



IITPKD/R/NF/02/2024/44

10th Apr 2025

Recruitment for the post of Junior Technical Superintendent (Mechanical Engineering) (Post Code: 24205) and Junior Technician (Mechanical Engineering) (Post Code: 24211) notified vide Advt. No.: IITPKD/R/NF/02/2024 dated February 07, 2024.

The selection process, indicative syllabus and date of examination for the post of Junior Technical Superintendent (Mechanical Engineering) and Junior Technician (Mechanical Engineering) advertised vide Advt. No.: IITPKD/R/NF/02/2024 dated February 07, 2024.

Junior Technical Superintendent (Mechanical Engineering) (Post Code: 24205)

Tentative Schedule of Examination: Level I - 26-Apr-2025 (Saturday)

Level II - 27-Apr-2025 (Sunday)

The selection process shall be as follows:

Syllabus:

Subject		Maximum Marks	Duration
Level I Objective test	<p>Section 1: Applied Mechanics and Design</p> <p>Engineering Mechanics: Free-body diagrams and equilibrium, friction and its applications including rolling friction, belt-pulley, brakes, clutches, screw jack, wedge, vehicles, etc., trusses and frames.</p> <p>Mechanics of Materials: Stress and strain, elastic constants, Poisson's ratio, Mohr's circle for plane stress and plane strain, thermal stresses, strain gauges and rosettes, testing of materials with universal testing machine, testing of hardness and impact strength.</p> <p>Theory of Machines: Displacement, velocity and acceleration analysis of plane mechanisms, dynamic analysis of linkages, cams, gears and gear trains, flywheels and governors, balancing of reciprocating and rotating masses, gyroscope.</p> <p>Section 2: Fluid Mechanics and Thermal Sciences</p> <p>Fluid Mechanics: Fluid properties, fluid statics, forces on submerged bodies, stability of floating bodies, control-volume analysis of mass, momentum and energy, fluid acceleration, differential equations of continuity and momentum, Bernoulli's equation.</p>	60	75 minutes

	<p>Heat-Transfer: Modes of heat transfer, one dimensional heat conduction, forced convective heat transfer, heat transfer correlations for flow over flat plates and through pipes, radiative heat transfer.</p> <p>Thermodynamics: Thermodynamic systems and processes, properties of pure substances, behavior of ideal and real gases, zeroth and first laws of thermodynamics, calculation of work and heat in various processes, second law of thermodynamics, thermodynamic property charts and tables.</p> <p>Section 3: Materials and Manufacturing</p> <p>Engineering Materials: Structure and properties of engineering materials, phase diagrams, heat treatment, stress-strain diagrams for engineering materials.</p> <p>Casting, Forming and Joining Processes: Different types of castings, design of patterns, moulds and cores, solidification and cooling. Plastic deformation and yield criteria, fundamentals of hot and cold working processes, principles of powder metallurgy. Principles of welding, brazing, soldering and adhesive bonding.</p> <p>Machining and Machine Tool Operations: Basic machine tools, single and multi-point cutting tools, tool geometry and materials, tool life and wear, economics of machining, principles of non-traditional machining processes, principles of work holding, jigs and fixtures, abrasive machining processes, NC/CNC machines and CNC programming.</p> <p>Metrology and Inspection: Limits, fits and tolerances, linear and angular measurements, comparators, interferometry, form and finish measurement, alignment and testing methods, concepts of coordinate-measuring machine (CMM).</p> <p>Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools, additive manufacturing.</p> <p>Inventory Control: Deterministic models, safety stock inventory control systems.</p> <p>Section 4: General aptitude - Numerical ability and data interpretation.</p>		
<p>Level II Descriptive & Skill test</p>	<p>Candidates are expected to have familiarity and hands-on experience with the equipment and instruments typically found in a central workshop. This includes being able to identify tools, understand their function, and demonstrate their use effectively. A sound understanding of general safety guidelines applicable in laboratories is also essential. This includes awareness of personal</p>	<p>150</p>	<p>90 minutes</p>

	<p>protective equipment, safe handling practices for machines and tools, knowledge of emergency protocols, and proper disposal of waste and handling of hazardous materials. Additionally, candidates should be well-acquainted with the names and functions of tools and accessories commonly used in undergraduate mechanical engineering laboratories. Overall, candidates should be prepared to demonstrate both theoretical knowledge and practical competence in using this range of workshop tools and equipment safely and effectively.</p>		
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Final selection will be based on the order of merit in the Level I test (30%) and Level II test (70%).

Junior Technician (Mechanical Engineering) (Post Code: 24211)

Tentative Schedule of Examination: 26-Apr-2025 (Saturday) (for Level I and II)

The selection process shall be as follows:

Syllabus:

	Subject	Maximum Marks	Duration
Level I Objective test	<p>General Aptitude: Quantitative and Numerical Ability, Analytical Ability, Comprehension and General Awareness and General English</p> <p>AICTE approved syllabus for Diploma in Mechanical Engineering, Directorate of Technical Education approved syllabus for ITI (Welder/fitter/machinist). For further details please refer to the Mechanical Engineering curriculum in AICTE model curriculum for diploma in engineering and technology – 2019.</p>	60	75 minutes
Level II Descriptive & Skill test	<p>Candidates are expected to have familiarity and hands-on experience with the equipment and instruments typically found in a central workshop. This includes being able to identify tools, understand their function, and demonstrate their use effectively. A sound understanding of general safety guidelines applicable in laboratories is also essential. This encompasses awareness of personal protective equipment, safe handling practices for machines and tools, knowledge of emergency protocols, and proper disposal of waste and handling of hazardous materials. Additionally, candidates should be well-acquainted with the names and functions of tools and accessories commonly used in</p>	150	90 minutes

	undergraduate mechanical engineering laboratories. Overall, candidates should be prepared to demonstrate both theoretical knowledge and practical competence in using this range of workshop tools and equipment safely and effectively.		
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Final selection will be based on the order of merit in the Level I test (30%) and Level II test (70%).

The details of venue, time and other instructions shall be shared along with the hallticket that will be issued to the shortlisted candidates over email in due course.

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Registrar