

Tutorials (Sample Copy)

Subject: Manufacturing Process -II Class: TY BTech

Unit 1: Abrasive Machining and Finishing Operations

Tutorial No 1

1. Explain different bond types of grinding wheel.
2. Explain different wheel grades and structures of grinding wheel.
3. Explain different types of abrasives.
4. Explain different types of grinding operations.

Tutorial No. 2 Mechanics of Metal Cutting

1. Explain Geometry of single point cutting tools with neat sketch
2. Explain merchant circle with neat sketch
3. Explain theory of Lee and Shaffer
4. Derive equation for chip thickness ratio and shear angle

Tutorial No. 3: Thermal Aspects, Tool Wear & Machinability

Q.1 Explain heat generation in metal cutting with neat sketch? Explain causes of heat generation?

Q.2 Define Tool Life? Explain Taylors tool life equation?

Q.3 What is the Function of cutting Fluid? Explain any 5 types of cutting fluid?

Q.4 The Taylorian tool life equation for machining C-40 steel with a 18.4.1 HSS cutting tool at a feed of 0.2mm/min & a depth of cut of 2mm is given by $VT^n=C$, where n & C are constants. The following observations have been noted:

V m/min	25	35
T min	90	20

Calculate,

- i) n & C
- ii) Hence recommend the cutting speed for a desired tool life of 60 minutes.

Q.5 A mild steel bar is turned with HSS tool. Determine the tool life for a cutting velocity of 40m/min. If the tool life equation is $VT^{0.2}= 80$. Also determine the cutting speed for 60 minutes tool life.

Tutorial No. 4: Processing of Powder Metals

1. Define powder metallurgy? Explain Basic Process in detail
2. Explain Compaction of Metal Powders in detail
3. Explain Isostatic Pressing in detail
4. Explain Sintering process in detail
5. What are Design Considerations in powder metallurgy? Explain with diagram