

Syllabus for Technical Assistant (Machine Operation) A to B

1. Metal cutting and cutting tools|

Types of cutting tools, Cutting tool materials, Cutting tool nomenclature, Tool life and wear, Single and multi-point cutting tools, Tool geometry, Tool wear, Cutting speeds and feeds, Calculation of cutting speed and feed,

2. Cutting fluids

Types of cutting fluids, Purpose of cutting fluids, Properties of cutting fluids.

3. Engineering Materials

Different types engineering materials used in engineering Industry and its properties.

4. Machine Tools

Metal cutting processes- Types and operations of different conventional machine tools like Lathe, Milling, Shaping, Drilling, Grinding and it's process. Operations and different mechanisms of machine tools, Grinding wheel selection and types of grinding wheels. Work holding devices, Jigs and fixtures, Finishing processes. Gear and gear manufacturing.

5. Non- traditional machining

Types of non-traditional machines, EDM (Electric Discharge Machining), Wire EDM, Ultrasonic Machining (USM), Abrasive Jet Machining(AJM), Laser Beam Machining(LBM), Electro Chemical Machining(ECM), Electron Beam Machining(EBM),- Principle and operation.

6. Limits, Fits and surface quality

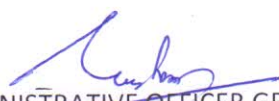
Tolerance, fits and allowance, Limits and fits-Indian standard, Types of fit, Hole basis and shaft basis system, Accuracy, Precision, Least count, Evaluation of surface quality, Surface finish symbols on drawings, Geometrical tolerancing GT&T, Measuring Instruments.

7. CNC machines.

CNC machines – Types of NC and CNC machines, Axis of motion, G and M codes, Classification of CNC system, Position and motion control in CNC machines and CAD &CAM software.

Reference Books

1. Elements of workshop technology volume 1 volume 2 –By S.K.Hajra choudhry
2. Production Technology- By HMT.
3. Manufacturing Engineering and Technology- By Serope Kalpakjian.
4. Machine shop theory and practice By Gupta and Kaushish.
5. CNC Technology & Programming- By Tilak Raj.


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