

Bachelor of Information Technology in Cyber Security and Forensics

Unit Description

Cyber Forensics and Incident Response

This unit teaches the fundamentals of cyber forensics, security operations, and incident response. The aim of the unit is to provide students with a solid understanding of the preservation, location, selection, validation, and presentation stages of cyber forensic examination, as well as the fundamentals of security operations and incident response, including data logging and monitoring, security analytics, and reporting. Related ethics and laws are also discussed. Students undertake theoretical study as well as practical data and forensic analysis to combine theoretical with experiential knowledge.

Cybersecurity Fundamentals

This unit provides an overview of the key concepts behind the procedures for data privacy protection, cyber security countermeasures and risk mitigation. Students explore common attack and defence strategies targeting the three pillars of cybersecurity, including people, process, and technology. Through the lenses of computer science, IT governance, criminology, and law and policy studies, the unit explains the basics of enhancing cyber security practices.

Databases

This unit focuses on database design, implementation and management. Topics include data modelling, database administration, logical and physical database design, non-relational databases, recovery, relational model, security, standard query language (SQL) and transaction management. The theory material is complemented by practical work using common database management systems.

Ethical Hacking and Software Security

This unit provides a strong understanding of malware, vulnerabilities, and ethical hacking techniques. Based on this foundation, students will also learn and develop skills in software security to defend against threats. The unit has an applied focus, and practical sessions will enable students to develop skills in identifying and analysing security vulnerabilities, as well as recommending and implementing mitigation strategies.

Information Security Policy and Governance

This unit covers the advanced study of information security policy and governance at an organisational level. Students will gain an understanding of standards and policies, as well as the international, national and local regulatory requirements governing organisational information technology systems. The unit will address relevant data protection legislation, industry best practices and risk management techniques.

It will also teach the necessary skills to evaluate and measure organisational compliance and to determine the appropriate organisational strategy to best support its information security needs.

Information Technology Project Management

This unit identifies, explains and explores a project management approach to information and communications technology (ICT) systems development. In particular, the content is specifically designed to deliver practical insights into managing and coordinating the activities of an ICT project.

Each topic in the unit covers content that explains the journey from project initiation to project closure, and students can gain an understanding of these issues by assessing and making decisions about a real-world scenario. As a part of this knowledge and skill development, students will learn about key aspects of cost management, procurement management, project analysis, project integration management (PIM), quality management, resource management, risk management, scheduling, scope management, and stakeholder and communications management. Additionally, students can gain an understanding of key documentation and industry standards, which can help them in their careers.

Introduction to ICT Research Methods

This unit provides an introduction to research in the information and communications technology (ICT) discipline. It explores the kinds of research questions addressed in ICT research and provides an opportunity for students to understand the broad range of research approaches used in ICT research including action research, case study research, design research, experimental research and survey research.

Students will develop both research and project management skills, and gain the knowledge and skills needed to critically evaluate the ICT research literature.

IT Professional Practice Project

Students in this team-based unit will use information technology (IT) approaches to solve real-world problems from a range of domains. The creation of relevant project deliverables will require students to build upon skills developed during their studies. They will learn to appreciate the interdisciplinary nature of their project and how the skills of team members from different IT majors are required to solve complex problems. Project management and communication with clients and other stakeholders in a professional manner will be emphasised.

Security Architectures and Systems Administration

This unit will consider the architecture and administration of a secure computing environment from several perspectives: the local machine, a networked computer system and an organisational information technology infrastructure.

It provides an understanding of the hardware and software environment required to support security and mitigate risks, and reviews models of system security as well as the techniques to evaluate and measure said security. Throughout these areas, systems analysis tools and techniques will be introduced to support these security goals.

Systems Analysis and Design

This unit introduces methods and techniques for analysing problematic organisational situations, particularly those leading to the development of an information system, and it draws on both technical and organisational materials to provide the knowledge and skills necessary to design and implement an operational system.