

Course Type	Course Code	Name of Course	L	T	P	Credit
DC	MEC 302	Machining and Machine Tools	3	0	0	9

Course Objective

- To understand the fundamental of machining process and their importance for selection of proper process parameters
- To provide knowledge about different the principle, operation and applications of different machines tools and fixtures
- To understand the principle and applications of various advanced machining processes.

Learning Outcomes

Upon successful completion of this course, students will:

- have understanding of the fundamental of machining process and importance machining process parameters
- be able to manufacture components as per production drawing using suitable machine tools and their process parameters.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Introduction to machining processes, Cutting tools-single and multi-point cutting tools, tool geometry and materials.	8	Understanding about the different types of machining processes and their tools.
2	Mechanics of chip formation, Merchant's force circle diagram. Cutting fluids/lubricants.	9	Understanding of mechanics of metal cutting process. The students will able to estimate optimum machining parameters.
3	Tool wear mechanism, and tool life. Machinability. Economics of metal cutting.	7	This unit will help student in understanding the fundamental of tool life and its effects on productivity.
4	Lathe, Milling, Drilling, Boring and Grinding, machine tool drives, Principles of work holding, design of jigs and fixtures.	9	Students will get complete knowledge about the conventional Machine tools and their accessories.
5	Principles of EDM and WEDM; ECM; USM;AWJ; ECG; Super finishing processes.	9	Students will get basic idea about the non-conventional machining process and their applications.

Text Books:

1. Machining and Machine Tools, A.B. Chattopadhyay, Willey Publishers, 2011

Reference Books:

1. Theory of Metal Cutting, A. Bhattacharya.
2. Fundamentals of Metal Machining and Machine Tools, Winston A. Knight, Geoffrey Boothroyd, CRC Press
3. Principles of Machine Tools, G. C. Sen and A, Bhattacharya, New Central Book Agency
4. Machining and Metal Working Handbook, Ronal A Walsh and Denis Cormier McGraw Hill Publication. 3rd Edition, 2005