Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram

Ref: Advt No: IIITDM/NT/R/01/2023 dated 16.06.2023 **05.10.2023**

SYLLABUS FOR THE POST OF "JUNIOR TECHNICAL SUPERINTENDENT (DESIGN)"

Levels	Details	Remarks
Level 1	Screening Test (Objective Type)	All Shortlisted Candidates notified
Level 2	Written Test (Descriptive Type)	Only for the Shortlisted Candidates of Level 1 Examination
Level 3	Practical Test	

- **Level 1 (Objective Type Questions) and Level 2: (Objective & Descriptive questions)**

1. **Visualization and spatial ability:** Pictorial and diagrammatic questions to test understanding of transformation and/or manipulation of 2D shapes and 3D objects and their spatial relationships, knowledge of practical and everyday mechanical and scientific concepts.
2. **Analytical and logical reasoning:** Ability to analyse qualitative and quantitative information.
3. **Language:** Proficiency in reading and comprehending standard English.
4. **Design of basic machine elements:** Gears, shafts, bearings, springs and fasteners
5. Mechanical Systems and manufacturing considerations in product design (Design for manufacturing, Design for assembly, serviceability)
6. **Basics of metrology:** Limits, fits and tolerances; linear and angular measurements; comparators; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly; concepts of coordinate-measuring machine (CMM).
7. **Materials and Manufacturing Technology:**
    1. Conventional machining processes: Casting, forming, welding processes - Different types of castings, design of patterns, moulds and cores; solidification and cooling; riser and gating design. Fundamentals of hot and cold working processes; sheet (shearing, deep drawing, bending) metal forming processes; principles of powder metallurgy. Principles of welding, brazing, soldering and adhesive bonding.
    2. Unconventional machining processes: principles of non-traditional machining processes - Ultrasonic Machining (USM), Waterjet Machining (WJM), Thermal machining, Chemical and Electrochemical Machining.

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3. Additive manufacturing: Fused filament fabrication, Design considerations for 3D printing, basics of slicing for 3D printing, resin based printing techniques and Stereolithography (SLA).
4. Engineering materials: Structure and properties of engineering materials, phase diagrams, heat treatment, stress-strain diagrams for engineering materials, Poisson's ratio, shear force and bending moment diagram, torsion of circular shafts and Euler's theory of columns.
5. Machining and machine tool operations: Basic machine tools (lathe, shaper, milling, grinding), single and multi-point cutting tools, and CNC machines and CNC programming.

8. **Computer aptitude:** MS office/Open office, Fundamental knowledge of Windows & Linux Operating systems

- **Level 3: (Practical Test)**

1. **Computer Aided Design:** Use of any standard 3D CAD software (Solidworks, AutoCAD etc.) to model standard machine components and ability to create 2D drawings from 3D models.
2. **Design realization skills practice:** Clay modelling, paper craft modelling, transfer moulding, Vacuum thermoforming, powered hand tool (hand drilling machine, angle grinder, jig saw) operations, laser cutting, thermocol, wood working and machine safety.

Note: The list of shortlisted candidates, schedule and Instructions to the candidates will be uploaded in the website shortly. The candidates are advised to check the website regularly.

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Registrar 5/10/23