

# G406: Computer Science



Undergraduate MEng 2020

## Essentials

<b>UCAS code</b>	G406
<b>Degree</b>	MEng
<b>Professional accreditation</b>	Accredited by the British Computer Society, the Chartered Institute for IT for the purposes of fully meeting the academic requirement for registration as a Chartered IT Professional. Accredited by BCS, The Chartered Institute for IT on behalf of the Science Council for the purposes of partially meeting the academic requirement for registration as a Chartered Scientist.
<b>Mode of study</b>	Full Time
<b>Duration</b>	4 years
<b>Location</b>	Durham City ( <a href="http://www.durham.ac.uk/study/location/durham.city">www.durham.ac.uk/study/location/durham.city</a> )
<b>A-Level</b>	A*AA
<b>BTEC</b>	D*DD
<b>International Baccalaureate</b>	38
<b>Alternative qualifications</b>	<ul style="list-style-type: none"> <li>• Other UK qualifications (<a href="http://www.durham.ac.uk/resources/undergraduate/UKequivalencies2017-18.pdf">www.durham.ac.uk/resources/undergraduate/UKequivalencies2017-18.pdf</a>)</li> <li>• EU qualifications (<a href="http://www.durham.ac.uk/resources/undergraduate/apply/EUequivalencies2017-18.pdf">www.durham.ac.uk/resources/undergraduate/apply/EUequivalencies2017-18.pdf</a>)</li> <li>• International qualifications (<a href="http://www.durham.ac.uk/international/country.information/">www.durham.ac.uk/international/country.information/</a>)</li> </ul>
<b>Contextual Offers</b>	You may be eligible for an offer which is one or two grades lower than our standard entry requirements. Find out more ( <a href="http://www.durham.ac.uk/study/ug/apply/contextualoffers/">www.durham.ac.uk/study/ug/apply/contextualoffers/</a> ).
<b>More information</b>	Still have questions? ( <a href="http://www.durham.ac.uk/study/askus/">www.durham.ac.uk/study/askus/</a> )
<b>Department(s) Website</b>	<a href="http://www.durham.ac.uk/computer.science">www.durham.ac.uk/computer.science</a>

## Course Summary

### Description

Our Computer Science degrees balance fundamental knowledge and practical application in order to provide you with both specialised and transferable skills that are greatly valued in the marketplace. The course emphasises from the start both programming and mathematical skills that allow, in the later years engagement through the 'Individual Project' with cutting-edge research being done in the department.

### Year 1

You will undertake five computer science modules, which cover programming, the characteristics of computers and computing systems, and the mathematical foundations of the subject. You will also be introduced to the concept and philosophy of computational thinking and explore cutting-edge technological applications of recent research. You will undertake an elective module, which may be from elsewhere within the Department, Faculty or University. Once you complete your first year you will have had a thorough introduction to the fundamentals of computer science and to the principles, practices and methodologies that make computer science unique to a scientific subject. You will also have had a glimpse at aspects of computer science research that have enabled major technological advances in society.

#### Compulsory modules

- Programming
- Computational Thinking
- Algorithms and Data Structures
- Computer Systems
- Mathematics for Computer Science.

### Year 2

You will study six modules covering a core set of topics. One module Software Engineering (double module) involves a team software development project and enables you to usually work with external organisations and gain practical software development experience. Other compulsory topics include, for example, computer networks, parallel and distributed computing, concurrency, data structures, algorithms and complexity, image processing, different programming paradigms, systems programming, security, aspects of artificial intelligence, and computer graphics. The topics undertaken in the second year prepare you with an excellent grounding in a range of fundamental subjects within computer science, ready for subsequent specialisation in your third year. By the end of the second year, you will be in a position to make informed judgments as to which particular aspects of the subject you might wish to focus on.

#### Compulsory modules

- Networks and Systems
- Programming Paradigms
- Software Engineering
- Software Methodologies
- Theory of Computation.

## Year 3

A key element of the third year is the individual project (which is a double module). This is undertaken under the direct supervision of a member of staff and gives you the opportunity to tackle a specific computing task in much greater depth than is possible for other modules. At the end of the project, you will write a technical paper describing your findings. You are given a considerable amount of choice as to the subject of your projects; indeed, you can suggest specific projects yourself. In addition, you get to choose the four other modules that you undertake in the third year.

A range of modules is offered (many reflecting current research interests of staff) for example, previous modules have included: theoretical computer science, software and software systems, computing methodologies, applications and contemporary computer science (with the latter topic engaging with modern research within computer science that is highly relevant to current technological advances and applications). There is also the opportunity to follow specific modules offered such as a module involving the teaching of computer science in schools, giving an early taste of teaching computer science to those interested in pursuing it as a career or on other career pathways where a public understanding of science is required.

## Year 4

You will again undertake a significant individual project (this time a triple module). This gives you the exciting opportunity to take your third-year projects even further, if you wish, possibly so that the resulting research might be published in a journal or at a conference, and possibly as a prelude to a postgraduate degree in Computer Science. However, if you do not wish to continue with the topic of your third-year project, there is the opportunity to do another substantial piece of work in an entirely different area of computer science (again, of your choosing). Just as in the third year, you will get to choose the three other modules that you undertake in the fourth year; again, just as in the third year, there is a range of modules offered, including advanced versions of some of the third-year modules.

We review course structures and core content (in light of e.g. external and student feedback) every year, and will publish finalised core requirements for 2020 entry from September 2019.

## Study Abroad

Computer Science is an international discipline and living and working in another country is a valuable addition to your CV. We are part of the SOCRATES/ERASMUS and University Exchange programme, which encourages you to study for part of your course in a university worldwide. You can request to transfer onto the MEng Computer Science with Year Abroad (G407) programme at the beginning of your second year and after your second or third year of study in Durham will spend a year studying at another EU or worldwide university, and then return to Durham for your penultimate or final year.

Further information on these study abroad opportunities can be found here ([www.dur.ac.uk/international/studyabroad/](http://www.dur.ac.uk/international/studyabroad/))

## **Placement Year**

You may be able to take a work placement. Find out more ([www.durham.ac.uk/placements/](http://www.durham.ac.uk/placements/)).

## Admissions Process

### Subject requirements, level and grade

**A level offer** – A\*AA Including Mathematics.

**BTEC Level 3 National Extended Diploma/OCR Cambridge Technical Extended Diploma** – D\*DD and Mathematics A level at grade A (or equivalent) is required.

**IB Diploma score** – 38 With 766 in higher level subjects, including Mathematics.

In addition to satisfying the University's general entry requirements, please note:

- We welcome applications from those with other qualifications equivalent to our standard entry requirements and from mature students with non-standard qualifications or who may have had a break in their study. For more information contact our Admissions Selectors
- If you do not satisfy our general entry requirements, the Foundation Centre offers multidisciplinary degrees to prepare you for a range of specified degree courses
- If you are an international student who does not meet the requirements for direct entry to this degree, you may be eligible to take an International Foundation Year pathway programme at the Durham University International Study Centre  
([www.durhamisc.com/?ch=uniweb&cc=signposting&cid=uniweb&utm\\_source=signposting&utm\\_medium=signposting&utm\\_campaign=uniweb](http://www.durhamisc.com/?ch=uniweb&cc=signposting&cid=uniweb&utm_source=signposting&utm_medium=signposting&utm_campaign=uniweb))
- We are pleased to consider applications for deferred entry.

### Science A levels

Applicants taking Science A levels that include a practical component will normally be required to take and pass this as a condition of entry. This applies only to applicants sitting A levels with an English examination board.

### English Language requirements

Please check requirements for your subject and level of study ([www.durham.ac.uk/learningandteaching.handbook/1/3/3/](http://www.durham.ac.uk/learningandteaching.handbook/1/3/3/))

### How to apply

[www.durham.ac.uk/undergraduate/apply](http://www.durham.ac.uk/undergraduate/apply)

### Information relevant to your country

[www.durham.ac.uk/international/country.information/](http://www.durham.ac.uk/international/country.information/)

## Fees and Funding

### Full Time Fees

<b>EU Student</b>	£9,250.00 per year
<b>Home Student</b>	£9,250.00 per year
<b>Island Student</b>	£9,250.00 per year
<b>International non-EU Student</b>	£25,800.00 per year

The tuition fees shown for **home and EU** students are for one complete academic year of full time study and are set according to the academic year of entry. Fees for subsequent years of your course may rise in line with an inflationary uplift as determined by the government.

The tuition fees shown for **overseas** students are for one complete academic year of full time study, are set according to the academic year of entry, and remain the same throughout the duration of the programme for that cohort (**unless otherwise stated**).

Please also check costs for colleges and accommodation ([www.durham.ac.uk/undergraduate/accommodation/costs/](http://www.durham.ac.uk/undergraduate/accommodation/costs/)).

### Scholarships and funding

[www.durham.ac.uk/undergraduate/finance](http://www.durham.ac.uk/undergraduate/finance)

## Career Opportunities

### Department of Computer Science



#### Of these students who graduated in 2017:

- 95% are in paid employment or further study 6 months after graduation

#### Of those in employment:

- 100% are in graduate level employment
- Median salary £27,000

(Source: Destinations of Leavers from Higher Education (DLHE) survey of 2016/17 graduates. The DLHE survey asks leavers from higher education what they are doing six months after graduation. Full definitions for the DLHE Record can be found here:[www.hesa.ac.uk/support/definitions/destinations](http://www.hesa.ac.uk/support/definitions/destinations))

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**Our graduates leave with excellent career prospects, demonstrated by our Graduate Prospect score for 2018 being 95%. With a variety of placement and development opportunities available during your time here, you are able to customise your experience and work with sought after companies.**

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## Professional accreditation

Both the BSc Computer Science Programme and the BSc Software Development for Business have been re-accredited by BCS, The Chartered Institute for IT ([www.bcs.org/](http://www.bcs.org/)) satisfying the educational requirement for Chartered IT Professional (CITP) and partial fulfilment of the educational requirement for the Chartered Scientist (CSci) and Chartered Engineer (CEng) registration.

Our MEng programme has also been accredited for satisfying the educational requirement for Chartered IT Professional (CITP) and in partial fulfilment of the educational requirement for the Chartered Scientist (CSci) registration.

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## Work experience & placements

A number of unique work placements are available to students during their time with us with a range of sought after companies - from BAE Systems Applied Intelligence ([www.baesystems.com/en/cybersecurity/home](http://www.baesystems.com/en/cybersecurity/home)) to Data Interchange ([www.datainterchange.com/us/Home](http://www.datainterchange.com/us/Home)) and Waterstons ([www.waterstons.com/](http://www.waterstons.com/)), who regularly recruit students.

Placements usually occur over the summer vacation, between second and third year, and third and fourth, although we are regularly approached by organisations requesting our students for projects year round. Summer 2017 sees out students holding summer internships in organisations such as: Adobe Research in San Francisco, Dell in Shanghai, Google in Dublin, TripAdvisor, Sky, Amazon, Ericsson, Microsoft, London Stock Exchange plus many others.

Some students choose to stay with us over the summer and become part of a research team. If this is your preference there are BP and Nuffield awards as well as college scholarships available for summer placements in the university to help support you. This provides you with a taste of what it is to conduct research full time, excellent preparation for your final year research project.

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## Employment development opportunities

The University's Careers, Employability and Enterprise Centre (CEEC) ([www.durham.ac.uk/careers/](http://www.durham.ac.uk/careers/)) works extremely closely with us to ensure that current students, and graduates, receive information and vacancies relevant to your needs.

CEEC also offer innovative talks to make sure you receive the most relevant and up to date advice about professions in the field of Computer Science.

Computer Science at Durham continues to work closely with the Department of Engineering, and the Industrial Partnership Committee (IPC) ([community.dur.ac.uk/ecs.ipc/](http://community.dur.ac.uk/ecs.ipc/)), which connects us to approximately 30 industrial partners from organisations with local, national and international footprints.



## **Open days and visits**

### **Pre-application open day**

Pre-application open days are the best way to discover all you need to know about Durham University. With representatives from all relevant academic and support service departments, and opportunities to explore college options, the open days provide our prospective undergraduates with the full experience of Durham University.

Please see the following page for further details and information on how to book a place:  
[www.durham.ac.uk/opendays](http://www.durham.ac.uk/opendays)

### **Discover Durham Tours**

Discover Durham tours offer a brief introduction to the University. The tour begins at one of our undergraduate colleges, where you will receive an introductory talk from a member of college staff, followed by a tour of the college by current students.

[www.durham.ac.uk/undergraduate/live/visit/discoverdurham](http://www.durham.ac.uk/undergraduate/live/visit/discoverdurham)

### **Overseas Visit Schedule**

[www.durham.ac.uk/international/office/meetus](http://www.durham.ac.uk/international/office/meetus)

## Department Information

### Department of Computer Science

#### Overview

The most significant developments in our society have come through amazing innovations in technology and the intelligent algorithms that drive those technologies.

Our Computer Science degrees balance fundamental knowledge and practical application in order to provide you with both specialised and transferable skills that are greatly valued in the marketplace. The courses emphasise from the start both programming and mathematical skills that in the later years allow engagement through the Individual Project with the cutting-edge research being done here.

#### Rankings

- 95% of our graduates leave with excellent career prospects. *The Complete University Guide Graduate Prospect Score 2018*. 6th
- 6th in *The Complete University Guide 2019*.

#### Staff

For a current list of staff, please see the School's web pages ([www.dur.ac.uk/ecs/people/](http://www.dur.ac.uk/ecs/people/)).

#### Facilities

The Department has recently undergone a multi-million pound refurbishment of offices and PC labs which provide students with modern state-of-the-art computing facilities. There are study areas within the Department where students can use their own laptops or lab-based machines; both here and also within colleges, a laptop can be used to access the Department and University resources through the University-wide computing network.

#### Website

[www.durham.ac.uk/computer.science](http://www.durham.ac.uk/computer.science)

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