MOHAMMED SATHAK A J COLLEGE OF ENGINEERING

Siruseri IT park, OMR, Chennai - 603103

LESSON PLAN

Department of Mechanical Engineering

Name of the Subject	PROCESS PLANNING AND COST ESTIMATION	Name of the handling Faculty	Dr. A. Saravanan
Subject Code	ME8793	Year / Sem	IV/VII
Acad Year	2022-2023	Batch	2019-23

Course Objective

To introduce the process planning concepts to make cost estimation for various products after process planning

Course Outcome

CO1-Select the process, equipment and tools for various industrial products

CO2-Construct process planning activity chart

CO3-Explain the concept of cost estimation

CO4-Estimate the job order cost for different type of shop floor

CO5-Evaluate the machining time for various machining operations

Lesson Plan

Sl. No.	Topic(s)	T / R* Book	Periods Required	Mode of Teaching (BB / PPT / NPTEL / MOOC / etc)	Blooms Level (L1-L6)	CO	PO
UNIT I INTRODUCTION TO PROCESS PLANNING							
1	Introduction About Process Planning	T1	1	PPT	L1	CO1	1
2	Methods of process planning	T1	1	PPT	L1	CO1	1
3	Drawing interpretation	T1	2	PPT	L2	CO1	1
4	Material evaluation	T1	2	PPT	L3	CO1	1
5	Steps in process selection	T1	1	PPT	L2	CO1	1
6	Production equipment and tooling selection	T1	2	PPT	L3	CO1	1
Suggested Activity: Case studies given to the student							
Evaluation method: Evaluation of Case Studies							
UNIT II Process Planning Activities							
7	Process planning calcution for various production processes	T1	1	PPT	L2	CO2	1
8	Selection of Jigs and Fixtures	T1	2	PPT	L2	CO2	1
9	Selection of quality assurance methods	T1	2	PPT	L2	CO2	1
10	Set of documents for process planning	T1	2	PPT	L2	CO2	1
11	Economics of process planning	T1	1	PPT	L2	CO2	1
12	case studies	T1	1	PPT	L3	CO2	1,2,3
Suggested Activity: Tutorials given to the students							
Evaluation method: Evaluation of Tutorial							
UNIT III Introduction to Cost Estimation							

13	Importance of costing and Estimation	T1	1	PPT	L1	CO3	1
13	Methods of costing	T1	1	PPT	L1	CO3	1
13	Elements and types of Cost Estimation	T1	1	PPT	L1	CO3	1
13	Estimation of labor and material cost	T1	2	BB / PPT	L3	CO3	1,2
13	Allocation of overhead charges	T1	2	BB / PPT	L3	CO3	1,2
13	Calculation of depreciation Cost	T1	2	BB / PPT	L3	CO3	1,2
Suggested Activity: Case studies given to the student							
Evaluation method: Evaluation of Case Studies							
UNIT IV Production Cost Estimation							
14	Estimation of different types of jobs	T2	2	BB / PPT	L3	CO4	1,2,3
15	Estimation of Forging shop	T2	2	BB / PPT	L3	CO4	1,2,3
16	Estimation of welding shop	T2	3	BB / PPT	L3	CO4	1,2,3
17	Estimation of foundry shop	T2	2	BB / PPT	L3	CO4	1,2,3
Suggested Activity: Assignment given to the students							
Evaluation method: Evaluation of the assignment							
UNIT V Machining Time calculation							
18	Estimation of Machining Time	R2	1	BB / PPT	L3	CO5	1,2,3
19	Importance of Machine time calculation	R2	1	BB / PPT	L3	CO5	1,2,3
20	Calculation of Machining time for different lathe operations,drilling, boring	R2	3	BB / PPT	L3	CO5	1,2,3
21	Machining time calculation for milling,shaping,planning	R2	3	BB / PPT	L3	CO5	1,2,3
22	Machining Time calculation for grinding	R2	1	BB / PPT	L3	CO5	1,2,3
Suggested Activity: Case studies given to the student							
Evaluation method: Evaluation of Case Studies							
Content Beyond the Syllabus Planned							
1	Motion economy						
2	Work measurements & Ergonomics						
Text Books							
1	Peter scalon, “Process planning, Design/Manufacture Interface”, Elsevier science technology Books, Dec 2002						
2	Sinha B.P, “Mechanical Estimating and Costing”, Tata-McGraw Hill publishing co, 1995						
Reference Books							
1	Ostwalal P.F. and Munez J., “Manufacturing Processes and systems”, 9 th Edition, John Wiley 1998						
2	K.C. Jain & L.N. Aggarwal, “Production Planning Control and Industrial Management”, Khanna Publishers 1990.						
Website / URL References							

1	https://nptel.ac.in/courses/112/107/112107238/

Blooms Level

Level 1 (L1) : Remembering	Lower Order Thinking	Fixed Hour Exams	**Level 4 (L4) : Analysing**		Higher Order Thinking	Projects / Mini Projects
Level 2 (L2) : Understanding			**Level 5 (L5) : Evaluating**			
Level 3 (L3) : Applying			**Level 6 (L6) : Creating**			

Mapping syllabus with Bloom's Taxonomy LOT and HOT

Unit No	Unit Name	L1	L2	L3	L4	L5	L6	LOT	HOT	Total
Unit 1	INTRODUCTION TO PROCESS PLANNING	2	2	2				6	0	6
Unit 2	PROCESS PLANNING ACTIVITIES		5	1				6	0	6
Unit 3	INTRODUCTION TO COST ESTIMATION	3		3				6	0	6
Unit 4	PRODUCTION COST ESTIMATION			4				4	0	4
Unit 5	MACHINING TIME CALCULATION			5				5	0	5
Total		5	7	15	0	0	0	27	0	27
Total Percentage		18.5185	25.9259	55.5556	0	0	0	100	0	100

CO PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	**2**												1	0
CO2	**2**	**2**	**1**										1	0
CO3	**2**	**2**											2	2
CO4	**2**	**2**	**2**										2	2
CO5	**2**	**2**	**2**										2	2
Avg	**1**	**1**	**1**										**2**	**2**

Justification for CO-PO mapping

CO1	**Knowledge of mathematics science engineering fundamentals is required (PO1)**
CO2	**knowledge of mathematics science engineering fundamentals is required (PO1), first principles of mathematics is required for solving (PO2), Design solutions for complex engineering problems (PO3)**
CO3	**knowledge of mathematics science engineering fundamentals is required (PO1), first principles of mathematics is required for solving (PO2)**
CO4	**knowledge of mathematics science engineering fundamentals is required (PO1), first principles of mathematics is required for solving (PO2), Design solutions for complex engineering problems (PO3)**
CO5	**knowledge of mathematics science engineering fundamentals is required (PO1), first principles of mathematics is required for solving (PO2), Design solutions for complex engineering problems (PO3)**

3	**High level**	**2**	**Moderate level**	**1**	Low level

Name & Sign of Faculty Incharge : Dr.A. Saravanan

Name & Sign of Subject Expert : Dr.A. Saravanan

Head of the Department : Dr. S. Prasath

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