20ME2601A - VALUE ENGINEERING

Offering Branches	ME		
Course Category:	Open Elective -II	Credits:	3
Course Type:	Theory	Lecture-Tutorial-Practical:	3-0-0
Prerequisites:	20BS1104 - Applied Physics 20ES1101 - Basics of Electrical & Electronics Engineering	Continuous Evaluation:	30
		Semester End Evaluation:	70
		Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to:

CO1	**Understand** the basic concepts, techniques and applications of value engineering	K2
CO2	**Describe** job plan of value engineering.	K2
CO3	**Illustrate** different value engineering techniques and versatility of value engineering.	K3
CO4	**Illustrate** the efforts of value engineering team during the process of value engineering	K3

Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	2	2			3			3		3			3
CO2	1	2	2			3			3		3			3
CO3	1	2	2			3			3		3			3
CO4	1	2	2			3			3		3			3
Avg.	1	2	2			3			3		2			3

1- Low	2-Medium	3-High

Course Content

UNIT-1	**Introduction**: Value engineering (VE) concepts, advantages, applications, problem recognition, and role in productivity, criteria for comparison, element of choice. **Organization**: Level of value engineering in the organization, size and skill of VE staff, small plant, VE activity, unique and quantitative evaluation of ideas.	CO1
UNIT-2	**Value engineering job plan**: Introduction, orientation, information phase, speculation phase analysis phase. Selection and Evaluation of value engineering Projects, Project selection, methods selection, value standards, application of value engineering methodology.	CO1 CO2
UNIT-3	**Value engineering techniques** : Selecting products and operation for value engineering action, value engineering programmes, determining and evaluating function(s) assigning rupee equivalents, developing alternate means to required functions, decision making for optimum alternative, use of decision matrix, queuing theory and Monte Carlo method make or buy, measuring profits, reporting results, Follow up, Use of advanced technique like Function Analysis System.	CO1 CO3
UNIT-4	**Versatility of value engineering**: Value engineering operation in maintenance and repair activities, value engineering in non hardware projects. **Initiating a value engineering programme**: Introduction, training plan, career development for value engineering specialties.	CO1 CO3

UNIT-5	**Value engineering level of effort**: Value engineering team, co-coordinator, designer, different services, definitions, construction management contracts, value engineering case studies.	CO1 CO4

Learning Resources

Text Books	1. Anil Kumar Mukhopadhyaya, "Value Engineering: Concepts Techniques and applications", SAGE Publications 2010.
Reference Books	1. Alphonse Dell'Isola, "Value Engineering: Practical Applications for Design, Construction, Maintenance & Operations", R S Means Co., 1997. 2. Richard Park, "Value Engineering: A Plan for Invention", St. Lucie Press, 1999. 3. Del L. Younker, "Value Engineering analysis and methodology", Marcel Dekker Inc, New York, 2004. 4. Miles, L.D., "Techniques of Value Analysis and Engineering", McGraw Hill second Edition, 1989. 5. Khanna, O.P., "Industrial Engineering and Management", Dhanpat Rai & Sons, 1993. 6. Anil Kumar Mukhopadhyaya, "Value Engineering Mastermind: From concept to Value Engineering Certification", SAGE Publications, 2003.