SARVAJANIK UNIVERSITY

Sarvajanik College of Engineering and Technology

Bachelor of Technology

Mechanical Engineering Department

Semester VII

Course Name : Process Planning and Cost Estimation Course Code: BTME14718

Type of course : Professional Elective Course (PEC)

Prerequisite : Manufacturing Process

Rationale of course : To introduce the process planning concepts to make cost estimation for various products after process planning.

Teaching and Examination Scheme:

TEACHING SCHEME				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	100
3	0	0	3	60	25	15	-	-	

CA1: Continuous Assessment (assignments/projects/open book tests/closed book tests **CA2:** Sincerity in attending classes/class tests/ timely submissions of assignments/self-learning attitude/solving advanced problems **TEE:** Term End Examination **TEP:** Term End Practical Exam (Performance and viva on practical skills learned in course) **CA3:** Regular submission of Lab work/Quality of work submitted/Active participation in lab sessions/viva on practical skills learned in course.

Contents:

Sr. No.	Topics	Teaching Hrs.	Module Weightage
1	**Introduction to Process Planning**: Introduction, methods of process planning, drawing interpretation, material evaluation, steps in process selection, production equipment and tooling selection.	05	10%
2	**Process Planning Activities:** Process parameters calculation for various production processes, Selection jigs and fixtures election of quality assurance methods, set of documents for process planning, economics of process planning, case studies.	11	25%
3	**Introduction To Cost Estimation :** Importance of costing and estimation, methods of costing, elements of cost estimation, types of estimates, estimating procedure, estimation labor cost, material cost, allocation of over head charges, calculation of depreciation cost.	09	20%

4	**Production Cost Estimation:** Estimation of different types of jobs, estimation of welding shop, estimation of foundry shop.	**09**	**20%**
5	**Machining Time Calculation:** Estimation of machining time, importance of machine time calculation, calculation of machining time for different lathe operations, drilling and boring, machining time calculation for milling, shaping and planning, machining time calculation for grinding.	**11**	**25%**

Percentage Distribution of Marks as per Revised Bloom's Taxonomy (Theory/Practical):

Percentage Distribution of Marks					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
20	**30**	**25**	**10**	**10**	**05**

Legends: R: Remembrance, **U:** Understanding; **A:** Application, **N:** Analyze, **E:** Evaluate **C:** Create and above Levels

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference/Text Books:

Sr no	**Title of book /article**	**Author(s)**	**Publisher and details like ISBN**	**Year of publication**	**Publication Edition**
1	Process planning, Design/Manufacturing Interface	Peter scalon	Elsevier science technology	2003	2nd
2	Mechanical Estimating and Costing	Sinha B.P	McGraw-Hil	1995	3rd
3	Product Design and Manufacturing	Chitale A.V. & Gupta R.C.	PHI	2011	5th
4	Production Planning Control and Industrial Management	K.C. Jain & L.N. Aggarwal	Khanna Publishers	2014	17th

5	Automation, Production, Systems and Computer Integrated Manufacturing	Mikell P. Groover	Pearson Education	2008	4th

Course Outcomes (CO's):

CO No.	CO Statement After learning this subject, students will be able to	Marks % Weightage
CO-1	Select the process, equipment and tools for various industrial products.	15
CO-2	Prepare process planning activity chart.	25
CO-3	Explain the concept of cost estimation.	20
CO-4	Compute the job order cost for different type of shop floor.	20

Mapping of CO's with Program Outcomes (PO's):

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	2	2	2	0	2	2	1	1	1	1	1	2	1	2	3
CO-2	0	2	2	2	1	2	0	2	2	2	2	1	2	0	2
CO-3	1	1	2	1	3	1	3	1	1	2	2	1	1	1	2
CO-4	3	2	0	3	1	1	1	2	2	2	1	2	3	3	1
Rationale*	**6**	**7**	**6**	**6**	**7**	**6**	**5**	**6**	**6**	**7**	**6**	**6**	**7**	**6**	**8**

Mapping of CO's with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):
It states that the course will develop Engineering Knowledge, addresses societal, health, safety, legal and cultural issues, it focuses on individual and team work and better communication. Course also focuses on knowledge of Process Planning and Cost Estimation.

This course highly maps with PO and PSO 1. It states that the course will develop. This Course also focuses on Engineering knowledge, Problem analysis, Design / development of solutions, Conduct investigations of complex problems, Modern tool usage, The engineer and society, Environment and sustainability, Ethics, Individual and teamwork, Communication, Project management and finance, Life-long learning.

Assignments to be given as per the requirement of the course.

List of Open learning website:

1. https://nptel.ac.in/courses/112107143

List of Open Source Software: Nil