Lok Jagruti Kendra University
University with a Difference

Diploma in Architectural Assistantship

LJ Polytechnic

Course Code:025080502

Estimating & Costing

Programme / Branch Name			Diploma in Architectural Assistantship			
Course Name	Estimating & Costing				**Course Code**	025080502
Course Type	HSSC	BSC	ESC	PCC	OEC	PEC

Legends: HSSC: Humanities and Social Sciences Courses BSC: Basic Science Courses
ESC: Engineering Science Courses PCC: Program Core Courses
OEC: Open Elective Courses PEC: Program Elective Courses

1. Teaching and Evaluation Scheme

Teaching Hours / Week / Credits				**Evaluation Scheme**			
L	**T**	**P**	**Total Credit**	**CCE**	**SEE (Th)**	**SEE (Pr)**	**TOTAL**
3	0	2	4	50	50	50	150

Legends:
L: Lectures T: Tutorial P: Practical
CCE: Continuous & Comprehensive Evaluation
SEE (Th): Semester End Evaluation (Theory)
SEE (Pr): Semester End Evaluation (Practical)

2. Prerequisites

- ✓ Cost calculation of construction items, labors, and different works

3. Rationale

Estimating and costing is a vital part of any construction project after the preparation of the drawing. No project can begin without total estimation and costing. The entire cost of construction and the infrastructure used for construction is estimated and the final costing is done based on which a certain percentage of the project cost is paid to the architect and other consultants involved in the project. This course enables the students to calculate the estimated construction cost of a building. This course also enables the students to know the present material and labor cost and to differentiate between them. To estimate the construction cost of a designed building is very important for an architect as it helps him/her to work within a budget and also helps his/her clients to know the finance he/she would have to arrange at various stages of construction. Thus this course helps the students to work efficiently in the field of architecture.

4. Objectives

- ✓ Explain types of estimate and duties of an estimator.
- ✓ Undertake rate analysis of civil engineering works.
- ✓ Determine the rates of various items of civil works.
- ✓ Calculate the estimated cost of civil construction projects.

5. Contents

Unit No.	Unit Name	Topics	Learning Outcomes	% Weightage	Hours
1.	**Introduction**	1.1. Define term estimating and costing 1.2. Objectives of estimating 1.3. Types of estimate such as approximate estimate & detailed estimate 1.4. Methods of preparing approximate estimate such as service unit method, plinth area method, cubical content method, typical bay method, etc. 1.5. Data required to prepare a detailed estimate 1.6. Methods of preparing detailed estimate such as long wall-short wall method, centerline method, etc.	• Define estimating • Classify estimates • List methods of preparing approximate estimate and detailed estimate	14	06
2.	**Modes of Measurements**	2.1. Introduction 2.2. Units of measurements of a construction item 2.3. Importance of modes of measurements 2.4. Modes of measurements of various construction items	• Differentiate modes of measurement for various construction items • Apply proper mode of measurement	14	07
3.	**Rate Analysis**	3.1. Introduction 3.2. The necessity of rate analysis 3.3. Data required for rate analysis 3.4. Factors affecting rate analysis 3.5. Task work 3.6. Factors affecting task work 3.7. Task work of various skilled and unskilled labors 3.8. Schedule of Rate and market survey 3.9. Rate analysis of various construction items,shear stress of a section	• State and explain data required for rate analysis • Explain task work • Prepare rate analysis • Conduct survey for current market rates	16	07

4.	**Specifications**	4.1. Definition, purpose & importance of specifications 4.2. Types of specifications 4.3. Design and drafting of specifications 4.4. Specification writing for some useful items	• Interpret and use brief specifications for a given item of construction • Draft specification • Explain important of specifications	14	08
5.	**Estimating**	5.1. Detailed estimate 5.2. Detailed estimate of single story residential building 5.3. A detailed estimate of R.C.C. slab 5.4. A detailed estimate of R.C.C. beam 5.5. Detailed estimate of R.C.C. column with footing 5.6. Detailed estimate of septic tank with soak pit	• Calculate the quantity of construction item • Prepare abstract Sheet • Prepare schedule of bar	42	14
				Total Hours	**42**

6. List of Practical / Exercise

Sr. No	Practical / Exercises	Key Competency	Hours
1	Interpret given civil engineering drawing	Technical drawings	2
2	Measure at least 10 construction items using different modes	Modes of measurements	4
3	Perform rate analysis of at last 10 construction items	Rate analysis of various materials & labors	4
4	Draft specification of at least 10 construction items	Specifications drafting	4
5	Prepare estimate of single-story residential building including one bedroom, hall, kitchen, bath & w/c	Estimation of a single residential unit	6
6	Prepare estimate of R.C.C. slab, beam, column with footing	Estimation of R.C.C. work	6
7	Prepare estimate of septic tank with soak pit	Estimation of a soak pit	2
		Total Hours	28

7. Suggested Specification Table for Evaluation Scheme

Unit No.	Unit Name	Distribution of Topics According to Bloom's Taxonomy					
		R %	U %	App %	C %	E %	An %
1.	Introduction	20	80	-	-	-	-
2.	Modes of Measurements	20	40	40	-	-	-

3.	Rate Analysis	20	40	40	-	-	-
4.	Specifications	20	40	40	-	-	-
5.	Estimating	20	34	46	-	-	-

Legends: R: Remembering U: Understanding
App: Applying C: Creating
E: Evaluating An: Analyzing

8. Textbooks

1) Estimating & Costing by S. C. Rangwala, Charotar Publishing House Private Limited, Anand

9. Reference Books

1) Estimating & Costing by B. N. Dutta, Laxmi publications
2) Handbook of Methods of Measurement of building works by SP:27(1987), BIS
3) Schedule of Rates by Local Authority, R&B, PWD, CPWD, Irrigation, etc
4) Estimating & Costing by M.C. Chakraborty
5) A textbook of Estimating & Costing by G. S. Birdie
6) Estimating & Costing by Vazirani & Chandola

10. Open Sources (Website, Video, Movie)

1) www.amazon.in/Estimating-Costing-Civil-Engineering-Dutta
2) www.shiksha.com
3) www.nptel.com
4) https://www.youtube.com/watch?v=WQHSvA2ZPIo&list=PLcWeCCSvXbNmkw1oHDsU4WOxx4DExz2tR