

COURSE CODE	PROCESS PLANNING AND COST ESTIMATION	L	T	P	C
1152ME138	ESTIMATION	3	0	0	3

1. Preamble

This course provides an introduction about process planning and its activities. It introduces the procedure of cost estimation of products manufactured in different shops and also machine time evaluation.

2. Pre-Requisite

NIL

3. Links to other courses

NIL

4. Course Educational Objectives

Students, after undergoing this course would

- Introduce the process planning concepts to make cost estimation for various products after process planning.

5. Course Outcomes

Upon the successful completion of the course, learners will be able to

CO Nos.	Course Outcomes	Level of learning domain (Based on revised Bloom's)
CO1	Discuss the steps involved in process planning	K2
CO2	Prepare the documents for process planning	K2
CO3	Predict the parameters to evolve the cost of any product	K3
CO4	Estimate the cost of a product based on manufacturing methods	K3
CO5	Estimate the machining time to manufacture a given product	K3

(K3 - Apply)

6. Correlation of COs with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	H	M									M	L	M	L
CO2	H	M									M	L	M	L
CO3	H	H									M	L	M	L
CO4	H	H									M	L	M	L
CO5	H	H									M	L	M	L

H- High; M-Medium; L-Low

7. Course Content

UNIT I INTRODUCTION TO PROCESS PLANNING **L-9**

Introduction- methods of process planning-Drawing interpretation-Material evaluation – steps in process selection-Production equipment and tooling selection

UNIT II PROCESS PLANNING ACTIVITIES **L-9**

Process parameters calculation for various production processes-Selection jigs and fixtures-Selection of quality assurance methods - Set of documents for process planning-Economics of process planning- case studies

UNIT III INTRODUCTION TO COST ESTIMATION **L-9**

Importance of costing and estimation –methods of costing-elements of cost estimation – Types of estimates – Estimating procedure- Estimation labor cost, material cost-allocation of overhead charges- Calculation of depreciation cost

UNIT IV PRODUCTION COST ESTIMATION **L-9**

Estimation of Different Types of Jobs - Estimation of Forging Shop, Estimation of Welding Shop, Estimation of Foundry Shop

UNIT V MACHINING TIME CALCULATION **L-9**

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

TOTAL: 45 Periods

8. Text Books

1. Peter scalon, "Process planning, Design/Manufacture Interface", Elsevier science technology Books, 2003.
2. Sinha.B.P, "Mechanical Estimating and Costing", Tata McGraw-Hill Publishing Co., 1995.
3. Phillip.F Ostwalal and Jairo Munez, "Manufacturing Processes and systems", John Wiley, 9th Edition, 2008.
4. Chitale, A. K., and Gupta, R. C., "Product Design and manufacturing", Prentice Hall of India, New Delhi, 6th Edition 2013.
5. Adithan, M. S., and Pabla, "Production Engineering Estimating and Costing", Konark Publishers Pvt., Ltd. 1989.

9. References

1. Ostwalal P.F. and Munez J., "Manufacturing Processes and systems", 9th Edition, John Wiley, 1998.
2. Russell R.S and Tailor B.W, "Operations Management", 4th Edition, PHI, 2003.
3. Banga T.R and Sharma.S.C, "Estimating and costing", Khanna Publishers, New Delhi, 16th Edition, 2011.
4. Nanua Singh, "System Approach to Computer Integrated Design and Manufacturing", John Wiley & Sons, New York, 2011.