

SYLLABUS
JUNIOR LAB ASSISTANT (CENTRAL WORKSHOP)

- **Basics of general mechanical engineering**, including engineering mechanics, materials science and thermal engineering.
- **Foundry Shop**: Understanding of basic steps in casting operation, terminology, process flow; mould making process and tools; sand testing equipment; working and operation of equipment using in casting shop; Safety precautions for foundry
- **Machine Shop**: Standard machine tools and their operations; Cutting tools for various machines, cutting tool materials, tool geometry; Cutting fluids, classification; Grinding machine types and operations, types of grinding wheels, specifications; Safety precautions for machine shop
- **Assembly Shop**: Processes in fitting shop; Equipment, Layout procedure; File work; Thread cutting tools; Operation and types of chisels, scrapers, dividers, calipers.
- **Welding Shop**: Welding processes and equipment; operations of welding machines; selection of consumables such as electrode, flux, nozzles, gas etc.; types of welds, joints and ptions; Safety precautions for welding.
- **Smithy, Forging and Sheet Metal Work**: Knowledge of equipment and tools for smithy, forging and sheet metal work; Operations related to Smithy, forging and sheet metal work; Knowledge of control parameters to achieve defect-free parts; Safety precautions
- **Metrology**: Understanding related to operation and working principles of measuring equipment and tools used for inspection on shop floor; Knowledge of standards of measurement; Measurement of Surface roughness
- **Advanced Manufacturing**: Understanding related to operation and working principles of advanced manufacturing and inspection equipment such as CNC Machines, 3-D Printers, Coordinate Measuring Machine; Knowledge of computational tools for component fabrication; Knowledge of Programming for component fabrication; Reverse Engineering of components on CMM.
- General English, Quantitative Aptitude, Analytical Reasoning & General Knowledge / Current Affairs.