HIGHER NITEC IN IT SYSTEMS & NETWORKS (3 YEARS)

CERTIFICATION

Credits required for certification:

Sector Foundation Modules	:	24
Cluster Core Modules	:	18
Specialisation Modules	:	27
Life Skills Modules	:	10
Cross Disciplinary Core Modules	:	9
Electives	:	8
Total	:	96

COURSE STRUCTURE

Module Title	Credits
SECTOR FOUNDATION MODULES	
Networking Fundamentals	3
Programming 1	3
Operating System Essentials	3
Digital Media Technologies	3
Applied Data Fundamentals	3
Generative AI Essentials	3
AI-Assisted Web Development	3
Cybersecurity Fundamentals	3
CLUSTER CORE MODULES	
Computer Maintenance	3
Networking Technology	3
Enterprise Networking	3
System Administration	3
System Hardening & Infrastructure Services	3
Virtualisation Management	3
SPECIALISATION MODULES	
Hybrid Cloud Technologies	3
Internship Programme 1	4
Scripting Essentials	3
Administrative Scripting	3
Wireless Networking	3
Network Security	3
Internship Programme 2	8
ELECTIVES (GENERAL) AND LIFE SKILLS MODULES	
For details, click here	

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

Sector Foundation Modules

Networking Fundamentals
On completion of the module, students should be able to set up, configure and troubleshoot wired and wireless network system for small office environment. They should also be able to provide network support and configure network devices.

Programming 1
On completion of the module, students should be able to apply computational thinking for business applications. They will learn to break down complex problems into manageable tasks, apply pseudocode to design algorithms, and implement these solutions through programming.

Operating System Essentials
On completion of the module, students should be able to install and configure operating system (OS) and application software on end user computing devices. In addition, they should also be able to perform OS maintenance and troubleshooting.

Digital Media Technologies
On completion of the module, students should be able to apply their knowledge and skills in processing appropriate digital media formats for various platforms delivery.

Applied Data Fundamentals
On completion of the module, students should be able to import data from external sources, perform basic data manipulation and present simple visualisation of the data.

Generative AI Essentials
On completion of the module, students will gain knowledge in Generative AI applications for design and content creation.

AI-Assisted Web Development
On completion of the module, students should be able to develop web pages using HTML and CSS.

Cybersecurity Fundamentals
On completion of the module, students should be able to apply foundation knowledge and skills in basic cybersecurity controls, detect threats and vulnerabilities, implement security measures aligned with the key security information principles to protect system and device.

Cluster Core Modules

Computer Maintenance
On completion of the module, students should be able to perform installation and configuration of hardware components and peripherals of end user computing devices. In addition, they should also be able to perform end user computing devices maintenance and troubleshooting of hardware problems.

Networking Technology
On completion of the module, students should be able to apply the fundamentals of computer networking in relation to the OSI model. They should also be able to configure and set up wired and wireless local area network (LAN) including network segmentation. Students will also be able to perform network documentation and monitor network performance.

Enterprise Networking
On completion of the module, students should be able to configure and set up a switched and routed network with Virtual LANs (VLANs) as well as set up a wide area network (WAN), implement access control lists and troubleshoot common network issues and problems.

System Administration

On completion of the module, students should be able to set up server operating systems and perform system administration tasks such as user management, resource management and performance monitoring. Students should also be able to configure file server services and implement basic system security.

System Hardening & Infrastructure Services

On completion of the module, students should be able to perform server security hardening and manage infrastructure services. Students should also be able to automate server administration and implement high-availability systems.

Virtualisation Management

On completion of the module, students should be able to set up a virtualisation server and environment, perform backup and recovery of VMs for fault tolerance, and carry out basic troubleshooting with hypervisors and VMs. They will also be able to monitor resource utilisation on the hypervisor, perform VM migration, troubleshoot performance and connectivity issues, secure the virtualised infrastructure.

Specialisation Modules

Hybrid Cloud Technologies

On completion of the module, students should be able to configure connection to cloud services in on-premises environment, perform essential cloud operation and cloud services utilisation, as well as troubleshoot virtualisation services.

Internship Programme 1

On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.

Scripting Essentials

On completion of the module, students should be able to apply basic structured thinking skill to develop script to perform basic system related tasks and activities.

Administrative Scripting

On completion of the module, students should be able to provide programming support to IT system automation and other related project.

Wireless Networking

On completion of the module, students should be able to install, configure and secure Wireless Local Area Networks (WLANs). They should also be able to perform monitoring of WLAN.

Network Security

On completion of the module, students should be able to install hardware firewalls, set up intrusion detection and prevention systems, and maintain firewall policies for network connectivity to external networks. They will also be proficient in setting up Virtual Private Networks, configure endpoint protection, and implement cryptography in the enterprise environment.

Internship Programme 2

On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.

Electives (General) and Life Skills Modules

For details, click here.