School of Computer Science

Head of School   Professor A Dearle

Taught Programmes

M.Sc.:   Advanced Computer Science
                                   Artificial Intelligence
                                   Information Technology
                                   Management & Information Technology
                                   Networks & Distributed Systems
                                   Software Engineering

Erasmus Mundus M.Sc.:   Dependable Software Systems *(Not available 2011-12)*

For all Masters degrees there are exit awards available that allow suitably-qualified candidates to receive a Postgraduate Certificate or Postgraduate Diploma.

Programme Requirements

Advanced Computer Science

Taught Element: 40-60 credits from modules CS5011, CS5021, CS5031; except with permission from the Head of School, pass in CS5001; 35 - 60 credits (up to 15 of these from appropriate 4000-level CS modules, with approval) from CS5012, CS5013, CS5022, CS5023, CS5032, CS5033, CS5041, CS5900; up to 40 credits from IS5102, IS5103, IS5104, IS5105.

M.Sc.:   120 credits from the Taught Element, including (except with permission from the Head of School) a pass at grade 13.5 or better in CS5001; 5 credits from IS5101, plus 60 credits from CS5999

Artificial Intelligence

M.Sc.:   25 credits from modules CS5011, IS5101; 20-40 credits from CS5021, CS5031, except with permission from the Head of School, grade 13.5 or better in CS5001; 60 credits from CS5999, the dissertation topic being in *Artificial Intelligence*; 35 - 60 credits (up to 15 of these from appropriate 4000-level CS modules, with approval) from CS5012, CS5013, CS5019, CS5022, CS5023, CS5032, CS5033, CS5041, CS5900, (including: either grade 13.5 or better in CS5011 and in one of CS5012, CS5013, CS5019; or 35 - 40 credits from CS5012, CS5013, CS5019, the 4000-level CS dip-down module if it is in Artificial Intelligence); up to 40 credits from IS5102, IS5103, IS5104, IS5105.

Information Technology

Taught Element: 85 credits from IS5101, IS5102, IS5103, IS5105, IS5107, plus 40 credits from CS5041, IS5104 or IS5106

M.Sc.:   125 credits from modules from the Taught Element, 60 credits from IS5198.

Management & Information Technology

Taught Element:	80 credits from modules IS5102, IS5103, MN5470, MN5471 20 credits from MN5401, MN5421, MN5461, MN5472, MN5480, MN5501 - MN5770, and 20 credits from IS5104, IS5105, IS5106, CS5041
M.Sc.:	120 credits from the Taught Element, plus 5 credits from IS5101, and 60 credits from IS5199 or MN5599.

Networks & Distributed Systems

M.Sc.:	25 credits from modules CS5021, IS5101; 20-40 credits from CS5011, CS5031, except with permission from the Head of School, grade 13.5 or better in CS5001; 60 credits from CS5999, the dissertation topic being in *Networks & Distributed Systems*; 35 - 60 credits (up to 15 of these from appropriate 4000-level CS modules, with approval) from CS5012, CS5013, CS5022, CS5023, CS5029, CS5032, CS5033, CS5041, CS5900, (including: either grade 13.5 or better in CS5021 and in one of CS5022, CS5023, CS5029; or 35 - 40 credits from CS5022, CS5023, CS5029, the 4000-level CS dip-down module if it is in Networks & Distributed Systems); up to 40 credits from IS5102, IS5103, IS5104, IS5105.

Software Engineering

M.Sc.:	25 credits from modules CS5031, IS5101; 20-40 credits from CS5011, CS5021; except with permission from the Head of School, grade 13.5 or better in CS5001; 60 credits from CS5999, the dissertation topic being in *Software Engineering*; 35 - 60 credits (up to 15 of these from appropriate 4000-level CS modules, with approval) from CS5012, CS5013, CS5022, CS5023, CS5032, CS5033, CS5039, CS5041, CS5900 (including: either grade 13.5 or better in CS5031 and in one of CS5032, CS5033, CS5039; or 35 - 40 credits from CS5032, CS5033, CS5039, and the 4000-level CS dip-down module if it is in Software Engineering); up to 40 credits from IS5102, IS5103, IS5104, IS5105.

Erasmus Mundus Dependable Software Systems *(not available 2011-12)*

M.Sc.:	120 credits consisting of: 40 credits from CS5899, 5 credits from CS50001, unless a module in Object-Oriented Programming has already been taken at a partner institution, at least 15 credits and at most 40 credits from CS5011, CS5021, and CS5031, remaining credits from CS5011 - CS5099.

Modules

CS5001 Object-Oriented Programming

Credits:	5	Semester	1

Programme(s):	Compulsory module for Advanced Computer Science, Artificial Intelligence, Networks & Distributed Systems, and Software Engineering Taught Postgraduate Programmes.

Description: This module is a core module for students (except where exempted by the Head of School) on each of our computer science M.Sc. programmes, and for the associated PG Diploma programme. It introduces and revises object-oriented programming up to the threshold required to complete programming assignments within other M.Sc. modules. The content will include Data types, Method and Class structures, Repetition structures (while, for etc), Exception handling, I/O mechanisms and Commenting & Documentation techniques. Students complete a workbook of exercises at their own pace, with a small number of lectures but extensive demonstrator support in the laboratory sessions.

Class Hour:	Variable
Teaching:	Lectures, tutorials and practical classes.
Assessment:	Continuous Assessment = 100%

CS5011 Advanced Artificial Intelligence

Credits:	20	Semester	1

Programme(s):   Compulsory module for Advanced Computer Science (CS5011 and/or CS5021 and/or CS5031), Artificial Intelligence, Networks & Distributed Systems (either CS5011 or CS5031 or both), and Software Engineering (either CS5011 or CS5021 or both) Taught Postgraduate Programmes.

Description: This module will cover foundational knowledge of Artificial Intelligence (AI). The module will give an overview of AI and its philosophy. It will cover basic topics in logic and using logic for representation of knowledge. It will show how search is used to solve combinatorial problems in AI. The fundamentals of machine learning, neural networks and robotics will be shown, together with their relation to cognitive science. A basic understanding of an Artificial Intelligence programming language such as Prolog will be provided. The notion of uncertainty in Artificial Intelligence will be covered. Finally, it will be shown how to implement AI ideas in software and how to evaluate such implementations.

Class Hour: To be arranged.

Teaching: Lectures, seminars, tutorials and practical classes.

Assessment: Continuous Assessment = 100%

CS5012 Language & Perception

Credits:	20	Semester	2

Prerequisites: CS5011, CS5021 and CS5031

Programme(s):   **Optional** module for Advanced Computer Science, Artificial Intelligence, Networks & Distributed Systems and Software Engineering Taught Postgraduate Programmes.

Description: This module will cover the major aspects of natural language processing and speech understanding as well as parts from image and musical processing. It will cover computational syntax (in particular, stochastic parsing), computational semantics, discourse processing, machine translation, speech recognition, musical and visual processing. The difference between symbolic (logical, rule-based) approaches and sub-symbolic (statistical, neural-net) approaches will be shown, together with the various applications of these two paradigms and their evaluation. Combinations of the two approaches will be taught as well, in particular the integrative paradigm known as Data-Oriented Parsing. The module will emphasise a unifying view of language and perceptual processing.

Class Hour: To be arranged.

Teaching: Lectures, seminars, tutorials and practical classes.

Assessment: Continuous Assessment = 40%, 2.5-hour Examination = 60%

CS5013 Knowledge & Reasoning

Credits:	20	Semester	2

Availability: Not available 2011-12

Prerequisites: CS5011, CS5021 and CS5031

Programme(s):   **Optional** module for Advanced Computer Science, Artificial Intelligence, Networks & Distributed Systems and Software Engineering Taught Postgraduate Programmes.

Description: This module will build on some of the foundations covered in the core module (CS5011), as well as extending understanding to a research level in the areas of Knowledge Representation and Reasoning with knowledge. The module will cover advanced means of knowledge representation using logic. The notion of inference in logical systems will be introduced. Automated reasoning will be implemented using advanced AI programming techniques in a language such as Prolog. Constraint Satisfaction and Constraint Programming will be taught, with emphasis on modeling and propagation in constraint programming. It will be shown how the various models and techniques can be tested and evaluated.

Class Hour: To be arranged.

Teaching: Lectures, seminars, tutorials and practical classes.

Assessment: Continuous Assessment = 40%, 2.5-hour Examination = 60%

CS5019 Artificial Intelligence (Special Subject)

Credits:	20	Semester	2

Prerequisites: Grade 13.5 in CS5011 and the consent of the Head of School

Anti-requisites: C5029 and CS5039

Programme(s): **Optional** module for Artificial Intelligence Taught Postgraduate Programme.

Description: This module is a guided reading module on any aspect of Artificial Intelligence not covered by other available modules. It is intended only for M.Sc. students in Artificial Intelligence, for whom it is particularly appropriate to deliver an individually designed programme of study in a specialist area of Artificial Intelligence not covered by other modules.

Class Hour: To be arranged.

Teaching: Tutorials and practical classes.

Assessment: Continuous Assessment = 100%

CS5021 Advanced Networks & Distributed Systems

Credits:	20	Semester	1

Programme(s): Compulsory module for Advanced Computer Science, Artificial Intelligence (either CS5021 or CS5031 or both), Networks & Distributed Systems, and Software Engineering (either CS5011 or CS5021 or both) Taught Postgraduate Programmes.

Description: This module has two main themes: Networking and Distributed Systems. In the Networking theme it covers the networking protocol stack and related technologies, highlighting distributed systems issues such as concurrency and routing where appropriate. Topics include layered architectures; the protocol concepts; physical communication: wired and wireless; data link protocols; reliability; resource utilization; efficiency; LAN, MAN, WAN and PAN interfaces; Network tools: common commands and programming interfaces; security threats services and mechanisms. In the Distributed Systems theme, topics covered include: application level protocols: client-server; concurrency and causality; mutual exclusion; message passing; failure modes & recovery.

Class Hour: To be arranged.

Teaching: Lectures, seminars, tutorials and practical classes.

Assessment: Continuous Assessment = 100%

CS5022 Distributed Systems Architecture

Credits:	20	Semester	2

Availability: Not available 2011-12

Prerequisite: CS5021

Programme(s): **Optional** module for Advanced Computer Science, Artificial Intelligence, Networks & Distributed Systems and Software Engineering Taught Postgraduate Programmes.

Description: This module will cover Distributed System Case Studies; Transparency in Distributed Systems; Principles of Middleware; Examples of Object-Oriented Middleware e.g. CORBA, RMI, .NET; Service oriented computing; Web Services stack; Grid computing; Message-Oriented-Middleware; Frameworks e.g. J2EE, Containers, Inversion of Control; Reflection e.g. Dynamic Invocation, Interface Repositories; P@P and Overlay Technologies e.g. KBR, DOL, DHT: Chord, Pastry, Napster, Gnutella, bitTorrent; Persistence: Principles of Persistence, Data Storage Technologies, Data binding, Distributed file systems (CDA).

Class Hour: To be arranged.

Teaching: Lectures, seminars, tutorials and practical classes.

Assessment: Continuous Assessment = 100%

CS5023 Mobile & Multimedia Systems

Credits:	20	Semester	2

Prerequisite: CS5021

Programme(s): **Optional** module for Advanced Computer Science, Artificial Intelligence, Networks & Distributed Systems and Software Engineering Taught Postgraduate Programmes.

Description: This module examines and analyses the way in which computing and communication are used to allow mobile systems to function across a heterogeneous environment, with variations in available network resources and diverse/intermittent network connectivity. Also, we examine and analyse the ways in which multimedia information is captured, processed, and rendered, to introduce multimedia quality of service (QoS) and to analyse the ways in which multimedia data is transmitted across networks. A key outcome of the module is for students to gain an appreciation for, and to be able to critically assess the capabilities and constraints of, mobile and multimedia systems. This will help to build a thorough understanding of working within today's fixed (wired) and wireless/mobile environments and technologies, with variable and often limited resources.

Class Hour: To be arranged.

Teaching: Lectures, seminars, tutorials and practical classes.

Assessment: Continuous Assessment = 40%, 2.5-hour Examination = 60%

CS5029 Networks & Distributed Systems (Special Subject)

Credits:	20	Semester	2

Prerequisites: Grade 13.5 in CS5021 and the consent of the Head of School

Anti-requisites: CS5019 and CS5039

Programme(s): **Optional** module for Networks & Distributed Systems Taught Postgraduate Programmes.

Description: This module is a guided reading module on any aspect of Networks & Distributed Systems not covered by other available modules. It is intended only for M.Sc. students in Networks & Distributed Systems, for whom it is particularly appropriate to deliver an individually designed programme of study in a specialist area of Networks & Distributed Systems not covered by other modules.

Class Hour: To be arranged.

Teaching: Tutorials and practical classes.

Assessment: Continuous Assessment = 100%

CS5031 Advanced Software Engineering

Credits:	20	Semester	1

Anti-requisite: IS5105

Programme(s): Compulsory module for Advanced Computer Science, Artificial Intelligence (either CS5021 or CS5031), Networks and Distributed Systems (either CS5011 or CS5031), and Software Engineering Taught Postgraduate Programmes.

Description: This module will cover: Approaches to software reuse - System families, COTS, components, services. Reuse-oriented software processes. Understanding the environment where software will be installed. Construction by configuration - adapting and tailoring COTS to a specific environment. Component-based software engineering - principles and component models. Service-oriented architectures and the implementation of reusable web services.

Class Hour: To be arranged.

Teaching: Lectures, seminars, tutorials and practical classes.

Assessment: Continuous Assessment = 100%

CS5032 Critical Systems Engineering

Credits:	20	Semester	2

Prerequisites: CS5031

Programme(s): **Optional** module for Advanced Computer Science, Artificial Intelligence, Networks & Distributed Systems and Software Engineering Taught Postgraduate Programmes.

Description: The aim of this module is to provide students with an understanding of the concepts and development techniques used for critical, socio-technical systems. When students have completed this module they will: understand the notion of system dependability and the key characteristics of dependable systems; understand the specialised software engineering techniques that may be used to ensure dependable system operation; have practical experience of applying some of these techniques in systems specification, design or implementation.

Class Hour: To be arranged.

Teaching: Lectures, seminars, tutorials and practical classes.

Assessment: Continuous Assessment = 60%, 2-hour Examination = 40%

CS5033 Software Architecture

Credits:	20	Semester	2

Prerequisites: CS5031

Programme(s): **Optional** module for Advanced Computer Science, Artificial Intelligence, Networks & Distributed Systems and Software Engineering Taught Postgraduate Programmes.

Description: The aim of this module is to introduce students to the concept of software architecture, as an aid to software design, reuse and evolution. When students have completed this course, they will: have knowledge of the key elements of software architectures; recognize architectural styles of existing software systems; describe the software architecture of a non-trivial system accurately; be able to construct systems that satisfy an architectural description; understand how software architecture aids design, reuse and evolution of software.

Class Hour: To be arranged.

Teaching: Lectures, seminars, tutorials and practical classes.

Assessment: Continuous Assessment = 60%, 2-hour Examination = 40%

CS5039 Software Engineering (Special Subject)

Credits:	20	Semester	2

Prerequisites: Grade 13.5 in CS5031 and the consent of the Head of School

Anti-requisites: CS5019 and CS5029

Programme(s): **Optional** module for Software Engineering Taught Postgraduate Programme.

Description: This module is a guided reading module on any aspect of Software Engineering not covered by other available modules. It is intended only for M.Sc. students in Software Engineering, for whom it is particularly appropriate to deliver an individually designed programme of study in a specialist area of Software Engineering not covered by other modules.

Class Hour: To be arranged.

Teaching: Tutorials and practical classes.

Assessment: Continuous Assessment = 100%

CS5041 Advanced Interactive Technologies

Credits:	20	Semester	2

Programme(s): **Optional** module for Taught Postgraduate Programmes within the School.

Description: Desktop and mobile computing are evolving as advanced interactive technologies change our view of applications, services, gaming and computing. The focus in this module on advanced interactive technologies is on interaction and specifically on interaction between one or more humans and one or more computational machines, beyond the desktop. This module studies both the mechanism side and the human side with a focus on a class of devices beyond the desktop. This module focuses on the design, evaluation and implementation of interactive technologies and computing systems for human use with the study of major phenomena surrounding them.

Class Hour: 11.00 am - 1.00pm Tuesday and 11.00 am - 12.00 noon Wednesday

Teaching: Lectures and practical classes.

Assessment: Continuous Assessment = 40%, 2-hour Examination = 60%

CS5899 Erasmus Mundus Dissertation in Dependable Software Systems

Credits:	40	Semester	Summer

Availability: 2012-13

Prerequisites: Admission to dissertation phase of Erasmus Mundus M.Sc. in Dependable Software Systems at St Andrews.

Programme(s):   Compulsory module for Erasmus Mundus M.Sc. in Dependable Software Systems at St Andrews.

Description: This module is an individually supervised dissertation, not exceeding 15,000 words, on a topic in computer science. Typically it comprises a literature review, extension of old or development of new ideas, their implementation and testing, summarised in a report, with the implementation based on sound theory and software engineering principles. Students will be required to give an assessed presentation of their work.

Teaching: Weekly or fortnightly meetings with supervisor.

Assessment: Continuous Assessment = 100%

CS5900 Research & Professional Skills in Computer Science

Credits:	20	Semester	2

Availability: Not available 2011-12

Prerequisites: CS5011, CS5021 and CS5031

Programme(s):   Optional module for Advanced Computer Science, Artificial Intelligence, Networks and Distributed Systems, and Software Engineering Taught Postgraduate Programmes.

Description: Readings in research topics in Artificial Intelligence, Software Engineering and Networks and Distributed Computing. A team debate based on these readings. Seminars by staff and outside speakers on these topics. Presentations by students and essays based on these topics. Lectures, seminars and practical on generic research skills: framing research hypotheses, designing and conducting experiments, gathering evaluating and presenting data, using data to test hypotheses, poster preparation, project planning, paper publishing, networking, teamwork and career management. Lectures and student presentations on social and professional aspects of computing, e.g. history, social context, methods and analysis tools, ethics, risk analysis, privacy and civil liberties, computer crime, economics of computing and philosophical frameworks.

Class Hour: To be arranged.

Teaching: Lectures, seminars, tutorials and practical classes.

Assessment: Continuous Assessment = 100%

CS5999 Dissertation in Computer Science

Credits:	60	Semester	Summer

Prerequisites: Admission to dissertation phase of M.Sc.

Programme(s):   Compulsory module for Advanced Computer Science, Artificial Intelligence, Networks and Distributed Systems, and Software Engineering Taught M.Sc. Postgraduate Programmes.

Description: This module is an individually supervised dissertation, not exceeding 15,000 words, on a topic in computer science. Typically it comprises a literature review, extension of old or development of new ideas, their implementation and testing, summarised in a report, with the implementation based on sound theory and software engineering principles. Students will be required to give an assessed presentation of their work.

Teaching: Weekly or fortnightly meetings with supervisor.

Assessment: Continuous Assessment = 100%

IS5101 Study & Research Skills

Credits:	5	Semester:	Whole Year

Programme(s):   Compulsory module for M.Sc. in Advanced Computer Science, Artificial Intelligence, Information Technology, Management & Information Technology, Networks & Distributed Systems Programme.

Description: This module equips students with basic but essential skills for completing an M.Sc. in the School of Computer Science. Topics include: document preparation, use of bibliographic and referencing software; use of survey tools; understanding basic statistics; use of project planning techniques; awareness of professional and ethical issues in research activities; carrying out a literature review; awareness of what constitutes academic misconduct; and technical writing for Computer Science and Information Technology.

Class Hour: To be arranged.

Teaching: Combination of lectures, seminars and practical classes.

Assessment: Continuous Assessment = 100%

IS5102 Database Management Systems

Credits:	20	Semester:	1

Programme(s):   **Compulsory** module for M.Sc. in Management & Information Technology Programme.

Optional module for M.Sc. in Advanced Computer Science, Artificial Intelligence, Networks & Distributed Systems Programmes.

Description: It is important for managers to understand what a database is, when to use a database, and what differentiates a database from a spreadsheet. This module covers: different types of database management systems including Microsoft Access and MySQL; the most appropriate database management system to choose depending upon the requirements of a project; database design including including E-R modelling. Database theory will also be covered including: Relational schemas, relational algebra, normalization, and Structured Query Language.

Class Hour: To be arranged.

Teaching: 1 x 2-hour lecture and a 1-hour seminar.

Assessment: Continuous Assessment = 100%

IS5103 Web Technologies

Credits:	20	Semester:	2

Programme(s):   **Compulsory** module for M.Sc. in Management & Information Technology Programme.

Optional module for M.Sc. in Advanced Computer Science, Artificial Intelligence, Networks & Distributed Systems Programmes.

Description: A web application is a collection of web pages that interact with the user, with each other, and with various resources on a web server, including databases. It is important for managers to understand the different technologies that are used to develop web applications, not only to understand but to be able to discuss with web designers the needs of an organization when it comes to web sites. This module covers: Web accessibility, Cascading style sheets, and Web server technologies.

Class Hour: To be arranged.

Teaching: 1 x 2-hour lecture and a 1-hour seminar.

Assessment: Continuous Assessment = 60%, 2-hour Examination = 40%

IS5104 Information Security Management

Credits:	20	Semester:	2

Programme(s):   Optional module for M.Sc. in Advanced Computer Science, Artificial Intelligence, Management & Information Technology, Networks & Distributed Systems Programmes.

Description: This module reviews key theoretical and practical aspects of Information Security Management. The module content covers higher level technical and theoretical issues as well as management issues such as organizational, planning, certification, auditing and governance. From the student's perspective the module introduces students to a topical field of business and IT concern via varied learning styles and in depth consideration of current issues, standards and scenarios. The module uses both block learning and individual self-learning.

Class Hour: To be arranged.

Teaching: 1 x 2-hour lecture and a 1-hour seminar.

Assessment: Continuous Assessment = 60%, 2-hour Examination = 40%

IS5105 IT Software Engineering Principles

Credits:	20	Semester:	1

Anti-requisite: CS5031

Programme(s):   Optional module for M.Sc. in Advanced Computer Science, Artificial Intelligence, Management & Information Technology, Networks & Distributed Systems Programmes.

Description: This module reviews and summarises the key concepts in large scale software development. Personnel and skills management in explored along with the human centric processes involved in appropriating system requirements, functionality and high level descriptions necessary to guide the development of and finally assess a working system. From the student's perspective, the module does not require prior programming knowledge as the skills set developed covers process, organisational and management issues. The module uses various learning styles and strategies, including self directed learning and presentational skills.

Class Hour: To be arranged

Teaching: 1 x 2-hour lecture and a 1-hour seminar.

Assessment: Continuous Assessment = 100%

IS5106 Digital Media

Credits:	20	Semester:	2

Programme(s):   Optional module for M.Sc. in Information Technology, Management & IT and Advanced Computer Science Programmes.

Description: Effective communication of information increasingly relies on digital media technology as a means of production and or delivery. This practically orientated module considers a variety of solutions for printed materials and interactive or online presentations. Using industry standard software it looks at digital typography, image generation and manipulation, animation and illustration techniques and their application to create appropriate and effective communication media.

Class Hour: To be arranged.

Teaching: 3 lectures, a tutorial and a practical.

Assessment: Continuous Assessment = 100%

IS5107 Information Technology Fundamentals

Credits:	20	Semester:	1

Programme(s):   Compulsory module for M.Sc. in Information Technology Programme.

Description: This module is an intensive practically oriented introduction to information technology, covering The Internet, Word Processing, Spreadsheets, Presentation Software, Networks & Systems, Peripherals and Computers in Society.

Class Hour: To be arranged.

Teaching: 3 lectures, a tutorial and a practical.

Assessment: Continuous Assessment = 100%

IS5198 Dissertation in Information Technology

Credits:	60	Semester:	Summer

Prerequisite: Admission to dissertation phase of the M.Sc.

Programme(s):   Compulsory module for M.Sc. Information Technology Programme.

Description: This module provides students with the opportunity to undertake an in-depth investigation into issues within the field of Information Technology. They are required to prepare a dissertation of not more than 15,000 words on an approved topic which shows appropriate competences in the field. Typically it comprises a related work review, extension of old or development of new ideas, their implementation and testing, summarised in a report, with the implementation based on sound theory and software engineering principles. The project may be a team project but the dissertation will be an individual one.

Class Hour: To be arranged.

Teaching: Personal Supervision

Assessment: Dissertation = 100%

IS5199 Dissertation in Management & IT

Credits:	60		Semester:	Summer

Prerequisite: Admission to dissertation phase of the M.Sc.

Anti-requisite: MN5599

Programme(s):   Component of M.Sc. in Management & Information Technology Programme, compulsory except where replaced by MN5599.

Description: This module provides students with the opportunity to undertake an in-depth investigation into issues within the fields of Management and Information Technologies. They are required to prepare a dissertation of not more than 15,000 words on an approved topic which shows appropriate competences in both fields, especially in IT. At least 25% of the work will involve IT and 25% will involve Management focus. Typically it comprises a related work review, extension of old or development of new ideas, their implementation and testing, summarised in a report, with the implementation based on sound theory and software engineering principles. The project may be a team project but the dissertation will be an individual one.

Class Hour: To be arranged.

Teaching: Personal Supervision

Assessment: Dissertation = 100%

MN5461 Strategic Management in the Information Age

Credits:	20		Semester:	2

Programme(s):   Compulsory module for the Management and Management & Information Technology Taught Postgraduate Programmes.

Description: Over the last three decades one of the most significant global trends has been the rapid technical development of information technology and the parallel intensification in the commercial and administrative use of this technology by organisations. In this context this module will develop students' knowledge and understanding of the strategy process and develop an appreciation of organisational responses to the rapidly changing global economy. In addition to this, the module will develop a critical understanding of the challenges of operating in the information age and will also develop awareness of the range of approaches to organisational strategy; its purpose and the process of aligning corporate strategy with operational strategies in the knowledge economy. The module will challenge students to evaluate organisational processes, including marketing and promotion, logistics and supply chain management, in a rigorous manner and develop an understanding as to how organisational resources can be harnessed to respond to the organisational challenges of operating in an age of rapidly and easily accessible information.

Class Hour: To be arranged.

Teaching: 1 x 2-hour lecture and a 1-hour seminar.

Assessment: Continuous Assessment = 50%, 2-hour Examination = 50%

MN5470 Managing Human Resources

Credits:	20		Semester:	1

Programme(s):   Compulsory module for Management and Management & Information Technology Taught Postgraduate Programmes.

Description: This module reviews the key theoretical and practical aspects involved in managing human resources. The module content covers both the strategic and operational requirements necessary to secure, develop, reward and retain employees and to ensure their maximum contribution to organisational performance requirements. Individual, organisational and contextual factors that influence the management of people are also considered and throughout there is an emphasis on the critical, analytical and evaluative study of the subject.

Class Hour: To be arranged.

Teaching: Lectures and seminars.

Assessment: Continuous Assessment = 50%, 2-hour Examination = 50%

MN5599 Dissertation in Management & IT

Credits: 60   Semester: Summer

Programme(s):   Component of M.Sc. in Management & Information Technology Programme, compulsory except where replaced by IS5199.

Description: This module provides students with the opportunity to undertake an in-depth investigation into issues within the fields of Management and Information Technologies. They are required to prepare a dissertation of not more than 15,000 words on an approved topic which shows appropriate competences in both fields. At least 25% of the work will involve IT and 25% will involve Management focus, Typically it comprises a related work review, extension of old or development of new ideas, their implementation and testing, summarised in a report, with the implementation based on sound theory and software engineering principles. Team work on dissertations is permitted (up to five students).

Class Hour: To be arranged

Teaching: Personal Supervision

Assessment: Dissertation = 100%