Syllabus for Junior Lab Assistant Post (Computer Science)

UNIT–I: General Skills and Office Productivity
- General analytical and problem-solving skills
- Written and basic spoken English communication skills
- Hands-on experience with office productivity tools:
  - Word processors
  - Spreadsheets
  - Presentation software
- License management
- Documentation and record keeping of lab assets, software licenses, and inventories

UNIT–II: Operating Systems, Hardware, and Data Management
- Common Operating Systems (Windows, Linux basics)
- System and Database administration in a lab environment
- Basic hardware knowledge: desktops, laptops, peripherals (printers, scanners)
- Data backup and recovery
- Basic data security awareness

UNIT–III: Data Communication and Networking Fundamentals
- Bandwidth and latency
- Networking devices: switch, router – features and concepts
- Cabling standards: straight-through, crossover, rollover
- UTP/STP/Fiber cables

UNIT–IV: Ethernet, Wi-Fi, and Fiber Networks
- Basic concepts, operations, and connectors
- IP addressing and VLAN
- Static IP vs DHCP
- TCP/IP model
- Transport and application layer protocols
- LAN, WAN, SAN, and NAS
- Firewall basics

UNIT–V: Electrical and Power Systems
- Electrical connections
- Earthing
- Common electrical problems and troubleshooting
- Power supplies
- UPS: types, maintenance, and troubleshooting

UNIT–VI: Network Security, Access Control, and Incident Handling
- Proxy servers
- Firewalls
- iptables
- VPN management
- Basic incident handling and escalation procedures in lab or campus IT infrastructure

UNIT–VII: System Administration and Virtual Classroom Technologies
- Troubleshooting network issues (wired/wireless)
- System and network configuration
- Network printer configuration
- System administration or network management
- Virtual Classroom setup
- Collaboration tools: Zoom, TeamViewer, Meet, Webex etc.
- Handling different types of cameras and microphones
- Audio/video recording
- Multipoint Control Unit concepts
- Local and remote control of lecture theatres
- Live streaming of lectures over the web

UNIT–VIII: CCTV, Surveillance, and VOIP Systems

- CCTV architecture
- Types of cameras
- Retrieval of recordings
- Backup and recovery
- Concept of video analytics
- VOIP and telecommunication services
    - Server-based exchanges
    - Voice call concepts
    - Features of modern exchanges

UNIT–IX: Server Infrastructure and Cloud Awareness

- Server machines and components
- Salient features of server systems
- Cloud-based solutions (private/public cloud – basics)
- Network security solutions and mechanisms

UNIT–X: Web Programming, Hosting, and Security

- Working knowledge of Linux environments
    - Basic commands
    - User and permission management
    - Apache / web server setup
- Web technologies and databases: HTML, CSS, SQL, JavaScript, JSON
- Programming experience: C and Python basics
- Version control systems: Git (clone, commit, push, pull, branching basics)
- Website hosting and deployment
    - Hosting solutions
    - AWS/G-Cloud basics
    - Shared hosting vs cloud hosting
- Internet and Intranet services
    - VPN management
    - Proxy configuration
    - Web portal management
- Web security fundamentals
    - Common website attacks (SQL injection, XSS, CSRF, etc.)
    - Secure coding and mitigation techniques
- Web security and encryption
    - SSL/TLS
    - Key generation
    - Certificates
    - Hosting secure websites using HTTPS
    - Configuring SSH
    - Server monitoring and logging