
BME011- PROCESS PLANNING AND COST ESTIMATION

Academic Course Description

<p>BHARATH UNIVERSITY Faculty of Engineering and Technology Department of Mechanical Engineering BME011- PROCESS PLANNING AND COST ESTIMATION Seventh Semester, 2015-16 (odd Semester)</p>

Course (catalog) description

To understand the concept of basic engineering mechanism

Compulsory/Elective course : Core Elective

Credit hours : 3

Course Coordinator : D Ravi

Instructors :

Name of the instructor	Class handling	Office location	Office phone	Email (domain:@bharathuniv.ac.in)	Consultation
Mr. D. Ravi	A Section	JR102		ravivsravi.aero@bharathuni.ac.in	9.00am-9.50 am
Mr.Lenin Rakesh	D Section	JR 112		leninrakesh@bharathuni.ac.in	1.30pm-2.20pm
Mrs. Sucharitha	C and D Section	JR103 And JR104		sucharitha@ bharathuni.ac.in	11.40pm-12.30pm, 2.20pm-3.10pm

Relationship to other courses:

Pre –requisites : Industrial Engineering

Assumed knowledge : To estimate process planning time and cost estimation of a product.

Following courses : Work Study.

Syllabus Contents

UNIT I PROCESS PLANNING

12

Types of production, standardization, simplification, production design and selection - Process Planning, selection and analysis – Steps involved in manual and experienced based planning and computer aided process planning – Retrieval, Generative – Selection of process analysis – Break even analysis.

UNIT II ESTIMATION AND COSTING

12

Aim and objective of cost estimation – Functions of estimation – Costing – Importance and aims of costing – Difference between costing and estimation. Importance of realistic estimates – Estimation procedure.

UNIT III COST ELEMENTS

12

Material cost – Determination of material cost, Labour cost - Determination of labour cost, Expenses — Analysis of overhead expenses – Factory expenses, Administrative expenses – Selling and Distributing expenses – Allocation of over head expenses. Cost of product – Illustrative examples
Depreciation: Depreciation – Causes of Depreciation – Methods of Depreciation.

UNIT IV ESTIMATION OF PRODUCTION COST

12

Estimation in forging shop – Losses in forging – forging cost – Illustrative examples. Estimation in welding shop – Gas cutting – Electric welding - Illustrative examples. Estimation in foundry shop – Estimation of pattern cost and casting cost - Illustrative examples.

UNIT V MACHINING TIME ESTIMATION

12

Estimation of Machining Time for Lathe operations – Estimation of Machining Time for Drilling, Boring, Shaping, Planning, Milling and Grinding operations - Illustrative examples.

Total : 60 Hours**TEXTBOOKS:**

1. M.Adithian and B.S. Pabla, Estimation and Costing, Konark publishers Pvt. Ltd., 1989.
2. A.K.Chitale and R.C.Gupta, Product Design and Manufacturing, Prentice Hall Pvt. Ltd., 2005

REFERENCES :

1. Namua Singh, System Approach to computer integrated Design and Manufacturing, John Wiley & Sons, Inc., 1996.
3. Joseph G Monks, Operation Management, Theory & Problems, McGraw Hill Book Company, 1987.
4. T.R.Banga and S.C.Sharma, Estimations and Costing, Khanna Publishers, 1988.
5. G.B.S.Narang and V.Kumar, Production and Costing, Khanna Publishers, 1995.
6. <https://books.google.com/books?id=A9-ZXblNrPoC>

Computer usage:**Professional component**

General	-	50%
Basic Sciences	-	50%
Engineering sciences & Technical arts	-	100%
Professional subject	-	100%

Broad area :**Test Schedule**

S. No.	Test	Tentative Date	Portions	Duration
1	Cycle Test-1	August 1 st week	Session 1 to 14	2 Periods
2	Cycle Test-2	September 2 nd week	Session 15 to 28	2 Periods
3	Model Test	October 2 nd week	Session 1 to 45	3 Hrs
4	University Examination	TBA	All sessions / Units	3 Hrs.

Mapping of Instructional Objectives with Program Outcome

To introduce the process planning concepts to make cost estimation for various products after process planning	Correlates to program outcome		
	H	M	L
Understand the various processes planning.	a	f,l,j	g
Learn to estimate cost	c	a,e,d	i
Learn to estimate various cost elements	d	a	h
Learn to estimate production cost	e,j	a,e,g	i
Learn to fix foundry cost	a	i	b
Learn the find machining time estimation	f		

H: high correlation, M: medium correlation, L: low correlation

Draft Lecture Schedule

S.NO	Topics	Problem solving (Yes/No)	Text / Chapter
1.	PROCESS PLANNING Introduction	No	Topic1-5 =T-1 and R-2 Topic 6-12= T-2 and R-3
2.	Types of production	No	
3.	standardization, simplification	No	
4.	production design and selection	No	
5.	Process Planning, selection and analysis	No	
6.	Steps involved in manual	No	
7.	experienced based planning and computer aided process planning	No	
8.	experienced based planning and computer aided process planning	No	
9.	Selection of process analysis	No	
10.	Break even analysis.	No	
11.	Problem solved	Yes	
12.	Problem solved	Yes	
13.	Introduction to Estimation And Costing	No	Topic1-5 =T-2 and R-3 Topic 6-12= T-1 and R-4
14.	Aim and objective of cost estimation	No	
15.	Functions of estimation	No	
16.	Importance and aims of costing	No	
17.	Difference between costing and estimation	No	
18.	Difference between costing and estimation	No	
19.	Importance of realistic estimates	No	
20.	Importance of realistic estimates	No	
21.	Estimation procedure.	No	
22.	Estimation procedure.	No	
23.	Problem Solved	Yes	
24.	Problem Solved	Yes	
25.	Introduction to Cost Elements	No	Topic1-5 =T-1 and R-3 Topic 6-12= T-1 and R-1
26.	Material cost	No	
27.	Determination of material cost	No	
28.	Labour cost	No	
29.	Determination of labour cost	No	
30.	Analysis of overhead expenses	No	
31.	Factory expenses, Administrative expenses	No	
32.	Selling and Distributing expenses	No	
33.	Allocation of over head expenses.	No	

34.	Cost of product – Illustrative examples	No	
35.	Causes of Depreciation	No	
36.	Methods of Depreciation.	No	
37.	Introduction to Estimation Of Production Cost	No	Topic1-5 =T-2 and R-3 Topic 6-12= T-1 and R-4
38.	Estimation in forging shop	No	
39.	Losses in forging	No	
40.	Forging cost – Illustrative examples	No	
41.	Estimation in welding shop	No	
42.	Gas cutting Illustrative examples	No	
43.	Electric welding Illustrative examples	No	
44.	Estimation in foundry shop	No	
45.	Estimation of pattern cost	No	
46.	Estimation of pattern cost	No	
47.	casting cost - Illustrative examples.	No	
48.	Problem solved	Yes	
49.	Introduction to Machining Time Estimation	No	Topic1-5 =T-1 and R-3 Topic 6-12= T-1 and R-6
50.	Estimation of Machining Timefor Lathe operations	No	
51.	Estimation of Machining Timefor Lathe operations	No	
52.	Estimation of Machining TimeforDrilling,	No	
53.	Estimation of Machining Time Boring	No	
54.	Estimation of Machining Time Shaping	No	
55.	Estimation of Machining Time Planning	No	
56.	Milling operations	No	
57.	Grinding operations	No	
58.	Problem solved	Yes	
59.	Problem solved	Yes	
60.	Problem solved	Yes	

Teaching Strategies

The teaching in this course aims at establishing a good fundamental understanding of the areas covered using:

- Formal face-to-face lectures
- Tutorials, which allow for exercises in problem solving and allow time for students to resolve problems in understanding of lecture material.
- Laboratory sessions, which support the formal lecture material and also provide the student with practical construction, measurement and debugging skills.
- Small periodic quizzes, to enable you to assess your understanding of the concepts.

Evaluation Strategies

Cycle Test – I	-	10%
Cycle Test – II	-	10%
Model Test	-	25%
Attendance	-	5%
Final exam	-	50%

Prepared by D RAVI
Addendum

ABET Outcomes expected of graduates of B.Tech / MECH / program by the time that they graduate:

- a) The ability to apply knowledge of mathematics, science, and engineering fundamentals.
- b) The ability to identify, formulate and solve engineering problems.
- c) The ability to design a system, component, or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- d) The ability to design and conduct experiments, as well as to analyze and interpret data
- e) The ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- f) The ability to apply reasoning informed by the knowledge of contemporary issues.
- g) The ability to broaden the education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- h) The ability to understand professional and ethical responsibility and apply them in engineering practices.
- i) The ability to function on multidisciplinary teams.
- j) The ability to communicate effectively with the engineering community and with society at large.
- k) The ability in understanding of the engineering and management principles and apply them in project and finance management as a leader and a member in a team.
- l) The ability to recognize the need for, and an ability to engage in life-long learning.

Program Educational Objectives

PEO1: PREPARATION:

Mechanical Engineering graduates are enthusiastic to provide strong foundation in mathematical, scientific and engineering fundamentals necessary to analyze, formulate and solve engineering problems in the field of Mechanical Engineering.

PEO2: CORE COMPETENCE:

Mechanical Engineering graduates have competence to enhance the skills and experience in defining problems in the field of Mechanical Engineering and Technology design and implement, analyzing the experimental evaluations, and finally making appropriate decisions.

PEO3: PROFESSIONALISM:

Mechanical Engineering graduates made competence to enhance their skills and embrace new thrust areas through self-directed professional development and post-graduate training or education.

PEO4: PROFICIENCY:

Mechanical Engineering graduates became skilled to afford training for developing soft skills such as proficiency in many languages, technical communication, verbal, logical, analytical, comprehension, team building, inter personal relationship, group discussion and leadership skill to become a better professional.

PEO5: ETHICS:

Mechanical Engineering graduates are morally merged to apply the ethical and social aspects of modern Engineering and Technology innovations to the design, development, and usage of new products, machines, gadgets, devices, etc.

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Course Teacher	Signature
Mr.D.RAVI	
Mr.Lenin Rakesh	
Mr. Sucharitha	

Course Coordinator
Mr.D.RAVI

HOD/MECH

