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

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• 12 weeks English (for IELTS 5.5)

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CONTACT
POSTGRADUATE ADMISSIONS
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EAL, MOUNTBATTEN BUILDING
SCHOOL OF MATHEMATICAL &
COMPUTER SCIENCES
HERIOT-WATT UNIVERSITY, RICARTON,
EDINBURGH EH14 4AS, SCOTLAND
+44 (0)131 451 4512
+44 (0)131 451 3327
mcs.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

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MSc / PG DIPLOMA
Your University
an overview

Heriot-Watt University offers a superb environment for postgraduate study. We are one of the UK’s leading universities, recognised internationally for excellent teaching and research in our specialist areas of science, engineering, business management, languages and textile design.

Our community of postgraduate students is made up of bright, highly imaginative and self-motivated individuals, who work closely with our forward-looking and energetic research-active academic staff. This collaborative atmosphere is fundamental to Heriot-Watt’s enviable academic and research reputation.

Those of you who choose to study with us will discover high quality taught and research programmes, flexible student-centred delivery, unrivalled facilities and pioneering research.

www.macs.hw.ac.uk

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an overview

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Programme: Postgraduate Diploma in Computer Network Security

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 programme aims to teach graduates with an IT background the theory, methods and tools to develop distributed applications over the Internet using current advanced techniques. These include rich Internet applications, mobile Internet applications and distributed technologies like web services and grid applications.

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
- Communications & Networks
- Computer Network Security
- Distributed Systems Programming
- Mobile Communications & Programming
- Software Engineering Foundations
- Systems Programming & Scripting

Semester 2
- Advanced Interaction Design
- Advanced Software Engineering
- Distributed & Parallel Technologies
- Internet Engineering
- Network Applications
- Research Methods & Project Planning

Advanced Interaction Design – advanced interface requirements, design and evaluation issues for interactive software for various contemporary application uses

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

Communications & Networks – core knowledge of data communications, detailed protocols and services of each layer of OSI and TCP/IP network reference models

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

Distributed & Parallel Technology – distribution concepts, levels of distribution technology, parallel design, performance analysis, parallel programming paradigms

Distributed Systems Programming – formal specification & modelling of distributed systems using SPIN; concurrent programming of secure RPC, RMI and SOAP apps

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

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

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

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 programmers in another language, Java GUI, software engineering - UML

Systems Programming & Scripting – art of programming in C#, Unix shell scripting, scripting in PHP, uses of these languages for systems and other application purposes

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.

www.postgraduate.hw.ac.uk/apply/
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.

PROFESSIONAL RECOGNITION
This MSc programme is accredited by the British Computer Society and should fulfill its further education requirements for a Chartered IT Professional. It should also partially fulfill membership requirements for the CEng and CSci professional bodies.

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.

FEES, FUNDING AND SCHOLARSHIPS
Latest tuition fees are published on our fees web pages: www.hw.ac.uk/fees

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FULL-TIME / PART-TIME

School of Mathematical and Computer Sciences

Good Reasons

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