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COURSE PLAN

Academic Year 2019 – 20

Program:	B E – MECHANICAL
Semester :	V
Course Code:	17ME51
Course Title:	MANAGEMENT & ENGINEERING ECONOMY
Credit / L-T-P:	4 / 3-2-0
Total Contact Hours:	50
Course Plan Author:	NAVINESH BC

Academic Evaluation and Monitoring Cell

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Note : Remove “Table of Content” before including in CP Book

Each Course Plan shall be printed and made into a book with cover page

Blooms Level in all sections match with A.2, only if you plan to teach / learn at higher levels

17ME51 : Management & Engineering Economics

A. COURSE INFORMATION

1. Course Overview

Degree:	BE	Program:	ME
Year / Semester :	5/V	Academic Year:	2019-2020
Course Title:	Management & Engineering Economics	Course Code:	17ME51
Credit / L-T-P:	4/3-2-0	SEE Duration:	180 Minutes
Total Contact Hours:	50	SEE Marks:	60Marks
CIA Marks:	40	Assignment	1 / Module
Course Plan Author:	NAVINESH B C	Sign	Dt:
Checked By:	PRAMOD S N	Sign	Dt:

2. Course Content

Content / Syllabus of the course as prescribed by University or designed by institute. Identify 2 concepts per module as in G.

Module	Module Content	Teaching Hours	Module Concepts	Bloom's Level
1	Management: Introduction - Meaning - nature and characteristics of Management, Scope and Functional areas of management, Management as a science, art of profession - Management & Administration Roles of Management, Levels of Management, Development of Management Thought - early management approaches, Modern management approaches. Planning: Nature, importance and purpose of planning process, Objectives - Types of plans (Meaning Only), Decision making Importance of planning, Steps in planning & planning premises - Hierarchy of plans	06	Administration Management	L2
		04	Planning	L2
2	Organizing And Staffing: Nature and purpose of organization, Principles of organization - Types of organization - Departmentation Committees, Centralization Vs Decentralization of authority and responsibility, Span of control - MBO and MBE (Meaning Only). Nature and importance of staffing- Process of Selection & Recruitment (in brief). Directing & Controlling: Meaning and nature of directing Leadership styles, Motivation Theories, Communication - Meaning and importance - coordination, Meaning and importance and Techniques of Co Ordination. Meaning and -Steps in controlling - Essentials of a sound control system Methods of establishing control (in brief)	05	Organization structure	L2
		05	Co ordination	L2
3	Introduction: Engineering and economics, Problem solving and decision making. Laws of demand and supply, Difference between Microeconomics & Macroeconomics, equilibrium between demand & supply, Elasticity of demand, price elasticity, income elasticity. Law of Returns, Interest and interest factors, Cash flow diagrams, personal loans, Simple and compound interest Simple and compound interest, EMI payment calculation with flexible interest rates, problems	05	Engineering economics	L3
		05	Compound Interest	L3
4	Present, future and annual worth and rate of returns: Basic present worth comparisons, Present worth-equivalence Assets with unequal lives and infinites lives Future worth comparisons, payback comparisons Equivalent annual worth comparisons, situations for annual worth comparisons. Asset life, Rate of return, minimum acceptable rate of return, IRR anomalies and misconceptions, Cost of capital, Comparisons of all present future, Annual worth with IRR, product costing Problems	04	Annual worth comparisons	L3
		06	IRR	L3
5	Costing and depreciation: Components of costs, estimation of selling price, Marginal cost, first cost, all kinds of overheads, Indirect cost estimation with depreciation, Mensuration and estimation of material	06	Costing estimation	L3

cost, cost estimation of mechanical process, idling time. Product costing (approaches to product costing), causes of depreciation, methods of computing depreciation charges, Straight line method, declining balance method, Sum of years method, sinking fund method, service output methods Taxation concepts, personal income taxes and corporate taxes, Problems	04	Computations	L3
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3. Course Material

Books & other material as recommended by university (A, B) and additional resources used by course teacher (C).

1. Understanding: Concept simulation / video ; one per concept ; to understand the concepts ; 15 – 30 minutes
2. Design: Simulation and design tools used – software tools used ; Free / open source
3. Research: Recent developments on the concepts – publications in journals; conferences etc.

Module	Details	Available
A	Text books (Title, Authors, Edition, Publisher, Year.) Management &	
1,2	Management & entrepreneur by N V R Naidu, Tripathi, Riggs J L	In Lib, In Dept
3,4 & 5	Management & Engg. Economics by Paneesh, R.K. Hegde	In Lib, In Dept
B	Reference books (Title, Authors, Edition, Publisher, Year.)	
1,2,3, 4,5	Management & Engg. Economics by Robbins. S.P and Decenzo David A	In Lib
C	Concept Videos or Simulation for Understanding	
C1	https://www.youtube.com/watch?v=cYmqzdIIXOI	
C2	https://www.youtube.com/watch?v=BACCUtPGUSs	
C3	https://www.youtube.com/watch?v=IIFHIxYo4x0	
C4	https://www.youtube.com/watch?v=2RtN1Z1aheM	
C5	https://www.youtube.com/watch?v=2Hbh4eYp9MA	
C6	https://www.youtube.com/watch?v=dvmALtVXGNE	
C7	https://www.youtube.com/watch?v=xiFobljyIrk	
C8	https://www.youtube.com/watch?v=q3brkyGEr7Q	
C9	https://www.youtube.com/watch?v=zByFnVXex_Y	
C10	https://www.youtube.com/watch?v=ZXISm-aOaHc	
D	Software Tools for Design	
	PLM software for manufacturing https://www.plm.automation.s	

4. Course Prerequisites

Refer to GL01. If prerequisites are not taught earlier, GAP in curriculum needs to be addressed. Include in Remarks and implement in B.5.

Students must have learnt the following Courses / Topics with described Content . . .

SNo	Course Code	Course Name	Module / Topic / Description	Sem	Remarks	Blooms Level
1	15ME51	Management and Entrepreneurship	Product Planning and Decision making	7	Gap Workshop on Product development model	L2
2	10ME71		Balancing method	5	-	L2

Note: If prerequisites are not taught earlier, GAP in curriculum needs to be addressed. Include in Remarks and implement in B.5.

5. Content for Placement, Profession, HE and GATE

The content is not included in this course, but required to meet industry & profession requirements and help students for Placement, GATE, Higher Education, Entrepreneurship, etc. Identifying Area / Content requires experts consultation in the area.

Topics included are like, a. Advanced Topics, b. Recent Developments, c. Certificate Courses, d. Course Projects, e. New Software Tools, f. GATE Topics, g. NPTEL Videos, h. Swayam videos etc.

Modules	Topic / Description	Area	Remarks	Blooms Level
1	Entrepreneurship	Higher Study	Gap- A seminar on Estimation & costing	Apply L3

B. OBE PARAMETERS

1. Course Outcomes

Expected learning outcomes of the course, which will be mapped to POs. Identify a max of 2 Concepts per Module. Write 1 CO per Concept.

#	Cos students should be able to...	Teach. Hours	Concept	Instr Method	Assessment Method	Blooms' Level
17ME51.1	Understand the field of management	06	Management as a profession	Chalk and board	Assignment ,Unit test and CIA	L2 Understand
17ME51.2	Understand the process of planning to take decision	04	Decision making	Chalk and board	Assignment ,Unit test and CIA	L2 Understand
17ME51.3	Apply the knowledge of selection process to select a staff	05	Staff selection techniques	Chalk and board	Assignment ,Unit test and CIA	L2 Understand
17ME51.4	Understand technique to control the staff & organization	05	Control techniques	Chalk and board	Assignment ,Unit test and CIA	L2 Understand
17ME51.5	Problem solving & Decision making	05	Decision making	Chalk and board	Assignment ,Unit test and CIA	L3 Apply
17ME51.6	Understand economics approaches	05	Engineering economy	Chalk and board	Assignment ,Unit test and CIA	L3 Apply
17ME51.7	Apply different methods in worth comparison	04	Annual worth comparison	Chalk and board	Assignment ,Unit test and CIA	L3 Apply
17ME51.8	Calculation of rate of returns	06	Rate of returns	Chalk and board	Assignment ,Unit test and CIA	L3 Apply
17ME51.9	Estimate different methods for computation	06	Computations	Chalk and board	Assignment ,Unit test and CIA	L3 Apply
17ME51.10	Estimating different cost methods	04	Cost estimation	Chalk and board	Assignment ,Unit test and CIA	L3 Apply

Note: Identify a max of 2 Concepts per Module. Write 1 CO per concept.

2. Course Applications

Write 1 or 2 applications per CO.

Students should be able to employ / apply the course learnings to . . .

Modules	Application Area Compiled from Module Applications.	CO	Level
17ME51			

1	Organization to develop through adopting these techniques	CO1	L2
1	Planning department in each organization	CO2	L2
2	Recruitment the people for different sectors	CO3	L2
2	Monitoring the people and machines for quality analysis	CO4	L2
3	Policy making with govt. bodies	CO5	L3
3	Economic guidelines, Project reports, Construction department	CO6	L3
4	Economic ratings, Supply chain management	CO7	L3
4	Stock exchange agencies	CO8	L3
5	Insurance company policies	CO9	L3
5	Banking sectors for easy transaction	CO10	L3

4. Mapping Justification

Mapping		Justification	Mapping Level
CO	PO	-	-
CO1	PO1	Engineering Knowledge: Acquisition of Engineering knowledge on fundamentals of management is essential to accomplish solutions to complex engineering problems in management	L2
CO1	PO9	Individual and Teamwork: Discuss the concept to get the knowledge on roles of management in engineering through different methods.	L2
CO1	PO11	Demonstrate knowledge and understanding of the engineering management principles for planning to take decisions.	L2
CO2	PO1	Engineering Knowledge: Acquisition of Engineering knowledge on fundamentals of management is essential to accomplish solutions to complex engineering problems in fundamentals of process planning	L2
CO2	PO11	Demonstrate knowledge and understanding of the engineering management principles for organization by the product design of the model	L2
CO3	PO1	Engineering Knowledge: Acquisition of Engineering knowledge on fundamentals of management is essential to accomplish solutions to complex engineering problems in management simulating a product by staff selection	L2
CO3	PO9	Problem Analysis: Apply the methods of compound interest to find the solutions for complex engineering Problems in management by human resource and communication.	L2
CO3	PO10	Development of Solutions: Demonstrate knowledge and apply the different types of selection methods to develop the solution for complex engineering problems.	L2
CO4	PO1	Engineering Knowledge: Acquisition of Engineering knowledge on fundamentals of management is essential to accomplish solutions to complex engineering problems in management to develop a new product by controlling the process.	L2
CO4	PO9	Problem Analysis: understand the methods of directing the people to find the solutions for complex engineering Problems in management.	L2
CO4	PO10	Development of Solutions: Demonstrate knowledge of staff recruitment to develop the solution for complex engineering problems.	L2
CO5	PO1	Engineering Knowledge: Acquisition of Engineering knowledge on fundamentals of management is essential to accomplish solutions to complex engineering problems in management simulating a product by	L3
CO5	PO2	Problem Analysis: Apply the methods of compound interest to find the solutions for complex engineering Problems in management.	L3
CO5	PO3	Development of Solutions: Demonstrate knowledge and apply the different types of interest methods to develop the solution for complex engineering problems.	L3
CO6	PO1	Engineering Knowledge: Acquisition of Engineering knowledge on fundamentals of economics is essential to accomplish solutions to complex engineering problems in management about the concept of compound interest	L3
CO6	PO11	Demonstrate knowledge and apply of the engineering management principles for compound interest of equal lives.	L3
CO7	PO1	Engineering Knowledge: Acquisition of Engineering knowledge on fundamentals of compound interest in economics is essential to accomplish solutions to complex engineering problems in management Knowledge of	L3

		present worth comparison methods.	
CO7	PO3	Development of Solutions: Demonstrate knowledge and apply the different types of interest methods to develop the solution for complex engineering problems of future worth-equivalence.	L3
CO8	PO1	Engineering Knowledge: Acquisition of Engineering knowledge on fundamentals of interest rate is essential to accomplish solutions to complex engineering problems in management of IRR methods.	L3
CO8	PO11	Demonstrate knowledge and understanding of the engineering management principles for product implementation by various approaches of IRR through present worth.	L3
CO9	PO1	Engineering Knowledge: Acquisition of Engineering knowledge on fundamentals of costing of products is essential to accomplish solutions to complex engineering problems in management by different costing methods.	L3
CO9	PO11	Demonstrate knowledge and understanding of the engineering management principles to find the cost of the products by Collecting the data about the product configurations.	L3
CO10	PO1	Engineering Knowledge: Acquisition of Engineering knowledge on fundamentals of estimation of cost is essential to accomplish solutions to complex engineering problems in management to analyze the product costs.	L3
CO10	PO11	Demonstrate knowledge and understanding of the engineering management principles for estimating the cost of the products by product structure.	L3

Note: Write justification for each CO-PO mapping.

4. Articulation Matrix

(CO – PO MAPPING)

-	-	Course Outcomes COs	Program Outcomes												PSO	PS	PS	Lev	
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12					
1	17ME51.1	Understand the field of management	2	-	-	-	-	-	-	-	-	2	-	2	-	L2	-	-	L2
1	17ME51.2	Understand the process of planning to take decision	2	-	-	-	-	-	-	-	-	-	-	2	-	L2	-	-	L2
2	17ME51.3	Apply the knowledge of selection process to select a staff	2	-	-	-	-	-	-	-	-	2	2	-	-	L2	-	-	L2
2	17ME51.4	Understand technique to control the staff & organization	2	-	-	-	-	-	-	-	-	2	2	-	-	L2	-	-	L2
3	17ME51.5	Problem solving & Decision making	2	2	2	-	-	-	-	-	-	-	-	-	-	L2	-	-	L3
3	17ME51.6	Understand economics approaches	2	-	-	-	-	-	-	-	-	-	-	2	-	L2	-	-	L3
4	17ME51.7	Apply different methods in worth comparison	2	-	2	-	-	-	-	-	-	-	-	-	-	L2	-	-	L3
4	17ME51.8	Calculation of rate of returns	2	-	-	-	-	-	-	-	-	-	-	2	-	L2	-	-	L3
5	17ME51.9	Estimate different methods for computation	2	-	-	-	-	-	-	-	-	-	-	2	-	L2	-	-	L3
5	17ME51.10	Estimating different cost methods	2	-	-	-	-	-	-	-	-	-	-	2	-	L3	-	-	L3
-	17ME51	Average attainment (1, 2, or 3)	2	2	2	-	-	-	-	-	-	2	2	2	-	-	-	-	-
-	PO, PSO	<i>1.Engineering Knowledge; 2.Problem Analysis; 3.Design / Development of Solutions; 4.Conduct Investigations of Complex Problems; 5.Modern Tool Usage; 6.The Engineer and Society; 7.Environment and Sustainability; 8.Ethics; 9.Individual and Teamwork; 10.Communication; 11.Project Management and Finance; 12.Life-long Learning; S1.Software Engineering; S2.Data Base Management; S3.Web Design</i>																	

5. Curricular Gap and Content

Topics & contents not covered (from A.4), but essential for the course to address POs and PSOs.

SNo	Gap Topic	Actions Planned	Schedule Planned	Resources Person	PO Mapping
1	Engg. Economics	Seminar	2 nd week / date	Dr XYZ, Inst	PO1,PO10,PO11

Note: Write Gap topics from A.4 and add others also.

6. Content Beyond Syllabus

Modules	Gap Topic	Area	Actions Planned	Schedule Planned	Resources Person	PO Mapping
3	Entrepreneurship	Placement, GATE, Higher Study, Entrepreneurship.	Presentation by students & Mini Project	3 rd week / date	Dr ABC, Inst. Self	PO1,PO11

Note: Anything not covered above is included here.

C. COURSE ASSESSMENT

1. Course Coverage

Assessment of learning outcomes for Internal and end semester evaluation. Distinct assignment for each student. 1 Assignment per chapter per student. 1 seminar per test per student.

Module #	Title	Teaching Hours	No. of question in Exam						CO	Levels
			CIA-1	CIA-2	CIA-3	Asg	Extra Asg	SEE		
1	Management, Planning	10	2	-	-	1	1	2	CO1, CO2	L2
2	Organizing And Staffing	10	2	-	-	1	1	2	CO3, CO4	L2
3	Engineering economics	10	-	2	-	1	1	2	CO5, CO6	L3
4	Present, future and annual worth and rate of returns	10	-	2	-	1	1	2	CO7, CO8	L3
5	Costing and depreciation	10	-	-	4	1	1	2	CO9,CO10	L3
-	Total	50	4	4	4	5	5	10	-	-

2. Continuous Internal Assessment (CIA)

Assessment of learning outcomes for Internal exams. Blooms Level in last column shall match with A.2.

Evaluation	Weightage in Marks	CO	Levels
CIA Exam – 1	15	CO1, CO2, CO3, CO4	L2
CIA Exam – 2	15	CO5, CO6, CO7, CO8	L2, L3
CIA Exam – 3	15	CO9,CO10	L2, L3
Assignment - 1	05	CO1, CO2, CO3, CO4	L2
Assignment - 2	05	CO5, CO6, CO7, CO8	L2, L3
Assignment - 3	05	CO9,CO10	L2, L3
Seminar - 1	–	–	–
Seminar - 2	–	–	–
Seminar - 3	–	–	–
Other Activities define – Slip test			

Final CIA Marks	40	-	-
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D1. TEACHING PLAN - 1

Module - 1

Title:	Management, Planning	Appr Time:	10 Hrs
a	Course Outcomes	-	Blooms
-	The student should be able to:	-	Level
1	Understand field of management	CO1	L2
2	Understand the process of planning to take decision	CO2	L2
b	Course Schedule	-	-
Class No	Module Content Covered	CO	Level
1	Management: Introduction - Meaning - nature and characteristics of Management	CO1	L2
2	Scope and Functional areas of management	CO1	L2
3	Management as a science, art of profession - Management & Administration	CO1	L2
4	Roles of Management, Levels of Management,	CO1	L2
5	Development of Management Thought - early management approaches	CO1	L2
6	Modern management approaches	CO1	L2
7	Planning: Nature, importance and purpose of planning process	CO2	L2
8	Objectives - Types of plans (Meaning Only)	CO2	L2
9	Decision making Importance of planning	CO2	L2
10	Steps in planning & planning premises - Hierarchy of plans	CO2	L2
c	Application Areas	CO	Level
1	Organization	CO1	L2
2	Planning department	CO2	L2
d	Review Questions	-	-
1	Define management, explain the levels of management	CO1	L2
2	Explain in details the functions of management.	CO1	L2
3	What are the characteristics of management? Explain.	CO1	L2
4	Explain the scope of management	CO1	L2
5	Explain the role of management	CO1	L2
6	Explain modern management approaches	CO1	L2
7	Differentiate between early management approaches & modern management approaches	CO1	L2
8	Define Planning? Explain the types of plans with example?	CO2	L2
9	With a flow chart, explain the steps involved in decision making?	CO2	L2
10	List & explain the steps in planning	CO2	L2

e	Experiences	-	-
1			
2			
3			
4			
5			

Module – 2

Title:	Organizing And Staffing	Appr Time:	10 Hrs
a	Course Outcomes	-	Blooms
-	The student should be able to:	-	Level
1	Apply the knowledge of selection process to select a staff	CO3	L2
2	Understand control technique to direct the staff & organization	CO4	L2
b	Course Schedule	-	-
Class No	Module Content Covered	CO	Level
1	Organizing And Staffing: Nature and purpose of organization	CO3	L2
2	Principles of organization - Types of organization - Departmentation Committees	CO3	L2
3	Centralization Vs Decentralization of authority and responsibility	CO3	L2
4	Span of control - MBO and MBE (Meaning Only)	CO3	L2
5	Nature and importance of staffing- -:Process of Selection & Recruitment (in brief).	CO3	L2
6	Directing & Controlling: Meaning and nature of directing Leadership styles, Motivation Theories	CO4	L2
7	Communication - Meaning and importance - coordination,	CO4	L2
8	Meaning and importance and Techniques of Co Ordination.	CO4	L2
9	Meaning and -Steps in controlling - Essentials of a sound control system	CO4	L2
10	Methods of establishing control (in brief)	CO4	L2
c	Application Areas	CO	Level
1	Recruitment	CO3	L2
2	Monitoring cell	CO4	L2
d	Review Questions	-	-
1	What is an organization? Explain the purpose and nature of an organization	CO3	L2
2	Briefly explain the principles of organization	CO3	L2
3	Explain the process of recruitment	CO3	L2
4	Explain types of organization	CO3	L2
5	Differentiate between centralization Vs Decentralization	CO3	L2
6	Explain the importance of staffing	CO3	L2

7	Explain the techniques of coordination	CO4	L2
8	Explain the characteristics of motivation	CO4	L2
9	Explain steps involved in controlling	CO4	L2
10	Explain the methods of establishing control	CO4	L2
e	Experiences	-	-
1			
2			
3			

E1. CIA EXAM – 1

a. Model Question Paper - 1

Crs Code:	17ME51	Sem:	V	Marks:	30	Time:	90 minutes	
Course:	Management and Engineering Economics							
-	-	Note: Answer any 2 questions, each carry equal marks.				Marks	CO	Level
1	a	Explain in details the functions of management.				5	CO1	L2
	b	Explain the characteristics of management?				5	CO1	L2
	c	Explain the role of management				5	CO1	L2
		OR						
2	a	Explain the techniques of coordination				5	CO4	L2
	b	Explain the characteristics of motivation				5	CO4	L2
	c	Explain steps involved in controlling				5	CO4	L2
3	a	Briefly explain the principles of organization				5	CO3	L2
	b	Explain the process of recruitment				5	CO3	L2
	c	Explain types of organization				5	CO3	L2
		OR						
4	a	Explain the techniques of coordination				5	CO4	L2
	b	Explain the characteristics of motivation				5	CO4	L2
	c	Explain steps involved in controlling				5	CO4	L2

b. Assignment -1

Model Assignment Questions								
Crs Code:	17ME51	Sem:	V	Marks:	10	Time:	90 – 120 minutes	
Course:	Management and Engineering Economics							
Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.								
SNo	USN	Assignment Description				Marks	CO	Level
1		Define management, explain the levels of management				5	CO1	L2
2		Explain in details the functions of management.				5	CO1	L2
3		What are the characteristics of management? Explain.				5	CO1	L2
4		Explain the scope of management				5	CO1	L2
5		Explain the role of management				5	CO1	L2
6		Explain modern management approaches				5	CO1	L2
7		Differentiate between early management approaches & modern management approaches				5	CO1	L2

8	Define Planning? Explain the types of plans with example?	5	CO2	L2
9	With a flow chart, explain the steps involved in decision making?	5	CO2	L2
10	List & explain the steps in planning	5	CO2	L2
11	What is an organization? Explain the purpose and nature of an organization	5	CO3	L2
12	Briefly explain the principles of organization	5	CO3	L2
13	Explain the process of recruitment	5	CO3	L2
14	Explain types of organization	5	CO3	L2
15	Differentiate between centralization Vs Decentralization	5	CO3	L2
16	Explain the importance of staffing	5	CO3	L2
17	Explain the techniques of coordination	5	CO4	L2
18	Explain the characteristics of motivation	5	CO4	L2
19	Explain steps involved in controlling	5	CO4	L2
20	Explain the methods of establishing control	5	CO4	L2

D2. TEACHING PLAN - 2

Module – 3

Title:	Introduction	Appr Time:	10 Hrs
a	Course Outcomes	-	Blooms Level
-	The student should be able to:	-	Level
1	Problem solving & Decision making	CO5	L2
2	Understand economics approaches	CO6	L3
b	Course Schedule		
Class No	Module Content Covered	CO	Level
1	Introduction: Engineering and economics, Problem solving and decision making.	CO5	L2
2	Laws of demand and supply, Difference	CO5	L2
3	Difference between Microeconomics & Macroeconomics, equilibrium between demand & supply	CO5	L2
4	Elasticity of demand, price elasticity, income elasticity.	CO5	L2
5	Law of Returns, Interest and interest factors	CO5	L2
6	Simple and compound interest	CO6	L2
7	Cash flow diagrams, personal loans	CO6	L2
8	EMI payment calculation with flexible interest rates	CO6	L2
9	Discussion and problems	CO6	L3
10	Discussion and problems.	CO6	L3
c	Application Areas	CO	Level
1	Policy making	CO5	L2
2	Economic guidelines	CO6	L3
d	Review Questions	-	-
1	Explain the role of an Engineer & challenges with respect to Economics.	CO5	L2
2	Explain the six compound interest factors & their relationship	CO5	L2
3	Distinguish between Microeconomics & Macroeconomics	CO5	L2
4	Explain the law of demand & supply with suitable example.	CO5	L2
5	What is decision making? Explain the importance of decision making	CO5	L2

	in engineering economics.		
6	What is the significant of cash flow diagram? Sketch CFD for (i) Borrower's viewpoint (ii) Lender's viewpoint.	CO5	L2
7	Explain law of returns	CO5	L2
8	Explain elasticity of demand, price elasticity & income elasticity	CO5	L2
9	Briefly explain problem solving & decision making	CO5	L2
10	A person takes a loan of Rs 10,000 from a bank at interest of 10% P.A. Find the amount if (i) Interest is compounded annually (ii) Interest is compounded half yearly (iii) Interest is compounded quarterly (iv) Interest is compounded monthly.	CO6	L3
e	Experiences	-	-
1			
2			
3			

Module – 4

Title:	Present, future and annual worth and rate of returns	Appr Time:	10 Hrs
a	Course Outcomes	-	Blooms
-	The student should be able to:	-	Level
1	Apply different methods in worth comparison	CO7	L2
2	Calculation of rate of returns	CO8	L3
b	Course Schedule		
Class No	Module Content Covered	CO	Level
1	Present, future and annual worth and rate of returns: Basic present worth comparisons, Present worth-equivalence	CO7	L2
2	Assets with unequal lives and infinites lives	CO7	L2
3	Future worth comparisons, payback comparisons	CO7	L2
4	Equivalent annual worth comparisons, situations for annual worth comparisons.	CO7	L2
5	Asset life, Rate of return, minimum acceptable rate of return	CO8	L2
6	IRR anomalies and misconceptions, Cost of capital,	CO8	L2
7	Comparisons of all present future	CO8	L2
8	Annual worth with IRR, product costing	CO8	L2
9	Discussions and problems	CO8	L3
10	Discussions and problems	CO8	L3
c	Application Areas	CO	Level
1	Economic ratings	CO7	L2
2	Stock brokings	CO8	L3
d	Review Questions	-	-
1	Explain two prominent methods used for comparison of assets that have unequal lives	CO7	L2
2	Derive the expression for Equal payment series present worth amount.	CO7	L2
3	Derive the expression for Equal payment series future worth amount.	CO7	L2
4	Explain situations for annual worth comparison	CO7	L2
5	Explain the steps involved in comparison by equivalent annual worth	CO7	L2
6	An entrepreneur running a small scale industry wants to buy a M/C	CO7	L3

	<p>milling. He has 3 M/C in view from different manufactures. The initial investments, annual revenue, salvage values & the lives of 3 M/C are given in the table. The rate of interest is 14% compounded annually. Calculate the present worth of all M/C</p> <table border="1"> <thead> <tr> <th></th> <th>Initial investment (Rs)</th> <th>Annual Revenues (Rs)</th> <th>Salvage Values (Rs)</th> <th>Life (Yrs)</th> </tr> </thead> <tbody> <tr> <td>M/C 1</td> <td>25000</td> <td>10000</td> <td>4000</td> <td>7</td> </tr> <tr> <td>M/C 2</td> <td>45000</td> <td>15000</td> <td>6500</td> <td>7</td> </tr> <tr> <td>M/C 3</td> <td>70000</td> <td>2000</td> <td>9000</td> <td>7</td> </tr> </tbody> </table>		Initial investment (Rs)	Annual Revenues (Rs)	Salvage Values (Rs)	Life (Yrs)	M/C 1	25000	10000	4000	7	M/C 2	45000	15000	6500	7	M/C 3	70000	2000	9000	7										
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M/C 3	70000	2000	9000	7																											
7	<p>Find for the following cash flow with non equal interest rates. (1) Present worth (2) Equivalent annual worth if a flat rate of 7% is assumed over Present worth</p> <table border="1"> <thead> <tr> <th>End of year</th> <th>0</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>Interest Rate %</td> <td></td> <td>7</td> <td>7</td> <td>9</td> <td>10</td> <td>8</td> </tr> <tr> <td>Receipts Rs</td> <td>10000</td> <td></td> <td>10000</td> <td></td> <td>10000</td> <td></td> </tr> <tr> <td>Payments Rs</td> <td></td> <td>3000</td> <td></td> <td>6000</td> <td></td> <td>11000</td> </tr> </tbody> </table>	End of year	0	1	2	3	4	5	Interest Rate %		7	7	9	10	8	Receipts Rs	10000		10000		10000		Payments Rs		3000		6000		11000	CO7	L3
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8	What is rate of return? Explain the different type of rate of return	CO8	L2																												
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1																															
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3																															

E2. CIA EXAM – 2

a. Model Question Paper - 2

Crs Code:	17ME51	Sem:	V	Marks:	30	Time:	90 minutes	
Course:	Management and Engineering Economics							
-	-	Note: Answer any 2 questions, each carry equal marks.				Marks	CO	Level
1	a	What is decision making? Explain the importance of decision making in engineering economics.				5	CO5	L2
	b	What is the significant of cash flow diagram? Sketch CFD for (i) Borrower's viewpoint (ii) Lender's viewpoint.				5	CO5	L2
	c	Explain law of returns				5	CO5	L2
OR								
2	a	Explain elasticity of demand, price elasticity & income elasticity				5	CO6	L2
	b	Briefly explain problem solving & decision making				5	CO6	L2
	c	A person takes a loan of Rs 10,000 from a bank at interest of 10% P.A. Find the amount if (i) Interest is compounded annually (ii) Interest is compounded half yearly (iii) Interest is compounded quarterly (iv) Interest is compounded monthly.				5	CO6	L3

3	a	Explain two prominent methods used for comparison of assets that have unequal lives	5	CO7	L2												
	b	Derive the expression for Equal payment series present worth amount.	5	CO7	L2												
	c	Explain the steps involved in comparison by equivalent annual worth	5	CO7	L2												
OR																	
4	a	What is rate of return? Explain the different type of rate of return	5	CO8	L2												
	b	Explain the different type of IRR misconception	5	CO8	L2												
	c	Compare the three investment proposal given below in the form of MARR is 15% . Life of all 3 proposals is 10 year.	5	CO8	L3												
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Investment Proposal	Initial Cost	Annual Return															
1	400000	100000															
2	550000	140000															
3	625000	160000															

b. Assignment – 2

Model Assignment Questions								
Crs Code:	17ME51	Sem:	V	Marks:	10	Time:	90 – 120 minutes	
Course:	Management and Engineering Economics							
Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.								
SNo	USN	Assignment Description				Marks	CO	Level
1		Explain the role of an Engineer & challenges with respect to Economics.				5	CO5	L2
2		Explain the six compound interest factors & their relationship				5	CO5	L2
3		Distinguish between Microeconomics & Macroeconomics				5	CO5	L2
4		Explain the law of demand & supply with suitable example.				5	CO5	L2
5		What is decision making? Explain the importance of decision making in engineering economics.				5	CO5	L2
6		What is the significant of cash flow diagram? Sketch CFD for (i) Borrower's viewpoint (ii) Lender's viewpoint.				5	CO5	L2
7		Explain law of returns				5	CO5	L2
8		Explain elasticity of demand, price elasticity & income elasticity				5	CO5	L2
9		Briefly explain problem solving & decision making				5	CO5	L2
10		A person takes a loan of Rs 10,000 from a bank at interest of 10% P.A. Find the amount if (i) Interest is compounded annually (ii) Interest is compounded half yearly (iii) Interest is compounded quarterly (iv) Interest is compounded monthly.				5	CO6	L3
11		Explain two prominent methods used for comparison of assets that have unequal lives				5	CO7	L2
12		Derive the expression for Equal payment series present worth amount.				5	CO7	L2
13		Derive the expression for Equal payment series future worth amount.				5	CO7	L2
14		Explain situations for annual worth comparison				5	CO7	L2
15		Explain the steps involved in comparison by equivalent annual worth				5	CO7	L2
16		An entrepreneur running a small scale industry wants to buy a M/C milling. He has 3 M/C in view from different manufactures. The initial investments, annual revenue, salvage values & the lives of 3 M/C are given in the table. The rate of interest in 14%				5	CO7	L3

	compounded annually. Calculate the present worth of all M/C									
		Initial investment (Rs)	Annual Revenues (Rs)	Salvage Values (Rs)	Life5 (Yrs)					
	M/C 1	25000	10000	4000	7					
	M/C 2	45000	15000	6500	7					
	M/C 3	70000	2000	9000	7					
17	Find for the following cash flow with non equal interest rates. (1) Present worth (2) Equivalent annual worth if a flat rate of 7% is assumed over Present worth							5	CO7	L3
	End of year	0	1	2	3	4	5			
	Interest Rate %		7	7	9	10	8			
	Receipts Rs	1000 0		1000 0		10000				
	Payments Rs		3000		6000		11000			
18	What is rate of return? Explain the different type of rate of return							5	CO8	L2
19	Explain the different type of IRR misconception							5	CO8	L2
20	Explain the comparisons of all present, future and annual worth with IRR							5	CO8	L2
21	Compare the three investment proposal given below in the form of MARR is 15% . Life of all 3 proposals is 10 year.							5	CO8	L3
	Investment Proposal	Initial Cost	Annual Return							
	1	400000	100000							
	2	550000	140000							
	3	625000	160000							

D3. TEACHING PLAN - 3

Module – 5

Title:	Costing and depreciation	Appr Time:	10 Hrs
a	Course Outcomes	-	Blooms
-	The student should be able to:	-	Level
1	Estimate different methods for depreciation computation	CO9	L2
2	Estimate the different costing methods	CO10	L3
b	Course Schedule		
Class No	Module Content Covered	CO	Level
1	Costing and depreciation: Components of costs, estimation of selling price	CO9	L2
2	Marginal cost, first cost, all kinds of overheads	CO9	L2
3	Indirect cost estimation with depreciation	CO9	L2
4	Mensuration and estimation of material cost, cost estimation of mechanical process, idling time.	CO9	L2
5	Product costing (approaches to product costing), causes of depreciation, methods of computing depreciation charges	CO10	L2
6	Straight line method, declining balance method,	CO10	L2
7	Sum of years method, sinking fund method, service output methods,	CO10	L2
8	Taxation concepts, personal income taxes and corporate taxes,	CO10	L2

	Provision for wealth tax	3.5			
	Other income	517.6			
	Excess provision of tax in previous years	143.0			
	Proposed dividend	643.8			

F. EXAM PREPARATION

1. University Model Question Paper

Course:	Management and Engineering Economics				Month / Year	Dec /2019		
Crs Code:	17ME51	Sem:	V	Marks:	100	Time:	180 minutes	
	Note	Answer all FIVE full questions. All questions carry equal marks.				Marks	CO	Level
1	a	Explain in details the functions of management.				4	CO1	L2
	b	Explain the characteristics of management?				4	CO1	L2
	c	Explain the role of management				4	CO1	L2
		OR						
-	a	Explain the techniques of coordination				4	CO2	L2
	b	Explain the characteristics of motivation				4	CO2	L2
	c	Explain steps involved in controlling				4	CO2	L2
2	a	Briefly explain the principles of organization				4	CO3	L2
	b	Explain the process of recruitment				4	CO3	L2
	c	Explain types of organization				4	CO3	L2
		OR						
-	a	Explain the techniques of coordination				4	CO4	L2
	b	Explain the characteristics of motivation				4	CO4	L2
	c	Explain steps involved in controlling				4	CO4	L2
3	a	What is decision making? Explain the importance of decision making in engineering economics.				4	CO5	L2
	b	What is the significant of cash flow diagram? Sketch CFD for (i) Borrower's viewpoint (ii) Lender's viewpoint.				4	CO5	L2
	c	Explain law of returns				4	CO5	L2
		OR						
-	a	Explain elasticity of demand, price elasticity & income elasticity				4	CO6	L2
	b	Briefly explain problem solving & decision making				4	CO6	L2
	c	A person takes a loan of Rs 10,000 from a bank at interest of 10% P.A. Find the amount if (i) Interest is compounded annually (ii) Interest is compounded half yearly (iii) Interest is compounded quarterly (iv) Interest is compounded monthly.				4	CO6	L3
4	a	Explain two prominent methods used for comparison of assets that have unequal lives				4	CO7	L2
	b	Derive the expression for Equal payment series present worth amount.				4	CO7	L2
	c	Explain the steps involved in comparison by equivalent annual worth				4	CO7	L2
		OR						
-	a	What is rate of return? Explain the different type of rate of return				4	CO8	L2
	b	Explain the different type of IRR misconception				4	CO8	L2
	c	Compare the three investment proposal given below in the form of MARR is 15% . Life of all 3 proposals is 10 year.				4	CO8	L3
		Investment Proposal		Initial Cost	Annual Return			
		1		400000	100000			

		2	550000	140000			
		3	625000	160000			
5	a	Explain the objectives of costing			5	CO9	L2
	b	Following are the items of the profit and loss account of ABC Company for the year ended 31 st March 2004. Arrange them systematically and indicates (i) Profit before taxation and (ii) profit after taxation. (Rs.Lakhs)			9	CO9	L3
		Operating and administrative expenses	10,440.6				
		Depreciation	1,382.8				
		Provision for income tax	0.0				
		Interest	2,595.3				
		Cost of sales and services	54,773.9				
		Sales and services	69,552.9				
		Provision for wealth tax	3.5				
		Other income	517.6				
		Excess provision of tax in previous years	143.0				
		Proposed dividend	643.8				
		OR					
	a	Explain declining balance method			4	CO10	L2
	b	Explain the causes of depreciation			4	CO10	L2
	c	Explain the determination of selling price			4	CO10	L2

2. SEE Important Questions

Course:	Management and Engineering Economics				Month / Year	Dec /2019	
Crs Code:	17ME51	Sem:	V	Marks:	100	Time:	180 minutes
	Note	Answer all FIVE full questions. All questions carry equal marks.				-	-
Module	Qno.	Important Question			Marks	CO	Year
1	1	Define Management and bring out its nature and characteristics			8	CO1	2018
	2	Explain the Modern Management Approaches			8	CO1	2018
	3	Briefly explain the important steps in planning.			8	CO2	2018
	4	What are the types of decision? Explain with example.			8	CO2	2018
2	1	Briefly explain the principles of organization.			8	CO3	2018
	2	What is Recruitment? Explain the recruitment process.			8	CO3	2018
	3	Explain the different leadership styles			8	CO4	2018
	4	Explain the essentials of a sound control system.			8	CO4	2018
3	1	Briefly explain the principles of organization.			8	CO5	2018
	2	What is Recruitment? Explain the recruitment process.			8	CO5	2018
	3	Explain the different leadership styles.			8	CO6	2018
	4	Explain the essentials of a sound control system.			8	CO6	2018
4	1	With the help of sketch, explain the problem solving process in decision making.			8	CO7	2018
	2	A Professor is planning for his retired life, he has 15 more years of service. He would like to deposit 20% of salary, which is Rs 15000 at the end of First year and thereafter he wishes to increase his deposit by Rs 2500 more every year along with Rs 15000 for the next 14 years. What will be the maturity amount of this deposit, if the interest rates are 10% and 14% per year?			8	CO7	2018
	3	Briefly explain the law of supply and demand. Enlist the demand determinants.			8	CO8	2018
	4	Determine the effective interest rate for a nominal annual rate of 8% that is			8	CO8	2018

		compounded : i) Daily (Assume 365 days/year) ii) Monthly iii) Quarterly iv) Semi - Annually.			
5	1	Explain the conditions for present worth comparisons.	8	CO9	2018
	2	The lease on a warehouse amounts to Rs 5000 per month for five years. If the payments are made on the first of each month, what is the future worth at the end of five years at 12% interest rate compounded monthly?	8	CO9	2018
	3	Explain IRR, ERR and MARR. Enlist the misconcepts of IRR.	8	C10	2018
	4	A farm house can be purchased for Rs 90,000 and expected resale value after 20 years is Rs 60,000. If the annual rental income is Rs 11800 and expenses Rs 4700. What will be the rate of return earned on this farm house?	8	C10	2018

G. Content to Course Outcomes

1. TPLA Parameters

Table 1: TPLA – Example Course

Module - #	Course Content or Syllabus (Split module content into 2 parts which have similar concepts)	Content Teaching Hours	Blooms' Learning Levels for Content	Final Blooms' Level	Identified Action Verbs for Learning	Instruction Methods for Learning	Assessment Methods to Measure Learning
A	B	C	D	E	F	G	H
1	Management: Introduction - Meaning - nature and characteristics of Management, Scope and Functional areas of management, Management as a science, art of profession - Management & Administration Roles of Management, Levels of Management, Development of Management Thought - early management approaches, Modern management approaches.	06	- L2 - L2	L2	Understand	Lecture/Tutorial	Assignment
1	Planning: Nature, importance and purpose of planning process, Objectives - Types of plans (Meaning Only), Decision making Importance of planning, Steps in planning & planning premises - Hierarchy of plans	04	- L2 - L2	L2	Understand	Lecture/Tutorial	Assignment
2	Organizing And Staffing: Nature and purpose of organization, Principles of organization - Types of organization - Departmentation Committees, Centralization Vs Decentralization of authority and responsibility, Span of control - MBO and MBE (Meaning Only). Nature and importance of staffing- Process of Selection & Recruitment (in brief).	05	- L2 - L2	L2	Understand	Lecture/Tutorial	Assignment
2	Directing & Controlling: Meaning and nature of directing Leadership styles, Motivation Theories, Communication - Meaning and importance - coordination, Meaning and importance and Techniques of Co Ordination. Meaning and -Steps in controlling - Essentials of a sound control system Methods of establishing control (in brief)	05	- L2 - L2	L2	Understand	Lecture/Tutorial	Assignment
3	Introduction: Engineering and economics, Problem	05	- L3	L2	Understand	Lecture/T	Assignment

	solving and decision making. Laws of demand and supply, Difference between Microeconomics & Macroeconomics, equilibrium between demand & supply, Elasticity of demand, price elasticity, income elasticity. Law of Returns, Interest and interest factors, Cash flow diagrams, personal loans,		- L3		d	utorial	
3	Simple and compound interest Simple and compound interest, EMI payment calculation with flexible interest rates, problems	05	- L3 - L3	L3	Apply	Lecture/Tutorial	Assignment
4	Present, future and annual worth and rate of returns: Basic present worth comparisons, Present worth-equivalence Assets with unequal lives and infinites lives Future worth comparisons, payback comparisons Equivalent annual worth comparisons, situations for annual worth comparisons.	04	- L3 - L3	L3Ap ply	Apply	Lecture/Tutorial	Assignment
4	Asset life, Rate of return, minimum acceptable rate of return, IRR anomalies and misconceptions, Cost of capital, Comparisons of all present future, Annual worth with IRR, product costing Problems	06	- L3 - L3	L3	Apply	Lecture/Tutorial	Assignment
5	Costing and depreciation: Components of costs, estimation of selling price, Marginal cost, first cost, all kinds of overheads, Indirect cost estimation with depreciation, Mensuration and estimation of material cost, cost estimation of mechanical process, idling time.	06	- L3 - L3	L3	Apply	Lecture/Tutorial	Assignment
5	Product costing (approaches to product costing), causes of depreciation, methods of computing depreciation charges, Straight line method, declining balance method, Sum of years method, sinking fund method, service output methods Taxation concepts, personal income taxes and corporate taxes, Problems	04	- L3 - L3	L3	Apply	Lecture/Tutorial	Assignment

2. Concepts and Outcomes:

Table 2: Concept to Outcome – Example Course

Module #	Learning or Outcome from study of the Content or Syllabus	Identified Concepts from Content	Final Concept	Concept Justification (What all Learning Happened from the study of Content / Syllabus. A short word for learning or outcome)	CO Components (1.Action Verb, 2.Knowledge, 3.Condition / Methodology, 4.Benchmark)	Course Outcome Student Should be able to ...
A	I	J	K	L	M	N
1	-	-	Management as a profession	field of management	- Understand - field of management	Understand the field of management
1	-	-	Decision making	Process of planning	- Understand -the process of planning to take decision	Understand the process of planning to take decision
2	-	-	Staff selection techniques	Staff requirement	- Understand - the knowledge of selection process to select a staff	Apply the knowledge of selection process to select a staff
2	-	-	Control techniques	Organization	- Understand - technique to control the staff & organization	Understand technique to control the staff & organization
3	-	-	Decision	Decision making	- Understand	Problem solving &

COURSE PLAN - CAY 2019-20

	-	-	making		- Problem solving & Decision making	Decision making
3	-	-	Engineering economy	Components of economics	- Apply economic approaches	Apply economic approaches
4	-	-	Annual worth comparison	Comparison of worths	- Apply different methods in worth comparison	Apply different methods in worth comparison
4	-	-	Rate of returns	Rate of returns	- Apply - Calculation of rate of returns	Calculation of rate of returns
5	-	-	Computations	Components of estimation	- Apply - Estimate different methods for computation	Estimate different methods for computation
5			Cost estimation	Costing techniques	- Apply - Estimating different cost methods	Estimating different cost methods