COMPUTING & COMMUNICATION TECHNOLOGIES

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State-of-the-art facilities, using industry-standard hardware and software, means practice-based learning offers real-world experience.

Students gain the opportunity to develop the advanced skills and knowledge needed to pursue successful careers in their chosen fields.

World-class research and superb industry links make Oxford Brookes one of the best places in the UK to study computing and communication technologies.
INTRODUCTION

Our distinctive portfolio of undergraduate and postgraduate courses addresses a range of fast-moving subjects at the cutting edge of technology. Students are given the opportunity to encounter a rich and diverse set of state-of-the-art technologies and develop a wide range of cognitive, practical, analytical, creative and professional skills. The subjects that can be studied here cross a spectrum that is fundamental science at one end, and application or product focused at the other. We work hard to ensure that our courses are attractive to students, relevant to industry and academically sound.

The department has an excellent reputation for research within the UK and worldwide. In the last Research Assessment Exercise 75% of our research was internationally recognised with 8% being world leading. The prize-winning research activities in the department cover a range of subjects including computer vision, software engineering and web technologies. Research staff are highly engaged in the international research community, including a number who are editors of prestigious journals and chairs of world-leading conferences.

The department has also established strong links with industry which enrich all our teaching and research activities. We have recently won Best Knowledge Transfer Partnerships (KTP) of the year for a project in which we partnered with a local company to develop pioneering work in computer vision. The world-class research, excellent teaching, access to state-of-the-art technology and the close links with industry makes the Department of Computing and Communication Technologies one of the best places in the UK to study or to pursue an academic career.

Nigel Crook
Head of Computing and Communication Technologies
COMPUTER SCIENCE MSc/PGDip/PGCert

The MSc in Computer Science aims to provide you with a diverse range of skills so that you will be able to produce optimal solutions in complex, multi-discipline projects which are increasingly widespread in industry.

Examples of such projects include intelligent firewalls, mind-controlled cars and sensor gloves to help disabled tablet users.

This course is aimed at new graduates or those with substantial experience in the computing industry who want to gain a qualification that develops their expertise.

Our Computer Science programmes are rooted in real-world and industry-relevant experiences. Real-world problems and current issues in computing are used to illustrate the theoretical concepts. This gives students the opportunity to develop the advanced skills and knowledge needed to pursue successful careers in their chosen fields.

Professional experts contribute to the range of subjects on offer and the design of our programmes is informed by state-of-the-art research being undertaken in the department. Students on the programme will also be given the opportunity to undertake an intensive course on compiler construction from one of Europe’s leading authorities in the field.

www.brookes.ac.uk/postgraduate/courses/cs
Admission requirements
You should normally hold a first degree equivalent to at least a British lower second class bachelor’s degree in computing, mathematics, engineering or science-related subject in which good programming skills have been developed.

Applicants whose first degree is not in these areas but who have worked in a related industry and have obtained good relevant experience and programming skills can also be considered.

English language requirements
If your first language is not English, you will need an IELTS score of 6.0 or equivalent.

Find out about other acceptable English language qualifications and the UK Border Agency’s language requirements for student visas at www.brookes.ac.uk/international/how-to-apply/english-language-requirements/
The applications of computer vision can be found all around us. In robotics, it is used to make robots identify and handle objects. In cinematography it is used to capture actors’ movements, which are used, together with computer generated graphics, to create characters such as Gollum in *Lord of the Rings*. In medicine, medical imaging is very important for CAT scans and MRI to identify diseases and for research. In surveillance facial recognition and motion recognition are used to identify and track people. Tablets and smart phones have computer vision apps and also web applications contain methods to categorise and identify people, objects and places. All these different applications make use of the methods designed for computer vision to make us more comfortable, healthier, safer and entertained.

The Computing and Communication Technologies Department has a world-class reputation for research in the field of Computer Vision. The Computer Vision research group has won numerous international prizes and awards for the quality of its work and has excellent links with world-class companies such as Sony and Microsoft.

This master’s programme will teach core techniques and concepts used in computer vision whilst incorporating some of the exciting novel techniques devised by the ongoing research work. Links forged between the taught programme and the research group should enable students on the taught programme to produce research papers, and so enhance their career prospects.

Our students benefit from access to state-of-the-art facilities, teaching driven by industry needs, and a focus on user-inspired research.

www.brookes.ac.uk/postgraduate/courses/computervision
Course content

The course is offered at three levels: a master’s degree (MSc), a postgraduate diploma (PGDip) and a postgraduate certificate (PGCert). The PGCert is also available as a Research Project.

For the MSc, you must pass modules amounting to 180 credits, comprising six compulsory taught modules (20 credits each) plus your dissertation (60 credits).

The PGDip allows you to concentrate on the taught part of the degree and is ideal for people working in the computing industry who wish to brush up their skills. For the PGDip, you must pass modules amounting to 120 credits, comprising the six compulsory taught modules (20 credits each). In some cases, it may be possible for a student on a postgraduate diploma to complete three taught modules (20 credits each) plus a dissertation (60 credits).

The PGCert is ideal for people working in the computing industry who wish to learn a specific area in this rapidly changing discipline. To qualify for a postgraduate certificate, you must pass modules amounting to 60 credits, comprising three taught modules (20 credits each).

For students who already have a background of research and scholarship we also offer a PGCert Research Project. This is a variant of the standard PGCert except that students undertake the dissertation rather than 3 taught modules.

Part-time students normally distribute the work evenly over a two-year period.

Semester 1

Semester 1 has the following modules:

- Research and Scholarship Methods (compulsory for MSc and PG Dip)
- Principles of Computer Vision (compulsory for MSc and PG Dip)
- Mathematics for Computer Vision (compulsory for MSc and PG Dip)

Semester 2

Semester 2 has the following modules:

- Software Production (compulsory for MSc)
- Advanced Computer Vision (compulsory for MSc)
- Machine Learning (compulsory for MSc)

Dissertation module

Students studying for an MSc will also take:

- MSc Dissertation, which is an individual research and development project that allows you to study a topic of your choice in depth, guided by your supervisor. The work may be undertaken in close co-operation with a research, industrial or commercial organisation. You start your dissertation in Semester 2, continuing over the summer period.

Career prospects

Our MSc students come from all over the world and graduate to follow careers in technical, business-related and creative roles, for example as developers, engineers, managers or consultants.

Graduates of the MSc Computer Vision may expect to be able to find employment within various industries that use computer vision applications, such as in robotics, entertainment, surveillance and internet companies. Particularly able and interested students may have an opportunity to continue their studies of computer vision to obtain a PhD.

Admission requirements

You should normally hold a first degree equivalent to at least an upper second class bachelor’s degree in computing, mathematics, engineering or science-related subject in which good programming skills have been developed. If your first degree is not in these areas but you have worked in a related industry and have obtained good relevant experience and programming skills, you can also be considered.

English language requirements

If your first language is not English, you will need an IELTS score of 6.0 or equivalent.

Find out about other acceptable English language qualifications and the UK Border Agency’s language requirements for student visas at [www.brookes.ac.uk/international/how-to-apply/english-language-requirements/](http://www.brookes.ac.uk/international/how-to-apply/english-language-requirements/)
COMPUTING MSC/PGDip/PGCert

If your first degree is not in computing but you want to move into IT then this MSc in Computing is designed for you.

The course will enable you to develop a sound knowledge of computer software development for a range of problem areas, such as interactive websites, stand-alone applications and network systems. Because of its emphasis on software, system construction and management, and data organisation, the qualification is applicable to a wide variety of fields concerned with using computers, as well as directly to the computer industry itself.

www.brookes.ac.uk/postgraduate/courses/computing
Course content

The course is offered at three levels: a master’s degree (MSc), a postgraduate diploma (PGDip) and a postgraduate certificate (PGCert).

For the MSc, you must pass modules amounting to 180 credits. This comprises six taught modules (20 credits each) plus your dissertation (60 credits).

The PGDip allows you to concentrate on the taught part of the degree and is ideal for people working in the computing industry who wish to brush up their skills. For the PGDip, you must pass modules amounting to 120 credits, comprising six taught modules (20 credits each). In some cases, it may be possible for a student on a postgraduate diploma to complete three taught modules (20 credits each) plus a dissertation (60 credits).

The PGCert is ideal for people working in the computing industry who wish to learn a specific area in this rapidly changing discipline. To qualify for a postgraduate certificate, you must pass modules amounting to 60 credits, comprising three taught modules (20 credits each).

Part-time students normally distribute the work evenly over a two-year period.

Semester 1

In Semester 1 you can choose from the following modules:

- Research and Scholarship Methods (compulsory for MSc and PG Dip)
- Object-Oriented Programming (compulsory for MSc and PG Dip)
- Structured Data (compulsory for MSc)

Semester 2

In Semester 2 you can choose from the following modules:

- Computer Systems and Networks (compulsory for MSc and PG Dip)
- Software Production (compulsory for MSc)
- Web Interfaces and Media (optional)
- Information Security and Retrieval (optional)

Dissertation module

Students studying for an MSc will also take:

- MSc Dissertation which is an individual research and development project that allows you to study a topic of your choice in depth, guided by your supervisor. The work may be undertaken in close co-operation with a research, industrial or commercial organisation. You start your dissertation in Semester 2, continuing over the summer period.

Career prospects

As a graduate of this programme you will be ideally equipped for a career in the computing industry. Graduates are employed across a whole range of careers from development roles in small software houses, to the activities of IT departments in large, multinational corporations, to more specialist roles for providers of IT and telecommunications services. These include technical roles, including software design and development, specialist product support, and infrastructure and security management roles.

Admission requirements

You should normally hold a first degree equivalent to at least a British lower second-class bachelor’s degree, in a non-computing or IT subject. If you have industrial experience in part of the domain, but no formal qualifications, you may also be considered.

English language requirements

If your first language is not English, you will need an IELTS score of 6.0 or equivalent. Find out about other acceptable English language qualifications and the UK Border Agency’s language requirements for student visas at www.brookes.ac.uk/international/how-to-apply/english-language-requirements/
Before you came to Brookes what did you study and where?
Before arriving at Brookes I studied Computer Science at Supinfo, an Information Technology French university. I did my undergraduate in Paris and one year in San Francisco as part of the two years Master’s program of Supinfo.

What made you choose Brookes as a place to study?
The partnership between Supinfo and Brookes was a great opportunity to come and study in the UK, and the value of the degree also influenced my decision. I also wanted to continue studying abroad as part of my international experience.

What did you think of the course while studying here?
The course is captivating with material that covers technologies currently used in the industry. I also think it gives us a strong basis on which we can rely on for further development in the domain we want to get specialised.

What are the best bits of studying at Brookes?
The international aspect of Brookes is amazing. Studying with students from different parts of the world is very enriching. The lecturers are very knowledgeable in their respective domains, friendly and always available to help. There is a good working environment and Oxford is a great place to be as a student. The sport facilities at Brookes and in Oxford are also a positive aspect.

What advice do you have for others?
An advice would be not to hesitate and take the opportunity of studying in a great international study environment with an excellent course quality. I will just sum it up with “Come to Brookes, you will have a great time!”.

After graduating from Brookes what were the next steps for your career and where are you working now?
After graduating from my MSc course, I pursued my studies with a PhD degree at Brookes in the same department, having two of my MSc lecturers as supervisors. I am currently enjoying my research in Wireless Communications for Intelligent Transport Systems.

Graduate Profile
Cristian Roman MSc Broadband Networks

Before you came to Brookes what did you study and where?
Before arriving at Brookes I studied Computer Science at Supinfo, an Information Technology French university. I did my undergraduate in Paris and one year in San Francisco as part of the two years Master’s program of Supinfo.

What made you choose Brookes as a place to study?
The partnership between Supinfo and Brookes was a great opportunity to come and study in the UK, and the value of the degree also influenced my decision. I also wanted to continue studying abroad as part of my international experience.

What did you think of the course while studying here?
The course is captivating with material that covers technologies currently used in the industry. I also think it gives us a strong basis on which we can rely on for further development in the domain we want to get specialised.

What are the best bits of studying at Brookes?
The international aspect of Brookes is amazing. Studying with students from different parts of the world is very enriching. The lecturers are very knowledgeable in their respective domains, friendly and always available to help. There is a good working environment and Oxford is a great place to be as a student. The sport facilities at Brookes and in Oxford are also a positive aspect.

What advice do you have for others?
An advice would be not to hesitate and take the opportunity of studying in a great international study environment with an excellent course quality. I will just sum it up with “Come to Brookes, you will have a great time!”.

After graduating from Brookes what were the next steps for your career and where are you working now?
After graduating from my MSc course, I pursued my studies with a PhD degree at Brookes in the same department, having two of my MSc lecturers as supervisors. I am currently enjoying my research in Wireless Communications for Intelligent Transport Systems.
Before you came to Brookes what did you study and where?
Before coming to Brookes I studied BA (Hons) Media Practice and Theory at University of Sussex.

What made you choose Brookes as a place to study?
Brookes really appealed to me as I felt at home as soon as I visited. The facilities were second to none, and there's no better place in the world to study than Oxford! The deciding factor, though, was the course offered – it was a master's degree for people who had not studied computing before. This was not offered at many universities!

What did you think of the course while studying here?
The course was really enjoyable and set me up for the workplace. All of the modules taught me transferable skills and an overview of Computer Science. The research tips given during the dissertation preparation modules have stayed with me to this day!

What are the best bits of studying at Brookes?
I really enjoyed going along to societies and socials, and I will never forget the Cheese and Wine Murder Mystery night! There's also a good mix of international students, and some of my very best friends are people I met at Brookes (including my fiancé!)

How did the course at Brookes or your lecturers influence you? What support did you receive from them?
The course convinced me I wanted a job that combined both business and IT. My lecturers were very open to discussing job options with me and giving me advice on my dissertation. The support I received from Careers Advisors was invaluable. They helped tailor my CV to job applications and encourage me to apply for jobs I never would have considered. I'm pretty sure I wouldn't have got a job without Brookes!

After graduating from Brookes what were the next steps for your career and where are you working now?
After graduating, I got a place on the Graduate IT Training Scheme at Logica (now CGI). I have recently moved on to Practicus (http://www.practicus.com) where I am Webmaster and Bid Project Manager. I help the company to win new business contracts.

What so far have been the best moments?
Getting my first job was the best feeling. It’s really positive to know that everything you’ve learnt through school, college and university can be put to good use somewhere.

What so far have been the most challenging moments?
Moving in to the world of work was quite challenging as I was so used to being a student! But once you’ve got your foot on the career ladder and you start feeling responsible for your work, it’s much easier.

Graduate Profile
Anna Gregory MSc Computing
DIGITAL MEDIA PRODUCTION MSc

The **MSc Digital Media Production** will provide you with the techniques and the expertise with industry standard tools that are needed for the creation of contemporary media products. It is for students who have a first degree in a discipline other than a technically based media subject.

**Why study at Brookes**

Lecturers on the MSc Digital Media Production have experience of working in the media industry and we have state-of-the-art facilities. That means you will enjoy an excellent academic education coupled with practice-based learning, using industry-standard hardware and software.

A feature of the programme at Brookes is that it is open to students from any academic background such as arts, literature, business, computing and many more.

**Specialist facilities**

We have excellent facilities to support your learning and use the latest industry standard tools, such as Avid, Maya, After Effects and ProTools. Teaching is based at our new purpose-built building on the Wheatley Campus. Facilities include a sound and video recording studios, post-production studios, motion capture studio and a fully operational TV newsroom.

**BrookesTV**

BrookesTV News is a half-hour news programme produced from scratch by students from a state-of-the-art TV studio. BrookesTV was previously involved with the local broadcaster SIXTV and had regular programmes screened on the channel.

Students research, write, film, present and edit stories for BrookesTV, and create quality local news coverage in Oxfordshire. BrookesTV also gives students opportunities to gain important experience working in a professional TV studio and a chance to get to grips with roles such as Director, Broadcast Assistant and Floor Manager.

In 2013 a special 100th episode was aired, which included a personal video message from ITN journalist and presenter Jon Snow to BrookesTV from the Channel 4 news studio. In the video message he said that BrookesTV News offers “fantastic, creative learning for the people who get involved in it”; and that over the years it has “become extremely professional”.

In the near future, the show will be broadcast for people in Oxfordshire again when the station is re-launched as ‘That’s Oxford’.

BrookesTV News can also be found on the Oxford Brookes YouTube channel.
Career prospects

Students graduate from the course with a broad skill set that equips them to move into a career in film and television post production, the computer games industry or live television production.

Admission requirements

You should normally hold a first degree equivalent to at least a British lower second class bachelor’s degree in any discipline other than those very closely related to media technology. If you have relevant professional qualifications or work experience you can also be considered.

English language requirements

If your first language is not English, you will need an IELTS score of 6.0 or equivalent.

Find out about other acceptable English language qualifications and the UK Border Agency’s language requirements for student visas at www.brookes.ac.uk/international/how-to-apply/english-language-requirements/
This exciting one-year full-time specialist master’s course has been designed to enable tomorrow’s business and technology leaders to fully exploit the opportunities offered by recent advances in internet technologies. There is no doubt that these technologies now form the basis for innovations in all areas of business enterprise, and anybody wishing to take a leading role in local, regional or global business development will require the critical knowledge and skills offered by this programme. The course is run by the Department of Computing and Communication Technologies and has been developed in conjunction with our Business School.

The course is based on a sound understanding of the technical infrastructure of the internet and the web, but will rapidly develop your expertise in a host of convergent technologies. Issues relating to web application development, including web design and the human-computer interface, will complement a good understanding of the business potential of multimedia and database technologies.

The recent radical changes in the global market place are transforming the business environment and the nature of work itself. Significant drivers for change include advancing communications and digital technology, the worldwide-web and e-commerce. There have also been major changes in the business landscape due to the emergence of new, major international trading blocs and the emergence of former communist regimes as trading partners. Information technology and communications are crucial to enable businesses to flourish in this turbulent and dynamic environment. New ways are being discovered to use these technologies for trade, entertainment, communication, socialisation and information sharing. This has opened up exciting prospects for anyone who wishes to take advantage of these opportunities and shape future innovation and performance improvement in eBusiness and eCommerce.

This course focuses on the latest eBusiness models and technical skills that are required to build effective solutions. The course provides a unique integration of theory and practice with practice orientated teaching based on real world examples. The course includes live projects undertaken in partnership with industry and regular guest lectures from award-winning practitioners. Few other universities offer the combination of taught modules and live projects that are available on this course. Therefore graduates will embark on new careers equipped with highly desirable skills and experience.

www.brookes.ac.uk/postgraduate/courses/ebus
Course content

The course is offered at three levels: a master’s degree (MSc), a postgraduate diploma (PGDip) and a postgraduate certificate (PGCert). The PGCert is also available as a Research Project.

For the MSc, you must pass modules amounting to 180 credits. This comprises six compulsory taught modules (20 credits each) plus the research and study methods module (10 credits) and your dissertation (50 credits).

The Postgraduate Diploma in eBusiness allows you to concentrate on the taught part of the degree and is ideal for people already working in the industry who wish to brush up their skills. To qualify for a postgraduate diploma, you must pass modules amounting to 120 credits.

The Postgraduate Certificate in eBusiness allows you to concentrate on the taught part of the degree and is ideal for people working in the industry who wish to learn a specific area in this rapidly changing discipline. To qualify for a postgraduate certificate, you must pass modules amounting to 60 credits.

Part-time students normally distribute the work evenly over a two-year period.

Semester 1

Semester 1 has the following modules:

- The Business Web (compulsory for MSc and PG Dip)
- eMarketing Principles and Strategies (compulsory for MSc and PG Dip)
- Web Applications Development (compulsory for MSc and PG Dip)
- Research and Study Methods (compulsory for MSc). This module continues in semester 2

Semester 2

Semester 2 has the following modules:

- Research and Study Methods (compulsory for MSc). This module is continued from semester 1.
- eBusiness Information Systems (compulsory for MSc)
- Business eFutures (compulsory for MSc)
- Building a Web-based Business (compulsory for MSc)

Dissertation module

Students studying for an MSc will also take:

- The Dissertation, which is an individual research and development project of 10,000-15,000 words on a topic closely related to your programme of study. The work may be undertaken in close co-operation with a research, industrial or commercial organisation possibly linked to an optional internship. The dissertation will typically be an investigation of a commercial problem from an IT perspective leading to the design, implementation and testing of a computer based solution.

Admission requirements

You will need a second-class Honours Bachelor’s Degree, or the overseas equivalent, in a subject containing a computing or IT component, for example, Business Information Systems, is required. Business-based awards, which have a computing related content, will also be considered.

English language requirements

If your first language is not English, you will need an IELTS score of 6.0 or equivalent. Find out about other acceptable English language qualifications and the UK Border Agency’s language requirements for student visas at www.brookes.ac.uk/international/how-to-apply/english-language-requirements/

Career prospects

This programme aims to provide students with the opportunity to explore and critically evaluate current thinking, latest developments and professional best practice in eBusiness whilst providing opportunities for students to develop skills valued by employers to enhance opportunities for employment and choices of career.
MOBILE AND HIGH SPEED TELECOMMUNICATION NETWORKS MSc

The growth of mobile, fixed line broadband communications in the last decade has been phenomenal. World-wide, billions of people now communicate with mobile phones and use DSL and optical fibre links from their homes and businesses to surf the web, download music and videos and watch IP TV. With this growth, comes great demand for people with the skills and knowledge to support many aspects of wireless and fixed line network provision, which means that graduates with the right skills and technical knowledge can be assured of a bright future. The Mobile and High Speed Telecommunication Networks course offered by Oxford Brookes is designed to provide you with in-depth knowledge of modern high-speed telecommunication systems and personal communications and so significantly enhance your future career prospects.

The course has two main components: 2G - 4G mobile communications, and fixed high-speed and multiservice networks. Emphasis is given to developing essential industrial and commercial skills.

The dissertation is a major element of the course and gives you the opportunity to enhance your career prospects by acquiring in-depth knowledge of a key aspect of telecommunications technology.

www.brookes.ac.uk/postgraduate/courses/mhstn
**Course content**

The course is offered at three levels: a master’s degree (MSc), a postgraduate diploma (PGDip) and a postgraduate certificate (PGCert). The PGCert is also available as a Research Project.

For the MSc, you must pass modules amounting to 180 credits. This comprises six taught modules (20 credits each) plus your dissertation (60 credits).

The PGDip allows you to concentrate on the taught part of the degree and is ideal for people working in the communications industry who wish to brush up their skills. For the PGDip, you must pass modules amounting to 120 credits, comprising six taught modules (20 credits each). In some cases, it may be possible for a student on a postgraduate diploma to complete three taught modules (20 credits each) plus a dissertation (60 credits).

The PGCert is ideal for people working in the communications industry who wish to learn a specific area in this rapidly changing discipline. To qualify for a postgraduate certificate, you must pass modules amounting to 60 credits, comprising three taught modules (20 credits each).

For students who already have a background of research and scholarship we also offer a PGCert Research Project. This is a variant of the standard PGCert except that students undertake the dissertation rather than 3 taught modules.

Part-time students normally distribute the work evenly over a two-year period.

**Semester 1**

In Semester 1 you can choose from the following modules:

- Research and Scholarship Methods (compulsory for MSc)
- Digital Mobile Communications (alternative compulsory for MSc and PG Dip)
- Digital Communications (alternative compulsory for MSc)
- Network Principles (alternative compulsory for MSc)

**Semester 2**

In Semester 2 you can choose from the following modules:

- Advanced Mobile Communications (compulsory for MSc and PG Dip)
- High Speed Mobile Communications (compulsory for MSc and PG Dip)
- Optical and Broadband Networks (alternative compulsory for MSc)
- Multiservice Networks (alternative compulsory for MSc)

**Dissertation module**

Students studying for an MSc will also take:

- MSc Dissertation, which is an individual research and development project that allows you to study a topic of your choice in depth, guided by your supervisor. The work may be undertaken in close co-operation with a research, industrial or commercial organisation. You start your dissertation in Semester 2, continuing over the summer period.

**Career prospects**

Our MSc students come from all over the world and follow careers in many countries after their graduation. They are engaged in activities such as 3G network design, WiMax and LTE roll-out, handset compliance, DVB-H planning, communications software development and university lecturing. Many of them have commented on how the course content and training enabled their careers to flourish.

**Admission requirements**

You should normally hold a first degree equivalent to at least a British lower second class bachelor’s degree in an Electronic Engineering, Telecommunications, Computer Science or a related engineering or computing degree. Applicants whose first degree is not in these areas but who have worked in a related industry and have obtained good relevant experience and programming skills can also be considered.

**English language requirements**

If your first language is not English, you will need an IELTS score of 6.0 or equivalent.

Find out about other acceptable English language qualifications and the UK Border Agency’s language requirements for student visas at www.brookes.ac.uk/international/how-to-apply/english-language-requirements/
SOFTWARE ENGINEERING
MSc/PGDip/PGCert

The most complex engineering artefacts in existence are now software systems, and the effects of such systems are felt by almost everyone. It is vitally important that software should be of high quality; it should be built on schedule and without error and it should be safe. Software Engineering combines scientific and engineering principles with sound practice.

The MSc in Software Engineering addresses all this with a range of specialist modules while also allowing choice. The course aims to equip you to begin a career, or to undertake further study in this important and exciting area.

Our Software Engineering programmes are rooted in real-world and industry-relevant experiences. Real world problems and current issues in software engineering are used to illustrate the theoretical concepts. This gives students the opportunity to develop the advanced skills and knowledge needed to pursue successful careers in their chosen fields.

Professional experts contribute to the range of subjects on offer and the design of our programmes is informed by state-of-the-art research being undertaken in the department. In particularly students have the opportunity to work alongside members of our dependable systems research centre and internationally renowned academics. Students on the programme will also be given the opportunity to undertake an intensive course on compiler construction from one of Europe’s leading authorities in the field.

www.brookes.ac.uk/postgraduate/courses/se
Course content

The course is offered at three levels: a master’s degree (MSc), a postgraduate diploma (PGDip) and a postgraduate certificate (PGCert). The PGCert is also available as a Research Project.

For the MSc, you must pass modules amounting to 180 credits. This comprises six taught modules (20 credits each) plus your dissertation (60 credits).

The PGDip allows you to concentrate on the taught part of the degree and is ideal for people working in the computing industry who wish to brush up their skills. For the PGDip, you must pass modules amounting to 120 credits, comprising six taught modules (20 credits each). In some cases, it may be possible for a student on a postgraduate diploma to complete three taught modules (20 credits each) plus a dissertation (60 credits).

The PGCert is ideal for people working in the computing industry who wish to learn a specific area in this rapidly changing discipline. To qualify for a postgraduate certificate, you must pass modules amounting to 60 credits, comprising three taught modules (20 credits each).

For students who already have a background of research and scholarship we also offer a PGCert Research Project. This is a variant of the standard PGCert except that students undertake the dissertation rather than 3 taught modules.

Part-time students normally distribute the work evenly over a two-year period.

Semester 1

In Semester 1 you can choose from the following modules:

- Research and Scholarship Methods (compulsory for MSc and PG Dip)
- Formal Software Engineering (compulsory for MSc and PG Dip)
- Secure Systems Architecture (compulsory for MSc)
- Mobile and Distributed Systems (optional)
- Programming Applications (optional)
- Web Ecosystems (optional)

Dissertation module

Students studying for an MSc will also take:

- MSc Dissertation, which is an individual research and development project that allows you to study a topic of your choice in depth, guided by your supervisor. The work may be undertaken in close co-operation with a research, industrial or commercial organisation. You start your dissertation in Semester 2, continuing over the summer period.

Semester 2

In Semester 2 you can choose from the following modules:

- Software Production (compulsory for MSc and PG Dip)
- Paradigms of Programming (alternative compulsory for MSc)
- Compiler Construction (alternative compulsory for MSc)
- Mobile and Distributed Systems (optional)
- Programming Applications (optional)
- Web Ecosystems (optional)

Career prospects

Graduates of this course are employed across a whole range of careers from development roles in small software houses, to the activities of IT departments in large, multinational corporations, to more specialist roles for providers of IT and telecommunications services. These include technical roles, including software design and development, specialist product support, and infrastructure and management roles.

Admission requirements

You should normally hold a first degree equivalent to at least a British lower second-class bachelor’s degree, in computing, mathematics, engineering or science-related subject in which good programming skills have been developed. Applicants whose first degree is not in these areas but who have worked in a related industry and have obtained good relevant experience and programming skills can also be considered.

English language requirements

If your first language is not English, you will need an IELTS score of 6.0 or equivalent.

Find out about other acceptable English language qualifications and the UK Border Agency’s language requirements for student visas at www.brookes.ac.uk/international/how-to-apply/english-language-requirements/
MOBILE AND WIRELESS COMMUNICATIONS
MSc/PGDip/PGCert

Wireless technology has become an integral part of our life in the form of the mobile phone, mobile computing devices, wireless sensor networks and near field communication devices. In the future we will see many new applications emerge such as vehicular communication leading to autonomous vehicles and safer driving, remote medical monitoring and intelligent homes and offices with sensors to monitor and control energy consumption. Industry needs graduates with a knowledge of current technologies but also an appreciation of how future technologies can drive the next generation networks and devices.

In the Mobile and Wireless Communications programme, students are taught the basic wireless communication principles and the key functions that make up a wireless system. Students learn how to select appropriate components to meet a system design specification. They are guided through a series of case studies and taught to take a ‘whole system’ approach to the design with the aim of identifying the optimum solution. Students on this programme will also study the design of the advanced mobile cellular networks and learn about the latest developments in mobile technology underpinned by knowledge of the theoretical concepts. Students are introduced to standard industry software simulation tools for designing and evaluating networks. By addressing a broad range of wireless applications and technologies, graduates from this programme will be well prepared to find solutions for emerging applications.
Course content

The course is offered at three levels: a master’s degree (MSc), a postgraduate diploma (PGDip) and a postgraduate certificate (PGCert). The PGCert is also available as a Research Project.

For the MSc, you must pass modules amounting to 180 credits. This comprises six taught modules (20 credits each) plus your dissertation (60 credits).

The PGDip allows you to concentrate on the taught part of the degree and is ideal for people working in the communications industry who wish to brush up their skills. For the PGDip, you must pass modules amounting to 120 credits, comprising six taught modules (20 credits each). In some cases, it may be possible for a student on a postgraduate diploma to complete three taught modules (20 credits each) plus a dissertation (60 credits).

The PGCert is ideal for people working in the communications industry who wish to learn a specific area in this rapidly changing discipline. To qualify for a postgraduate certificate, you must pass modules amounting to 60 credits, comprising three taught modules (20 credits each).

For students who already have a background of research and scholarship we also offer a PGCert Research Project. This is a variant of the standard PGCert except that students undertake the dissertation rather than 3 taught modules.

Semester 1

In Semester 1 you can choose from the following modules:
- Research and Scholarship Methods (compulsory for MSc)
- Wireless Communication Principles (compulsory for MSc and PG Dip)
- Digital Mobile Communications (alternative compulsory for MSc)
- Digital Communications (alternative compulsory for MSc)
- Network Principles (alternative compulsory for MSc)

Semester 2

In Semester 2 you can choose from the following modules:
- Advanced Mobile Communications (compulsory for MSc and PG Dip)
- Wireless Systems and Networks (compulsory for MSc and PG Dip)
- High Speed Mobile Communications (alternative compulsory for MSc)
- Mobile and Distributed Systems (alternative compulsory for MSc)

Dissertation module

Students studying for an MSc will also take:
- MSc Dissertation, which is an individual research and development project that allows you to study a topic of your choice in depth, guided by your supervisor. The work may be undertaken in close co-operation with a research, industrial or commercial organisation. You start your dissertation in Semester 2, continuing over the summer period.

Admission requirements

You should normally hold a first degree equivalent to at least a British lower second-class bachelor’s degree in an Electronic Engineering, Telecommunications, Computer Science or a related engineering or computing subject. Applicants whose first degree is not in these areas but who have worked in a related industry and have obtained good relevant experience and programming skills can also be considered.

English language requirements

If your first language is not English, you will need an IELTS score of 6.0 or equivalent.

Find out about other acceptable English language qualifications and the UK Border Agency’s language requirements for student visas at www.brookes.ac.uk/international/how-to-apply/english-language-requirements/

Career prospects

Graduates from this programme have found employment with major telecommunications companies such as Vodafone, Ericsson, Alcatel and in many areas of the telecommunications and wider IT industries.

The international aspect of Brookes is amazing. Studying with students from different parts of the world is very enriching.

Cristian Roman, MSc Broadband Networks graduate

See page 12 for more from Cristian.
Before you came to Brookes what did you study and where?
BSc (Hons) in Multimedia Technology at the University of Hertfordshire.

What made you choose Brookes as a place to study?
The quality of teaching and facilities available to students was evident right from the first visit to the university. Brookes has such a vibrant atmosphere and its proximity to Oxford city centre made it an easy choice when deciding where to study.

What did you think of the course while studying here?
The course covered a broad range of subjects, which provided a great opportunity to experience the different areas of media production. That range of experience helped me decide which industry sector I wanted to work in after graduating. Being taught by lecturers that have real industry experience was also invaluable, especially when moving into a fast-paced and ever-changing industry.

What are the best bits of studying at Brookes?
Studying at Brookes was fantastic; both the Headington and Wheatley campuses are in beautiful locations. The social side was amazing too, with many options for relaxing with friends or for some lively nights out at the Students’ Union.

What advice do you have for others?
You have to work hard when aiming for that dream job. University is one of the best opportunities in that respect; somewhere you’ll find your feet and show what can really be achieved if you work for it. It’s also important to learn how to find a balance and not spend too much time focused on one thing.

After graduating from Brookes what were the next steps for your career and where are you working now?
Brookes has some excellent links with industry and I was fortunate enough to gain a six month internship at Vicon (a motion-capture company) soon after graduating. It provided me with relevant experience in operating motion-capture systems, especially as many large visual effects companies now have their own in-house motion-capture studios.

After completing my internship I began working as a runner at The Mill, a post-production company based in London, which creates incredible visual effects for the advertising, games and music industries. I was then promoted to the position of 3D Artist, which is the role I have been involved in for the last two years.

Did your career turn out how you expected it to?
I knew that I wanted to work in the media industry from an early age but before studying at Brookes, I wasn’t sure which specific area to focus on. I found the 3D animation part of the course particularly engaging and knew from that point on it was the direction for me.

What achievements are you most proud of since graduating?
Getting to work at one of the world’s leading post-production companies is definitely a great achievement in an industry that is highly competitive and constantly changing. I’ve had the chance to work on some award-winning commercials for domestic and international markets, with brands such as Nike, Audi, Mercedes and Heineken.

Working on my first feature film was another big achievement and something I’d wanted to do for a very long time, to have that finally happen and see your work up on the screen in front of millions of people is quite exciting!

How has the course you studied at Oxford Brookes or the experiences you gained here helped you in your career?
Having great tutors with real industry experience ensured that what I was learning at Brookes would be relevant in my career. Our course was also structured in a way that encourages collaborating with people you initially don’t know and being able to work effectively with others in this way is such an important skill to learn.
Graduate profile
Jagdeep Nagpal MSc Computer Science

Before you came to Brookes what did you study and where?
BSc Computer Science and Software Engineering at University of Newcastle upon Tyne.

What made you choose Brookes as a place to study?
The courses offered were relevant to industry practices and the ability of choosing the modules that would enhance my skill-set. The atmosphere of the city and the highly dedicated and self-motivated students always kept me on my toes.

What did you think of the course while studying here?
It was very well structured, and extremely useful. Coming straight here after graduating, I did not believe there was so much more I had to learn to fully understand this industry. The modules gave me confidence and the strength to learn new programming languages and embrace change.

What are the best bits of studying at Brookes?
The lecturers are very helpful and are experts in their fields. The staff are well organised and extremely helpful. The campus is very peaceful and motivating. The modules offered are constantly improved and student feedback is given utmost importance.

What advice do you have for others?
If you are willing to work hard and succeed in life, then Oxford Brookes is the university you want to apply to. The freedom of choosing your own topics for dissertation allow you to learn new technologies along with the support of expert supervisors.

After graduating from Brookes what were the next steps for your career and where are you working now?
I graduated in 2013 and am now working as an Associate Software Engineer with BSkyB.

Jagdeep was awarded the 2013 Brian Clark Memorial Prize for the most outstanding contribution to the area of Computing.
Our graduates tell us that the relevance of our courses and the skills they’ve learnt enable them to achieve their goals and build their careers.

Our postgraduate courses are taught by leading academics as active researchers and are designed to meet the needs of modern industry.

Our location in Oxford places us at the heart of one of Europe’s biggest concentrations of high-tech businesses.
CONTACT INFORMATION

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For more information about applying as an International Student please visit:
www.brookes.ac.uk/international

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As our courses are reviewed regularly, course content and taught modules may vary from the lists shown in the course details. For the most recent information and to confirm details of any programme of study please contact cct-enquiry@brookes.ac.uk or visit our website at cct.brookes.ac.uk

Front cover images, clockwise from main image:
Testing the quad copter
Students in the networking lab
Artie the humanoid robot
Working with sound and light
Robotic replication of human head gestures
Computer vision goggles

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For more details please visit www.brookes.ac.uk/services/hr/eod or phone +44 (0) 1865 485929.

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