

Diploma in Cyber Security

Module Outlines

Introduction to Computer and Operating Systems

This module teaches participants the fundamentals of computers and Operating Systems (OS). It begins with an introduction to the basic architecture of a computer and its peripherals. It then covers the functions and purpose of an operating system, including memory management, file storage systems and device management.

Data Communication and Networking

This module provides an introduction to computer networks, and the basic essential concepts of data communications. Participants are taught the theoretical and practical aspects of data communications and networking. Issues such as the impact of data communication and networking on overall systems design are covered. Subjects include data communication hardware, software, protocols, OSI model, computer networks, data communication services and standards, cellular wireless networks, wireless LANs, network security, and Interworking.

Database Design and Modelling

Database design modelling is learning to build the logical structure of a database, including the relationships and constraints that determine how data can be stored and accessed. Individual database models are designed based on the rules and concepts of a broader data model that the designers have created. This unit introduces the methods, techniques, tools, and standards for designing database models.

Introduction to Programming

The module introduces the techniques and concepts of programming language. Participants are taught problem-solving skills using structured and object-oriented approaches.

Security Specialist

The Security Specialist module allows students to enhance their skills in information security, network security, and computer forensics. Information security is where information, information processing, and communications are protected against the confidentiality, integrity, and availability of information and information processing. In communications, information security also covers trustworthy authentication of messages that covers identification of verifying and recording the approval and authorisation of information, non-alteration of data, and the non-repudiation of communication or stored data.

Network Defense

Organisational focus on cyber defence is of maximum importance as cyber breaches create significant impact on a company's finances and reputation. Organisations require trained network engineers who are focused on protecting, detecting, and responding to the threats on their networks as part of their defence mechanism. This module trains participants to immerse themselves in network environments and build familiarity with network components, traffic, performance and utilisation, network topology, system location and security policies. They ensure that organisations can defend themselves from vicious cyber attacks and play a significant role in becoming the first line of defence for any organisation.

Information Systems and the Organisations

As business and the IS discipline have changed, so too has the role of the IS professional. Once considered a technical specialist, today the IS professional operates as an internal consultant to all functional areas of the organisation, being knowledgeable about their needs and competent in bringing the power of information systems to bear throughout the organisation. The IS professional views issues through a global perspective that encompasses the entire organisation and the broader industry and business environment in which it operates, including the entire interconnected network of suppliers, customers, competitors, regulatory agencies, and other entities – no matter where they are located.

A comprehensive overview of the enterprise architecture, Internet and web applications, systems design associated with implementing, process integration inherent in and impact these systems have on key business processes. At the end of the module, students should be able to understand the theoretical and practical issues using XHTML related to the acquisition, implementation and application of Enterprise Information Systems within organisations.

The IS professional assumes the critical responsibility of determining the organisation's approach to both overall cost and quality performance and therefore plays an important role in the continued survival of the organisation. This new duality in the role of the IS employee – a professional who exercises a specialist's skills with a generalist's perspective.

Discrete Mathematics

This module provides the mathematical foundations for the study of computer science. The module aims to develop students' mathematical reasoning ability, algorithmic thinking ability and mathematical maturity; recognised as important skills for students embarking on computer studies.

Ethical Hacking & Countermeasures

An ethical hacker is a skilled professional who understands and knows how to look for weaknesses and vulnerabilities in target systems and uses the same knowledge and tools as a malicious hacker, but in a lawful and legitimate manner to assess the security postures of a target system(s). This module aims to establish and govern minimum standards for credentialing professional information security specialists in ethical hacking measures, reinforce ethical hacking as a unique and self-regulating professions and certifies participants in the specific network security discipline of Ethical Hacking from a vendor-neutral perspective.

Computer Hacking Forensics Investigator

Digital forensic practices stem from forensic science – the science of collecting and examining evidence or materials. Digital or computer forensics focuses on the digital domain, including computer forensics, network forensics, and mobile forensics. Computer forensics practices are used to investigate attacks, system anomalies, or help system administrators detect problems and validating system information for irregular behaviour. This module allows participants to acquire a firm grasp on the principles of digital forensics by providing a strong baseline knowledge of key concepts and practices in the digital forensic domains relevant to today's organisations.