

Proposed syllabus

NIRMA UNIVERSITY
School of Engineering, Institute of Technology
B.Tech. in Mechanical Engineering
Semester VII

L	T	P	C
3	0	2	4

Course Code	2ME701
Course Title	Manufacturing Technology and Management

Course Outcomes (CO):

After successful completion of the course, student will be able to –

1. explain types of tools, their geometries and cutting fluids used for various machining processes,
2. elaborate mechanics of machining,
3. design jigs and fixtures for a give application,
4. appraise the concepts of production management.

Syllabus

Teaching

Hours: 45

UNIT I	Cutting Tools and Cutting Fluids Machining of metals and non-metals, Classification, tool signature of single point cutting tools, solid and inserted bit tools, tool materials, tool coatings, multi point cutting tools: types and their geometry, chip breaker, form tools, function, selection and application of cutting fluid..	10
UNIT II	Theory of metal cutting Orthogonal and oblique cutting, theory of chip formation, types of chips, chip thickness ratio and shear plane angle, forces and power in machining, concept of machinability, tool wear and tool life, Effect of tool wear and machining variables on the surface quality of different materials, economics of machining.	10
UNIT III	Jigs and Fixtures Definition, their usefulness in mass production; principles, methods and types of locators; diamond pin locator, principles and types of clamps, jig bushes: purpose and types, jigs and fixtures for turning, milling, welding, and grinding applications.	07
UNIT IV	Production Planning and Control Introduction and importance of production and operation management, concept of production systems, types of production systems, Routing and estimation, loading and scheduling. Plant location and layout, purchase and store management.	06
UNIT V	Forecasting and Inventory Management Sales Forecasting: Importance of consumer opinions, distribution surveys, executive opinions and marketing trends in sales forecasting, Different forecasting techniques and Time series analysis, Inventory Control and Management: Cost elements, inventory carrying cost, ordering cost, shortage cost, basic inventory models, introduction to supply chain management.	12

Self - Study The self-study contents will be declared at the commencement of semester.
Around 10% of the questions will be asked from self-study contents.

Laboratory Work:

Laboratory work will be based on above syllabus.

Suggested Readings:

1. Pandey P. C. and Singh C. K., Production Engineering Sciences, Standard Publishers Distributors
2. HMT, Production Technology, Tata McGraw-Hill Publishing Company Ltd
3. Joshi P. H., Jigs & Fixtures, Tata McGraw Hill
4. Elwood S. Buffa, Rakesh K. Sarin, Modern Production / Operations Management, John Wiley & Sons, Inc.
5. R. Paneerselvam, Production and Operations Management, Prentice-Hall of India Pvt. Ltd.

L=Lecture T= Tutorial P=Practical, C=Credit

w.e.f. academic year 2021-22 and onwards