INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad-500043

CIVIL ENGINEERING

TUTORIAL QUESTION BANK

Course Title	**COST MANAGEMENT OF ENGINEERING PROJECTS**				
Course Code	BCSB028				
Programme	M.Tech				
Semester	III	ST			
Course Type	Open elective				
Regulation	**IARE - R18**				
Course Structure	**Theory**			**Practical**	
	Lectures	**Tutorials**	**Credits**	**Laboratory**	**Credits**
	3	-	3	-	-
Chief Coordinator	Mr. Gude Ramakrishna, Associate Professor.				
Course Faculty	Mr. Gude Ramakrishna, Associate Professor.				

COURSE OBJECTIVES:

The course should enable the students to:	
I	Establish systems to help streamline the transactions between corporate support departments and the operating units.
II	Devise transfer pricing systems to coordinate the buyer-supplier interactions between decentralized organizational operating units.
III	Use pseudo profit centers to create profit maximizing behavior in what were formerly cost centers.

COURSE OUTCOMES (COs):

CO 1	Understand the concept of strategic cost management, strategic cost analysis – target costing, life cycle costing and Kaizen costing and the cost drive concept.
CO 2	Describe thedecision-making; relevant cost, differential cost, incremental cost and opportunity cost, objectives of a costing system.
CO 3	Describe thedecision-making; relevant cost, differential cost, incremental cost and opportunity cost,objectives of a costing system.
CO 4	Understand the project contracts, cost behavior and profit planning types and contents, Bar charts and Network diagram.
CO 5	Analyzeby usingquantitative techniques for cost management like PERT/CPM.

COURSE LEARNING OUTCOMES (CLO's):

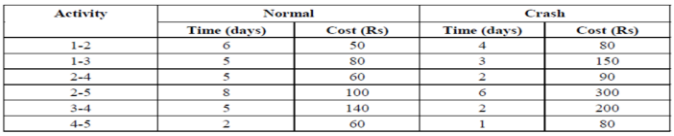
BCSB28 .01	Understand the concept of strategic cost management.
BCSB28 .02	Understand the concept of strategic cost analysis - target costing, life cycle costing & Kaizen costing.
BCSB28.03	Analyze the decision making and pricing strategies.
BCSB28 .04	Understand the concept of cost concepts in decision-making; relevant cost, differential cost, incremental cost and opportunity cost.
BCSB28 .05	Determination of costing system and inventory valuation.
BCSB28 .06	Creation of a database for operational control.
BCSB28 .07	Analyze the provision of data for decision making.
BCSB28 .08	Understand the project meaning, different types, why to manage cost overruns centers, various stages of project execution.
BCSB28.09	Analyze the conception to commissioning. Project execution as conglomeration of technical and nontechnical activities.
BCSB28.10	Able to analyze the detailed engineering activities. Pre project execution main clearances and documents.
BCSB28.11	Understand the data required with significance and project contracts
BCSB28.12	Understand the project contracts. Types and contents,project execution,project cost control,bar charts and network diagram, project commissioning.
BCSB28.13	Understand the behavior and profit planning marginal costing, distinction between marginal costing and absorption costing,break-even analysis.
BCSB28.14	Understand the material requirement, planning, enterprise resource planning, total quality management and theory of constraints.
BCSB28.15	Understand the thermal, flexible budgets,performance budgetszero-based budgets, measurement of divisional profitability pricing decisions including transfer pricing.
BCSB28.16	Analyze quantitative techniques for cost management.
BCSB28.17	Analyze the linear programming, PERT/CPM, transportation problems.
BCSB28.18	Analyze the simulation, learning curve theory.

TUTORIAL QUESTION BANK

UNIT-I				
INTRODUCTION				
Part – A (Short Answer Questions)				
S.No	**QUESTIONS**	**Blooms Taxonomy Level**	**Course Outcomes (CO's)**	**Course Learning Outcomes (CLOs)**
1	What is the concept of strategic cost management?	Understand	CO 1	BCSB28.01
2	Write down the four stages of strategic management and explain.	Remember	CO 1	BCSB28.01
3	What are the concerns and objectives of strategic cost management?	Remember	CO 1	BCSB28.01
4	Explain about Target costing and lifecycle costing.	Understand	CO 1	BCSB28.02
5	Explainbusiness process re-engineering (BPR) management strategy.	Remember	CO 1	BCSB28.03
6	What are the differences between target costing and life costing?	Remember	CO 1	BCSB28.02
7	Explain the cost driver concept.	Remember	CO 1	BCSB28.03
8	Explain different types of cost with examples.	Remember	CO 1	BCSB28.03
9	What is the strategic positioning analysis?	Remember	CO 1	BCSB28.02
10	Explain about valuechain analysis.	Remember	CO 1	BCSB28.02
Part - B (Long Answer Questions)				
1	Dereferences between traditional and strategic cost management.	Understand	CO 1	BCSB28.02
2	What are the managerial uses of cost informationof the four stages of strategic management?	Remember	CO 1	BCSB28.02
3	Explain about business strategy & strategic cost management.	Remember	CO 1	BCSB28.02
4	What do you understand about value chain analysis, explain with example.	Understand	CO 1	BCSB28.03
5	What do you understand about the dressing of stones and explain briefly.	Remember	CO 1	BCSB28.03
6	Explain about cost driver concept and five strategic choices by the firm regarding its underlying economic structure.	Remember	CO 1	BCSB28.01
7	Elaborate the following a) Value chain analysis. b) Strategic positioning analysis. c) Cost driver analysis.	Remember	CO 1	BCSB28.02
8	Elaborate the following A)Target costing B) Life cycle costing.	Remember	CO 1	BCSB28.01
9	What are the cost phases of a product? Explain them briefly?	Remember	CO 1	BCSB28.02
10	What are theemergences of strategic cost management (SCM) results from a blending of three underlying, from the strategic management literature?	Remember	CO 1	BCSB28.03
11	Elaborate the following a)Business strategy. b) Strategic cost management What are the objectives of strategic cost management?	Understand	CO 1	BCSB28.04
12	Elaborate the following a) The strategic positioning concept. b) Strategic cost analysis. c) Phase examples of types of cost.	Understand	CO 1	BCSB28.04
UNIT – II				
COST CONCEPTS				
Part – A (Short Answer Questions)				

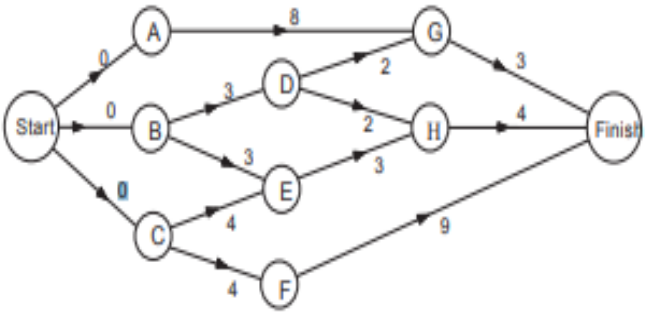
1	What are the cost concepts in decision making?	Remember	CO 2	BCSB28.05
2	Explain about opportunity cost and sunk cost.	Remember	CO 2	BCSB28.05
3	What are data targeting data collecting and analyzing data?	Remember	CO 2	BCSB28.05
4	Explain about provision of data for decision making.	Understand	CO 2	BCSB28.05
5	What are the phases of project management? Explain any two of them briefly?	Understand	CO 2	BCSB28.06
6	How to create a database for operational control.	Remember	CO 2	BCSB28.06
7	Explain about document-oriented database.	Understand	CO 2	BCSB28.05
8	What are the types of data warehouse?	Remember	CO 2	BCSB28.05
9	Explain about differential cost.	Remember	CO 2	BCSB28.05
10	Specify any five objectives of a costing system.	Understand	CO 2	BCSB28.06
11	Explain about of inventory valuation.	Understand	CO 2	BCSB28.06
12	What is the major impactof Inventory valuation will have on income determination?	Understand	CO 2	BCSB28.06
Part - B (Long Answer Questions)				
1	Elaborate the following a) Computation of differential cost. b) Differential revenues. c) Differential net operating income.	Understand	CO 2	BCSB28.05
2	What is the basic principle of Inventory valuation?	Understand	CO 2	BCSB28.05
3	What are the objectives of a costing system?	Understand	CO 2	BCSB28.06
4	What are the five phases of project management and explain?	Remember	CO 2	BCSB28.05
5	Depending upon the usage requirements, types of databases available in the market.	Remember	CO 2	BCSB28.05
6	Differentiate between the following: a) End user data. b) Object-Oriented databases. c) Graph databases.	Understand	CO 2	BCSB28.05
7	What is Database? Explain about distributed database and operational database with neat sketch?	Remember	CO 2	BCSB28.06
8	What is cost management in project management, and Cost concepts in decision making?	Remember	CO 2	BCSB28.06
9	Explain briefly about strategic cost analysis, target costing, life cycle costing and Kaizen costing.	Remember	CO 2	BCSB28.06
10	Elaborate the following a) Document-oriented database. b) NewSQL. c) NoSQL.		CO 2	BCSB28.06
11	Depending upon the usage requirements, what are the types of databases available in the market. Explain any five with diagram.	Remember	CO 2	BCSB28.06
12	Explain the following with diagram. a)Centralized database b)Distributed database	Remember	CO 2	BCSB28.06
UNIT – III				
PROJECT MANAGEMENT				
Part - A (Short Answer Questions)				
1	Explain about normal project management techniques.	Remember	CO 3	BCSB28.07
2	Define business analyst, and what are the duties of business analyst?	Remember	CO 3	BCSB28.07
3	Explain project development stages with flow chart.	Understand	CO 3	BCSB28.08
4	Explain four key elements of critical path method.	Remember	CO 3	BCSB28.08
5	Explain about Float determination in critical path analysis.	Understand	CO 3	BCSB28.07
6	What is critical path method?	Remember	CO 3	BCSB28.09

7	Discuss different limitations of critical path method.	Understand	CO 3	BCSB28.09
8	Explain about critical chain project management and earned value management.	Understand	CO 3	BCSB28.07
9	Explain about project management processes.	Remember	CO 3	BCSB28.09
10	What are the benefits of realization management?	Remember	CO 3	BCSB28.09
11	Explain about iterative and incremental project management.	Remember	CO 3	BCSB28.09
Part – B (Long Answer Questions)				
1	What are the different types of project management processes and explain them briefly.	Understand	CO 3	BCSB28.07
2	How you can monitor and control a project execution.	Understand	CO 3	BCSB28.08
3	What is the project complexity? Explain its role in the area of project management.	Understand	CO 3	BCSB28.08
4	Explain lean project management and, typical development phases of an engineering project.	Remember	CO 3	BCSB28.08
5	What are the basic phases of a project and their purposes?	Remember	CO 3	BCSB28.07
6	Describe the major reasons for schedule and cost overruns across major sector's infrastructure projects.	Remember	CO 3	BCSB28.09
7	Explain briefly various stages of project execution.	Understand	CO 3	BCSB28.09
8	Explain Top 5 reasons for project failure and how to avert disaster.	Understand	CO 3	BCSB28.07
9	Explain the role of project managers in the project execution.	Understand	CO 3	BCSB28.11
10	Importance of project management for organizations, reasons for project time, and overruns across project life cycle.	Understand	CO 3	BCSB28.10
11	What are the valuable and essential techniques used for efficient project cost control.	Understand	CO 3	BCSB28.10
UNIT - IV				
COST BEHAVIOR AND PROFIT PLANNING				
Part – A (Short Answer Questions				
1	Explain about forecast marketing strategies and anticipate financial planning.	Remember	CO 4	BCSB28.12
2	Explain about carve out hiring experiment and net profit.	Remember	CO 4	BCSB28.12
3	Write short note on operating profit and cost of goods sold.	Remember	CO 4	BCSB28.13
4	Discuss about life cycle costing.	Understand	CO 4	BCSB28.12
5	Define pareto analysis.	Understand	CO 4	BCSB28.12
6	Explain about target costing.	Remember	CO 4	BCSB28.15
7	What is the difference between gross and net profit?	Understand	CO 4	BCSB28.13
8	Why net profit is important, explain?	Remember	CO 4	BCSB28.13
9	Define pricingstrategies and explain premium pricing and penetration pricing.	Understand	CO 4	BCSB28.15
10	Explain aboutValue pricing and Captive pricing.	Remember	CO 4	BCSB28.15
11	Explain about pricing for market penetration for small business.	Understand	CO 4	BCSB28.15
12	Define margin of safety and average cost.	Remember	CO 4	BCSB28.15
Part - B (Long Answer Questions)				
1	What are the quantitative techniques for cost management?	Remember	CO 4	BCSB28.15
2	Distinction between marginal costing, absorption costing. Explain in detail about pareto analysis.	Understand	CO 4	BCSB28.15
4	Discuss in detail about flexible budgets, performance budgets, and zero-based budgets.	Remember	CO 4	BCSB28.15
5	Distinction between marginal costing and absorption costing.	Understand	CO 4	BCSB28.15
6	Comparison between marginal costing and absorption costing.	Understand	CO 4	BCSB28.13
7	What is a pricing strategy and why is it important, different	Understand	CO 4	

<table>
<tr><td></td><td>pricing strategies for small business to consider?</td><td></td><td></td><td></td></tr>
<tr><td>8</td><td>Elaborate the following,
a) Geographical pricing.
b) Promotional pricing.
c) Value pricing.
d) Captive pricing</td><td>Remember</td><td>CO 4</td><td>BCSB28.16</td></tr>
<tr><td>9</td><td>What is a pricing strategy and why is it important, different pricing strategies for your small business to consider?</td><td>Understand</td><td>CO 4</td><td>BCSB28.16</td></tr>
<tr><td>10</td><td>What are network diagrams? Explain different types of network diagrams?</td><td>Remember</td><td>CO 4</td><td>BCSB28.16</td></tr>
<tr><td>11</td><td>Explain about the following
a) Arrow diagram method (ADM).
b) Precedence diagram method (PDM).</td><td>Remember</td><td>CO 4</td><td>BCSB28.16</td></tr>
<tr><td colspan="5">UNIT – V</td></tr>
<tr><td colspan="5">QUANTITATIVE TECHNIQUES</td></tr>
<tr><td colspan="5">Part - A (Short Answer Questions)</td></tr>
<tr><td>1</td><td>What is quantitative analysis?</td><td>Remember</td><td>CO 5</td><td>BCSB28.17</td></tr>
<tr><td>2</td><td>What are the network models?</td><td>Remember</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>3</td><td>Explain about project management and production planning.</td><td>Remember</td><td>CO 5</td><td>BCSB28.17</td></tr>
<tr><td>4</td><td>What is cost slope in network analysis?</td><td>Understand</td><td>CO 5</td><td>BCSB28.17</td></tr>
<tr><td>5</td><td>What are the project review techniques, explain in detail.</td><td>Understand</td><td>CO 5</td><td>BCSB28.17</td></tr>
<tr><td>6</td><td>What are the quantitative techniques for cost management?</td><td>Remember</td><td>CO 5</td><td>BCSB28.17</td></tr>
<tr><td>7</td><td>Explain about early start and early finish.</td><td>Understand</td><td>CO 5</td><td>BCSB28.17</td></tr>
<tr><td>8</td><td>What are the basic components of linear programming.</td><td>Remember</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>9</td><td>Explainabout pessimistic time (tp) and probability for project duration.</td><td>Understand</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>10</td><td>What are the limitations of the critical path method?</td><td>Understand</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>11</td><td>How do you calculate late start (LS) and late finish (LF) for critical path in a network diagram?</td><td>Understand</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>12</td><td>Write the procedure for Finding the critical path in a network diagram</td><td>Remember</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>13</td><td>Define CPM and PERT?</td><td>Understand</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td colspan="5">Part - B (Long Answer Questions)</td></tr>
<tr><td>1</td><td>What are the advantages of Network models over linear programming? Explain in detail.</td><td>Remember</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>2</td><td>The following table gives the activities of a construction project and other data
 
If the indirect cost is Rs. 50 per day, crash the activities to find the minimum duration of the project and the project cost associated.</td><td>Analyze</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>3</td><td>A project schedule has the following characteristics as shown in the table.
Project schedule</td><td>Analyze</td><td>CO 5</td><td>BCSB28.18</td></tr>
</table>

Activity	Normal		Crash	
	Time (days)	Cost (Rs)	Time (days)	Cost (Rs)
1-2	6	50	4	80
1-3	5	80	3	150
2-4	5	60	2	90
2-5	8	100	6	300
3-4	5	140	2	200
4-5	2	60	1	80

<table>
<tr><td></td><td>
<table>
<tr><th>Activity</th><th>Name</th><th>Time</th><th>Activity</th><th>Name</th><th>Time (days)</th></tr>
<tr><td>1-2</td><td>A</td><td>4</td><td>5-6</td><td>G</td><td>4</td></tr>
<tr><td>1-3</td><td>B</td><td>1</td><td>5-7</td><td>H</td><td>8</td></tr>
<tr><td>2-4</td><td>C</td><td>1</td><td>6-8</td><td>I</td><td>1</td></tr>
<tr><td>3-4</td><td>D</td><td>1</td><td>7-8</td><td>J</td><td>2</td></tr>
<tr><td>3-5</td><td>E</td><td>6</td><td>8-10</td><td>K</td><td>5</td></tr>
<tr><td>4-9</td><td>F</td><td>5</td><td>9-10</td><td>L</td><td>7</td></tr>
</table>
i. Construct PERT network.
ii. Compute TE and TL for each activity.
iii. Find the critical path.
</td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>Compare and contrast the differences between PERT and CPM.</td><td>Remember</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>5</td><td>Explain in detail about simulation and learning curve theory.</td><td>Understand</td><td>CO 5</td><td>BCSB28.17</td></tr>
<tr><td>6</td><td>What are the direct expenses and selling over heads?</td><td>Remember</td><td>CO 5</td><td>BCSB28.17</td></tr>
<tr><td>7</td><td>Discuss briefly about profit planning.</td><td>Understand</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>8</td><td>What is a learning curve? Explain the benefits of learning curve.</td><td>Understand</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>9</td><td>Explain about the following ,
i. Head event slack and tail event slack.
ii. Total Float.
iii. Free Float.
iv. Independent Float</td><td>Remember</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>10</td><td>The table below defines the activities within a small project.
<table>
<tr><th>Activity</th><th>Start node</th><th>End node</th><th>Completion time (weeks)</th></tr>
<tr><td>1</td><td>1</td><td>2</td><td>2</td></tr>
<tr><td>2</td><td>1</td><td>3</td><td>4</td></tr>
<tr><td>3</td><td>2</td><td>4</td><td>7</td></tr>
<tr><td>4</td><td>3</td><td>4</td><td>3</td></tr>
<tr><td>5</td><td>3</td><td>5</td><td>7</td></tr>
<tr><td>6</td><td>4</td><td>5</td><td>3</td></tr>
<tr><td>7</td><td>5</td><td>6</td><td>4</td></tr>
<tr><td>8</td><td>4</td><td>6</td><td>6</td></tr>
<tr><td>9</td><td>6</td><td>7</td><td>2</td></tr>
<tr><td>10</td><td>4</td><td>7</td><td>7</td></tr>
</table>
In addition to the above information, activity five cannot start until three weeks after the end of activity one.
i. Draw the network diagram.
ii. Calculate the minimum overall project completion time.
iii. Calculate the float time for each activity and hence identify the critical path.</td><td>Analyze</td><td>CO 5</td><td>BCSB28.18</td></tr>
<tr><td>11</td><td>Consider the following activity network, in which the verticals represent activities and the numbers next to the arcs represent time in days.</td><td>Analyze</td><td>CO 5</td><td>BCSB28.18</td></tr>
</table>

	 a) Assuming that an unlimited number of workers is available , write down: i. The minimum completion time of the project. ii. The corresponding critical path. b) Find the float time of activity E.			

Prepared by:

Mr. Gude Rama Krishna,
Associate Professor

HOD, CE