content	Hrs.	% Weightage
1	**Estimation & its utilization** 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 for residential, commercial and industrial buildings, Market rates of material and Laboure. Introduction to schedule of rates, Entering quantities and rates in abstract sheet, calculation of estimated cost. Computation of areas and volumes for following objects; Cylinder- Area of curved surface and volume, Cone- Volume and area of curved surface, Frustum of cone- Volume and curved surface area, Frustum of pyramid- Volume and surface area of all sides., Area of sector and segment of a circle	14	25%
2	**Fundamental of 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.	08	15%
3	**Rate Analysis of civil works** 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 Laboure 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 10m2 plaster,10m3 1:2:4 plain and reinforced concrete, 10m3 brick work etc.	10	15%
4	**Contract 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.	14	25%
5	**Valuation & its utilization** 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.	14	20%

Continuous Assessment:

Sr. No.	Active Learning Activities	Marks
1	**Quantity Estimation of a Small Building** The faculty will divide students into groups (2-3 Students) and assign a small residential/commercial plan (e.g., G+1 house, classroom, office block). Each group will prepare Specifications and rate analysis, and submit a report along with a PDF. And Upload it GMIU Web Portal.	10
2	**Prepare Estimate and Abstract in Excel sheet** Faculty will assign students to prepare estimation sheets in MS Excel and extract quantities from AutoCAD drawings. Students will compile their work and upload Excel sheet it on the GMIU Web Portal.	10
3	**Tender Preparation Exercise Presentation** Faculty will assign students to individual prepare a mock tender document with BOQ and estimated cost for a small project. The completed tender Presentation will be uploaded at the GMIU Web Portal.	10
	TOTAL	**30**

Suggested Specification table with Marks (Theory): 60

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage %	20%	30%	20%	15%	15%	-

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.

Course Outcome:

After learning the course, the students should be able to:	
CO1	Define and explain the concept of an estimate, its importance, and its various types.
CO2	Prepare rate analysis, specifications, tenders and contract of different civil work.
CO3	Evaluate an approximate and detailed estimate of a civil engineering work.
CO4	Utilise software for working out quantities of items of civil works.
CO5	Solve examples on valuation of properties/ buildings.

List of Practical

Sr. No.	Descriptions	Unit No.	Hrs.
01	Work out quantities of various items of civil works from working drawings of residential buildings.	01	04
02	Work out quantities of various items of civil works from working drawings of industrial buildings	01	04
03	Work out quantities of various items of civil works from working drawings of commercial buildings	01	04
04	Work out quantities of various items of civil works from drawings of culverts.	01	02
05	Work out quantities of various items of civil works from drawings of L/s and C/s of Highways.	01	02
06	Drafting specifications for various items of civil works	02	02
07	To work out rates of items of civil works	03	04
08	To work out Tender notice	04	02
09	Examples on valuation of land and buildings	05	02
10	Overview of software Revit, Tekla, BIM, MS Project, Primavera etc.	-	02
	TOTAL		30

Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory.

The internal evaluation will be done on the basis of Active Learning Assignment.

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in the laboratory.

Reference Books:

[1] Estimating and Costing, Charotar Publishing House, S. C. Rangwala,
[2] Engineering Economics", Panneer Selvam, R, Prentice Hall of India Ltd, New Delhi, 2001
[3] Estimation and Costing In Civil Engineering, B. N. Dutta, Ubs Publishers Distributors, Ltd.
[4] Textbook of Estimating & Costing, G. S. Birdi, Dhanpat Rai and Sons, Delhi.
[5] Estimating, Costing, Specification and Valuation, M. Chakraborti,