

HIGHER NITEC IN CYBER & NETWORK SECURITY

MODULE OBJECTIVES

Core Modules

Computer Maintenance and Operating Systems

On completion of the module, students should be able to perform installation and configuration of operating system and application software on end user computing devices. In addition, they should be able to install and configure peripherals, perform PC maintenance and troubleshooting of hardware and software problems.

Enterprise Networking

On completion of the module, students should be able to apply the fundamentals of networking in relation to the OSI model. They should also be able to set up and configure wired and wireless local area network (LAN) including IP address calculation, switching, routing and network segmentation with Virtual LANs (VLANs). In addition, students will be able to set up wide area network (WAN), implement access control lists, troubleshoot common network issues and problems as well as monitor network performance.

System Administration

On completion of the module, students should be able to install and setup server operating systems and perform system administration tasks such as user management, resource sharing, security management, preventive maintenance, and performance tuning on these systems. Student will then proceed to perform value-added features such as implementing server security and high-availability systems.

Virtualization

On completion of the module, students should be able to set up a hypervisor, virtual machines (VMs) and configure clients' access to VMs and connectivity. They should also be able to perform backup and recovery of VMs, monitor resource utilization on the hypervisor, troubleshoot performance and connectivity issues as well as assisting in securing virtualized infrastructure. They will be introduced to commercially available cloud services and be able to utilize them.

IT Security

On completion of the module, students should be able to carry out network intrusion detection, prevention and mitigation through the implementation of intrusion detection system (IDS), firewalls, application gateways, and data encryption technologies. They should also be able to implement appropriate technologies to protect against security attacks such as spams, spyware, worms/viruses, phishing and address spoofing.

Security Operations

On completion of the module, students should be able to comply with the prevalent cyber security laws. They should be able to take up tasks in a Security Operations Centre (SOC) environment including the configuration of Security Information and Event Management (SIEM) systems, monitoring and identifying security risks, analysing and classifying security alerts, preparing for and conducting vulnerability scanning, documenting identified vulnerabilities, and applying appropriate counter measures to mitigate identified threat.

Industry Attachment

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 (Course Specific)

Green IT Fundamentals

On completion of the module, students should be able to explain basic issues around green information technology (IT) and demonstrate ways and tools to find more efficient and environmentally responsible ways to meet IT business goals and to leverage IT to move entire organization to greener direction.

Linux Essentials

On completion of the module, students should be able to install, upgrade and migrate to Linux client. Students will then proceed to configure Linux as a client or server.

Essentials of Cyber Defence

On completion of the module, students should be able to carry out a comprehensive security assessment of a typical SME IT environment, testing for OS vulnerabilities, weaknesses in network & web services. Students will learn the Computer Misuse & Cybersecurity Act (2013) Chapter 50A, how to prepare for a penetration test, reconnaissance & enumeration, and vulnerability assessment. Students will also be taught the necessary countermeasures to mitigate risks of exploitation.

Electives (Joint ITE-Industry)

Essentials of Java Programming

On completion of the module, students should be able to understand Java Technology, the Java Programming Language and Product Life Cycle.