

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E Semester: 3 Industrial Engineering

Subject Code 131903

Subject Name Manufacturing Processes - I

Sr.No	Course content
1.	Basic Machine Tools: Machine tools classification, working and auxiliary motions in machine tools, Primary cutting motions in machines tools.
2.	Metal Cutting Lathes: Engine Lathes, construction all arrangement and principal units of engine lathes, type and size range of engine lathes, Operations carried on engine lathe , attachment extending the processing capacities of engine lathes, description of other types of lathes, Plain turning lathes, facing lathes, multiple tool lathes, simple purpose lathes, turret lathes, horizontal and vertical. Alignment tests of lathes.
3.	Drilling Machines: Purpose and field of application of drilling machines upright drill processes, radial drills, alignment tests of drilling machine.
4.	Boring Machine: Purpose and field of application, Horizontal boring machines, Precision boring machines.
5.	Milling Machines: Purpose and types of milling machines, general purpose milling machines, different types of milling operations, milling cutters, attachments extending the processing capabilities of general purpose milling machines. Alignment tests of milling machine.
6.	Planers, Shapers and Slotters: Classification: Attachments extending the processing capacities of each.
7.	Sawing and broaching, Machines: Metal sawing classification: reciprocating sawing machines, circular sawing machines, band sawing machines. Types of broaching machines, advantage and limitations of broaching.
8.	Grinding Machines and Abrasives: Classification of grinding machines, cylindrical grinders, internal grinders, Surface grinders, tool and cutter grinders, grinding wheel surface finishing. Abrasives, manufacture or grinding wheels.

Reference Books:

1. Workshop Technology Vol. II by Hajra & Choudhari.
2. Manufacturing Processes by O.P. Khanna.
3. Workshop Technology Vol. I & II & III by Chapman.
4. Production Technology by R. K. Jain.
5. Processes and Materials of Manufacture; Lindberg Roy A.; Prentice-Hall India
6. Manufacturing Engineering and Technology; Kalpakjian; Addison-Wesley Publishing Co