

INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD

No: 411002/7/2025-NFR

Date - 11.05.2026

NOTICE

Ref: - Advertisement No. 411002/7/2025 - NFR dated 25.08.2025 for recruitment to the post of Assistant Systems Engineer (PL-10).

The applicants for the post of Assistant Systems Engineer (PL-10) are hereby informed about the schedule of recruitment test(s) as under:-

Date	Test	Time and Venue
27-05-2026 (Wednesday)	Practical Skill Test (100 marks) Qualifying in Nature	Reporting Time: 09:30 AM Test Time: 10:00 AM - 01:00 PM Venue: NLHC Lab IIT (ISM), Dhanbad
28-05-2026 (Thursday)	Presentation & Interview: Power-point presentation followed by Interview	Reporting Time: 09:00 AM Document Verification: 09:15 AM to 10:00 AM Time of Interview: 10:00 AM onwards Venue: Board Room, first floor, Admin Block, IIT(ISM), Dhanbad

The recruitment test for Assistant Systems Engineer (PL-10) will be conducted in two stages i.e. Step-I (Practical Skill Test) and Step-II (Document Verification + Presentation & Interview).

The Candidates, who obtain minimum cut off marks i.e. 40% in Step-I (Practical Skill Test) shall be qualified for Step-II (Presentation & Interview). Such candidates will be allowed for Presentation & Interview after their successful completion of Document verification.

Candidates will be required to give a power point presentation on any topic related to the area of experience relevant to the post, in 05 slides for a maximum duration of 10 minutes in the Presentation & Interview.

Selection of the candidate will be made based on his performance in the Presentation & Interview.

The Syllabus of the Practical Skill Test is at **Annexure-I**.

Document Verification:-

The candidate shortlisted for Presentation & Interview has to bring all the documents/ certificates for verification, in original, including date of birth certificate, mark sheet & passing certificates of educational and professional qualifications, experience certificate, Pay slip of July month of year 2019 to 2025,

'No Objection Certificate' from the present employer (if employed in Govt. organization/ Institute/ Autonomous Body) etc. as mentioned in the advertisement in support of his eligibility, failing which, he will not be allowed to appear in Presentation & Interview.

Admit cards for the tests will be available for download on or after 22.05.2026. The candidates may visit https://nfr.iitism.ac.in/index.php/recruitment/User_login and download their admit card by login into portal using e-mail Id, Date of Birth and Mobile number (already registered).

Registrar

Selection of Assistant System Engineer

Syllabus/Guidelines for Trade Test

The candidate must pick one of the following domains for appearing in the Selection Test at the time of examination:

1. System Administration
2. Network Administration
3. HPC and Cloud Management
4. Automation

The Syllabus/Guidelines for the exam for different domains are as follows:

Domain	Required Skillset	Example(s) of Expected Task(s) to be performed *	Remarks
System Administration	Linux System Administration, Server Hardware Knowledge, Virtualization & Hypervisors, Storage Management & LVM, Open-Source Application Stack, Database Administration (Basic to Intermediate), Logging & Centralized Monitoring, Scripting & Automation (Very Important), IT Operations & Best Practices, Data Protection & Disaster Recovery.	<ol style="list-style-type: none"> 1. Install Linux on a VM 2. Configure LVM and extend it 3. Set up Apache virtual host with SSL 4. Install and configure database server 5. Write a shell script for automated backup 6. Restore database from backup 7. Configure centralized syslog server 8. Create VM template and clone VM 9. Configure cron job for automated task 10. Troubleshoot high CPU or disk usage issue 11. Any other task as per mentioned syllabus. 	
Network Administration	Sound knowledge of IPv4, IPv6, network protocols and network services like DHCP, DNS, NPT, SYSLOG etc. In-depth knowledge of switching and routing with hands on experience on Multilayer Core and Distribution switches, Firewalls, Wireless LAN controllers etc. ability to design, monitor, troubleshoot and scale redundant, resilient and secure campus networks.	<ol style="list-style-type: none"> 1. Subnet a network and assign IP addresses correctly 2. Command & Tools for Network Monitoring & Troubleshooting 3. Configure VLANs and trunk ports 4. Configure Inter-VLAN routing 5. Implement ACL to restrict traffic 6. Configure DHCP Snooping + DAI 7. Configure LACP EtherChannel 8. Configure HSRP redundancy 	The practical test shall be conducted using either actual network hardware (switches/firewalls) or through a suitable network simulation/emulation platform such as Cisco Packet Tracer, GNS3, or equivalent, depending upon availability and feasibility.

* The mentioned tasks are for better understanding of the candidates and not a concrete list. Candidates must be prepared for any tasks which are part of the prescribed skillset.

		<ol style="list-style-type: none"> 9. Configure static and default routes 10. Create basic firewall policy 11. Troubleshoot a simulated network failure 	
<p>HPC and Cloud Management</p>	<p><u>Programming (Python & C++):</u> Core Concepts: Objects, modules, data structures, functions, classes, and methods; control flow; arrays; input/output using streams; file I/O; and exception handling. Advanced C++ Features: References and pointers, operator overloading, dynamic memory allocation, inheritance, polymorphism, and use of containers. Parallel and High-Performance Computing: Programming multi-core and shared memory systems with OpenMP; distributed processes and messaging using MPI; GPU programming for massively parallel systems with OpenCL/CUDA.</p> <p><u>Cloud Computing and Management:</u> Distributed and Cloud Systems: Principles of parallel and distributed systems; cloud infrastructure; virtualization of cloud resources; resource management and scheduling; and storage systems. Security and Governance: Cloud security including privacy, privacy impact assessment, operating system security, and virtualization security. Cloud Application Development: Design, deployment, and management of cloud</p>	<ol style="list-style-type: none"> 1. Develop a class-based application in Python or C++ using inheritance, file I/O, and exception handling. 2. Implement a dynamic data structure in C++ using pointers, operator overloading, and proper memory management. 3. Parallelize a computational problem using OpenMP or MPI and compare performance with the serial version. 4. Write a Bash script to automate user creation, file permissions, and system monitoring tasks in Linux. 5. Configure Linux networking (IP, SSH, firewall) and install required software using the package manager. 6. Create and deploy a Docker container for a simple application using a custom Dockerfile. 	<p>The practical test will be conducted on Linux-based HPC</p>

	<p>applications; container technologies such as Docker.</p> <p><u>Operating Systems, Software, and Cluster Management:</u></p> <p>Linux Fundamentals: Linux architecture and kernel; installation; file system hierarchy; file types, permissions, and links.</p> <p>Shell and Process Management: Bash scripting, environment variables, command-line arguments, debugging; process control, job management, signals, and system monitoring.</p> <p>System Administration: Memory and resource management, disk and package management, networking (IP, SSH, firewall basics), user and group administration, service management, logs, backup and restore, performance tuning, and introduction to containers.</p>		
Automation	<p>Knowledge of Linux Environment, in particular, Ubuntu; Basic Server Administration Skills; Setting up Apache Web Server; Setting up MariaDB Server; Setup and Installation of PHP 8; Web Development with HTML/JavaScript/CSS and PHP 8</p>	<ol style="list-style-type: none"> 1. Install and secure an Ubuntu server, configure SSH access, and manage users and permissions. 2. Install and configure Apache with virtual hosts and deploy a static website. 3. Install and secure MariaDB, create databases/tables, and manage user privileges. 4. Install and integrate PHP 8 with Apache, configure required modules, and test server-side execution. 5. Build a responsive front-end using HTML5, CSS3, and JavaScript with proper form validation. 	<p>The practical test will be conducted over a VM with Ubuntu 24.04 LTS installed</p>

		<ol style="list-style-type: none">6. Develop a PHP 8 application that performs CRUD operations with MariaDB using secure database connections.7. Implement session management, authentication (login/logout), and password hashing in PHP.8. Create a REST-style API endpoint in PHP and consume it using JavaScript (AJAX/fetch).9. Validate and sanitize user inputs to prevent SQL injection and XSS vulnerabilities.10. Deploy a complete LAMP-based dynamic web application and troubleshoot configuration issues.	
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