INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal - 500 043, Hyderabad, Telangana

COURSE CONTENT

COST MANAGEMENT OF ENGINEERING PROJECTS								
III Semester: CE								
Course Code	**Category**	**Hours/Week**			**Credits**	**Maximum Marks**		
		L	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
BSTE30	Elective	3	0	0	3	40	60	100
Contact Classes: 45	**Tutorial Classes: Nil**	**Practical Classes: Nil**				**Total Classes: 45**		
Prerequisite: Construction Process, Costs involved in Construction, Basic Management.								

I. COURSE OVERVIEW:

Cost Management of Engineering Projects provides a comprehensive understanding of planning, estimating, budgeting, monitoring, and controlling costs throughout the project life cycle. The course emphasizes various costing systems, cost behavior, and cost allocation methods essential for effective decision-making. It covers project planning, execution, and control strategies to ensure projects are completed within budget while meeting quality standards. Students will learn about different types of costs, budgeting techniques, forecasting, and performance measurement tools. The course also integrates quality management principles and modern cost optimization techniques, enhancing career potential in project management, construction, manufacturing, and engineering industries.

II. COURSE OBJECTIVES:

The students will try to learn:

I. The knowledge of Cost Management processes and Costing Systems.
II. The ability to understand the basic concepts of Project Planning, Execution, and Cost Control.
III. The skill to discuss various types of costs, their behavior, and the role of Quality Management.
IV. The capability to identify different types of Budgets involved in the Cost Management process.

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1 Understand the principles of cost management and the functioning of different costing systems used in engineering projects.
CO 2 Understand the concepts of project planning, scheduling, and execution in relation to cost control.
CO 3 Apply knowledge of various types of costs and their behavior in analyzing project expenditures.
CO 4 Understand the importance of quality management and its integration with cost management practices.
CO 5 Analyze cost variations and financial data to identify factors influencing project overruns.
CO 6 Apply cost control tools and techniques to optimize resources and enhance the efficiency of project execution.

IV. COURSE CONTENT:

MODULE –I: Introduction to CMEP (10)
Introduction and Overview of the Strategic Cost Management Process, Cost concepts in decision-making; relevant cost, Differential cost, Incremental cost, Opportunity cost. Objectives of a Costing System; Inventory valuation; Creation of a Database for operational control; Provision of data for Decision-Making

MODULE -II: Project: Meaning (9)
Different types, why to manage, cost overruns centers, various stages of project execution: conception to commissioning. Project execution as conglomeration of technical and non- technical activities. Detailed Engineering activities. Pre project execution main clearances and documents Project team: Role of each member. Importance Project site: Data required with significance. Project contracts. Types and contents. Project execution Project cost control. Bar charts and Network diagram. Project commissioning: mechanical and process

MODULE -III: Cost Behavior and Profit Planning (9)
Cost Behavior and Profit Planning Marginal Costing; Distinction between Marginal Costing and Absorption Costing; Break-even Analysis, Cost-Volume-Profit Analysis. Various decision-making.

problems. Standard Costing and Variance Analysis. Pricing strategies: Pareto Analysis. Target costing, Life Cycle Costing. Costing of service sector. Just-in-time approach, Material Requirement Planning, Enterprise Resource Planning, Total Quality Management and Theory of constraints. Activity-Based Cost Management, Bench Marking; Balanced Score Card and Value-Chain Analysis.

MODULE -IV: Budgetary Control (09)
Budgetary Control; Flexible Budgets; Performance budgets; Zero-based budgets. Measurement of Divisional profitability pricing decisions including transfer pricing.

MODULE -V: Quantitative techniques for cost management (**09**)
Quantitative techniques for cost management, Linear Programming, PERT/CPM, Transportation problems, Assignment problems, Simulation, Learning Curve Theory.

V. TEXTBOOKS:

1. B. N. Dutta, "*Estimating and Costing*", UBS publishers,20119.
2. G. S. Birdie., "*Estimating and Costing*", Dhanpat Rai publications,2021.
3. Ghalot, P.S., Dhir,D. M., "*Construction Planning and Management*", Wiley Eastern Limiled,1992.
4. Chitkara,K K., "*Construction Project Management*". Tata McGraw Hill Publishing Co, Ltd., New Delhi, 1998.
5. Punmia,B. C., "*Project Planning and Control with PERT and CPM*", Laxmi Publications, New deIhi,1987.

VI. REFERENCE BOOKS:

1. Horngren, Charles T., Srikant M. Datar, and Madhav V. Rajan. "*Cost Accounting: A Managerial Emphasis",* Prentice Hall of India, 16th Edition, New Delhi, 2017.
2. Kaplan, Robert S., and Anthony A. Atkinson. "*Advanced Management & Cost Accounting"*. Prentice Hall, 3rd Edition 1998.
3. Bhattacharyya, Ashish K. "*Principles and Practice of Cost Accounting"*. A.H. Wheeler & Co. Pvt. Ltd. 3rd Edition, New Delhi, 2009.

VII. ELECTRONICS RESOURCES:

1. https://en.wikipedia.org/wiki/Estimation
2. https://theconstructor.org/practical-guide/quality-control
3. https://nptel.ac.in/courses/105106149

VIII. MATERIAL ONLINE:

1. Course Outline Description
2. Tutorial Question Bank
3. Assignments
4. Model Question Paper – I
5. Model Question Paper - II
6. Lecture Notes
7. Early Lecture Readiness Videos
8. Power point presentation