

Non-Teaching Staff Recruitment
(Advertisement No. IITT/STAFFREC/01/2025 dated 14-07-2025)

Syllabus - Junior Technician (CIF)

Molecular structure in solid, liquid, and gas; Defects in solids; Principles of optics and microscopes; Principles of SEM, XRD, DSC, TGA, FT-IR, UV-vis; Physical properties of materials.

Basics of circuit theory; Ohms and Kirchhoff's laws, Mesh and Nodal analysis; AC circuits, phasor diagrams, AC power analysis, concept of power factor, and power factor correction; Logic gates, AC/DC fundamentals; Sensors (temperature, pressure, humidity, magnetic field, radiation), and transducers; Ammeter, Voltmeter, analogue to digital interconversion; Function generator, oscilloscope.

Fundamentals of mechanics: free-body diagrams, shear/bending moment; Fundamentals of Fluid Mechanics and Heat Transfer; Workshop skills: fitting, sheet-metal work, turning, and milling operations; 3D printing; CAD modelling and Basics of engineering drawing.

Vacuum technology: pumps, gauges, leak detection; Compressed gases: cylinder handling, regulators, piping; Cryogenics: liquid nitrogen and helium handling, dewars; Tender documentation, inventory control, and preventive maintenance.

Computer/ instrument interfacing: RS-232/485, HDMI, USB, Ethernet, Wi-Fi, cloud storage & IOT; Laboratory networking: LAN architecture, instrument servers, remote operation; MS-Office.

Fire science: combustion theory, fire triangle, fire extinguishing agents, fire drills; Hazardous waste management and chemical spill response; Electrical safety: grounding/ earthing, interlocks, lock-out/tag-out procedures; Smoke detectors; UPS; Circuit breakers.

English comprehension, Logical reasoning, and analytical aptitude; Basic quantitative analysis, Linear equations, coordinate geometry, Trigonometry, Curve fitting; Current affairs in science and technology in India.

Selection Criteria:

- Level-I : Objective Based Test (Level-I is a screening test to call a reasonable number of candidates for the Level-II & Level-III tests.)
- Level-II : Descriptive Test
- Level-III : Skill/Trade Test

Note: All the tests will be conducted based on the above-mentioned syllabus. Equal weightage shall be given to Level-I and Level-II tests for the purpose of preparing the merit list. The Level-III test will be qualifying in nature (Pass/Fail).
