

GUJARAT TECHNOLOGICAL UNIVERSITY

CIVIL (CONSTRUCTION ENGINEERING AND MANAGEMENT) (14)

VALUE ENGINEERING
SUBJECT CODE: 2721405
 SEMESTER: II

Type of course: MAJOR ELECTIVE - III

Prerequisite: NA

Rationale: NA

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks						Total Marks
L	T	P		Theory Marks		Practical Marks				
			ESE (E)	PA (M)	ESE (V)		PA (I)			
					ESE	OEP	PA	RP		
3	2#	0	4	70	30	30	0	10	10	150

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Introduction (i) Concept and definition, objectives of Value engineering, Advantages of Value methodology ,Scenario of value engineering with context to India, Origin of Value engineering (ii) Quantity surveying and value engineering, team of value engineering and its quality, Applicability to Mega projects, Value engineering and project management		
2	Value Analysis Concept, Job planning and its importance in value engineering, Various phases of Value Engineering -Information Phase, Function Analysis Phase, Creative Phase, Evaluation Phase , Development Phase		
3	Functional Analysis Functions at various levels and of various types, cost and worth of function, importance of functional analysis, FAST Diagramming -How to prepare		
4	Creative Phase Creative thinking and creative processes, Application in Value engineering, Various techniques, fundamental approaches of similarity, contiguity and contrast, Positive approach		
5	Cost Model Introduction, Value, Cost and Worth, True and Poor value, Factors affecting the value , Value Index, Cost and Value Gap, importance of cost model in Value Engineering , Function and Matrix Cost model, Life cycle cost analysis		
6	Environmental Impact Assessment with VE approach for the projects		

Reference Books:

1. Value Engineering : A Practical Approach for Owners, Designers & Contractors by Larry W. Zimmerman & Others - CBS Publication
2. Value Engineering : A Systematic Approach by Arthur E. Mudge - Mc GrawHill
3. Value Engineering : Theory by Donald E. Parker - Soundaram Publishers
4. Value Analysis in Design and Construction by O' Brien, J.J. - Mc Graw Hill
5. Value Methodology: A Pocket Guide to Reduce Cost and Improve Value Through Function Analysis;_Lawrence D Miles Foundation
6. Lomansh, S. Value Management: A Textbook, 1997 - Sterling Publishers (Pvt.) Ltd., New Delhi

Course Outcome:

After learning the course the students should be able to:

1. know unnecessary cost associated with every design & project.
2. target unnecessary cost associated with every design & project.
3. remove unnecessary cost associated with every design & project.

List of Tutorials:

Tutorial based on

1. Systems approach & utility of computers.
2. Information phase projects under executive by Government/company.
3. Functional analysis of items/services.
4. Function analysis of projects
5. Preparation of VE job plan & FAST diagnosis for projects.
6. Cost function value analysis with shifts.
7. EIA with VE approach for the projects under study.
8. VE application to the project under their by student as case study.

Review Presentation (RP): The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I and Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) to the students in the beginning of the semester. The same list will be uploaded on GTU website during the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks only after uploading of the best 3 presentations. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website