

# HIGHER NITEC IN OPERATIONAL & INFORMATION TECHNOLOGY (3 YEARS)

## CERTIFICATION

Credits required for certification:

Foundation Modules	: 24
Cluster Core Modules	: 9
Specialisation Modules	: 36
Life Skills Modules	: 10
Cross Disciplinary Core Modules	: 9
Electives	: 8
<hr/> Total	<hr/> : 96

## COURSE STRUCTURE

Module Title	Credits
<b>SECTOR FOUNDATION MODULES</b>	
Networking Fundamentals	3
Coding for AI	3
Operating System Essentials	3
Digital Media Technologies	3
Fundamentals of Data	3
Introduction to UI/UX	3
Web Development Essentials	3
Cybersecurity Fundamentals	3
<b>CLUSTER CORE MODULES</b>	
Networking Technology	3
System Administration	3
System Hardening & Infrastructure Services [A]	3
<b>SPECIALISATION MODULES</b>	
Operational Technology Fundamentals	3
Industrial Networking	3
Industrial Control Systems	3
Virtualisation & Cloud Technologies	3
Internship Programme 1	4
Cybersecurity Infrastructure	3
OT & IT Security Management	3
OT & IT Security Incident Management	3
OT & IT Integration Management	3
Internship Programme 2	8
<b>ELECTIVES (GENERAL) AND LIFE SKILLS MODULES</b>	
For details, click <a href="#">here</a>	

*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.*

## MODULE OBJECTIVES

### Sector Foundation Modules

#### Networking Fundamentals

On completion of the module, students should be able to set up, configure, set up and troubleshoot wired and wireless network system for small office environment. They should be able to provide network support and configure devices such as switches and wireless access points.

#### Coding for AI

On completion of the modules, students should be able to experience the concepts of AI through no to low coding methods. Students will create basic program logic and AI model through fun and engaging project.

#### 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.

#### Fundamentals of Data

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.

#### Introduction to UI/UX

On completion of the module, students should be able to apply User Interface (UI) and User Experience (UX) development process to produce low-fidelity and high-fidelity wireframes and prototypes for websites and mobile apps.

#### Web Development Essentials

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 the knowledge and essentials skills in all security domains in the cyber world - information security, systems security, network security, mobile security, physical security, ethics and laws, related technologies, defence and mitigation techniques use in protecting.

### Cluster Core Modules

#### 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.

#### 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.

## Specialisation Modules

### Operational Technology Fundamentals

On completion of the module, students should be able to identify and monitor key OT components, protocols, and communication standards. They will learn how to secure OT systems and integrate IT/OT components, ensuring seamless communication between the two domains.

### Industrial Networking

On completion of the module, students should be able to set up, configure and administer industrial networking components to ensure reliable and efficient industrial network operations.

### Industrial Control Systems

On completion of the module, students should be able to monitor, support configuration of Industrial Control Systems (ICS). They should be able to respond to issues in ICS environments to ensure the smooth operation of critical industrial processes.

### Virtualisation & Cloud Technologies

On completion of the module, students should be able to set up virtual machine server host, manage VM resources, troubleshoot 1st level virtualisation issues and maintain cloud resources to optimise resource utilisation in modern IT infrastructures.

### Internship Programme 1

On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired to the industry and would have gained relevant work experience.

### Cybersecurity Infrastructure

On completion of the module, students should be able to maintain firewall, VPN, and IPS appliances, as well as managing security certificates and supporting privilege identity management to maintain a robust and secure network environment.

### OT & IT Security Management

On completion of the module, students should be able to effectively document asset inventories, conduct risk assessments, manage vulnerabilities, and maintain end-point protection to enhance the cybersecurity posture of OT & IT systems within an enterprise.

### OT & IT Security Incident Management

On completion of the module, students should be able to monitor security risks, validate security alerts, identify and classify security events, respond effectively to incidents in OT & IT environments, and coordinate cyber tabletop exercises.

### OT & IT Integration Management

On completion of the module, students should be able to effectively plan and execute OT & IT integration projects. They learn to identify and address incompatibility issues that may arise during the integration process, ensuring smooth integration.

### Internship Programme 2

On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired to the industry and would have gained relevant work experience

## Electives (General) and Life Skills Modules

For details, click [here](#).