



# GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Master of Engineering

Level: PG

Subject Code: ME03069021

Course/Subject Name: Cost Management of Engineering Projects

w. e. f. Academic Year:	2024 - 25
Semester:	3
Category of the Course:	MOPEC

<b>Prerequisite:</b>	Nil
<b>Rationale:</b>	Cost management is an essential skill set for many careers and in many contexts in our lives. Cost Management is an ideal starting point if engineers need to manage projects at work. It is also suitable while undertaking a project in the near future and are seeking to learn and apply essential project management knowledge and skills. Cost management helps to monitor and control spending during a project's lifecycle. The course includes Cost Behavior and Profit Planning Marginal Costing. It also includes Quantitative techniques for cost management, PERT/CPM, Transportation problems, Assignment problems etc.

## PO

No	Program Outcomes
01	Engage in critical thinking and research to develop solutions to multifold real-world problems.
02	Communicate effectively with the engineering community at large level on complex design tasks & write and present technical reports.
03	Demonstrate a high level of professionalism in handling multidisciplinary and complex engineering problems.
04	Plan, assess, create, integrate, carry out, and oversee complex engineering projects in a sustainable local and global context.
05	Address societal issues by offering technologically advanced, reasonably priced solutions while upholding high standards of ethics and professionalism.

## Course Outcome:

After Completion of the Course, Student will be able to:

No	Course Outcomes	RBT Level
01	Understand the concepts of strategic cost management process and fundamentals of management.	R, U



# GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Master of Engineering

Level: PG

Subject Code: ME03069021

**Course/Subject Name: Cost Management of Engineering Projects**

02	Apply cost concepts in decision-making and cost management projects.	A, N
03	Implement various stages of project execution with a team.	A
04	Analyze various decision-making problems.	A
05	Evaluate the project network with concept of cost optimization.	N, E

\*Revised Bloom's Taxonomy (RBT)

### Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Tutorial / Practical		
				ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
3	0	0	3	70	30	-	-	100

### Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	<b>Introduction:</b> Introduction and Overview of the Strategic Cost Management Process, Project Management Fundamentals.	3	5
2.	<b>Cost Concepts:</b> Cost concepts in decision-making; Relevant cost, Differential cost, Incremental cost and Opportunity cost. Objectives of a Costing System; Inventory valuation; Creation of a Database for operational control; Provision of data for Decision-Making.	5	15
3.	<b>Project:</b> meaning, Different types, why to manage, cost overruns centers, various stages of project execution; 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. Project selection methods, Types and contents. Project execution.	10	25
4.	<b>Cost Behavior and Profit Planning with Marginal Costing:</b> 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;	15	30



# GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Master of Engineering

Level: PG

Subject Code: ME03069021

Course/Subject Name: Cost Management of Engineering Projects

	Balanced Score Card and Value-Chain Analysis. Budgetary Control; Flexible Budgets; Performance budgets; Zero based budgets. Measurement of Divisional profitability pricing decisions including transfer pricing,		
5.	<b>Cost Management:</b> Quantitative techniques for cost management, PERT/CPM- Network analysis, CPM-Cost model, Resources allocation, Crashing of networks, Risk management, Transportation problems, Assignment problems, Simulation, and Learning Curve Theory.	12	25
<b>Total</b>		<b>45</b>	<b>100</b>

## Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	U Level	A Level	N Level	E Level	C Level
30	20	20	20	10	--

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

### (a) Books:

References/Suggested Learning Resources:

- Cost Accounting A Managerial Emphasis, Charles T. Horngren, Srikant M. Datar, Madhav V. Rajan, Pearson Education Limited, England
- Advanced Management Accounting, Charles T. Horngren and George Foster,
- Management & Cost Accounting, Robert S Kaplan Anthony A. Atkinson,
- Principles & Practices of Cost Accounting, Ashish K. Bhattacharya, A. H. Wheeler publisher
- Quantitative Techniques in Management, N.D. Vohra, Tata McGraw Hill Book Co. Ltd.
- Project planning and control with PERT and CPM, Dr. B. C. Punamia, K. K. Khandelwal, Laxmi Publication

### (b) List of Open-source software: (May not be open source but useful for the subject):

MS Project, Primavera, Excel, BIM, Revit

### (c) List of MOOC Course link :

<https://nptel.ac.in/courses/110107081>

### (d) List of Experiments/Tutorials:

Minimum 20 problems from above topics.



# GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Master of Engineering

Level: PG

Subject Code: ME03069021

Course/Subject Name: Cost Management of Engineering Projects

---

## Assignment work on

- Strategic cost management and fundamentals of project management
- Various types of costing system and inventory valuation with decision making process
- Various stages of projects and role of each member in a team
- Analysis of various decision-making process
- Network analysis using CPM/PERT for determining optimum time duration
- Transportation and Assignment problems

\* \* \* \* \*