

# MASTER OF SCIENCE IN INFORMATION SYSTEMS MANAGEMENT



## MSc in Information Systems Management (ISM) Programme

**The MSc in Information Systems Management programme responds to the growing need for IT professionals to acquire the more general management skills and knowledge that are often provided by an MBA, but to study these management issues within the context of fast-moving developments in technology. At the same time, it provides those already in management positions with updated, cutting-edge IT knowledge, so you don't have to choose between these two complementary aspects of IT management. A combination of core and elective modules enables you to personalise the programme to your individual requirements.**

### Programme outline

Our MSc in ISM programme aims to provide a bridge between technology and management, by giving you the knowledge and skills you need to be an effective manager in an Information Systems-rich environment. It is appropriate for those moving into or already occupying managerial positions in an IT-related field.

Its core and elective modules will update your theoretical and practical knowledge of Computer Science, for example in Software Engineering or Systems Analysis. At the same time, it will develop the business skills traditionally covered by an MBA, such as Managing People and Project Management.

### Programme structure

The programme has five core modules, including Computer Structures, which covers the foundations of computer science, and four management modules. The student then chooses three electives in computing, enabling them to specialise according to their particular needs; followed by a dissertation. Your first module will be 9 weeks in length where you begin with a week long brief introduction to the programme, the learning platform and then continue with the module content.

Each following module is eight weeks in length. By taking one module at a time you can explore a specific subject in depth without distractions.

### Personalised study

Students can customise their degree according to their individual requirements.

### A Core modules

- Computer Structures
- People, Technology and Management
- IT Project Management
- Managing Organisational Resources
- Principles of Marketing

### B Elective modules

(students choose at least two of the following)

- Systems Analysis and Design using an Object-Oriented Approach
- Software Engineering
- Security Engineering
- Management of QA and Software Testing
- Computer Forensics
- Computer Communication and Networks OR Databases

### C Elective modules

(students may choose up to one of the following)

- e-Commerce
- Programming the Internet
- Web XML Applications

### D Dissertation

Students refine their dissertation topic in conjunction with their Personal Dissertation Advisor, an academic supervisor who will provide support throughout the writing process.

### Programme duration

The programme takes on average 30 months to complete. However, since students progress at their own pace, you may choose to complete your studies in as little as 18 months or spread them over the six-year maximum.



## MSc in ISM Modules

### Computer Structures

**Aim:** *To provide a comprehensive overview of core software and hardware technologies.*

Covers everything from computer architecture to databases, algorithms, languages, operating systems, communications, computer networks, artificial intelligence and the theoretical foundations of computation. This module will give you a sound theoretical and practical foundation on which to build your understanding of future technical developments.

**Required for:** MSc in ISM.

### People, Technology and Management

**Aim:** *To provide the keys to understanding and effectively managing people in IS-rich environments and high-tech business.*

Learn to manage people in a technology-rich environment. As well as the traditional aspects of organisational behaviour, such as individual/team roles, human resource management and change management, you will examine the use of information technology in support of managerial functions, including outsourcing, off-shoring and other critical issues fundamental to the way contemporary organisations are run.

**Required for:** MSc in ISM.

### IT Project Management

**Aim:** *To provide a full understanding of the management roles, responsibilities and techniques needed in technology projects.*

This module teaches how technology project management adapts as a computer system evolves from concept to implementation. You will master

all areas of the subject, including organisation, work breakdown structure and scheduling, resources and project financing, project control and evaluation, management considerations, critical success factors and risk management.

**Required for:** MSc in ISM.

### Managing Organisational Resources

**Aim:** *To deliver a broad understanding of the issues, language, tools and techniques of finance, accounting and operations management to significantly improve business efficiency.*

This module provides a sound foundation for the non-specialist in accounting, finance and operations management, and the business benefits they can generate.

You will understand mathematical modelling and how to use computer-aided quantitative tools for decision-making. You will also explore operations strategy, forecasting, materials management, supply chain management and project management.

**Required for:** MSc in ISM.

### Principles of Marketing

**Aim:** *To provide an understanding of the roles, responsibilities, and management techniques needed by a technology-savvy marketing manager.*

Learn to apply marketing strategy in the context of various high-tech industries and products, where innovation, market uncertainty, abrupt technological shifts and short product life cycles abound. You will study the use of technology in marketing and the marketing of technology-rich products and services, with a focus on international marketing, ethics, sourcing and marketing strategy.

**Required for:** MSc in ISM.

### Systems Analysis and Design Using an Object-Oriented Approach

**Aim:** *To help you develop the critical skills to understand complex systems and problems and to create automated solutions.*

A modern object-oriented approach is taken to modelling systems and producing designs for software packages that can automate those systems. This module will teach you the skills you need to master this technique, as well as how to use the Unified Modelling Language (UML) to describe these models.

**Elective for:** MSc in ISM.



## Software Engineering

**Aim:** *To provide a firm theoretical foundation and practical skills in software engineering.*

This module encompasses the theoretical foundation and practice of the three key phases of problem definition, software development and maintenance. It covers identification, definition, design, analysis, verification and management of basic requirements, coding, testing, evaluation and quality assurance. You will emerge equipped to lead a programming project and deliver products on time and within budget.

**Elective for: MSc in ISM.**

## Security Engineering

**Aim:** *To provide an understanding of the principles and practice of building secure distributed systems.*

This module provides a foundation in the principles and practice of building secure distributed systems. You will discover how to protect systems against malicious attacks, using your understanding of technologies such as cryptology, software reliability, secure message transmission, tamper resistance, secure printing and auditing.

**Elective for: MSc in ISM.**

## Management of QA and Software Testing

**Aim:** *To provide an extensive understanding of how to guarantee software quality, including testing, maintenance and effective management.*

Learn the techniques you need to design and implement tests, conduct inspections and employ release and maintenance procedures. This module also addresses the management aspects of the quality assurance process you need to consider.

**Elective for: MSc in ISM.**

## Computer Forensics

**Aims:** *To provide an extensive range of forensic techniques to determine the root causes of breaches in computer security.*

With identity theft and information security of rising concern, this module teaches you how to identify, extract, document, interpret and preserve computer media as digital evidence and/or to analyse the root cause of security breaches. It will give you an understanding of electronic media, crypto-literacy, data hiding, hostile code, and Windows™ and/or UNIX system forensics in the digital environment.

**Elective for: MSc in ISM.**

## Computer Communications and Networks

**Aim:** *To familiarise you with principles and techniques of computer networks.*

The development of computer communications is accelerating with the exponential growth of the Internet. In keeping with this dynamic field, you will study a range of hardware technology protocols and network applications. You will learn the principles of communication networks and protocol architectures, assessing the suitability of different switching and multiplexing techniques for carrying a variety of distributed systems.

**Elective for: MSc in ISM.**

## Databases

**Aim:** *To provide a thorough understanding of the fundamental principles of database construction.*

As already dominant database technology develops even further, you will analyse how data is stored, manipulated, queried (with an emphasis on relational databases) and backed-up. You will also become acquainted with various paradigms and technologies (parallel as

well as distributed) related to database design, implementation and maintenance.

**Elective for: MSc in ISM.**

## E-Commerce

**Aim:** *To provide an overview of key issues relating to e-Commerce.*

An introduction to the fundamentals of e-Commerce, from business models through technical infrastructure and implementation to social, legal and ethical considerations. You will act as a CIO/CEO working on an e-Commerce business proposal, and receive evaluations from a peer-review group. Learning to build an e-Business holistically in a risk-free environment will help you become a more effective and successful manager.

**Elective for: MSc in ISM.**

## Programming the Internet

**Aim:** *To give you the theoretical and practical tools necessary for building advanced, content-rich Internet sites.*

This module covers markup languages and advanced technologies, including HTML, Java Script, DHTML, CSS, XML and CGI. On completion, you will be able to design and create an advanced Internet site and will be equipped to undertake complex projects in this most innovative field of IT.

**Elective for: MSc in ISM.**

### Web XML Applications

*Aim: To provide an overview of the uses of the XML language and its role in the next generation of e-Business applications.*

This advanced module provides you with an understanding of core XML technologies, the standardised development environment they provide and their implications for future developments with Internet applications. You will study XSL, databases and the information discovery and exchange standards (SOAP, WDSL, UDDI), and the use of XML for structuring data on the Semantic Web.

**Elective for: MSc in ISM.**

### Dissertation

*Aim: The culmination of your programme, this original piece of written work demonstrates your mastery and integration of all the knowledge you have acquired.*

An original, scholarly work that applies your new knowledge and work experience; the result must be of merit beyond the narrower scope of your particular need. It should demonstrate your ability to develop and manage autonomous computer science projects. If you wish to follow a Specialisation Track, you must produce your dissertation on an appropriate topic.

**Required for: MSc in ISM.**