SRI VIDYA COLLEGE OF ENGINEERING & TECHNOLOGY

COURSE PLAN (THEORY)

ACADEMIC YEAR: 2018 -2019 ODD

Subject Code	CE6704		**L**	**P**	**T**	**C**
Subject Title	Estimation and Quantity Surveying		3	0	0	3
Year / Dept / Sem	IV / CIVIL / VII	Regulation Year	2013			
Faculty Name / Desg / Dept	Mr.K.KALAIPANDIAN/AP/CIVIL					
Course Prerequisite	1. The students must have more knowledge about basic fundamentals of mathematics. 2. The students must have more knowledge about construction materials. 3. The students must have more knowledge about building, road, irrigation structure components.					

Syllabus

CE6704 ESTIMATION AND QUANTITY SURVEYING L T P C

3 0 0 3

OBJECTIVES:

To provide the student with the ability to estimate the quantities of item of works involved in buildings, water supply and sanitary works, road works and irrigation works, and also to equip the student with the ability to do rate analysis, valuation of properties and preparation of reports for estimation of various items.

UNIT I ESTIMATE OF BUILDINGS 11

Load bearing and framed structures – Calculation of quantities of brick work, RCC, PCC, Plastering, white washing, colour washing and painting / varnishing for shops, rooms, residential building with flat and pitched roof – Various types of arches – Calculation of brick work and RCC works in arches – Estimate of joineries for panelled and glazed doors, windows, ventilators, handrails etc.

UNIT II ESTIMATE OF OTHER STRUCTURES 10

Estimating of septic tank, soak pit – sanitary and water supply installations – water supply pipe line – sewer line – tube well – open well – estimate of bituminous and cement concrete roads – estimate of retaining walls – culverts – estimating of irrigation works – aqueduct, syphon, fall.

UNIT III SPECIFICATION AND TENDERS 8

Data – Schedule of rates – Analysis of rates – Specifications – sources – Preparation of detailed and general specifications – Tenders – TTT Act – e-tender – Preparation of Tender Notice and Document – Contracts – Types of contracts – Drafting of contract documents – Arbitration and legal requirements.

UNIT IV VALUATION 8

Necessity – Basics of value engineering – Capitalised value – Depreciation – Escalation – Value of building – Calculation of Standard rent – Mortgage – Lease

UNIT V REPORT PREPARATION 8

Principles for report preparation – report on estimate of residential building – Culvert – Roads – Water supply and sanitary installations – Tube wells – Open wells.

TOTAL : 45 PERIODS

OUTCOMES:

The student shall be able to estimate the material quantities, prepare a bill of quantities, make specifications and prepare tender documents. Student shall be able to prepare value estimates.

TEXTBOOKS:

1. Dutta, B.N., "Estimating and Costing in Civil Engineering", UBS Publishers & Distributors,Pvt. Ltd., 2003.

2. Kohli, D.D and Kohli, R.C., "A Text Book of Estimating and Costing (Civil)", S.Chand & Company Ltd., 2004

REFERENCES:

1. PWD Data Book.

2. Tamilnadu Transparencies in Tender Act, 1998

3. Arbitration and Conciliation Act, 1996

4. Standard Bid Evaluation Form, Procurement of Goods or Works, The World Bank, April 1996.

5. Dr.P.Purushothamaraj, Dr.V.Rajendran., "Estimation and Quantity Surveying", Sri Krishna Hitech Publishing Company Ltd.,2016.

Course Objectives (CO)	CO1: To provide the student with the ability to estimate the quantities of item of works involved in buildings. CO2: To provide the student with the ability to estimate the quantities of item of works involved in water supply and sanitary works. CO3: To provide the student with the ability to estimate the quantities

	of item of works involved in road works and irrigation works. CO4: To provide the student with the ability to do rate analysis. CO5: To provide the student with the ability to valuation of properties CO6: To provide the student with the ability to and preparation of reports for estimation of various items.
Expected Course Outcomes (ECO)	At the end of the course, the students should be able to: ECO1: The students can get the ability to estimate the quantities to various items to the building ECO2: Then student can prepare the rate of every items of building and the materials and labour rate ECO3: The student will be getting knowledge an contracts and tenders ECO4: The student will make a specification ECO5: The valuation of the building will be done by the student ECO6: The knowledge an report preparation for various projects takes will be given to the students

PROGRAM OUTCOMES (Pos)

Engineering graduates will be able to:

1. ENGINEERING KNOWIEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. PROBLEM ANALYSIS: identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principals of mathematics, natural sciences and engineering sciences.
3. DESIGN/ DEVELOPMENT OF SOLUTIONS: Design solutions for complex engineering problems and design systems components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural societal, and environmental considerations.
4. CONDUCT INVESTIGATIONS COMPLEX PROBLEMS: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.
5. MODERN TOOL USAGE: Create, select, and apply appropriate techniques resources, and modern engineering and it tools including production and modeling to complex engineering activities with an understanding of the limitations.
6. THE ENGINEERING AND SOCIETY: Apply reasoning informed by the contextual knowledge to

assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practices.

7. ENVIRONMENT AND SUSTAINABLITY: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. ETHICS: Apply ethical principles and commit to professional and responsibilities and norms of the engineering practices.

9. INDIVIDUAL AND TEAM WORK: Function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary setting.

10. COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with society at large such as being able to comprehend and write effectives reports and design documentations, make presentations, and give and receive clear instructions.

11. PROJECT MANGMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principals and apply these to ones own work as a member and leader in a team to manage project and in multidisciplinary environments.

12. LIFE LONG LEARNING: Recognize the need for, and have the preparations and ability to engage in independent and lifelong learning in the broadest context of technological change.

Mapping of CO & PO(Specify the PO's)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	1	-	-	1	-	-	-	-	-	-
CO2	3	3	-	2	-	1	1	-	1	-	1	-
CO3	-	-	-	-	2	1	-	3	-	2	3	1
CO4	-	-	3	-	-	-	1	-	-	-	-	-
CO5	2	2	-	-	-	-	-	-	1	1	-	-
CO6	-	-	-	-	-	1	-	-	-	2	1	-

1 – Slight 2 –Moderate 3 – High

Bridging the Curriculum Gap (Additional Topics beyond syllabus/ Seminars/ Assignments)	BCG1: Estimating of water tank. BCG2: Estimating of road bridges. BCG3: Estimating of dam.
Related Website URLs	W1: http://www.tnhighways.gov.in/pdf/PWD%20SOR-2016-17.pdf W2: http://www.tnpsc.gov.in/tender/tender_act.pdf W3: http://nptel.ac.in/courses/105103093/14
Related Video Course	V1: https://www.youtube.com/watch?v=D04uxZpgp6M

Materials	V2: https://www.youtube.com/watch?v=RvDO4KCmHRQ V3: https://www.youtube.com/watch?v=9jp2HC4-KMA

S.No	Topic Name	Book – P. No	Teaching Aids	No of hrs	Cumulative hrs
UNIT I - ESTIMATE OF BUILDINGS					
1	Introduction, Estimate, Types of estimates	R5 1.1 to 1.4	Class room teaching	1	1
2	Methods of building estimates, Load bearing and framed structures, Calculation of quantities of brick work, RCC, PCC, Plastering, white washing, colour washing and painting / varnishing for shops. (long wall & short wall method)	T1 146 to 154	Class room teaching	2	3
3	Calculation of quantities of brick work, RCC, PCC, Plastering, white washing, colour washing and painting / varnishing for shops. (centre line method)	T1 47 to 52	Class room teaching	2	5
4	Calculation of quantities of brick work, RCC, PCC, Plastering, white washing, colour washing and painting / varnishing for residential building with flat roof (long wall & short wall method)	T1 93 to 109	Class room teaching	2	7
5	Calculation of quantities of brick work, RCC, PCC, Plastering, white washing, colour washing and painting / varnishing for residential building with flat roof (centre line method)	T1 110 to 128	Class room teaching	2	9
9	Calculation of quantities of brick	T1	Class room teaching	1	10

	work, RCC, PCC, Plastering, white washing, colour washing and painting / varnishing for residential building with pitched roof	189 to 212			
10	Various types of arches	T1 - 53	Class room teaching	1	11
11	Calculation of brick work and RCC works in arches	T1 53 to 57	Class room teaching	2	13
12	Estimate of joineries for panelled and glazed doors, windows, ventilators, handrails etc.	R5 1.93 to 1.109	Class room teaching	2	15
Allotted hours:11		Actual required hour :15			
UNIT II - ESTIMATE OF OTHER STRUCTURES					
1	Estimating of septic tank, soak pit	T1 282 to 290	Class room teaching	2	17
2	Estimating of sanitary and water supply installations	T1 303 to 305	Class room teaching	1	18
3	Estimating of water supply pipe line	T1 315 to 320	Class room teaching	1	19
4	Estimating of sewer line	T1 307 to 315	Class room teaching	1	20
5	Estimating of tube well	T1 320 to 323	Class room teaching	1	21
6	Estimating of open well	T1 402 to 407	Class room teaching	1	22
7	Estimating of bituminous and cement concrete roads	T1 328 to 367	Class room teaching	2	24
8	Estimating of retaining walls	T1 245 to 247	Class room teaching	1	25
9	Estimating of culverts	T1 375 to 402	Class room teaching	1	26
10	Estimating of estimating of irrigation works - aqueduct	T1 431 to 438	Class room teaching	1	27
11	Estimating of estimating of irrigation works – siphon, fall.	T1	Class room teaching	1	28

		438 to 443			
Allotted hours:10			Actual required hour :13		
UNIT III - SPECIFICATION AND TENDERS					
1	Introduction, Data	R5 – 3.1	Class room teaching	1	29
2	Schedule of rates	R5 – 3.1 to 3.2	Class room teaching	1	30
3	Analysis of rates	T1 472	Class room teaching	2	32
4	Specifications, sources.	T1 563 to 601	Class room teaching	1	33
5	Preparation of general specifications	T1 563 to 601	Class room teaching	1	34
6	Preparation of detailed specifications	T1 563 to 601	Class room teaching	1	35
7	Tenders, TTT Act, e-tender, Preparation of Tender Notice and Document	R5 3.51 to 3.59	Class room teaching	2	37
8	Contracts, Types of contracts, Drafting of contract documents	R5 3.60 to 3.63	Class room teaching	1	38
9	Arbitration and legal requirements.	R5 3.63 to 3.66	Class room teaching	1	39
Allotted hours:8			Actual required hour :11		
UNIT IV – VALUATION					
1	Introduction, Valuations, Necessity of valuations, Basics of value engineering	T1 620	Class room teaching	2	41
3	Capitalised value	T1 - 623	Class room teaching	1	42
4	Escalation	R5 4.27 to 4.29	Class room teaching	1	43
5	Depreciation	T1 - 625	Class room teaching	1	44
6	Value of building	T1- 626 to 632	Class room teaching	1	45
7	Calculation of Standard rent	T1 633 to 634	Class room teaching	2	47
8	Mortgage	R5 - 4.49	Class room	1	48

			teaching		
9	Lease	R5 4.49 to 4.50	Class room teaching	1	49
Allotted hours:8			Actual required hour :10		
UNIT V - REPORT PREPARATION					
1	Introduction, Principles for report preparation	T1 – 638	Class room teaching	1	50
2	Report on estimate of residential building	T1 638 to 639	Class room teaching	2	52
3	Report on estimate of Culvert	R5 5.4 to 5.6	Class room teaching	1	53
4	Report on estimate of Roads	T1 639 to 640	Class room teaching	1	54
5	Report on estimate of Water supply and sanitary installations	R5 5.8 to 5.10	Class room teaching	2	56
6	Report on estimate of Tube wells	R5 5.10 to 5.12	Class room teaching	1	57
7	Report on estimate of Open wells.	R5 5.12 to 5.13	Class room teaching	1	58
Allotted hours: 8			Actual required hour : 9		

	Prepared by	***Approved by***
Signature		
Name	Mr.S.KeerthiPriyan	
Designation	Assistant Professor / CIVIL	Assistant Professor & HOD/CIVIL
Signed date		

LEGEND:

METHODOLOGY TO MAP OBJECTIVE WITH OUTCOME

Course outcomes are achieved through

- **a.** Suitable Analogies.
- **b.** Class room teaching.
- **c.** Assignments.
- **d.** Tutorials
- **e.** Weekly, monthly and model exams.
- **f.** Brain storming.
- **g.** Group discussion and role play.
- **h.** Seminars