Advanced Computer Science
MSc

Our new MSc focuses on giving you an in-depth understanding and working knowledge of computer science and its applications.

Building on your existing experience in computer science or related subjects, this course will develop your skills in algorithms design and analysis and introduce you to specialist areas such as machine learning, computer graphics, mobile computing, signal processing, security and verification and provide valuable insight into contemporary research carried out by our internationally renowned academics. The course is your foundation for either a cutting-edge career in the IT industry or further research at doctoral level.

Course content
The course explores the central concepts of computer science including advanced algorithms and data structures, programming and database design at a professional level. You also have a choice of specialist electives, and in our “Readings in Computer Science” module the opportunity to engage with key researchers to critique and understand contemporary published research. You will be mentored by leading researchers and undertake an individual research project guided by experienced academics, developing the highly sought after skills of research design and realisation, systems analysis and development as well as scientific communication.

Internships
As an IT postgraduate student at City University, you have an unrivalled opportunity to gain up to six months of relevant professional experience as part of your MSc. This enables you to undertake your individual project within an industrial or research placement, over an extended period.

You will be supported by our outstanding Professional Liaison Unit should you wish to consider undertaking this route.

Course structure
The course has five core modules, and a choice of three electives chosen from a range of options:

Core modules
- Advanced algorithms and data structures
- Advanced programming: concurrency
- Advanced databases
- Readings in computer science
- Research methods and professional issues

Electives
- Object orientated programming in C++
- Software systems design
- Data mining
- Artificial intelligence*
- Data visualisation
- Practices and theories in interaction design
- Mobile and pervasive computing
- Open source systems
- Computer graphics
- Audio signal processing
- Software agents
- Neural and evolutionary computing*
- Service orientated architectures

* These electives are not offered during the academic year 2013-14

All students will also carry out an individual research project.

Students for the MSc in Advanced Computer Science will be mentored by active researchers in their area of specialisation. The majority of our faculty’s research in computer and information science was characterised as “world leading/internationally excellent” by RAE 2008.
Duration and assessment
The MSc can be taken as a one year full-time course or over two years part-time. On completion of eight taught modules and an individual project, students will be awarded a Master of Science (MSc) degree.

Taught modules are usually delivered as 20 hours of lectures plus 10 hours of labs or tutorial sessions. Students are also expected to undertake individual study work related to the course content.

Assessment comprises coursework appropriate to each module, and examinations.

Further studies
After successful completion of the course candidates may consider a PhD degree, working towards an academic/research career.

Entry requirements
Applicants should normally have a first or upper second class honors degree (or equivalent) in computer science, or a related discipline with some mathematical content. However, other qualifications and relevant industrial experience can also be considered.

Overseas applicants also need to meet City’s formal English language requirements.

Fees/How to apply
For further information on course fees and how to apply visit www.city.ac.uk/courses/postgraduate/advanced-computer-science

Scholarships are available for suitably qualified candidates.

Loyalty bursaries are available for graduates of City University who wish to take this course.

The number of IT jobs in Europe is growing by over 100,000 per year, with not enough new IT graduates to meet them; by 2015 there will be 900,000 job vacancies for IT professionals in Europe (European Commission)