10ME303 THEORY OF METAL CUTTING

Credits 4:0:0

Course Objectives:
1. To familiarize the student with tool nomenclature and cutting forces
2. To give knowledge about heat distribution and thermal aspects of machining
3. To impart knowledge on tool materials, tool life and tool wear.
4. To educate students on failure analysis of cutting tools

Course Outcomes:
1. Students will be able to analyze cutting forces in turning, drilling and milling
2. Students will be able to adjust varies parameters and reduce temperature developed during machining
3. Students will be able to reduce the cost of machinery
4. Students will be able to prevent failures of cutting tool.

Unit 1

Unit II
Tool Nomenclature and Cutting Forces: Nomenclature of single point tool - Systems of tool Nomenclature - Nomenclature of multi point tools like drills, milling cutters and broaches. Forces in turning, drilling and milling - specific cutting pressure- measurement of cutting forces.

Unit III

Unit IV

Unit V
Wear Mechanisms and Chatter in Machining: Reasons for failure of cutting tools and forms of wear - mechanisms of wear - chatter in machining - Factors effecting chatter in machining - types of chatters - Mechanism of chatter based on Force Vs Speed graph.

Text Books:
Reference Books: