

MANUFACTURING PROCESS – II

Written by Administrator

Sunday, 01 November 2009 10:32 -

Sub Code

: 06 ME 45

IA Marks

: 25

Hrs/week

: 04

Exam Hours

: 03

Total Lecture Hrs

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: 52

Exam Marks

: 100

PART – A

UNIT 1:□□□□□□□□□□□□□□

Theory of Metal Cutting: Single point cutting tool nomenclature, geometry, Merchants circle diagram and analysis, Ernst Merchant's solution, shear angle relationship, problems of Merchant's analysis, tool wear and tool failure, tool life, effects of cutting parameters on tool life, tool failure criteria, Taylor's tool life equation, problems on tool life evaluation.

7 Hours

UNIT 2:□□□□□□□□□□□□□□

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Cutting tool materials: Desired properties, types of cutting tool materials – HSS, carbides coated carbides, ceramics cutting fluids. Desired properties, types and selection. Heat generation in metal cutting, factors affecting heat generation. Heat distribution in tool and W/P. Measurement of tool tip temperature.

7 Hours

UNIT 3:□□□□□□□□□□□□□□

Turning (Lathe), Shaping and planning machines: Classification, constructional features of turret and capstan lathe, tool layout, shaping m/c, planning m/c, driving mechanisms of lathe, shaping and planning machines, operations on lathe, shaping machine and planning machine.

6 Hours

UNIT 4:□□□□□□□□□□□□□□

Drilling machines: Classification, constructional features, drilling & related operations, types of drill & drill bit nomenclature, drill materials.

6 Hours
PART – B

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UNIT 5: □□□□□□□□□□□□□□

Milling machines: Classification, constructional features, milling cutters nomenclature, milling operations, up milling and down milling concepts.

Indexing: Simple, compound, differential and angular indexing calculations. Simple problems on simple and compound indexing.

7 Hours

UNIT 6: □□□□□□□□□□□□□□

Grinding machines: Types of abrasives, bonding process, classification, constructional features (cylindrical and surface grinding), selection of grinding wheel.

6 Hours

UNIT 7: □□□□□□□□□□□□□□

Lapping and Honing machines: Principles of operation, construction, applications.

7 Hours

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UNIT 8: □□□□□□□□□□□□□□

Non-traditional machining processes: Principle, need, equipment, operation and LBM, plasma arc machining, Electro chemical machining, ultrasonic machining, abrasive let machining, water jet machining.

6 Hours

Text Books:

1. **Workshop Technology** by Hazara Choudhry, Vol-II, Media Promoters & Publishers Pvt. Ltd. 2004
2. **Production Technology** by R.K.Jain, Khanna Publications, 2003.
3. **Production technology** by HMT, Tata MacGraw Hill, 2001.

Reference Books:

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1. **Manufacturing Science** by Amitabha Ghosh and Mallik, affiliated East West Press, 2003.
2. **Fundamentals of Metal Machining and Machine Tools** by G. Boothroyd, McGraw Hill, 2000.

Scheme of examination:

One Question to be set from each chapter. Students have to answer any FIVE full questions out of EIGHT questions, choosing at least 2 questions from part A and 2 questions from part B.