



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3154108

Semester – V

Subject Name: Process Planning and Cost Estimation

Type of course: Open Elective

Prerequisite: NA

Rationale: Process Planning and Cost Estimation is fundamental course for Robotics and Automation engineers to understand process planning concepts to make cost estimation for various products after process planning.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	0	3	70	30	00	00	100

Content:

Sr. No.	Content	Total Hrs
1	Introduction To Process Planning: Introduction- methods of process planning-Drawing interpretation-Material evaluation – steps in process selection-.Production equipment and tooling selection	8
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	8
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	8
4	Production Cost Estimation: Estimation of Different Types of Jobs - Estimation of Forging Shop, Estimation of Welding Shop, Estimation of Foundry Shop	4
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.	12



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Suggested Specification table with Marks (Theory): (For BE only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20%	20%	15%	25%	20%	-

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

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 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.
3. Chitale A.V. and Gupta R.C., "Product Design and Manufacturing", 2nd Edition, PHI, 2002.
4. Mikell P. Groover, "Automation, Production, Systems and Computer Integrated Manufacturing", Pearson Education 2001.
5. K.C. Jain & L.N. Aggarwal, "Production Planning Control and Industrial Management", Khanna Publishers 1990.

Course Outcomes: After learning the course the students should be able to:

Sr. No.	CO statement	Marks % weightage
CO-1	Select the process, equipment and tools for various industrial products	20%
CO-2	Prepare process planning activity chart	20%
CO-3	Explain the concept of cost estimation.	20%
CO-4	Compute the job order cost for different type of shop floor	10%
CO-5	Calculate the machining time for various machining operations	30%

List of Open Source Software/learning website:

- <https://nptel.ac.in/courses/112107143/>
- <https://nptel.ac.in/courses/112107238/>