

## **ME 312 Manufacturing Technology - II (3-0-0-6)**

Metal cutting: mechanics, tools (geometry: single and multi-point, nomenclature and tool signature, material, temperature, wear, and life considerations), chip formation; cutting fluids and surface finish; economics of machining; Machine tool: Generation and machining principles; Basic machining operations: lathe, milling, shaping, drilling, boring, grinding (cylindrical, surface, centreless), thread cutting, gear cutting; CNC machines; Finishing: microfinishing (honing, lapping), nano-finishing; Unconventional methods: electro-chemical, electro-discharge, ultrasonic, LASER, electron beam, water jet machining etc.; Tooling: Jigs and fixtures, principles of location and clamping; Rapid manufacturing and rapid tooling; Basic concepts of CAD/CAM and CAPP.

### **Texts:**

- [1] A. Ghosh and A. K. Mallik, Manufacturing Science, East West Press, Second Edition, 2010.
- [2] G. K. Lal, Introduction to Machining Science, New Age International Pvt Ltd., 2007.
- [3] W. A. Knight and G. Boothroyd, Fundamentals of Metal Machining and Machine Tools, CRC Press, 2006.

### **References:**

- [1] Production Technology HMT, Tata McGraw Hill, 2001.
- [2] M. C. Shaw, Metal Cutting Principles, Second Edition, Oxford University Press, 2005.
- [3] P. K. Mishra, Nonconventional Machining, Narosa Publishing House, 2007
- [4] C. Donaldson, G. H. LeCain, V C Goold and J Ghose, Tool Design 4e (SIE), 4th Edition, TMH, 2012.
- [5] M. P. Groover, Fundamentals of Modern Manufacturing, Materials, Processes and Systems, Second Edition, Wiley India, Reprint 2007.