

## ESTIMATION AND COSTING

<b>VII Semester: CE</b>								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
ACE017	Core	L	T	P	C	CIA	SEE	Total
		3	1	-	4	30	70	100
<b>Contact Classes: 45</b>	<b>Tutorial Classes: 15</b>	<b>Practical Classes: Nil</b>			<b>Total Classes: 60</b>			

**COURSE OBJECTIVES:**  
The student will try to learn:

- The importance and fundamentals of estimation and costing for measuring quantities of construction materials using traditional methods involved in project works.
- The basic concept of earth work related to roads and canals for estimating earth work quantity using sectional area methods.
- The concept of bar bending schedule and rate analysis applied for determining quantity of steel and construction costs.
- The knowledge of structural valuation, tender documentation and conditions of contract for obtaining required information to file a contract bid in real time.

**COURSE OUTCOMES:**

- Choose** the stages involved in construction like excavation, shuttering, bar bending ,tendering and valuation for estimating the cost incurred in the project.
- Apply** the approximate method and the detailed estimating method for calculating various quantities such as brick work R. C Structures
- Make use of** the mid sectional area, and mean sectional area method for determining road embankment and cutting of earth work quantities.
- Apply** the concepts of prismatic and trapezoidal rule for calculating earth work quantities of various irrigation canal structures.
- Analyze** the quantities of materials of various components used in construction works such as beams, slabs, columns, and footings, as per specifications for preparation of Rate analysis.
- Assess** the overhead and contingent charges involved in the project to minimise the additional charges of the project.
- Outline** the quantities of steel and concrete for preparing bar bending schedule, quantiles of various elements R.C.C structures such as retaining walls, water tanks and irrigation structures.
- Explain** the use of contract documents, types of contract and conditions of contract for preparation of bill of quantities and detailed abstracts of the projects.
- Categorize** various valuation methods of buildings according to the client requirement for estimating value of structures.
- Choose** standard specifications of various materials used in construction and evaluation for valuation of different items in the project.
- Develop** the knowledge on quantity surveying methods using advanced tools such as estimator, Revit for preparation of tender documents, bill of quantities and preparation of detailed schedule of various items..

<b>MODULE-I</b>	<b>GENERAL ITEMS OF WORK IN BUILDING</b>	<b>Classes: 12</b>
General items of work in building – Standard units principles of working out quantities for detailed and abstract estimates – Approximate method of estimating. Detailed estimates of buildings.		
<b>MODULE-II</b>	<b>EARTHWORKS</b>	<b>Classes: 12</b>
Earthwork for roads and canals.		
<b>MODULE-III</b>	<b>RATE ANALYSIS</b>	<b>Classes: 12</b>
Rate analysis - Working out data for various items of work over head.		
Rate analysis - Contingent charges.		
<b>MODULE-IV</b>	<b>REINFORCEMENT BAR BENDING</b>	<b>Classes: 12</b>
Reinforcement bar bending and bar requirement schedules.		
Contracts – Types of contracts – Contract documents – Conditions of contract.		
<b>MODULE-V</b>	<b>VALUATION</b>	<b>Classes: 12</b>
Valuation of buildings, standard specifications for different items of building construction.		
<b>Text Books:</b>		
1. B. N. Dutta, “Estimating and Costing”, UBS publishers,2000.		
2. G. S. Birdie., “Estimating and Costing”, DhanpatRai publications,1988.		
<b>Reference Books:</b>		
1. Standard schedule of rates and standard data book by public works department,2015.		
2. I.S. 1200 (Parts I to XXV – 1974/method of measurement of building and Civil Engineering works – B.I.S)		
3. M. Chakraborti, “Estimation, costing and specifications”, Laxmi publications,1982.		
4. National building code,2015.		
<b>Web References:</b>		
1. <a href="https://en.wikipedia.org/wiki/Estimation">https://en.wikipedia.org/wiki/Estimation</a>		
2. <a href="https://theconstructor.org/practical-guide/quality-control/">https://theconstructor.org/practical-guide/quality-control/</a>		
<b>E-Text Books:</b>		
1. <a href="https://drive.google.com/file/d/0B-1pQnD2tCRIOWtWTURWRjR2WHM/view">https://drive.google.com/file/d/0B-1pQnD2tCRIOWtWTURWRjR2WHM/view</a>		