GRADUATE OPPORTUNITIES

Graduates from the programme can expect to be able to get employment with software houses, IT companies, research and development divisions of companies, financial services organisations, defence contractors or government IT agencies and as researchers or research students within universities.

ASSESSMENT METHODS

Students are assessed on component courses by a mixture of exams and coursework. The MSc project is assessed by a MSc dissertation and a poster presentation.

ENTRY REQUIREMENTS

Applicants require for admission a first or second class honours degree or its equivalent in a numerate, science, engineering or technology discipline. Candidates holding a little less than this may be admitted to the Postgraduate Diploma programme. If their performance is satisfactory at MSc level, they may then be recommended for transfer to the MSc.

LANGUAGE REQUIREMENTS

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- 2 semesters English (for IELTS 4.5-5.0)
- 12 weeks English (for IELTS 5.5)

Further details can be found at www.english.hw.ac.uk

FEES, FUNDING AND SCHOLARSHIPS

Latest tuition fees are published on our fees web pages: www.hw.ac.uk/fees

We offer scholarships to well qualified applicants. Instructions on applying can be accessed from our scholarship web pages: www.scholarships.hw.ac.uk

HOW TO APPLY

You can apply by using our online application form available at: www.postgraduate.hw.ac.uk/apply

You must also provide a copy of your degree certificate and relevant academic transcripts, references from two academic sources and evidence of your English language ability. You can attach documents to the online application using the document upload facility. If you are an applicant from outside the European Union and require a visa for entry to the UK, please provide a copy of the photograph page of your current passport.

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CONTACT

POSTGRADUATE ADMISSIONS
ROOM 1.24
EARL MOUNTBATTEN BUILDING
SCHOOL OF MATHEMATICAL & COMPUTER SCIENCES
HERIOT-WATT UNIVERSITY, MCCARTON,
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+44 (0) 131 451 4152
+44 (0) 131 451 3327
msc-request@macs.hw.ac.uk
www.macs.hw.ac.uk

GOOD REASONS

1. Research Quality
   We are part of world class SICSA research cluster

2. Teaching Quality
   We score well for student satisfaction

3. Employability
   We are in top 10% of UK universities for employment

4. Professionalism
   British Computer Society accredits our specialist MSc degrees

5. Prime Location
   We have a green campus on the edge of the historic city of Edinburgh

INFORMATION TECHNOLOGY (SOFTWARE SYSTEMS)
MSc / PG DIPLOMA

Full-Time / Part-Time

Distinctly Ambitious
www.hw.ac.uk
Programme Background

The full-time MSc programme starts in mid-September and lasts 1 year. The 8 taught courses can also be studied over 9 months as part of a Postgraduate Diploma programme with the same title. Students who perform at MSc level on the Postgraduate Diploma programme may transfer when it ends to the MSc programme and complete their project for an MSc degree.

Part-time study for the MSc over two years is also possible by special arrangement with the programme director. A typical arrangement would be for students to take 2 courses in semesters 1 and 2 in the first year, 2 courses in semesters 1 and 2 in the second year and split the research and implementation of the MSc project over 2 years.

Programme Objectives

This MSc programme aims to impart the understanding and skills to develop advanced software systems to professional standards. It has a flexible structure to suit applicants from different academic backgrounds with different interests. It covers core skills in Information Technology (IT) at MSc level, while letting students study specialist advanced courses in topics such as animation, e-commerce, games programming, intelligent agents and mobile computing.

The MSc project is carried out under the supervision of an individual academic who is an expert in the field. In some cases the project can be carried out in collaboration with an outside industrial or academic organisation.

Programme Structure

The first two semesters (September-May) are spent studying taught courses in this field. At the same time research skills are developed as a preliminary for work on an MSc project. Exams take place at the end of each semester.

Full-time students take 4 courses in semester 1 and 4 courses in semester 2 and must normally take courses in bold.

Semester 1
- 3D Modelling & Animation
- Computer Network Security
- Databases & Information Systems
- Information Systems Methodologies
- Mobile Communications & Programming
- Software Engineering Foundation

Semester 2
- Advanced Software Engineering
- Computer Games Programming
- Internet Engineering
- Network Applications
- Research Methods & Project Planning
- Systems Management & Security

3D Modelling & Animation – design and development of 3D applications with Flash, design and development of virtual actor animations with Macromedia Director

Advanced Software Engineering – advanced OOP design in Java, data structures, threads, patterns, software engineering methodologies and project planning

Computer Games Programming – game design, game tools, 2D and 3D, game state, game engines, physics engines, path planning, learning and adaptation, game theory

Computer Network Security – security fundamentals, Cryptography and its uses, formal techniques, PKI, OS and network security, security tools, secure applications

Databases & Information Systems – IS types, DB & DB management systems, data modelling, DB design, relational DBs, SQL, SQL programming, XML, other DB types

Information Systems Methodologies – systems principles and classification, IS life cycle, NMSAD and Fitzgerald IS methodologies, process improvement models

Internet Engineering – advanced topics in networking including routing, congestion management, transport protocols, real-time communications, security issues

Mobile Communications & Programming – IP routing in fixed, mobile and ad hoc networks, wireless security issues, programming frameworks for handheld devices

Network Applications – Internet organisation & transports, client and server web technologies, web protocols, email standards and protocols, security technologies

Research Methods & Project Planning – critical thinking, doing research, academic writing, experimental design, project planning, career planning, normative issues

Software Engineering Foundations – object oriented design and programming in Java for programmes in another language, Java GUI, software engineering – UML

Systems Management & Security – SM methodologies, service support & delivery, disaster planning, managing change, security management, threats, security policies

In the third semester (May-August) students undertake a specialist MSc project which is written up as a 15000 word dissertation. This project enables further development and consolidation of skills introduced in the taught courses, applying them to a challenging practical problem in this subject area.

Industry Links

We have good links with industry and MSc students may opt to do an industrially sponsored MSc project.
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