

NE-04 FITTER

1. Linear measurements- its units, dividers, calipers, hermaphrodite, centre punch, dot punch, their description and uses of different types of hammers. Description, use and care of 'V' Blocks, marking off table.
2. Physical properties of engineering metal: color, weight, structure, and conductivity, magnetic, fusibility, specific gravity. Mechanical properties: ductility, malleability hardness, brittleness, toughness, tenacity, and elasticity.
3. Vernier calipers, principle, construction, graduations, reading, use and care. Vernier bevel protractor, construction, graduations, reading, use and care, dial Vernier Caliper, Digital Vernier caliper.
4. Drilling processes: common type (bench type, pillar type, radial type), gang and multiple drilling machine. Determination of tap drill size.
5. Solders-composition of various types of solders, and their heating media of soldering iron, fluxes types, selection and application-joints.
6. Safety-importance of safety and general precautions observed in a welding shop. Precautions in electric and gas welding.
7. Oxygen acetylene cutting-machine description, parts, uses, method of handling, cutting torch- description, parts, function and uses.
8. Drill- material, types, (Taper shank, straight shank) parts and sizes. Drill angle-cutting angle for different materials, cutting speed feed. R.P.M. for different materials. Drill holding devices- material, construction and their uses.
9. Method of expressing tolerance as per BIS Fits: Definition, types description of each.
10. Cast Iron: manufacturing process by using (cupola furnace) types, properties and uses. Wrought iron- : manufacturing process (Fuddling and Astor process) properties and uses. Steel: manufacturing process plain carbon steels, types, properties and uses.
11. Safely precautions to be observed while working on a lathe, Lathe specifications, and constructional features. Lathe main parts descriptions- bed, head stock, carriage, tail stock, feeding and thread cutting mechanisms. Lathe cutting tools- Brief study of the nomenclature of Lathe cutting tools
12. Description and uses of gauge- types (feeler, screw, pitch, radius, wire gauge).
13. Locking device: Nuts- types (lock nut castle nut, slotted nuts, swam nut, grooved nut) Description and use.

14. Lapping: Application of lapping, material for lapping tools,
15. Honing: Application of honing, material for honing, tools shapes, grades, honing abrasives. Frosting- its aim and the methods of performance.
16. Roller and needle bearings: Types of roller bearing. Description & use of each Industrial visit.
17. Hardening and tempering, purpose of each method, tempering color chart.
18. Annealing and normalizing, purpose of each method.
19. Pipes and pipe fitting- commonly used pipes. Pipe schedule and standard sizes. Pipe bending methods. Use of bending fixture, pipe threads- Std. Pipe threads Die and Tap, pipe vices.
20. Standard pipefitting-. Methods of fitting or replacing the above fitting, repairs and erection on rainwater drainage pipes and house hold taps and pipe work. Use of tools such as pipe cutters, pipe wrenches, pipe dies, and tap, pipe bending machine etc.
21. Power transmission elements.
22. Power transmissions, coupling types-flange coupling,-Hooks coupling-universal coupling and their different uses.
23. Lubrication and lubricants- Method of lubrication. How a film of oil is formed in journal. Bearings, method of lubrication-gravity feed, force (pressure) feed, splash lubrication.
24. Installation, maintenance and overhaul of machinery and engineering equipment and Hydraulics & pneumatic symbols