

AIRCRAFT MANUFACTURING TECHNOLOGY

DETAILED SYLLABUS

Objectives

- Expose to the Concepts and Basic Mechanics of Metal Cutting
- Familiarise with Working Of Standard Machine Tools Such As Lathe, , Milling, Grinding And Super finishing Process, Non conventional machining practices, Sheet metal fabrication, casting and welding

UNIT I THEORY OF METAL CUTTING

Introduction: Metal Removal Processes, Types Of Machine Tools – Theory Of Metal Cutting: Chip Formation, - Machinability of metal. Cutting Tool- Classification of cutting tools-and Geometry of Cutting Tools. Cutting Tools Materials

UNIT II LATHE

Centre Lathe-Construction- Various Operations, Taper Turning Methods, Thread Cutting operation, Lathe Attachments& Accessories.

UNIT III DRILLING AND MILLING MACHINES

Drilling operations- Twist drill geometry –Radial drilling machine-Jigs and Fixtures- Clamping devices- Basic types of Clamping devices-Strap clamps. Milling-Classification, Column and knee type milling machine - Milling cutters and classification- milling processes-Milling operations.

UNIT IV SUPER FINISHING PROCESSES

Abrasive Processes- Grinding Wheel – Specifications and Selection, Types Of Grinding Processes – Cylindrical Grinding, Surface Grinding, Centre less Grinding–Super finishing process- Honing, Lapping,

UNIT V SHEET METAL, CASTING AND WELDING PROCESSES

Introduction to sheet metal fabrication, various operations like bending , forming , punching, slitting, embossing, louivering, drawing, deep drawing. Introduction to various types of presse and press tools Introduction to casting, process, various types. Introduction welding, classification welding, types of welding, brazing, soldering and types, The type of welding used in aeronautical field.

UNIT VI UNCONVENTIONAL MACHINING PROCESSES

Unconventional Machining Process - Classification, Electron Beam Machining, Laser Beam Machining, Electric Discharge Machining, Introduction to CNC machines.

TEXT BOOKS

1. Rao, P.N., Manufacturing Technology, Vol I & II, Tata Mcgraw Hill Publishing Co., New Delhi, 1998
2. Seropekalpakjian, Steven R Schmid Manufacturing Engineering and Technology- Pearson Education-Delhi

REFERENCES

1. Sharma, P.C., A Textbook Of Production Technology – Vol I And II, S. Chand & Company Ltd., New Delhi, 1996
2. HMT – “Production Technology”, Tata Mcgraw-Hill, 199
3. Elements of Workshop Technology- S. K. Hajra Choudhury