

Value Engineering in Construction Projects

01CP0206 (PEC)

Objective of the Course:

- To study the concept of Value Engineering.
- To learn the importance of Value Engineering application construction industry.
- To analysis the benefits of implementation of Value Engineering in Construction project.

Credit Earned: 3

Students learning outcomes:

After successful completion of the course, it is expected that student will be able to,

1. Get clear idea about Value Engineering and its importance in construction industry.
2. Study the real-life application of Value Engineering in construction project.
3. Establish analysis the benefits of Value Engineering and cost study on construction project after its application.

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA (M)	CSE (I)	Viva (V)	Term Work (TW)	
03	00	00	03	50	30	20	25	25	150

Detailed Syllabus

Sr No.	Title of the unit	Number of hours
1	Introduction of value engineering	8
	Definition and Objectives of VE; Reasons for the unnecessary costs; Application of VE; VE methodology and techniques; Project scope and budget: Elements of project budget; Budgeting techniques; Cost control; Defining project scope; parameters and parameter cost.	
2	Value Analysis	8
	value analysis team; principles of value analysis, benefits of value analysis, various applications; Planning for VE services: VE Objectives; Level of effort; VE and total project management; Team selection; VE job plan; Preparation of cost models	

3	Integrating value engineering	8
	Planning and design; Construction; Maintenance and Operations (M&O); VE Applications to Risk Assessment and Analysis: Risk Assessment; Risk Analysis; Case Studies: Application of VE on different types of projects.	
4	Life cycle costing	8
	Decision makers' impact on LCC; LCC and total building costs; LCC terminology and examples; LCC methodology, DCF methods, ROR analysis, sensitivity analysis; Application of LCC to buildings, Forecasting of Capital as well as operating & maintenance costs,	
5	Valuation	10
	Meaning of valuation, purpose of valuation, different type of values and their significance, factor affecting value, Different methods of valuation for different types of assets as land and building, historical places; Valuation report: Standard format, contents, case study on any report.	
		42

Suggested Theory Distribution

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
5%	5%	20%	20%	25%	25%

Instructional Method and Pedagogy:

1. Use of Learning Management system like canvas
2. Demonstration through presentations on power point and videos and lectures
3. Brainstorming and group discussion sessions
4. Collaborative learning

Recommended Study Material:

1. Lomash, S. (1997), "Value Management text book", by Sterling Publishers (Pvt.) Ltd., New Delhi 110 016.
2. L.D. Miles, "Techniques of Value Analysis and Engineering", by McGraw Hill Book Company.
3. L.W. Zimmerman, "Value Engineering- A practical approach for Owner, Designers and Contractors", by CBS Publishers & Distributors Pvt Ltd, First Edition 1998.
4. James J O'Brien, "Value Analysis in Design and Construction", by McGraw Hill Book Company.
5. Dell'isola, J. Alphonse, "Value Engineering in the Construction Industry, by Smith, Hinchman & Grylls Washington, D.C. 20036 Third Edition.
6. George, A. Taylor, "Managerial and Engineering Economy", by Van Nostrand Reinhold Company; Affiliated East-West Press (Pvt.) Ltd., East-West student edition 1969.