

**10 ME 222 MACHINE TOOLS**  
**II B.Tech II Semester**  
(with effect from the academic year 2011-2012)

Lectures/Week: 4 Hrs  
University Exam: 3 Hrs

Credits: 4  
Sessional Marks: 40  
End Examination Marks: 60

**UNIT – I**

**Lathes:** Type of operations. Work holding devices.

**Capstan and Turret lathes:** Introduction, bar feeding and indexing mechanisms.

**Automatic lathes:** construction and working of automatic screw machines and sliding head automatics. Multi spindle automatics.

**UNIT – II**

**Drilling machines :** Types, construction details and operations performed on them. Twist drill - elements.

**Boring machines** – types and construction. Jig boring machines. Shaper, Planner and Slotter – construction details

**Grinding** – manufacturing of grinding wheels, Wheel specification and wheel selection. Wheel dressing and truing, different types of grinding machines. Lapping, honing and super finishing.

**UNIT – III**

**Milling machines** – classification, construction details of various types & operations performed. Up and down milling. Estimation of machining time in milling. Indexing- Indexing head, types of indexing- simple, differential, compound and angular indexing.

**Gear Cutting by milling :** Gear generation, gear shaping and gear hobbing Gear finishing. Broaching –types of broaches, different machines

**UNIT – IV**

**Numerical Control:** Basic components, coordinate systems, advantages and applications , CNC & DNC. Machining centers. Manual part programming- part programs for simple components. Part Programming using APT language - programming for simple components

**UNIT – V**

**Nonconventional machining:** Problems with conventional machining. Different Nonconventional machining processes and their capabilities: AJM, USM, ECM, ECG, EBM, LBM, PAM, & WJM.

**Text Books:** 1. Workshop Technology vol-2 - Hazra Chowdary & SK. Bone  
2. A text book of Production Engineering - P.C.Sharma

**References :** 1. Manufacturing Technology -R.K.Rajput.  
2.Automation and CIM - M.P.Groover  
3.Production Engineering - R.K.Jain