YOUR 2017-2018
ENGINEERING,
DESIGN AND
TECHNOLOGY
PROSPECTUS
OPEN YOUR FUTURE
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Today is the day to open up your future. To expand your horizons and gain new skills. To move your career to the next level – or start a new one. We’re here to help you do it all.
We’re pioneers in distance learning, just one of the things that makes us unique.

**WE WILL:**
- help you gain a qualification that employers respect
- provide you with great teaching and resources
- offer a flexible learning experience based around you and your needs
- use the most up-to-date technology to enhance your study
- support you when you need it.

**WHAT YOU CAN EXPECT**
- Materials that are often designed by leading academics as well as public and private sector industry experts, and checked with skills councils and professional bodies to make sure they’re current and relevant.
- Continuing innovation - we have always been a leader in education, providing accessible ways of learning, wherever you may be.
- World-class resources - we have more online library resources than any other UK university.
- Qualifications that are respected by employers the world over, many who go on to sponsor students studying with us.

86% of FTSE 100 companies have sponsored staff on OU courses.
FIVE REASONS WHY YOU SHOULD CHOOSE US

1. We make learning available to all, regardless of background, age or any additional learning needs.

2. We’re experts in helping busy people fit studies around their working lives and family commitments.

3. We guarantee you outstanding value – high quality teaching at an affordable price.

4. Our qualifications are vocationally focused, ensuring you can put what you learn into practice immediately.

5. Our ways of teaching are respected by students and employers alike.
Where you start in life shouldn’t limit where you go. If you’re determined to succeed and prepared to work hard then choose a course, get in touch and get going.

It’s easy to begin studying with us. In the next few pages you can find out about the courses we offer, how you pay and how long your qualification may take.

**WHAT YOU NEED**

- A computer and internet access. You could receive financial help to buy a computer depending on where you live and how much you earn.
- A good grasp of the English language. To get help and guidance on whether you meet this standard, go to [openuniversity.co.uk/englishlanguage](http://openuniversity.co.uk/englishlanguage).

**YOU CAN DO IT**

The main reason we’re called The Open University is that we’re open to everyone. Every year, we help thousands of people achieve extraordinary things and you could be next. You simply need the determination to succeed.

- Our students are diverse. 30% of new undergraduate students are under 25 and our oldest students are in their nineties.
- We helped around 22,000 students with disabilities and additional needs last year alone.
- There are no formal academic entry requirements at undergraduate level. For some qualifications you may need to be in relevant paid or voluntary employment - the qualification descriptions tell you more.

**COUNT YOUR PREVIOUS STUDY**

If you’ve studied before at higher education level it might count towards your OU qualification, cutting down the modules you’ll need to study as well as saving you time and money.

If you tell us what you have, we’ll do the rest.

To find out how it works, go to [openuniversity.co.uk/credit-transfer](http://openuniversity.co.uk/credit-transfer).
THE RIGHT QUALIFICATION FOR YOU

We offer nearly 200 highly-respected qualifications, including certificates, diplomas and degrees. Read the information below to help you decide which qualification is best for you.

FOR UNDERGRADUATES
You can study any of the following undergraduate qualifications.

- **An integrated masters degree** – Add value to undergraduate study by combining it with work at postgraduate level.

- **A degree in a named subject** – Complete modules in a particular subject to earn an honours degree.

- **An Open degree** – Tailor an honours degree to your needs and interests across a number of subjects.

- **Diploma of higher education (DipHE)** – Expand your knowledge and improve your skillset. A diploma of higher education is equivalent to two-thirds of an honours degree.

- **Foundation degree** – Focus on a particular job or profession related to what you’re doing now, either in a work or voluntary setting. A foundation degree is equivalent to two-thirds of an honours degree.

- **Certificate of higher education (CertHE)** – Get a general grounding in a subject. A certificate of higher education is equivalent to one-third of an honours degree.

FOR POSTGRADUATES
You can study three types of postgraduate qualification.

- **Masters degree**

- **Postgraduate diploma**

- **Postgraduate certificate**

Whatever you choose, we’ll give you:

- the flexibility to fit postgraduate study around your other commitments
- the opportunity to improve your career
- freedom to follow your passions in depth.

To find out more about how you build your qualification and how long it takes, see pages 10–13.
LEARN IN A WAY THAT SUITS YOU

We give you the flexibility to fit study around the other things going on in your life, whatever they may be.

**SUPPORTED OPEN LEARNING**
You’ll have more one-to-one contact than you have with other distance education providers and more flexibility than campus-based learning. We make sure that you always have the help you need to learn in the best possible way. You get regular support from our tutors and access to all the materials and resources essential to your course.

We also put you in touch with a Student Support Team from the beginning. They’ll be there to help you on your learning journey.

**HOW YOU WILL BE ASSESSED**
You may be assessed in a number of different ways. We use a combination of written assignments, oral or practical assessments, projects, examinations, dissertations and portfolios. Check individual qualification descriptions for more detail.

**PIONEERING TECHNOLOGY**
We’ve been using innovative technology to connect with our students since we first started. We’ll make sure that you always have what you need and feel connected.

**CONNECT WITH OTHER STUDENTS**
Use our module discussion groups to talk about subjects or study methods. Or you could join one of the informal Facebook groups set up by students.

Join the conversation on Facebook.com/OUstudents Twitter.com/OUstudents Instagram.com/OUstudentslive

**STUDENTS ASSOCIATION**
You’ll also gain automatic entry to our active Students Association – you can help influence University decisions, meet fellow students and develop new skills.

Find out more at openuniversity.co.uk/ousa.

**DO YOU HAVE ADDITIONAL STUDY NEEDS?**
The OU is committed to helping students with disabilities and additional needs. We'll give you the tools to help overcome obstacles that may stand in the way of your learning – whatever your needs may be.

For more information and to find out whether you may qualify for financial help with study and travel costs, go to page 80, call us on +44 (0)300 303 5303 or go to openuniversity.co.uk/disability.
IMPROVE YOUR CONFIDENCE WITH AN ACCESS MODULE

An Access module offers a great introduction to a range of subjects. Think of it as a taster to see if you want to delve deeper. You don’t have to do one, but you may find it helpful if you don’t have much experience of university-level study or you haven’t studied in a while. You may even qualify for a free Access module - see page 9 for more details.

It will also:
- help improve your confidence
- give you a taste of something you may want to study in more detail
- provide an opportunity to brush up on your study skills.

Each module includes a selection of materials, online quizzes, and assignments that you complete over a period of 30 weeks. It takes around nine hours of study each week.

You’ll get:
- a personal tutor providing regular feedback with one-to-one telephone tutorials
- further support from a dedicated team throughout your study
- detailed written feedback
- an OU Access Module Certificate at the end of the course.

WHAT DO YOU NEED TO BEGIN?

You can start Access modules in February and October. You’ll need:
- access to a phone
- equipment that plays DVDs
- the use of a computer with internet access.

WHAT YOU CAN STUDY

The following Access module can prepare you for one or more of the qualifications we offer in engineering, design and technology.

Science, technology and maths Access module (Y033)

This module introduces you to a technically oriented range of subjects, including science; engineering and design; environment; mathematics; and computing and IT. As the foundation for further studies in these fields, this is the ideal module to explore mathematical and scientific ideas and techniques.

We offer two other Access modules, which are more relevant to other subject areas:

Arts and languages Access module (Y031)
People, work and society Access module (Y032)

Students who prepare by taking an Access module are more likely to be SUCCESSFUL in their future studies.
You can study an Access module for **free** if you:
- live in the UK or have a British Forces Post Office address (excludes Channel Islands and Isle of Man)
- are studying the module to prepare for an OU qualification (this doesn’t apply if you live in Scotland)
- have a household income (or, in Scotland, a personal income) of £25,000 or less, or you’re receiving qualifying benefits
- have not completed more than one year of a full-time undergraduate programme at NQF level 4/SCQF level 7 or above, or completed 30 credits or more of OU study.

**HOW MUCH DOES AN ACCESS MODULE COST?**

If you don’t qualify to study for free, the cost depends on where you live.
- In England, the Channel Islands and the Isle of Man it’s £716.
- In Northern Ireland, Scotland and Wales it’s £240.

Pay up front by debit/credit card or bank transfer, or choose to spread the cost with an Open University Student Budget Account – see page 15 for more information.

If you’re studying an Access module in preparation for an OU qualification and you live in England or Wales, you could cover the costs with a student loan – see page 14 for more information.

**NEXT STEPS**

Order an Access Modules Prospectus online at [openuniversity.co.uk/ug-access](http://openuniversity.co.uk/ug-access) or speak to our Student Recruitment team on **+44 (0)300 303 0069**.
As an undergraduate student you will need to build up a set number of credits to gain your qualification. Here’s how it works:

**WHAT ARE STAGES, CREDITS AND MODULES?**

**STAGES**
- You must complete three stages to gain an honours degree, two stages for a diploma of higher education or foundation degree, and one stage for a certificate of higher education. Our Master of Engineering has four stages.
- To complete each stage you must build up a set number of credits...

**CREDITS**
- You need 120 credits to complete each stage.
- You need a set number of credits to gain your chosen qualification e.g. you need 360 credits to gain an honours degree.
- You gain credits by successfully completing modules...

**MODULES**
- You choose the modules you want to study, year by year.
- Different modules are worth different amounts of credits, usually 30 or 60 credits.
- Modules are either compulsory or selected from a choice of options.
- Most students study 60 credits a year – see page 12 for more information.

**ACCESS MODULE**
An optional module to build your confidence and prepare you for further study.

- To complete Stage 1, you’ll need 120 credits, studying modules worth 30 or 60 credits.

**STAGE 1**
120 CREDITS
Certificate of higher education

**STAGE 2**
240 CREDITS
Diploma of higher education or a foundation degree

**STAGE 3**
360 CREDITS
Degree with honours
POSTGRADUATE STUDENTS
You gain a postgraduate qualification by building up a set number of credits...

CREDITS
You need:
- 60 credits to gain a postgraduate certificate
- 120 credits to gain a postgraduate diploma
- 180 credits to gain a masters degree.
You gain credits by successfully completing modules...

MODULES
- You choose the modules you want to study, year by year.
- With each module you successfully complete, you’ll earn a set number of credits, usually 30 or 60 credits.
- Modules are either compulsory or selected from a choice of options.

GETTING STARTED
All you need to do is choose which qualification you want to study and register on a module that counts towards that qualification. You can find out more about the postgraduate qualifications we offer in engineering, design and technology on page 58.
For more information on how long your qualification will take – see page 12.
**HOW LONG YOUR QUALIFICATION WILL TAKE**

Exactly how long it takes to get your qualification depends on you – how many credits you study each year and which qualification you’re working towards. Most of our students study part time. The way we work gives you the flexibility to do this and get the qualification you want in a timeframe that’s right for you. If you want to study full time, you’ll need to plan your studies and keep a few things in mind. We recommend that you do no more than two modules at the same time.

**UNDERGRADUATE QUALIFICATIONS**

**DEGREE (360 CREDITS)**

- **Study hours per week**
  - Full time: 36 hours
  - Part time: 18 hours

- **Years to complete**
  - Full time: 3 years
  - Part time: 6 years

**FOUNDATION DEGREE/DIPLOMA OF HIGHER EDUCATION (240 CREDITS)**

- **Study hours per week**
  - Full time: 36 hours
  - Part time: 18 hours

- **Years to complete**
  - Full time: 3 years
  - Part time: 6 years

**CERTIFICATE OF HIGHER EDUCATION (120 CREDITS)**

- **Study hours per week**
  - Full time: 36 hours
  - Part time: 18 hours

- **Years to complete**
  - Full time: 3 years
  - Part time: 6 years

Studying at a rate of 30 credits a year will require nine hours study per week. It will take double the time of studying 60 credits a year to complete your qualification.
That’s what’s so great about the OU – it’s made-to-measure, it’s bespoke, it fits around you and your individual needs.”

Hazel Krolow, studied with the OU

**POSTGRADUATE QUALIFICATIONS**

### MASTERS DEGREE (180 CREDITS)

- **Study hours per week**: 12–16
- **60 credits a year**
- **Part time**

### POSTGRADUATE DIPLOMA (120 CREDITS)

- **Study hours per week**: 12–16
- **60 credits a year**
- **Part time**

### POSTGRADUATE CERTIFICATE (60 CREDITS)

- **Study hours per week**: 12–16
- **60 credits a year**
- **Part time**

Depending on your qualification, the required modules may not all be available within your study year or may not be studied together for academic reasons. If this applies to your qualification, you won’t be able to study full time. See below for a guide to how long it will take you to gain your qualification.
WHEN AND HOW YOU CAN PAY

We offer great value for money, giving you an excellent standard of teaching at an affordable price. And we'll always help you find a way of paying that suits your circumstances.

FOR UNDERGRADUATE

Pay on a module-by-module basis, rather than up front, for your qualification. See below to get an idea of costs.

LIVING IN ENGLAND

<table>
<thead>
<tr>
<th>CREDITS EACH YEAR</th>
<th>COST PER YEAR¹</th>
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<tbody>
<tr>
<td>30</td>
<td>£1,432</td>
</tr>
<tr>
<td>60</td>
<td>£2,864</td>
</tr>
<tr>
<td>120</td>
<td>£5,728</td>
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</tbody>
</table>

¹ 2017/18 prices; fees normally increase annually in line with inflation and the University's strategic approach to fees.

In England, the cost for a 360 credit honours degree based on today’s prices is £17,184.

LIVING IN NORTHERN IRELAND, SCOTLAND OR WALES

<table>
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<tr>
<th>CREDITS EACH YEAR</th>
<th>COST PER YEAR¹</th>
</tr>
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<tbody>
<tr>
<td>30</td>
<td>£479</td>
</tr>
<tr>
<td>60</td>
<td>£958</td>
</tr>
<tr>
<td>120</td>
<td>£1,916</td>
</tr>
</tbody>
</table>

¹ 2017/18 prices (exceptions apply); fees normally increase annually in line with inflation and the University’s strategic approach to fees.

In Northern Ireland, Scotland and Wales the cost for a typical 360 credit honours degree based on today’s prices is £5,748.

FUNDING – ENGLAND AND WALES

Student Finance England and Student Finance Wales offer student loans to fund study. A student loan may be the best way to pay for your studies regardless of your age or income. It’s the most popular method and you only have to start paying it back when you earn more than the income threshold (currently £21,000).

EXAMPLE REPAYMENT AMOUNTS

<table>
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<tr>
<th>INCOME EACH YEAR BEFORE TAX</th>
<th>MONTHLY REPAYMENT</th>
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<tbody>
<tr>
<td>Up to £21,000</td>
<td>£0</td>
</tr>
<tr>
<td>£22,000</td>
<td>£7</td>
</tr>
<tr>
<td>£25,000</td>
<td>£29</td>
</tr>
<tr>
<td>£30,000</td>
<td>£67</td>
</tr>
</tbody>
</table>

To qualify for a loan you need to be studying at least one module worth 30 credits and registered to study for a qualification.

If you get a student loan:
- you won’t have to pay anything back for up to four years
- repayments are based on what you earn, not what you owe
- payments are deducted automatically from your salary
- you can pay off the loan early without any penalties
- if, for any reason, there’s a balance outstanding after 30 years – it’ll be written off.

FUNDING – NORTHERN IRELAND

Student Finance Northern Ireland offer a Fee Grant of up to £1,230 to help towards your fees. The amount depends on how much you earn and how many credits you study.

If you’re not eligible for a Part-Time Fee Grant or if your Part-Time Fee Grant does not cover the full cost of your tuition fees, you can apply for a Part-Time Tuition Fee Loan. See our website for more information or call 028 9032 3722.

FUNDING – SCOTLAND

If you live in Scotland and your personal income is £25,000 or less, or you’re on certain benefits, and you’re studying at least 30 credits, you could qualify for a Part-Time Fee Grant to cover all of your course fees. It isn’t a loan and you won’t need to repay it.

STUDY SUPPORT AND DISCRETIONARY FUNDS

If your annual income is less than £25,000, you may be eligible for additional means-tested funding for study-related costs, such as travel, childcare and internet access.

SELF-FUNDED STUDY

It’s easy to pay for your studies using a debit/credit card or by bank transfer. Or set up an Open University Student Budget Account (OUSBA) – see opposite for more information.

GET SPONSORED

See whether your company or organisation would want to help you learn and develop, it’s always worth asking.

MORE ONLINE

To find out more about paying for your studies, go to openuniversity.co.uk/ug-fees. Or call an OU adviser on +44 (0)300 303 5303.
FOR POSTGRADUATE
You pay for postgraduate qualifications module by module. The total fee depends on what you choose to study.

FUNDING – ENGLAND AND WALES
You could be eligible for a postgraduate loan of up to £10,280 from Student Finance England or Student Finance Wales.

To be eligible you must:
- be under 60 years old
- be resident in England or Wales (although some EU students may be eligible)
- be studying a masters degree which can be completed in no more than three years
- not currently have a masters degree or equivalent
- be studying your qualification from the beginning.

IF YOU GET A LOAN:
- you’ll start repaying your loan the April after you’ve graduated or left the course
- repayments are based on what you earn, not what you owe. You only start paying it back when you earn more than the income threshold (currently £21,000)
- payments are deducted automatically from your salary

FUNDING – NORTHERN IRELAND AND SCOTLAND
You could be eligible for a fee loan of up to £5,500 towards the fees of your qualification from Student Finance Northern Ireland or the Student Awards Agency Scotland.

To be eligible you must:
- be resident in Northern Ireland or Scotland
- be studying for an eligible postgraduate qualification

IF YOU GET A LOAN:
- the earliest you’ll start repaying your loan is April 2019
- repayments are based on what you earn, not what you owe. You only start paying it back when you earn more than the income threshold (currently £17,775)
- payments are deducted automatically from your salary

SELF-FUNDED STUDY
It’s easy to pay for your studies using a debit/credit card or by bank transfer. Or set up an Open University Student Budget Account (OUSBA) – see below for more information.

GET SPONSORED
See whether your company or organisation would want to help you learn and develop, it’s always worth asking.

MORE ONLINE
To find out more about paying for your studies, go to openuniversity.co.uk/pg-fees. Or call an OU adviser on +44 (0)300 303 5303. (Northern Ireland enquirers call 028 9032 3722.)

OPEN UNIVERSITY STUDENT BUDGET ACCOUNTS LTD (OUSBA)
When you enrol with us, you’ll be offered the opportunity to pay your fees through a loan from OUSBA. OUSBA will pay your fees to The Open University, and you repay OUSBA either in a single sum or in monthly instalments. You can repay OUSBA at any time before the course begins. In this case, there’s no interest. Alternatively, you can repay OUSBA in monthly instalments payable over up to a year.

In this case, interest does apply. The interest rate is fixed for the duration of the course (current representative APR of 5.1%).

As a responsible lender every application made to OUSBA undergoes a credit and affordability check.

Find out more about OUSBA at openuniversity.co.uk/ousba.
A career in engineering, design or technology can be immensely stimulating and rewarding. Whether you’re looking for a certificate of higher education or a postgraduate degree, you’ll find that our courses are the ideal foundation for your career.

WHY STUDY WITH US?
Our STEM (Science, Technology, Engineering and Mathematics) faculty is world-leading in inclusive, innovative and high-impact STEM teaching and research, and will equip you with the knowledge and experience to work in STEM-focused occupations. We seek to transform lives by making STEM education available to as many people as possible. Our high-quality teaching and research addresses real-world issues, such as the UK’s STEM skill shortages. We’re proud that our students express high satisfaction with their study experience.

UNDERGRADUATES
We offer a Foundation Degree or Diploma in Higher Education in Engineering, and a range of degrees: the Bachelor of Engineering (BEng) (Hons), the Master of Engineering (MEng) and a Top-up Bachelor of Engineering (BEng) (Hons). We’re the leading distance-learning higher education provider of design courses in the UK. We offer a BA/BSc (Hons) Design and Innovation; and a BSc (Hons), plus a Certificate and Diploma of Higher Education, in Computing & IT and Design.

POSTGRADUATES
At postgraduate level, our MSc in Engineering will help you to progress to register as a Chartered Engineer (CEng). We also offer qualifications, including master degrees, in Technology Management, Systems Thinking in Practice and Environmental Management.

PROFESSIONAL RECOGNITION
Our engineering qualifications include those accredited by the Institution of Engineering and Technology (IET), the Institution of Engineering Designers (IED) and the Chartered Institution of Building Services Engineers (CIBSE). Our MSc in Engineering fulfils the educational requirements for registration as a Chartered Engineer (CEng) when presented with an accredited BEng (Hons) (including our BEng (Hons) (Q65)), as does our MEng on its own, while our BEng (Hons) alone meets the educational requirements for registration as an Incorporated Engineer (IEng).
Two routes through our BA/BSc (Hons) Design and Innovation (Design engineering, and Environment) have been accredited for membership of the Institution of Engineering Designers (IED).

If you pass both Managing for sustainability (T867) and Environmental monitoring and protection (T868) – as part of our Postgraduate Diploma or MSc in Environmental Management – you'll be eligible to join the Institute of Environmental Management & Assessment (IEMA) as a Graduate Member (GradIEMA), with the ability to fast track to Practitioner Member (PIEMA).

Our BSc (Hons) Environment Management and Technology, and our MSc and Postgraduate Diploma in Environmental Management are accredited by the Chartered Institution of Water and Environmental Management (CIWEM).

Our computing and IT degrees are recognised by organisations such as the British Computing Society (BCS), the Chartered Institute for IT and the European Quality Assurance Network for Informatics Education (EQANIE).

BEYOND GRADUATION

According to the Times Higher Education’s (THE) annual survey 2016, graduates of The Open University are among the most employable in the UK.

Of the graduates who responded to the latest Destinations of Leavers from Higher Education survey, within six months of graduating 98% of our engineering and 92% of our technology graduates were in work, while 18% of Engineering and 12% of Technology graduates were undertaking further study.

Design and engineering graduates were predominantly employed in professional, associate professional and technical occupations, and as managers, directors or senior officials.

Demand for STEM graduates is being driven by new technologies, and graduates can find employment across a whole range of manufacturing and service industries, from food and fashion to construction and transport. Engineering is also central to the growth of the low-carbon economy.

The Department for Energy and Climate Change estimates that the renewable-energy sector alone could create 500,000 new jobs by 2020.

I’ve no hesitation in recommending Open University study to anyone considering it; in fact, I’d encourage prospective students not even to look at other universities. The Open University is still less expensive than conventional universities, it’s more flexible and there’s a lot of support.”

Carmine Zuccarini, BEng (Hons)

I left school in 2002 and went to Bedford College in 2004 to study for an HND in aerospace engineering; I was able to transfer credit from those studies when I registered for the BEng degree.”

Jack Dove, BEng (Hons)

“
Our research is world class. It has improved the safety of industrial engineering components worldwide. It has impacted on the design, assessment and safety standards in the aerospace industry. And it has enhanced the lifespan and performance of safety-critical structures in a range of industries.

The OU is one of the UK’s top materials engineering research centres and our groundbreaking work has benefited the economy, public safety and society in general.

A WORLD FIRST
Our research teams led a £3.5m consortium designing and building ENGIN-X – the world’s first neutron diffractometer for probing the structure and condition of the materials in engineering components.

The same project designed pioneering Strain Scanning Simulation Software (SScanSS), now installed at eight facilities worldwide and used by multinational companies such as General Motors, John Deere, Airbus and Pacific Rail.

WE CAN STRESS ENOUGH
The Materials Engineering Group at the OU has an outstanding reputation for its work in measuring residual stress in engineering components - potentially preventing catastrophic failures.

We are the leading research facility in Europe in the use of the Contour Method: a powerful way of mapping two-dimensional distributions of residual stress in components, and our business StressMap provides stress measurement services to a range of high-profile clients.

Research in design at the OU was ranked 14th out of 84 UK institutions in The Research Excellence Framework 2014.

MORE ONLINE
Discover and explore more research online at openuniversity.co.uk/ouresearch
You can register for the 2017/18 academic year for undergraduate qualifications from 9 March 2017.

We've based the qualification start dates on the first applicable module(s) you can study as part of your qualification.

Modules featured in this prospectus are those that are currently available for study. But please bear in mind that the exact selection may change over time.

### ENGINEERING

<table>
<thead>
<tr>
<th>Route</th>
<th>Code</th>
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<tbody>
<tr>
<td>20 Routes to professional engineering registration</td>
<td></td>
</tr>
<tr>
<td>21 Master of Engineering (MEng) (M04)</td>
<td></td>
</tr>
<tr>
<td>28 Bachelor of Engineering (BEng) (Hons) (Q65)</td>
<td></td>
</tr>
<tr>
<td>34 Top-up Bachelor of Engineering (BEng) (Hons) (Q78)</td>
<td></td>
</tr>
<tr>
<td>36 Foundation Degree in Engineering (X11)/Diploma of Higher Education in Engineering (W11)</td>
<td></td>
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### DESIGN

<table>
<thead>
<tr>
<th>Route</th>
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<tbody>
<tr>
<td>40 BA or BSc (Hons) Design and Innovation (Q61)</td>
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### TECHNOLOGY

<table>
<thead>
<tr>
<th>Route</th>
<th>Code</th>
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<tbody>
<tr>
<td>46 BSc (Hons) Environmental Management and Technology (Q72)</td>
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</tr>
<tr>
<td>48 Diploma of Higher Education in Environmental Management and Technology (W48)</td>
<td></td>
</tr>
<tr>
<td>48 Certificate of Higher Education in Environment (T16)</td>
<td></td>
</tr>
<tr>
<td>50 BSc (Hons) Computing &amp; IT and Design (Q67)</td>
<td></td>
</tr>
</tbody>
</table>

### OPEN QUALIFICATIONS

<table>
<thead>
<tr>
<th>Route</th>
<th>Code</th>
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<tbody>
<tr>
<td>54 BA or BSc (Hons) Open degree (QD)</td>
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<tr>
<td>56 BSc (Hons) Combined STEM (R28)</td>
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<tr>
<td>56 Diploma of Higher Education Open (W34)</td>
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</tr>
<tr>
<td>56 Certificate of Higher Education Open (T09)</td>
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</tbody>
</table>
The following table shows how the OU’s engineering qualifications meet the professional engineering institutions’ - the Institution of Engineering and Technology (IET), the Institution of Engineering Designers (IED) and the Chartered Institution of Building Services Engineers (CIBSE) - educational requirements to professionally register as an Incorporated Engineer (IEng) and a Chartered Engineer (CEng).

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Professional Registration</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACHELOR OF ENGINEERING (Q65)</td>
<td></td>
</tr>
<tr>
<td>INCORPORATED ENGINEER (IEng)</td>
<td></td>
</tr>
<tr>
<td>CHARTERED ENGINEER (CEng) (PARTIALLY)</td>
<td></td>
</tr>
<tr>
<td>MASTER OF ENGINEERING (M04)</td>
<td></td>
</tr>
<tr>
<td>MSc IN ENGINEERING (F46)</td>
<td></td>
</tr>
<tr>
<td>CHARTERED ENGINEER (CEng)</td>
<td></td>
</tr>
</tbody>
</table>

1 All qualifications meeting the educational requirements for CEng also meet the requirements for IEng.
This qualification offers you the opportunity to combine undergraduate- and postgraduate-level study in an integrated masters degree in engineering.

You'll begin with a similar curriculum to our BEng (Hons) (Q65), which is a fascinating and thorough general engineering degree exploring the fundamentals of this creative and analytical subject. As you progress, you'll have the opportunity to specialise in either engineering management, modelling and applications, environmental engineering, or mechanics and materials. You'll complete your degree with an individual project and a team project, where you'll work collaboratively with fellow students.

WHY CHOOSE THIS QUALIFICATION?
- Offers you a general engineering degree from which you can build specialist skills.
- Covers the range of techniques, concepts and knowledge required by professional engineers - from materials and mechanics to design and modelling.
- Work on real projects in three compulsory UK-based residential schools where you'll team up with other students to create innovative solutions to challenging problems.
- Fulfils the educational requirements for Chartered Engineer (CEng) status.

CAREER RELEVANCE AND EMPLOYABILITY
This programme fulfils the educational requirements for registration as a Chartered Engineer (CEng) with the Institution of Engineering and Technology (IET), the Institution of Engineering Designers (IED) and the Chartered Institution of Building Services Engineers (CIBSE).

As part of the Engineering Council's accreditation regulations, all study must be completed within 8 years from the start of your study for the qualification to be accredited. For the latest information on accreditation, please visit engineering.open.ac.uk.

STUDY DURATION
Part time: 8 years: 18 study hours per week/60 credits a year
Full time: Not available
Time limit: 16 years

MODE OF STUDY
The learning materials provided are: a balance of print and online
- Electronic versions of printed materials available (e.g. PDF)
- Disc-based media (e.g. DVD)
- Online forum – Compulsory
- Collaborative work – Compulsory

FEES
For information on fees and how to pay, see page 14

Qualification delivery is subject to change.

Continued on page 22.
You'll begin with Engineering: origins, methods, context (T192), an introduction to engineering and design engineering, integrating key scientific concepts, mathematical techniques and study skills needed to support further studies in engineering.

Next, Engineering: frameworks, analysis, production (T193), will further extend your knowledge of engineering, covering patents, standards, manufacturing and materials, and introducing new mathematical topics including calculus.

A third module, Engineering: mathematics, modelling, applications (T194), introduces mathematical skills required for engineering analysis.

Finally, in Engineering: professions, practice and skills 1 (T176), you’ll take the first steps to gaining professional engineering status through personal and professional skills development. You’ll also attend a compulsory one-week residential school, where you will work on practical activities alongside your peers.

At Stages 2, 3 and 4 you choose to focus on Engineering management; Engineering: modelling and applications; Environmental engineering; or Mechanics and materials.

You’ll then study a module in your chosen subject focus, before completing Stage 2 with Engineering: professions, practice and skills 2 (T276). This module further develops the skills you need to achieve professional engineering status, and includes a second compulsory residential school focusing on the further development of your practical and analytical skills in a real-time face-to-face laboratory environment.

**STAGE 2 MODULES IN YOUR CHOSEN SUBJECT FOCUS:**
- **Engineering management**
  You’ll choose one of two modules:
  Design for engineers (T218) will introduce you to the essential skills, knowledge and practices of design, helping you understand the design process and the basic principles behind developing design solutions.

  The online module Environmental management 1 (T219) will build your capacity to engage with the systemic challenges of environmental management at domestic, organisational and community levels through established and emerging approaches, such as life-cycle analysis and team working.

- **Engineering: modelling and applications**
  Mathematical methods (MST224) investigates the methods used to model and solve real-world problems, including differential equations, linear algebra and vector calculus.

- **Environmental engineering**
  You’ll choose one from two optional modules:
  Energy and sustainability (T213) investigates energy generation solutions, their effects and environmental impact, their underlying technologies, and the advantages and disadvantages of each.

You’ll conclude this stage with one of two postgraduate modules: Managing technological innovation (T848) that explores the processes that underpin technological innovation, or Strategic capabilities for technological innovation (T849), a multi-layered, practical approach to strategic management of technological innovation.

**STAGE 3 MODULES IN YOUR CHOSEN SUBJECT FOCUS:**
- **Engineering management**
  You’ll choose two or three from these modules.

  Engineering small worlds: micro and nano technologies (T356) examines engineering with materials at the macro and micro scale, through detailed study of real devices.

  Structural integrity: designing against failure (T357) explores how engineers deploy knowledge of materials behaviour to prevent failure of components and structures.
In the online module Environmental management 2 (T319), you’ll learn to think strategically and creatively about environmental management, and adopt an innovative systems approach to sustainability. You’ll explore the environmental issues prevalent at and around airports; organisational change; group learning; and environmental professional practice.

Innovation: designing for change (T317) examines how new ideas, designs and inventions are translated into product, service and system innovations and how they can help ensure a socially, economically and environmentally sustainable future. A final assessed project brings together everything you’ve learned.

- Engineering: modelling and applications
Deterministic and stochastic dynamics (MS327) explores core topics in the application of mathematics.

Structural integrity: designing against failure (T357) explores how engineers deploy knowledge of materials behaviour to prevent failure of components and structures.

Finally, in Mathematical methods and fluid mechanics (MST326), you’ll model simple fluid flows and learn how to solve ordinary and partial differential equations such as: Laplace’s equation, the wave equation and the diffusion equation; some vector field theory; and Fourier analysis.

- Environmental engineering
To follow on from your Stage 2 studies, you’ll choose one of two options:
Renewable energy (T313) reviews the eight main renewable energy technologies and follows on from Energy and sustainability (T213).

Environmental management 2 (T319) takes a more strategic approach to managing the environment, and concentrates on the creative and innovative sides of sustainability and follows on from Environmental management 1 (T219).

The compulsory module, Innovation: designing for change (T317), investigates the social, environmental and economic factors which influence a product’s design and manufacture.

- Mechanics and materials
Innovation: designing for change (T317) examines how new ideas, designs and inventions are translated into product, service and system innovations and how they can help ensure a socially, economically and environmentally sustainable future. A final assessed project brings together everything you’ve learned.

Structural integrity: designing against failure (T357) explores how engineers deploy knowledge of materials behaviour to prevent failure of components and structures.

STAGE 4
120 CREDITS REQUIRED

You’ll begin this stage with The MEng individual project (T460), which provides a challenging but valuable opportunity for you to engage in – and learn from – a research scenario of your choosing.

Next, you’ll continue your study of engineering at postgraduate level and further extend your knowledge of your chosen subject focus.

You’ll conclude this stage with the postgraduate module Team engineering (T885). This module, about working collaboratively, is based around two residential-school weekends. You’ll work in a small team on an engineering project via email, telephone and online conferencing to submit a final report.

STAGE 4 MODULES IN YOUR CHOSEN SUBJECT FOCUS:
- Engineering management
You’ll choose two of the following modules – see pages 75–78 for descriptions: Managing for sustainability (T867), Manufacture materials design (T805), Problem solving and improvement: quality and other approaches (T889) and Project management (M815).

- Engineering: modelling and applications
Calculus of variations and advanced calculus (M820) develops the theory of the calculus of variations and other related topics.

Finite element analysis: basic principles and applications (T804) introduces basics of the computational modelling and analysis techniques used in engineering the products, processes and systems that support our modern lifestyles.

- Environmental engineering
Environmental monitoring and protection (T868) provides the skills necessary to undertake environmental assessment work, interpret the results and suggest appropriate remedial measures.

Managing for sustainability (T867) will increase your understanding of delivering and supporting sustainability management in your workplace.

- Mechanics and materials
Finite element analysis: basic principles and applications (T804) introduces basics of the computational modelling and analysis techniques used in engineering the products, processes and systems that support our modern lifestyles.

Manufacture materials design (T805) explores the interactions between materials and design in the manufacture of components.

Continued on page 24.
### MASTER OF ENGINEERING (MEng) (M04) – STAGES 1 AND 2

**STAGE 1 (120 CREDITS)**

- **Engineering: origins, methods, context**  
  (T192) (30 credits)

- **Engineering: frameworks, analysis, production**  
  (T193) (30 credits)

- **Engineering: mathematics, modelling, applications**  
  (T194) (30 credits)

- **Engineering: professions, practice and skills 1**  
  (T176) (30 credits)

**STAGE 2 (120 CREDITS)**

- **Core engineering A**  
  (T271) (30 credits) (planned for October 2018)

- **Core engineering B**  
  (T272) (30 credits) (planned for April 2019)

At Stage 2 you will choose one of the following routes

<table>
<thead>
<tr>
<th>ENGINEERING MANAGEMENT</th>
<th>ENGINEERING: MODELLING AND APPLICATIONS</th>
</tr>
</thead>
</table>
| Design for engineers (T218) (30 credits) OR Environmental management 1 (T219) (30 credits) | Mathematical methods  
  (MST224) (30 credits) |
| Engineering: professions, practice and skills 2 (T276) (30 credits) | Engineering: professions, practice and skills 2  
  (T276) (30 credits) |

Qualification continued overleaf...
Environment and sustainability (T213) (30 credits) OR Environmental management I (T219) (30 credits)

Engineering: professions, practice and skills 2 (T276) (30 credits)

Design for engineers (T218) (30 credits)

Engineering: professions, practice and skills 2 (T276) (30 credits)
## MASTER OF ENGINEERING (MEng) (M04) – STAGES 3 AND 4

### ENGINEERING MANAGEMENT

You will now choose 90 credits from a selection of modules, go to openuniversity.co.uk/m04

<table>
<thead>
<tr>
<th>Module</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Managing technological innovation (T848)</td>
<td>30</td>
</tr>
<tr>
<td>OR Strategic capabilities for technological innovation (T849)</td>
<td>30</td>
</tr>
</tbody>
</table>

### ENGINEERING: MODELLING AND APPLICATIONS

<table>
<thead>
<tr>
<th>Module</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deterministic and stochastic dynamics (MS327)</td>
<td>30</td>
</tr>
<tr>
<td>Structural integrity: designing against failure (T357)</td>
<td>30</td>
</tr>
<tr>
<td>Mathematical methods and fluid mechanics (MST326)</td>
<td>30</td>
</tr>
<tr>
<td>Managing technological innovation (T848)</td>
<td>30</td>
</tr>
<tr>
<td>OR Strategic capabilities for technological innovation (T849)</td>
<td>30</td>
</tr>
</tbody>
</table>

### STAGE 3 (120 CREDITS)

- The MEng individual project (T460) (30 credits)
- Team engineering (T885) (30 credits)

### STAGE 4 (120 CREDITS)

- You will now choose 60 credits from a selection of modules, go to openuniversity.co.uk/m04
- The MEng individual project (T460) (30 credits)
- Calculus of variations and advanced calculus (M820) (30 credits)
- Finite element analysis: basic principles and applications (T804) (30 credits)
- Team engineering (T885) (30 credits)

**MORE ONLINE** For more information and to register go to openuniversity.co.uk/m04

Module availability and qualification structure is subject to change.
<table>
<thead>
<tr>
<th>Subject/specialism choice</th>
<th>Compulsory modules</th>
<th>Option modules</th>
<th>Awarded qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENVIRONMENTAL ENGINEERING</strong></td>
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<td></td>
</tr>
<tr>
<td>Environmental management 2 (T319) (30 credits) OR Renewable energy (T313) (30 credits)</td>
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<td></td>
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<tr>
<td>Innovation: designing for change (T317) (60 credits)</td>
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</tr>
<tr>
<td>Managing technological innovation (T848) (30 credits) OR Strategic capabilities for technological innovation (T849) (30 credits)</td>
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<tr>
<td><strong>MECHANICS AND MATERIALS</strong></td>
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<tr>
<td>Innovation: designing for change (T317) (60 credits)</td>
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<tr>
<td>Structural integrity: designing against failure (T357) (30 credits)</td>
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<tr>
<td>Managing technological innovation (T848) (30 credits) OR Strategic capabilities for technological innovation (T849) (30 credits)</td>
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<tr>
<td><strong>UNDERGRADUATE COURSES</strong></td>
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<tr>
<td>The MEng individual project (T460) (30 credits)</td>
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<td></td>
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<tr>
<td>Environmental monitoring and protection (T868) (30 credits)</td>
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<td></td>
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<tr>
<td>Managing for sustainability (T867) (30 credits)</td>
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<td></td>
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<tr>
<td>Team engineering (T885) (30 credits)</td>
<td></td>
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</tr>
<tr>
<td><strong>MASTER OF ENGINEERING (MEng)</strong></td>
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</tbody>
</table>
The BEng (Hons) is a fascinating and thorough general engineering qualification that explores the fundamentals of this creative and analytical subject, and provides a firm foundation on which to build a successful career. It covers the range of techniques, concepts and knowledge required by professional engineers – from materials and mechanics to design and modelling – and offers you the opportunity to focus your studies on electronics, engineering design, energy and sustainability, environmental technologies or mathematical methods.

**BACHELOR OF ENGINEERING (BEng) (HONS)**

From microscopic electronic devices to super structures like dams, bridges and towers, engineering has a vast scope that touches every area of our lives.

The BEng (Hons) is a fascinating and thorough general engineering qualification that explores the fundamentals of this creative and analytical subject, and provides a firm foundation on which to build a successful career. It covers the range of techniques, concepts and knowledge required by professional engineers – from materials and mechanics to design and modelling – and offers you the opportunity to focus your studies on electronics, engineering design, energy and sustainability, environmental technologies or mathematical methods.
WHY CHOOSE THIS QUALIFICATION?
- Offers you a general engineering degree from which you can build specialist skills.
- Learning outcomes are designed to fulfil the Engineering Council’s requirements under UK-SPEC*.
- Work on real projects, teaming up with other students at two UK-based residential schools.
- Compile a personal and professional development plan.

*UK-SPEC (UK Standard for Professional Engineering Competence) sets out the requirements for UK engineers to achieve professional status.

CAREER RELEVANCE AND EMPLOYABILITY
This qualification meets the educational requirements for registration as an Incorporated Engineer (IEng) and is accredited by the Institution of Engineering and Technology (IET), the Institution of Engineering Designers (IED) and the Chartered Institution of Building Services Engineers (CIBSE).
It also partially fulfils the educational requirements for Chartered Engineer (CEng) registration. You can continue studying towards registration as a Chartered Engineer by studying the Postgraduate Diploma in Engineering, leading to the MSc in Engineering – see page 59. See also our MEng (M04) on page 21.

For the latest information on accreditation, please visit engineering.open.ac.uk.

MEET OUR ACADEMICS
Prof. John Bouchard is Professor of Materials for Energy. With 30 years’ experience in the aerospace and nuclear industries, John now researches and teaches on structural integrity and designing against failure. Watch an interview with John at openuniversity.co.uk/academics-eng.
COURSE DETAILS

STAGE 1
120 CREDITS REQUIRED

You’ll begin with *Engineering: origins, methods, context* (T192), an introduction to engineering and design engineering, integrating key scientific concepts, mathematical techniques and study skills needed to support further studies in engineering.

Next, *Engineering: frameworks, analysis, production* (T193), will further extend your knowledge of engineering, covering patents, standards, manufacturing and materials, and introducing new mathematical topics including calculus.


Finally, in *Engineering: professions, practice and skills 1* (T176), you’ll take the first steps to gaining professional engineering status through personal and professional skills development. You’ll also attend a compulsory one-week residential school, where you will work on practical activities alongside your peers.

STAGE 2
120 CREDITS REQUIRED

You’ll begin Stage 2 with two modules planned for first presentation in October 2018 and April 2019 – *Core engineering A* (T271) and *Core engineering B* (T272). You’ll explore how engineers find solutions for technical problems; aspects of the mechanics of solids and fluids; and the structure and properties of materials.

You’ll then study a module in your chosen subject focus, before completing Stage 2 with *Engineering: professions, practice and skills 2* (T276).

STAGE 3
120 CREDITS REQUIRED

You’ll continue to study modules in your chosen subject focus, before completing Stage 3 with an individual project module: *The engineering project* (T452). Working with a specialist tutor you will define a set of project aims using the concepts and knowledge from one of six of the Stage 3 option modules. These will guide your research and development, culminating in a formal project report.

You’ll conclude your professional development planning by reviewing the work you do in your engineering project. Identifying the skills you have developed over the course of your qualification is a vital part of your professional development.

STAGE 3 MODULES IN YOUR CHOSEN SUBJECT FOCUS:

- **Electronics**
  *Electronics: sensing, logic and actuation* (T212) will provide you with industrially-relevant skills in the core aspects of electronics.

- **Engineering design**
  *Design for engineers* (T218) will introduce you to the essential skills, knowledge and practices of design, helping you understand the design process and the basic principles behind developing design solutions.

- **Energy and sustainability**
  *Energy and sustainability* (T213) investigates energy generation solutions, their effects and environmental impact, their underlying technologies, and the advantages and disadvantages of each.

- **Environmental technologies**
  The online module *Environmental management 1* (T219) will build your capacity to engage with the systemic changes of environmental management at domestic, organisational and community levels through established and emerging approaches, such as life-cycle analysis and team working.

- **Mathematical methods**
  *Mathematical methods* (MST224) investigates the methods used to model and solve real-world problems, including differential equations, linear algebra and vector calculus.
- **Engineering design**
  Innovation: designing for change (T317) examines how new ideas, designs and inventions are translated into product, service and system innovations and how they can help ensure a socially, economically and environmentally sustainable future. A final assessed project brings together everything you’ve learned.

- **Structural integrity: designing against failure** (T357) explores how engineers deploy knowledge of materials behaviour to prevent failure of components and structures.

- **Energy and sustainability**
  Renewable energy (T313) reviews the eight main renewable energy technologies. You will apply this knowledge practically in your own project, where you can select the three renewables you are most interested in.

  Engineering small worlds: micro and nano technologies (T356) examines engineering with materials at the macro and micro scale, through detailed study of real devices.

- **Structural integrity: designing against failure** (T357) explores how engineers deploy knowledge of materials behaviour to prevent failure of components and structures.

- **Environmental technologies**
  Innovation: designing for change (T317) examines how new ideas, designs and inventions are translated into product, service and system innovations and how they can help ensure a socially, economically and environmentally sustainable future. A final assessed project brings together everything you’ve learned.

  In the online module Environmental management 2 (T319), you’ll learn to think strategically and creatively about environmental management, and adopt an innovative systems approach to sustainability. You’ll explore the environmental issues prevalent at and around airports; organisational change; group learning; and environmental professional practice.

  In **Mathematical methods**
  Structural integrity: designing against failure (T357) explores how engineers deploy knowledge of materials behaviour to prevent failure of components and structures.

  You’ll conclude your study of mathematical methods with two of three options:

  - Deterministic and stochastic dynamics (MS327) explores core topics in the application of mathematics.
  - In Mathematical methods and fluid mechanics (MST326) you’ll model simple fluid flows and learn how to solve ordinary and partial differential equations such as: Laplace’s equation, the wave equation and the diffusion equation; some vector field theory; and Fourier analysis.
  - Graphs, networks and design (MT365) is about using ideas from discrete mathematics to model problems, and representing these ideas graphically.

  Continued on page 32.

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The Open University definitely opened the door to get me where I am today. I do feel that I’m really lucky to be where I am and to have achieved what I have and the OU helped to get me here.”

Liz Melles, BEng (Hons)
# Bachelor of Engineering (BEng) (Hons) (Q65)

**Stage 1 (120 Credits)**

- **Engineering: origins, methods, context** (T192) (30 credits)
- **Engineering: frameworks, analysis, production** (T193) (30 credits)
- **Engineering: mathematics, modelling, applications** (T194) (30 credits)
- **Engineering: professions, practice and skills 1** (T176) (30 credits)

**Stage 2 (120 Credits)**

Core engineering **A**
(30 credits) (planned for October 2018)

Core engineering **B**
(30 credits) (planned for April 2019)

At Stage 2 you will choose one of the following routes

<table>
<thead>
<tr>
<th>Electronics</th>
<th>Engineering Design</th>
<th>Energy and Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronics: sensing, logic and actuation (T212) (30 credits)</td>
<td>Design for engineers (T218) (30 credits)</td>
<td>Energy and sustainability (T213) (30 credits)</td>
</tr>
<tr>
<td>Engineering: professions, practice and skills 2 (T276) (30 credits)</td>
<td>Engineering: professions, practice and skills 2 (T276) (30 credits)</td>
<td>Engineering: professions, practice and skills 2 (T276) (30 credits)</td>
</tr>
</tbody>
</table>

At Stage 3 you will choose one of the following routes

<table>
<thead>
<tr>
<th>Electronics</th>
<th>Engineering Design</th>
<th>Energy and Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronics: comms, computing and control (T312) (30 credits) (planned for October 2019)</td>
<td>Innovation: designing for change (T317) (60 credits)</td>
<td>Engineering small worlds: micro and nano technologies (T356) (30 credits)</td>
</tr>
<tr>
<td>Communications technology (T355) (30 credits)</td>
<td>Structural integrity: designing against failure (T357) (30 credits)</td>
<td>Renewable energy (T313) (30 credits)</td>
</tr>
<tr>
<td>Engineering small worlds: micro and nano technologies (T356) (30 credits)</td>
<td>The engineering project (T452) (30 credits)</td>
<td>Structural integrity: designing against failure (T357) (30 credits)</td>
</tr>
<tr>
<td>The engineering project (T452) (30 credits)</td>
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<td>The engineering project (T452) (30 credits)</td>
</tr>
</tbody>
</table>

**Bachelor of Engineering (BEng) (Hons)**

- BACHELOR OF ENGINEERING (BEng) (HONS)
Compulsory modules

Subject/specialism choice

Option modules

Awarded qualification

Mathematical methods (MST224) (30 credits)

Environmental management 1 (T219) (30 credits)

Engineering: professions, practice and skills 2 (T276) (30 credits)

Environmental management 2 (T319) (30 credits)

Innovation: designing for change (T317) (60 credits)

The engineering project (T452) (30 credits)

BACHELOR OF ENGINEERING (BEng) (HONS)

Structural integrity: designing against failure (T357) (30 credits)

Now choose 60 credits from:
- Deterministic and stochastic dynamics (MS327) (30 credits)
- Mathematical methods and fluid mechanics (MST326) (30 credits)
- Graphs, networks and design (MT365) (30 credits)

The engineering project (T452) (30 credits)

BACHELOR OF ENGINEERING (BEng) (HONS)

MORE ONLINE

For more information and to register go to openuniversity.co.uk/q65

Module availability and qualification structure is subject to change.
This qualification enables you to top up your knowledge and skills to honours degree level if you have completed an OU foundation degree or diploma of higher education in engineering, or equivalent, in the last eight years.

You’ll be able to tailor your studies to suit your background and previous study focus, developing your knowledge and skills to a higher level and opening up further career or educational opportunities. Your study choices include structural integrity, micro and nano technology, design, environmental management, renewable energy and mathematics options. You will also complete an individual engineering project.

DID YOU KNOW?

An OU-led consortium built the world’s first neutron diffractometer optimised for engineering measurements. It has changed the way stress in structures is measured worldwide. Our stress-testing methods are used by Airbus, General Motors and many others.
COURSE DETAILS

You’ll begin with a choice of modules. Your previous engineering study will help determine which you choose. If you studied the OU module Engineering: mechanics, materials and design (T207) we would recommend any of the following:

- Innovation: designing for change (T317)
- Engineering small worlds: micro and nano technologies (T356)
- Structural integrity: designing against failure (T357).

Renewable energy (T313) would be an ideal choice if you studied Energy and sustainability (T213).

Environmental management 2 (T319) follows on from the study of Environmental management 1 (T219).

Innovation: designing for change (T317) is recommended if you studied Design for engineers (T218).

We recommend any of Deterministic and stochastic dynamics (MS327), Mathematical methods and fluid mechanics (MST326), and Graphs, networks and design (MT365) if you studied Mathematical methods (MST224).

If you have a qualification from another institution, we can offer advice on which modules to take.

You’ll complete your qualification with an individual project module: The engineering project (T452). Working with a specialist tutor you will define a set of project aims using the concepts and knowledge from one of six of the Stage 3 option modules. These will guide your research and development, culminating in a formal project report.

WHY CHOOSE THIS QUALIFICATION?

- Provides a progression route from vocational qualifications (such as a foundation degree or HND) to an honours degree.
- Learning outcomes are designed to fulfil the Engineering Council’s educational requirements under UK-SPEC.
- Opens up a wide range of career opportunities and prepares you for postgraduate engineering courses.

This programme’s learning outcomes are designed to align with the UK-SPEC learning outcomes and will help students make their case for accreditation with the Professional Engineering Institutions via the individual case procedure.

UK-SPEC (UK Standard for Professional Engineering Competence) sets out the requirements for UK Engineers to achieve professional status.

MORE ONLINE

For more information and to register go to openuniversity.co.uk/q78
If you’re working in engineering-related employment at a technical level and would like to boost your career, this qualification is for you. It applies the study of engineering fundamentals like energy, design, manufacturing, materials, mechanics and structural analysis, to the solution of real-life problems; and builds on your existing skills and experience to support your professional development plans. It also develops your skills in mathematics, which is key to successful study of engineering. A step up from an apprenticeship, the qualification combines academic skills with the needs of your workplace.

**MEET OUR ACADEMICS**

Dr James Warren was the academic consultant for *City in the Sky*, one of the many Open University and BBC co-productions watched by millions of viewers each year.

“As an academic consultant, I worked with the BBC to convey many of the difficult design and engineering issues linked to the manufacture of aircraft and keeping 100,000 flights going every day.”
We offer a specialised route in materials fabrication. If you are studying, or have recently completed, The Welding Institute (TWI) Diploma at Technologist level you can obtain credit towards this qualification, reducing the number of OU modules you need to complete. Call +44 (0)300 303 5303 for more details.

WHY CHOOSE THIS QUALIFICATION?
- Builds a solid foundation for further study, such as our Top-up Bachelor of Engineering (Hons) (Q78).
- Develops key skills in mathematics which are essential for the successful study of engineering.
- Provides a strong focus on employability skills and personal development planning.

CAREER RELEVANCE AND EMPLOYABILITY
Engineering knowledge and skills are highly valued (and often essential) in many occupations. This qualification will help you develop and demonstrate a sound grasp of engineering principles, the ability to apply them, and an awareness of surrounding issues. Two work-based modules will guide you through activities closely linked to your workplace, and there's a strong focus on professional development planning. You’ll also be well prepared for further study should you wish to top up to an honours degree.

AT A GLANCE
COURSE CODE X11
TOTAL CREDITS 240
START DATE
OCT 2017
(Registration closes 14 Sep 2017)
APR 2018
(Registration closes 15 Mar 2018)
ENTRY REQUIREMENTS
There are no formal entry requirements, but you must be currently working in engineering-related employment to study this qualification. To help you decide if you have the necessary skills to start, you can use our online diagnostic quiz Are you ready to start an Engineering qualification? at openuniversity.co.uk/ready-for-engineering
ASSESSMENT
Based on a mixture of:
- Tutor-marked assignments
- Computer-marked assignments
- End-of-module assessments
- Examinations
STUDY DURATION
Part time: 4–6 years (based on studying a mix of 30 and 60 credits a year): 9 study hours a week/30 credits a year. 18 study hours a week/60 credits a year
Full time: Not available
TIME LIMIT: 9 years
MODE OF STUDY
The learning materials provided are:
- A balance of print and online
Electronic versions of printed materials available (e.g. PDF) ✓
Disc-based media (e.g. DVD) ×
Online forum - Compulsory ✓
Collaborative work - Compulsory ✓
FEES
For information on fees and how to pay, see page 14
Qualification delivery is subject to change.
Continued on page 38.
COURSE DETAILS

STAGE 1
120 CREDITS REQUIRED

You’ll begin with *Engineering: origins, methods, context* (T192), an introduction to engineering and design engineering, integrating key scientific concepts, mathematical techniques and study skills needed to support further studies in engineering.

Next, *Engineering: frameworks, analysis, production* (T193), will further extend your knowledge of engineering, covering patents, standards, energy, manufacturing and materials, and introducing new mathematical topics including calculus.


For your work-based module, *Engineering at work* (T198), you’ll focus on the sector in which you work by looking at aspects of how your organisation functions. You’ll also take the first steps to gaining professional engineering status by developing a personal development plan.

STAGE 2
120 CREDITS REQUIRED

You’ll begin Stage 2 with two modules planned for first presentation in October 2018 and April 2019 – *Core engineering A* (T271) and *Core engineering B* (T272). You’ll explore how engineers find solutions for technical problems; aspects of the mechanics of solids and fluids; and the structure and properties of materials.

To complete Stage 2, you’ll study one from a choice of five options and one further work-based module.

You’ll choose from: *Energy and sustainability* (T213), *Design for engineers* (T218), *Environmental management 1* (T219), *Mathematical methods* (MST224) and *Electronics: sensing, logic and actuation* (T212). Whichever you choose, you’ll develop analytical, communication and learning skills in a context that provides grounding for further study. In your work-based module – *Change, strategy and projects at work* (T227) – you’ll study project management and execution, looking at the processes of change and strategies for effectively managing change.

By the end of your studies you’ll be in a good position to progress your career in engineering.
FOUNDATION DEGREE IN ENGINEERING (X11)

STAGE 1 (120 CREDITS)

- Engineering: origins, methods, context (T192) (30 credits)
- Engineering: frameworks, analysis, production (T193) (30 credits)
- Engineering: mathematics, modelling, applications (T194) (30 credits)
- Engineering at work (T198) (30 credits)

STAGE 2 (120 CREDITS)

- Core engineering A (T271) (30 credits) (planned for October 2018)
- Core engineering B (T272) (30 credits) (planned for April 2019)

You will now choose 30 credits from a selection of modules, go to openuniversity.co.uk/x11

- Change, strategy and projects at work (T227) (30 credits)

MORE ONLINE
For more information and to register go to openuniversity.co.uk/x11

Module availability and qualification structure is subject to change.
Design and innovation have a huge impact on society well beyond the creative industries – finding solutions to problems that affect every aspect of our lives.

The Open University is at the forefront of teaching in this field; with a reputation for producing groundbreaking modules featuring online design studios, social networking, and inspiring study materials.

This degree enables you to study one additional subject alongside design and innovation – choosing from arts, business, design engineering or environment.

86% of our design and art research is world-leading or internationally excellent (REF 2014) putting us in the top 20% of UK universities
You’ll develop your understanding of the huge impact that design can have, and gain knowledge and skills that will be useful in a wide range of careers. Your study will focus on three key aspects: the process of design; working with and for others; and applying design and innovation in real-world contexts. Each of the core modules has a significant practical component.

WHY CHOOSE THIS QUALIFICATION?
- Focus on the process of design, working with and for others, and applying design and innovation in real-world contexts.
- Put your learning into practice as you study.
- Build a highly relevant portfolio of design work.

CAREER RELEVANCE AND EMPLOYABILITY
A design and innovation approach can bring value to almost any activity, and is increasingly in demand with employers – for example, in education, business, local government, leisure services, engineering, environment, and health. This degree will equip you to apply design and innovation skills in such ‘embedded contexts’ – areas outside the creative industries that are not traditionally thought of as ‘creative’, but nevertheless benefit hugely from the creativity that comes with design and innovation.

As you study, you’ll apply the thinking, methods, and techniques you learn to your own context, enabling you to produce a portfolio of highly relevant design work.

ACCREDITATION
Two routes through this degree – Design engineering and Environment – have been accredited for membership of the Institution of Engineering Designers (MIED).

AT A GLANCE

| COURSE CODE | Q61 |
| TOTAL CREDITS | 360 |
| START DATE | OCT 2017 (Registration closes 14 Sep 2017) |
| FEB 2018 (Registration closes 11 Jan 2018) |
| ENTRY REQUIREMENTS | No specific requirements |
| ASSESSMENT | Based on a mixture of: |
| Tutor-marked assignments |
| End-of-module assessments |
| Examinations |
| STUDY DURATION | Part time: 6 years: 18 study hours per week/60 credits a year |
| Full time: 3 years: 36 study hours per week/120 credits a year |
| Time limit: 16 years |
| MODE OF STUDY | The learning materials provided are: a balance of print and online |
| Electronic versions of printed materials available (e.g. PDF) |
| Disc-based media (e.g. DVD) |
| Online forum – Optional |
| Collaborative work – Optional |
| FEES | For information on fees and how to pay, see page 14 |

Qualification delivery is subject to change. Continued on page 42.
COURSE DETAILS

STAGE 1
120 CREDITS REQUIRED

Your first module, Design thinking: creativity for the 21st century (U101), introduces the basics of the design process and creative thinking. You'll sketch and model prototypes and produce a portfolio of work in an online design studio environment, and explore issues such as design and the individual; designing for others and with others; design and society; and the global impact of design.

STAGE 1 MODULES IN YOUR CHOSEN SECOND SUBJECT:
- Arts
  The arts past and present (AA100) is a broad and fascinating introduction to a range of arts disciplines across multiple cultures and historical periods, including history, philosophy, music and English.
- Business
  An introduction to business and management (B100) will introduce you to the different internal and external elements of a business and help you understand the context in which a business operates.
- Design engineering
  Engineering: origins, methods, context (T192) provides an introduction to engineering and design engineering, integrating key scientific concepts, mathematical techniques and study skills needed to support further studies in design engineering. Engineering: frameworks, analysis, production (T193) explores patents, standards, manufacturing and materials, and introduces mathematical topics, including calculus.

- Environment
  Environment: journeys through a changing world (U116) investigates contemporary environmental topics, drawing perspectives from the social sciences, science and technology to explore the issues arising from environmental challenges across the globe.

STAGE 2
120 CREDITS REQUIRED

Your study of design and innovation continues with Design essentials (T217), which will help you develop the skills and tools needed to research people’s needs, develop design concepts and turn concepts into well-specified products. You’ll continue to develop your modelling and drawing skills, including orthographic and perspective drawing, as well as learn about user research, creativity techniques and the use of materials in design.

STAGE 2 MODULES IN YOUR CHOSEN SECOND SUBJECT:
- Arts
  Exploring art and visual culture (A226) focuses on art from historical and contemporary perspectives, asking fundamental questions such as: ‘What is art, and why do we need it?’ You will investigate different periods and styles of art – including the Renaissance, baroque, impressionism, and modernism – and gain valuable critical insight into design history.
- Business
  You’ll look in more detail at the distinct functions of a business in Shaping business opportunities (B207), extending and enriching your Stage 1 studies. For example, you’ll explore complex and interwoven factors that a business has to contend with, such as operations management, information management, and financial and accounting systems.
- Design engineering
  You’ll begin with, Core engineering A (T271), a new module, planned for first presentation in October 2018, which explores how engineers find solutions for technical problems; aspects of the mechanics of solids and fluids; and the structure and properties of materials. Next, you’ll choose one from two optional modules: Energy and sustainability (T213) investigates energy generation solutions, their effects and environmental impact, their underlying technologies, and the advantages and disadvantages of each. Environment management 1 (T219) will build your capacity to engage with the systemic challenges of environmental management at domestic, organisational and community levels through established and emerging approaches, such as life-cycle analysis and team working.
- Environment
  Environment: sharing a dynamic planet (DST206) examines how environmental change has varied during Earth's history; and the role of natural factors and human activity. You’ll examine scientific and political uncertainties surrounding climate change, the provision of fresh water and sustainable agriculture; and why these issues are the source of social and political conflict.
STAGE 3
120 CREDITS REQUIRED
You conclude your study of design and innovation with Innovation: designing for change (T317). This module examines how new ideas, designs and inventions are translated into product, service and system innovations and how they can help ensure a socially, economically and environmentally sustainable future. A final assessed project brings together everything you’ve learned.

STAGE 3 MODULES IN YOUR CHOSEN SECOND SUBJECT:
- **Arts**
  *Art and its global histories* (A344) will consolidate and build on your critical knowledge, exploring contemporary conceptions of art, changing forms and media, the role of gender and identity, postmodernism and globalised culture.

  By the end of your degree you’ll have a strong, practical understanding of how design and innovation relates to the arts, and a good critical awareness of art and design history.

- **Business**
  *Sustainable enterprise and innovation* (B327) with *Marketing and society* (B324) will explore how to get new business ideas off the ground, plan and appraise projects, analyse potential markets; and then apply marketing concepts and theories to your own professional context.

  Alternatively, you could study *Making sense of strategy* (B301), which focuses on strategic thinking and planning – using independent enquiry and collaborative working to examine the ideas and approaches that have influenced organisational strategies.

- **Design engineering**
  *Structural integrity: designing against failure* (T357) explores advanced engineering techniques such as stress analysis; failure modes and effects analysis; and complex materials behaviour.

  In your final module, *The engineering project* (T452), you’ll demonstrate the concepts of design and engineering that you’ve learned throughout your studies – graduating with a strong, practical and analytical understanding of the relationship between the two disciplines, and the ability to solve technical challenges using creativity and analysis.

- **Environment**
  You’ll complete your study of environment with one of two modules: *Earth in crisis: environmental policy in an international context* (DU311) is primarily a social sciences module that explores the many debates and dilemmas involved in developing environmental policy in response to issues such as climate change, urbanisation, industrial development, and biodiversity loss.

  *Environment: responding to change* (SDT306) is planned for October 2018. This module aims to show that whilst choices about our environment should be based on scientific knowledge, their social context is equally important and therefore interdisciplinarity is key to understanding environmental decision making. This idea will be addressed in the context of biodiversity conservation, climate-change scenarios and food-security concerns.

  *Continued on page 44.*
BA OR BSc (HONS) DESIGN AND INNOVATION (Q61)

Design thinking: creativity for the 21st century (U101) (60 credits)

At Stage 1 you will choose one of the following routes

**ARTS**
- The arts past and present (AA100) (60 credits)

**BUSINESS**
- An introduction to business and management (B100) (60 credits)

**DESIGN ENGINEERING**
- Engineering: origins, methods, context (T192) (30 credits)
- Engineering: frameworks, analysis, production (T193) (30 credits)

**STAGE 1 (120 CREDITS)**

**STAGE 2 (120 CREDITS)**

**STAGE 3 (120 CREDITS)**

You will now choose 60 credits from a selection of options, go to openuniversity.co.uk/q61

**BA OR BSc (HONS) DESIGN AND INNOVATION**
- Art and its global histories (A344) (60 credits)

**BA OR BSc (HONS) DESIGN AND INNOVATION**
- Innovation: designing for change (T317) (60 credits)
- Structural integrity: designing against failure (T357) (30 credits)
- The engineering project (T452) (30 credits)

**BA OR BSc (HONS) DESIGN AND INNOVATION**
- You will now choose 60 credits from a selection of options, go to openuniversity.co.uk/q61
Compulsory modules

Subject/specialism choice

Option modules

Awarded qualification

Environment: journeys through a changing world (U116) (60 credits)

Design essentials (T217) (60 credits)

Environment: sharing a dynamic planet (DST206) (60 credits)

Innovation: designing for change (T317) (60 credits)

Environment: responding to change (SDT306) (60 credits)
(Planned for October 2018) OR Earth in crisis: environmental policy in an international context (DU311) (60 credits)

BA OR BSc (HONS) DESIGN AND INNOVATION

MORE ONLINE

For more information and to register go to openuniversity.co.uk/q61

Module availability and qualification structure is subject to change.
How can we best manage the environment, given the pressures that threaten its future? How do we design more sustainable practices and use technology effectively while doing so?

This course is a must for anyone with an interest in this critical subject. You’ll explore the complexities of the natural and built environments; how our activities influence them both; and how they influence what we do, whether at home, in communities or in organisations.

LEARN MORE

We lead the award winning MK:Smart partnership, which uses vast amounts of information in digital form, including energy and water consumption, and transport data to provide improved management of resources and meet the demands of economic growth in Milton Keynes. For more information, go to mksmart.org
This interdisciplinary degree combines aspects of science, management, technology, and social science to help you understand the environmental systems in which we live and work, and how we can improve the way we act within them. You’ll gain the knowledge and skills needed to understand and manage local, national and international environmental problems more sustainably, as well as developing your analytical, design and systems thinking skills.

**WHY CHOOSE THIS QUALIFICATION?**
- Gain the knowledge and skills needed to understand and manage environmental problems more sustainably.
- Explore the complexities of natural and built environments, at local, national and international level.
- Develop your analytical, design, and systems thinking skills.

**CAREER RELEVANCE AND EMPLOYABILITY**
This degree develops broad and specialist skills that are in demand in the public and private sectors, consultancies, and conservation organisations.

It is directly relevant to careers in pollution control; waste management and recycling; water quality and resources; energy management; planning and sustainability; environmental management and consultancy; and environmental education. You’ll learn to think creatively; tackle complex issues; and collect, analyse and interpret complex quantitative and qualitative data. You’ll also gain practical skills in problem solving, project work, digital literacy, communication, and interdisciplinary team working. Our BSc (Hons) Environmental Management and Technology is accredited by the Chartered Institution of Water and Environmental Management (CIWEM).

**MEET OUR ACADEMICS**
Dr Toni Gladding is a senior lecturer in environmental engineering and expert on waste management. Watch an interview where she talks about the impact of her work on UK environmental policy and OU teaching in environmental management and technology. Go to openuniversity.co.uk/academics-tech.
COURSE DETAILS

STAGE 1
120 CREDITS REQUIRED

You’ll begin your studies with Environment: journeys through a changing world (U116) in which you’ll investigate contemporary environmental topics, drawing on perspectives from the social sciences, science, and technology to explore the issues arising from environmental challenges across the globe.

This will be followed by Science: concepts and practice (S112), in which you’ll be exploring a different topic each week that examines key concepts within environmental science, Earth sciences, biology, chemistry, and physics. Practical work is a key component of S112, and you’ll engage in activities that address two differing approaches: observation and controlling variables.

STAGE 2
120 CREDITS REQUIRED

You’ll start Stage 2 with two compulsory modules:

Energy and sustainability (T213) investigates energy generation solutions, their effects and environmental impact, their underlying technologies, and the advantages and disadvantages of each.

Environmental science (S206) takes a holistic approach to the study of landforms, soils and water flows, habitats, and anthropogenic influences. You’ll study the processes that link together different environments; and gather data through virtual, interactive field trips.

STAGE 3
120 CREDITS REQUIRED

At Stage 3, you’ll study three compulsory modules:

Renewable energy (T313) reviews the eight main renewable energy technologies. You will apply this knowledge practically in your own project, where you can select the three renewables you are most interested in.

In the online module, Environmental management 2 (T319), you’ll learn to think strategically and creatively about environmental management, and adopt an innovative systems approach to sustainability; the environmental issues prevalent at and around airports; organisational change; group learning; and environmental professional practice.

Innovation: designing for change (T317) examines how new ideas, designs and inventions are translated into product, service and system innovations and how they can help ensure a socially, economically and environmentally sustainable future. A final assessed project brings together everything you’ve learned.

RELATED QUALIFICATIONS

DIPLOMA OF HIGHER EDUCATION IN ENVIRONMENTAL MANAGEMENT AND TECHNOLOGY (W48)

CERTIFICATE OF HIGHER EDUCATION IN ENVIRONMENT (T16)

We also offer a diploma of higher education which follows the same curriculum as Stages 1 and 2 of the BSc (Hons) Environmental Management and Technology (Q72) and a certificate in higher education which follows the same curriculum as Stage 1.
BSc (HONS) ENVIRONMENTAL MANAGEMENT AND TECHNOLOGY (Q72)

STAGE 1 (120 CREDITS)

- Science: concepts and practice (S112) (60 credits)
- Environment: journeys through a changing world (U116) (60 credits)

Certificate of Higher Education in Environment (T16)

STAGE 2 (120 CREDITS)

- Energy and sustainability (T213) (30 credits)
- Environmental management 1 (T219) (30 credits)
- Environmental science (S206) (60 credits)
  OR
  Environment: sharing a dynamic planet (DST206) (60 credits)

Diploma of Higher Education in Environmental Management and Technology (W48)

STAGE 3 (120 CREDITS)

- Environmental management 2 (T319) (30 credits)
- Renewable energy (T313) (30 credits)
- Innovation: designing for change (T317) (60 credits)

MORE ONLINE

For more information and to register go to openuniversity.co.uk/q72

Module availability and qualification structure is subject to change.
With this joint honours degree you can focus your studies on an area of computing & IT and combine it with design – dividing your time equally between subjects.

You will develop practical skills and academic understanding of the processes of design and innovation, with particular regard to computer-based technology. The design modules introduce ideas relating to user-centred design; sustainable design; and the design process. These complement the skills and
knowledge developed in the computing modules, which you can focus on computer science, digital technologies, networking, software development or web development. With these skills you will be ready to contribute to the design of the digital electronic devices of the future.

WHY CHOOSE THIS QUALIFICATION?
- Offers a 50:50 split between computing & IT and design.
- Provides a choice of computing & IT routes: computer science, digital technologies, networking, software development or web development.
- Establish or develop a varied and fulfilling career.

CAREER RELEVANCE AND EMPLOYABILITY
Organisations increasingly value IT teams with wider business skills in addition to technical ability. This joint honours degree opens the way for careers in information technology, computing, communication technology, gaming, and related fields – and with a sound grounding in design, you’ll be well placed for roles in a wide range of sectors – for example, in education, business, local government, leisure services, engineering, environment, and health. You’ll also gain a range of valuable transferable skills in communication, time management, analysis and problem solving.

ACCREDITATION
This degree meets the accreditation requirements of BCS, The Chartered Institute for IT. Graduates from this degree will have partially fulfilled the educational requirements for Chartered IT Professional (CITP).

Our undergraduate degrees in computing and IT have also been awarded the Euro-Inf Bachelor Quality Label by the European Quality Assurance Network for Informatics Education (EQANIE).

AT A GLANCE

<table>
<thead>
<tr>
<th>COURSE CODE</th>
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<tr>
<td>TOTAL CREDITS</td>
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<td>Based on a mixture of:</td>
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<td>- Examinations</td>
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<th>STUDY DURATION</th>
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<td>Part time: 6 years: 18 study hours per week/60 credits a year</td>
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<tr>
<th>MODE OF STUDY</th>
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<td>The learning materials provided are: mostly online with some print</td>
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<td>Electronic versions of printed materials available (e.g. PDF)</td>
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<tr>
<td>For information on fees and how to pay, see page 14</td>
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Qualification delivery is subject to change.

Continued on page 52.
COURSE DETAILS

STAGE 1
120 CREDITS REQUIRED

Your computing and IT studies will begin with Introduction to computing and information technology 1 (TM111) followed by Introduction to computing and information technology 2 (TM112), which combined will provide you with the knowledge to design, build and program computers, whilst exploring the profound technological, economic, political and ethical changes brought about by information technology.

The first design module, Design thinking: creativity for the 21st century (U101), introduces the basics of the design process and creative thinking. You’ll sketch and model prototypes and produce a portfolio of work in an online design studio environment, and explore issues such as design and the individual, designing for others and with others, design and society, and the global impact of design.

STAGE 2
120 CREDITS REQUIRED

For your computing & IT studies, you’ll focus on one of five areas:

- **Computer science:** Object-oriented Java programming (M250) and Algorithms, data structures and computability (M269) – designing small computer programs using Java and Python programming languages; stating problems so they can be solved by computer.

- **Digital technologies:** Communication and information technologies (T215) – principles underpinning new technologies including online communication and collaboration; storing, manipulating and transmitting data.

- **Networking:** Cisco networking (CCNA) (T216) – configuring a LAN/WAN using Cisco equipment (ideal preparation for industry-standard CCNA exams); configuring networks.

- **Software development:** Object-oriented Java programming (M250) and Software development with Java (M256) – designing computer programs; Java programming skills; using software tools, e.g. IDE and UML; designing and implementing software systems, e.g. graphical user interface.

- **Web development:** Object-oriented Java programming (M250) and Web technologies (TT284) – Java programming skills; application development processes underpinning the World Wide Web; plan, design, implement and test web applications.

Your Stage 2 design module, **Design essentials** (T217), will help you develop the skills and tools needed to research people’s needs, develop design concepts and turn concepts into well-specified products. You’ll continue to develop your modelling and drawing skills, including orthographic and perspective drawing, as well as learn about user research, creativity techniques and the use of materials in design.

STAGE 3
120 CREDITS REQUIRED

In computing & IT, depending upon your choice of modules at Stage 2, you can delve deeper into one of a number of topics that include mobile and cloud technologies, software engineering, interaction design and data management and analysis.

The final design module, **Innovation: designing for change** (T317), examines how new ideas, designs and inventions are translated into product, service and system innovations and how they can help ensure a socially, economically and environmentally sustainable future. A final assessed project brings together everything you’ve learned.

You’ll conclude your degree with **The computing and IT project** (TM470). You’ll research, develop and write up a project on a topic of your choice – presenting your findings in a substantial portfolio report that you can show to employers.
# BSc (HONS) COMPUTING & IT AND DESIGN (Q67)

## STAGE 1 (120 CREDITS)
- **Introduction to computing and information technology 1** (TM111) (30 credits)
- **Introduction to computing and information technology 2** (TM112) (30 credits)
- **Design thinking: creativity for the 21st century** (U101) (60 credits)

## STAGE 2 (120 CREDITS)
You will now choose a computing & IT focus area, studying 60 credits in: Computer science; Networking; Web development; Digital technologies; or Software development. For more information on your choice of modules, go to openuniversity.co.uk/q67-citd
- **Design essentials** (T217) (60 credits)

## STAGE 3 (120 CREDITS)
You will now complete your studies in your computing & IT focus area, choosing one from a selection of 30-credit options. For more information on your choice of modules, go to openuniversity.co.uk/q67-citd
- **Innovation: designing for change** (T317) (60 credits)
- **The computing and IT project** (TM470) (30 credits)

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**MORE ONLINE**
For more information and to register go to openuniversity.co.uk/q67-citd

Module availability and qualification structure is subject to change.
The BA or BSc (Hons) Open is the most flexible degree programme in the UK because you can study any subjects you like, in any combination. This means you can build a qualification that's unique to you.

The degree allows you to choose modules from any subject area so you can, for example, combine engineering, design, and technology modules with modules from other disciplines, such as science or the humanities.

CAREER RELEVANCE AND EMPLOYABILITY

An Open degree on your CV shows more than your level of knowledge about a subject. It demonstrates to employers that you're someone who is up for a challenge and committed to successfully seeing it through, with excellent time management and prioritising skills.
An Open degree containing a number of our cutting edge engineering, technology and design modules will enable you to explore how to design, engineer, and manage in situations where technology and people interact.

Your studies will help you to develop a skill set that’s in high demand. Employers in many sectors seek people with numerical skills, creativity, scientific knowledge and team-working experience. Graduates with experience of engineering, technology and design modules possess these skills. This could lead to exciting employment opportunities in business and industry, as well as the public and voluntary sectors – your knowledge and expertise will be equally valued in the UK, Europe and further afield.

**AT A GLANCE**

<table>
<thead>
<tr>
<th>COURSE CODE</th>
<th>QD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL CREDITS</td>
<td>360</td>
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**START DATE**

<table>
<thead>
<tr>
<th>DATE</th>
<th>(Registration closes)</th>
</tr>
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<tbody>
<tr>
<td>OCT 2017</td>
<td>14 Sep 2017</td>
</tr>
<tr>
<td>FEB 2018</td>
<td>11 Jan 2018</td>
</tr>
<tr>
<td>APR 2018</td>
<td>15 Mar 2018</td>
</tr>
</tbody>
</table>

**ENTRY REQUIREMENTS**

No specific requirements

**ASSESSMENT**

Depending on the modules you choose to study, you may be assessed in any or all of the following ways:

- Tutor-marked assignments
- Interactive computer-marked assignments
- End-of-module assessments
- Examinations

**STUDY DURATION**

<table>
<thead>
<tr>
<th>MODE</th>
<th>DURATION</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part time</td>
<td>6 years: 18 study hours a week/60 credits a year</td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>3 years: 36 study hours a week/120 credits a year</td>
<td></td>
</tr>
<tr>
<td>Time limit</td>
<td>16 years</td>
<td></td>
</tr>
</tbody>
</table>

**MODE OF STUDY**

As the BA/BSc (Hons) Open degree can be made up of a range of different modules, the learning materials provided, use of online forums and inclusion of collaborative work will depend on the modules you choose to study

**FEES**

For information on fees and how to pay, see page 14

Continued on page 56.
HOW YOU CAN FOCUS YOUR OPEN DEGREE ON DESIGN

This selection of modules shows how you can focus on aspects of design in combination with other subjects that are of particular interest to you. However, this is just one example of the many combinations you can study and you are not restricted to this route in any way.

COURSE DETAILS

STAGE 1
120 CREDITS REQUIRED

You can begin with Design thinking: creativity for the 21st century (U101), which introduces the basics of the design process and creative thinking.

You'll sketch and model prototypes and produce a portfolio of work in an online design studio environment, and explore issues such as design and the individual, designing for others and with others, design and society, and the global impact of design.

For your remaining 60 credits, you'll have a free choice from a wide range of OU level 1 modules across different subject areas.

STAGE 2
120 CREDITS REQUIRED

You can resume your design studies with Design essentials (T217), which will help you develop the skills and tools needed to research people's needs, develop design concepts and turn concepts into well-specified products. You'll continue to develop your modelling and drawing skills, including orthographic and perspective drawing, as well as learn about user research, creativity techniques and the use of materials in design.

For your remaining 60 credits, you'll have a free choice from a wide range of OU level 2 modules across different subject areas.

STAGE 3
120 CREDITS REQUIRED

The OU level 3 design module, Innovation: designing for change (T317), examines how new ideas, designs and inventions are translated into product, service and system innovations and how they can help ensure a socially, economically and environmentally sustainable future. A final assessed project brings together everything you've learned.

For your remaining 60 credits, you'll have a free choice from a wide range of OU level 3 modules across different subject areas.

RELATED QUALIFICATIONS

DIPLOMA OF HIGHER EDUCATION OPEN (W34)
CERTIFICATE OF HIGHER EDUCATION IN OPEN (T09)
NEW - BSC (HONS) COMBINED STEM (R28)

We also offer a diploma of higher education which follows the same structure as Stages 1 and 2 of the Open degree and a certificate of higher education which follows the same structure as Stage 1.

In addition to the Open degree, we now offer a STEM degree that allows you to build your qualification from a wide range of STEM modules and study routes.
OPEN DEGREE WITH A FOCUS ON DESIGN

**STAGE 1 (120 CREDITS)**

*Design thinking: creativity for the 21st century (U101) (60 credits)*

You can now choose 60 credits from a wide range of OU level 1 modules

*Certificate of Higher Education Open (T09)*

**STAGE 2 (120 CREDITS)**

*Design essentials (T217) (60 credits)*

You can now choose 60 credits from a wide range of OU level 2 modules

*Diploma of Higher Education Open (W34)*

**STAGE 3 (120 CREDITS)**

*Innovation: designing for change (T317) (60 credits)*

You can now choose 60 credits from a wide range of OU level 3 modules

*BA or BSc (HONS) OPEN*

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1 Whether you qualify for a BA (Hons) Open degree or a BSc (Hons) Open degree will be determined by the number of credits you have from modules suitable for a BA or for a BSc.

MORE ONLINE
For more information and to register go to openuniversity.co.uk/qd
FIND A POSTGRADUATE COURSE

To work towards a postgraduate qualification, you first need to choose and register on a module that counts towards that qualification.

Modules featured in this prospectus are those that are currently available for study. But please bear in mind that the exact selection may change over time.

<table>
<thead>
<tr>
<th>MODULE</th>
<th>INSTITUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENGINEERING</strong></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Postgraduate Diploma in Engineering (E22)</td>
</tr>
<tr>
<td>61</td>
<td>MSc in Engineering (F46)</td>
</tr>
<tr>
<td><strong>TECHNOLOGY MANAGEMENT</strong></td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>Postgraduate Certificate in Technology Management (C49)</td>
</tr>
<tr>
<td>64</td>
<td>Postgraduate Diploma in Technology Management (E08)</td>
</tr>
<tr>
<td>65</td>
<td>MSc in Technology Management (F36)</td>
</tr>
<tr>
<td><strong>SYSTEMS THINKING IN PRACTICE</strong></td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>Postgraduate Certificate in Systems Thinking in Practice (C72)</td>
</tr>
<tr>
<td>68</td>
<td>Postgraduate Diploma in Systems Thinking in Practice (E28)</td>
</tr>
<tr>
<td>69</td>
<td>MSc in Systems Thinking in Practice (F47)</td>
</tr>
<tr>
<td><strong>ENVIRONMENTAL MANAGEMENT</strong></td>
<td></td>
</tr>
<tr>
<td>71</td>
<td>Postgraduate Certificate in Environmental Management (K19)</td>
</tr>
<tr>
<td>71</td>
<td>Postgraduate Diploma in Environmental Management (E79)</td>
</tr>
<tr>
<td>72</td>
<td>MSc in Environmental Management (F65)</td>
</tr>
<tr>
<td><strong>POSTGRADUATE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>73</td>
<td>Module descriptions</td>
</tr>
</tbody>
</table>
ENGINEERING

Engineering is one of the most rewarding disciplines you can study. It offers tremendous variety, intellectual challenge and the high level of satisfaction that comes from problem solving.

The OU offers two routes to an MSc in Engineering, either via our integrated masters starting at undergraduate level (see page 21) or, if you already have an OU Bachelor of Engineering (BEng) or an accredited¹ honours degree from another institution, via our postgraduate diploma entry route.

¹If you have an honours degree, but it is not accredited for Chartered Engineer (CEng), you can still register for the Postgraduate Diploma in Engineering (E22). Please note that if you choose to continue your studies with the MSc in Engineering (F46), your MSc will not be accredited for CEng, it can only be accredited if your underpinning honours degree is accredited for CEng.
This flexible diploma enables you to combine modules from engineering analysis and technology management to shape a qualification that suits your career aspirations.

You will broaden and deepen your understanding of professional engineering, and work collaboratively on a project module. The diploma also provides a route to a masters level engineering qualification, and can help you progress towards Chartered Engineer registration.

**POSTGRADUATE DIPLOMA IN ENGINEERING**

<table>
<thead>
<tr>
<th>TOTAL CREDITS:</th>
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</thead>
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<tr>
<td>CODE:</td>
<td>E22</td>
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</table>

**MODULE SUMMARY**

<table>
<thead>
<tr>
<th>NAME</th>
<th>CREDITS</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team engineering</td>
<td>30</td>
<td>T885</td>
</tr>
</tbody>
</table>

60 credits from any postgraduate technology module with a code beginning T8 or TU8, but excluding any project modules.

Plus 30 credits from postgraduate computing, mathematics and technology modules, with a code beginning T8, TU8 or M8, but excluding any project modules, and a selection of science modules.

Plus 30 credits from the following compulsory module:

For module descriptions see pages 73–79 or go to [openuniversity.co.uk/e22](http://openuniversity.co.uk/e22)

Module availability is subject to change.
MSc IN ENGINEERING

TOTAL CREDITS: 180
CODE: F46

This MSc builds on your diploma studies by enabling you to investigate an issue or problem on a topic of professional relevance to you, and takes you a step further towards becoming a Chartered Engineer (CEng).

This course will help you develop a professional approach to your work, extend your engineering skills, and develop a range of transferable skills such as the ability to solve problems creatively, communicate effectively, manage projects and turn concepts into reality.

Our MSc in Engineering fulfils the educational requirements for registration as a Chartered Engineer (CEng) when presented with a CEng accredited honours degree. Our accreditations are with the Institution of Engineering and Technology (IET), the Institution of Engineering Designers (IED) and the Chartered Institution of Building Services Engineers (CIBSE).

PLANNING YOUR STUDIES
- This qualification consists of two stages: Stage 1 is the equivalent of our Postgraduate Diploma in Engineering (E22) or is embedded within our Master of Engineering (M04), Stage 2 is described below.
- You must complete this MSc within five years of the date your Postgraduate Diploma in Engineering (E22) or MEng (M04)1 was awarded.

<table>
<thead>
<tr>
<th>MODULE SUMMARY</th>
<th>CREDITS</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>For this masters degree you require one of the following qualifications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postgraduate Diploma in Engineering</td>
<td>120</td>
<td>E22</td>
</tr>
<tr>
<td>MEng1</td>
<td>-</td>
<td>M04</td>
</tr>
<tr>
<td>Plus 60 credits from the following compulsory module:</td>
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<td></td>
</tr>
<tr>
<td>Research project</td>
<td>60</td>
<td>T802</td>
</tr>
</tbody>
</table>

1 If you are currently studying or have successfully completed our MEng graduate entry route (M03) you can count this in place of M04 but note that the same five-year time limit does apply.

For module descriptions see pages 73–79 or go to openuniversity.co.uk/f46.
Module availability is subject to change.
Over the next decade, the most successful organisations in the marketplace will be those with the skills to develop, plan and implement new technologies. The individuals in most demand will be those who understand new developments and have the professional knowledge and vision to harness them effectively.

Whether you are an administrator, manager or technical specialist in this fast-moving area, our postgraduate programme, with its leading-edge module content, could be a key component in making sure you and your organisation compete successfully.

If technology is a significant success factor in your organisation or role, then technology management is relevant to you.

For more information and advice go to openuniversity.co.uk/pg or call our Student Recruitment team on +44 (0)300 303 5303.

- Modules count towards these qualifications for a maximum of eight years after we have stopped presenting them.
TOTAL CREDITS: 60
CODE: C49

If technology, innovation and change are factors in your organisation or role, this certificate will extend your knowledge, skills and capability – adding value to your career and your workplace.

It provides a rounded view of the management of technology and technological innovation, investigating topics such as the nature and types of technological innovation, technology transfer, and eco-innovation – which are relevant to all economic and organisational sectors and types of technology.

The module choices explore technology management within fields such as computing and ICT, business and management, development management and environmental management.

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**POSTGRADUATE CERTIFICATE IN TECHNOLOGY MANAGEMENT**

**MODULE SUMMARY**

<table>
<thead>
<tr>
<th>MODULE</th>
<th>CREDITS</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory module – 30 credits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managing technological innovation</td>
<td>30</td>
<td>T848</td>
</tr>
<tr>
<td>Plus 30 credits from the following modules:</td>
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<td></td>
</tr>
<tr>
<td>Advanced routing – CCNP 1</td>
<td>30</td>
<td>T824</td>
</tr>
<tr>
<td>Capacities for managing development</td>
<td>30</td>
<td>T878</td>
</tr>
<tr>
<td>Conflict and development</td>
<td>30</td>
<td>T879</td>
</tr>
<tr>
<td>Continuing professional development in practice</td>
<td>30</td>
<td>U810</td>
</tr>
<tr>
<td>Data management</td>
<td>30</td>
<td>M816</td>
</tr>
<tr>
<td>Digital forensics</td>
<td>30</td>
<td>M812</td>
</tr>
<tr>
<td>Information security</td>
<td>30</td>
<td>M811</td>
</tr>
<tr>
<td>Managing for sustainability</td>
<td>30</td>
<td>T867</td>
</tr>
<tr>
<td>Managing systemic change: inquiry, action and interaction</td>
<td>30</td>
<td>TU812</td>
</tr>
<tr>
<td>Manufacture materials design</td>
<td>30</td>
<td>T805</td>
</tr>
</tbody>
</table>

- Multilayer switching – CCNP3
- Network security
- Optimising networks – CCNP4
- Problem solving and improvement: quality and other approaches
- Project management
- Software development
- Software engineering
- Strategic capabilities for technological innovation
- Thinking strategically: systems tools for managing change

For module descriptions see pages 73–79 or go to [openuniversity.co.uk/c49](http://openuniversity.co.uk/c49). Module availability is subject to change.

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“When I started studying, I had no idea where it would take me or the impact it would have; however, I can honestly say that studying with the OU has benefited me professionally, by allowing me to explore new ideas and new ways of thinking.”

Karl Hamilton, Postgraduate Certificate in Technology Management

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POSTGRADUATE COURSES
This postgraduate diploma is designed to help you manage technology and innovation more effectively and realise its potential benefits – making a real difference to your organisation and your own professional development.

You’ll begin by focusing on the operational aspects of managing technological innovation and change, before engaging with a range of capabilities that are key to the development and delivery of technological innovation – applying your learning to your own context as you study.

A wide range of further modules enables you to choose a study pathway that suits your particular interests, including computing and ICT, business and management, development management, and environmental management.

### Module Summary

<table>
<thead>
<tr>
<th>CREDITS</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>T848</td>
</tr>
<tr>
<td>30</td>
<td>T849</td>
</tr>
</tbody>
</table>

**Compulsory modules – 60 credits**

- Managing technological innovation
- Strategic capabilities for technological innovation

**Plus 60 credits from any of the modules that count towards the Postgraduate Certificate in Technology Management (C49) – see page 63.**

Or from the following list:

- Entrepreneurship: experience and perspective
- Leadership and management in intercultural contexts
- Management beyond the mainstream
- Marketing in the 21st century
- Strategic human resource management
- Sustainable creative management

For module descriptions see pages 73–79 or go to openuniversity.co.uk/e08.

Module availability is subject to change.
Technology has the capability to transform products and processes and, if managed effectively, can make a significant contribution to organisational performance, economic growth and social wellbeing.

This MSc will provide you with the knowledge and skills critical to making the right decisions about technology strategy, innovation, and management to really make a difference to your organisation and your own professional development. It is applicable to a wide range of sectors, including IT, manufacturing, healthcare, defence, financial services, and local and national government services – throughout your studies you’ll be encouraged to apply your learning to your own particular technology context.

You’ll begin by focusing on the operational aspects of managing technological innovation and change, before moving to explore a range of capabilities that are key to the strategic development and management of technological innovation. Your studies will conclude with an in-depth investigation of a technology management topic or problem of your choice.
Understanding the increasingly complex and interconnected world we live in often demands more than common sense.

In everyday situations involving people, their environments, and technology, where views and needs conflict, a systems thinking approach can help you find better strategies and opportunities.

Systems thinking in practice – regarded by some as one of today’s basic literacies – examines ways of managing complex interconnected situations across discipline and skill boundaries.

**PLANNING YOUR STUDIES**
- You should normally hold a UK bachelors degree, or equivalent. If you do not hold a bachelors degree, it may be possible to demonstrate your ability to study at postgraduate level by successfully completing a module and linking it to a qualification at a later date. For more information and advice go to openuniversity.co.uk/pg or call our Student Recruitment team on +44 (0)300 303 5303.
- Modules can count towards these qualifications for a maximum of eight years after we have stopped presenting them.
This certificate may well change the way you think about the situations you face.

You’ll learn to think more holistically, taking account of the interconnectedness of all the components making up a problem situation and working more collaboratively. You will find out how to relate the ideas of key systems thinkers to your own practice.

The discipline of systems thinking gives you the tools to challenge your approach to complex situations; to assess how all the different components within a situation are related; to consider the roles other people play; to recognise that each person brings with them their own perspective on a situation and to work with those multiple perspectives.

### POSTGRADUATE CERTIFICATE IN SYSTEMS THINKING IN PRACTICE

<table>
<thead>
<tr>
<th>MODULE SUMMARY</th>
<th>CREDITS</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Either 60 credits from the following modules:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managing systemic change: inquiry, action and interaction</td>
<td>30</td>
<td>TU812</td>
</tr>
<tr>
<td>Thinking strategically: systems tools for managing change</td>
<td>30</td>
<td>TU811</td>
</tr>
<tr>
<td>Or 30 credits from either of the modules listed above and one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacities for managing development</td>
<td>30</td>
<td>T878</td>
</tr>
<tr>
<td>Conflict and development</td>
<td>30</td>
<td>T879</td>
</tr>
<tr>
<td>Continuing professional development in practice</td>
<td>30</td>
<td>U810</td>
</tr>
<tr>
<td>Data management</td>
<td>30</td>
<td>M816</td>
</tr>
<tr>
<td>Development: context and practice</td>
<td>30</td>
<td>T877</td>
</tr>
<tr>
<td>Digital forensics</td>
<td>30</td>
<td>M812</td>
</tr>
<tr>
<td>Information security</td>
<td>30</td>
<td>M811</td>
</tr>
<tr>
<td><strong>Institutional development</strong></td>
<td>30</td>
<td>TU872</td>
</tr>
<tr>
<td>Making environmental decisions</td>
<td>30</td>
<td>T891</td>
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<tr>
<td>Managing for sustainability</td>
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<td>T867</td>
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<tr>
<td>Managing technological innovation</td>
<td>30</td>
<td>T848</td>
</tr>
<tr>
<td>Problem solving and improvement: quality and other approaches</td>
<td>30</td>
<td>T889</td>
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<tr>
<td>Project management</td>
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<td>M815</td>
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<tr>
<td>Software development</td>
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<td>M813</td>
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<tr>
<td>Software engineering</td>
<td>30</td>
<td>M814</td>
</tr>
<tr>
<td>Strategic capabilities for technological innovation</td>
<td>30</td>
<td>T849</td>
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</tbody>
</table>

For module descriptions see pages 73–79 or go to openuniversity.co.uk/c72. Module availability is subject to change.
POSTGRADUATE DIPLOMA IN SYSTEMS THINKING IN PRACTICE

<table>
<thead>
<tr>
<th>TOTAL CREDITS:</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>CODE:</td>
<td>E28</td>
</tr>
</tbody>
</table>

This diploma develops your ability to approach and tackle complex, messy problem situations, providing practical tools that will help bring new perspectives. It will challenge you to think differently about specific tasks and issues.

You’ll consider the roles and responsibilities of other people, reflect on your own and others’ practice and appreciate the dynamics of multiple causes, influences and effects within a situation.

You will develop the skills to think more holistically and to work more collaboratively with others, in order to move towards effective solutions and avoid systemic failures.

As you complete more modules associated with an area of professional practice of your own choosing, you can expect to use systems thinking increasingly to broaden your understanding of a range of different situations and interconnections and to appreciate a wider range of perspectives.

### Compulsory modules – 60 credits

<table>
<thead>
<tr>
<th>Module Description</th>
<th>Credits</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing systemic change: inquiry, action and interaction</td>
<td>30</td>
<td>TU812</td>
</tr>
<tr>
<td>Thinking strategically: systems tools for managing change</td>
<td>30</td>
<td>TU811</td>
</tr>
</tbody>
</table>

Plus 60 credits from the following list of modules and those listed in the Postgraduate Certificate in Systems Thinking in Practice (C72) – see page 67.

<table>
<thead>
<tr>
<th>Module Description</th>
<th>Credits</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced routing – CCNP 1</td>
<td>30</td>
<td>T824</td>
</tr>
<tr>
<td>Earth science: a systems approach</td>
<td>60</td>
<td>S808</td>
</tr>
<tr>
<td>Entrepreneurship: experience and perspective</td>
<td>15</td>
<td>BB846</td>
</tr>
<tr>
<td>Leadership and management in intercultural contexts</td>
<td>15</td>
<td>BB848</td>
</tr>
<tr>
<td>Leading healthcare improvements</td>
<td>60</td>
<td>K827</td>
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</table>

<table>
<thead>
<tr>
<th>Module Description</th>
<th>Credits</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management beyond the mainstream</td>
<td>15</td>
<td>BB847</td>
</tr>
<tr>
<td>Manufacture materials design</td>
<td>30</td>
<td>T805</td>
</tr>
<tr>
<td>Marketing in the 21st century</td>
<td>15</td>
<td>BB844</td>
</tr>
<tr>
<td>MBA stage 1: management: perspectives and practice</td>
<td>60</td>
<td>B716</td>
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<tr>
<td>Multilayer switching – CCNP 3</td>
<td>30</td>
<td>T826</td>
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<tr>
<td>Network security</td>
<td>30</td>
<td>T828</td>
</tr>
<tr>
<td>Optimising networks – CCNP 4</td>
<td>30</td>
<td>T827</td>
</tr>
<tr>
<td>Strategic human resource management</td>
<td>15</td>
<td>BB845</td>
</tr>
<tr>
<td>Sustainable creative management</td>
<td>15</td>
<td>BB842</td>
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</tbody>
</table>

For module descriptions see pages 73–79 or go to openuniversity.co.uk/e28. Module availability is subject to change.
MSc IN
SYSTEMS THINKING IN PRACTICE

TOTAL CREDITS: 180
CODE: F47

This MSc has the development of skills in holistic thinking and appreciation of multiple perspectives at its core. Everyone brings with them their own perspective, which means that we all see things in different ways.

You will gain insights into the range of ways in which other people think about particular situations and how to apply a wide range of concepts, tools and techniques developed by systems thinkers. You will also learn to appreciate and develop your own ways of thinking in practice, becoming aware of how you can act to bring about improvements in messy situations that are of interest to you.

In this MSc, you will have the opportunity to develop your capability to plan, organise and carry out an extended independent study, through either a research dissertation or a professional project inquiry. In either route, you will have an opportunity for applying systems thinking in an area of practice of your own choosing.

I am fascinated by relationships and wholeness. My whole career has been concerned with integrating life practice and reflection on practice. Wherever possible I aim to do things, research them and teach about them. So, for example, I aim for a sustainable life with my own wind turbine and solar, which I monitor and write about.”

Simon Bell, Professor of Innovation and Methodology

<table>
<thead>
<tr>
<th>MODULE SUMMARY</th>
<th>CREDITS</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 credits from the following qualification:</td>
<td></td>
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</tr>
<tr>
<td>Postgraduate Diploma in Systems Thinking in Practice</td>
<td>120</td>
<td>E28</td>
</tr>
<tr>
<td>Plus 60 credits from either the Research route or the Professional route below:</td>
<td></td>
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</tr>
<tr>
<td>RESEARCH ROUTE</td>
<td></td>
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<tr>
<td>Research project</td>
<td>60</td>
<td>T802</td>
</tr>
<tr>
<td>PROFESSIONAL ROUTE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The MSc professional project</td>
<td>30</td>
<td>T847</td>
</tr>
</tbody>
</table>

Plus 30 credits from the modules listed in the Postgraduate Diploma in Systems Thinking in Practice (E28), and the Postgraduate Certificate in Systems Thinking in Practice (C72) - see pages 67–68.

For module descriptions see pages 73–79 or go to openuniversity.co.uk/f47. Module availability is subject to change.
ENVIRONMENTAL MANAGEMENT

Our postgraduate qualifications in environmental management are for people who are interested in designing, managing and participating in more effective environmental management. Students are drawn from industry, commerce, local government, consultancies, non-governmental organisations and communities.

They include managers and specialists already involved in environmental management as well as those who wish to be, either personally or professionally. Whatever your background, this programme will widen your knowledge of environmental management and develop your skills in making informed decisions about environmental issues, whether at work, in your community or at home.

POSTGRADUATE CERTIFICATE IN ENVIRONMENTAL MANAGEMENT (K19)

POSTGRADUATE DIPLOMA IN ENVIRONMENTAL MANAGEMENT (E79)

MSc IN ENVIRONMENTAL MANAGEMENT (F65)

PLANNING YOUR STUDIES

- Our MSc and Postgraduate Diploma in Environmental Management are accredited by the Chartered Institution of Water and Environmental Management (CIWEM), the largest professional body for chartered environmental scientists. This brings direct links to the working industry and students on this course are eligible to become student members of this professional body.

- If you pass both Managing for sustainability (T867) and Environmental monitoring and protection (T868) – as part of the Postgraduate Diploma in Environmental Management (E79) or the MSc in Environmental Management (F65) – you will be eligible to join the Institute of Environmental Management & Assessment (IEMA) as a Graduate Member (GradIEMA), with the ability to fast track to Practitioner Member (PIEMA).

- Modules can count towards this postgraduate certificate, postgraduate diploma and MSc for a maximum of eight years after we have stopped presenting them.

STUDY ROUTE DIAGRAM

START HERE

BACHELORS DEGREE OR EQUIVALENT EXPERIENCE

POSTGRADUATE CERTIFICATE IN ENVIRONMENTAL MANAGEMENT (K19)

POSTGRADUATE DIPLOMA IN ENVIRONMENTAL MANAGEMENT (E79)

MSc IN ENVIRONMENTAL MANAGEMENT (F65)

☐ Entry requirement
☐ Intermediate qualifications
☐ Masters qualification
**POSTGRADUATE CERTIFICATE IN ENVIRONMENTAL MANAGEMENT**

<table>
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<tr>
<th>TOTAL CREDITS:</th>
<th>60</th>
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<tbody>
<tr>
<td>CODE:</td>
<td>K19</td>
</tr>
</tbody>
</table>

Environmental management is becoming increasingly important whether you are at work, in the community or at home – complying with environmental legislation or addressing the local and global challenges of climate change and energy conservation in other ways.

This qualification addresses the everyday concerns of environmental protection, natural resource management and rapidly changing environmental legislation and policy.

You will explore biophysical, social, political and economic factors from local to global level, and develop the skills you need to participate creatively in the process of improving environmental performance in your own context.

<table>
<thead>
<tr>
<th>MODULE SUMMARY</th>
<th>CREDITS</th>
<th>CODE</th>
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</thead>
<tbody>
<tr>
<td>Compulsory modules – 60 credits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making environmental decisions</td>
<td>30</td>
<td>T891</td>
</tr>
<tr>
<td>Managing for sustainability</td>
<td>30</td>
<td>T867</td>
</tr>
</tbody>
</table>

For module descriptions see pages 73–79 or go to openuniversity.co.uk/k19. Module availability is subject to change.

**POSTGRADUATE DIPLOMA IN ENVIRONMENTAL MANAGEMENT**

<table>
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<tr>
<th>TOTAL CREDITS:</th>
<th>120</th>
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<tbody>
<tr>
<td>CODE:</td>
<td>E79</td>
</tr>
</tbody>
</table>

If you’re interested in designing and participating in more effective environmental management, this is for you.

It’s suitable for a wide range of contexts, from government, commerce and industry to voluntary, local and community organisations.

You will consider the everyday concerns of environmental protection, natural resource management and rapidly changing environmental legislation and policy, in global and local contexts – gaining the skills you need to unpack the issues and play an active and creative role in the process of improving environmental performance, in all sectors of society.

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<thead>
<tr>
<th>MODULE SUMMARY</th>
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</thead>
<tbody>
<tr>
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</tr>
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<td>30</td>
<td>T867</td>
</tr>
</tbody>
</table>

Plus an additional 30 credits from the list on the left or from the following modules

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Managing systemic change: inquiry, action and interaction</td>
<td>30</td>
</tr>
<tr>
<td>Problem solving and improvement: quality and other approaches</td>
<td>30</td>
</tr>
<tr>
<td>Project management</td>
<td>30</td>
</tr>
<tr>
<td>Thinking strategically: systems tools for managing change</td>
<td>30</td>
</tr>
</tbody>
</table>

For module descriptions see pages 73–79 or go to openuniversity.co.uk/e79. Module availability is subject to change.
Whether you are working to improve a company’s competitive edge, comply with environmental legislation or address the local and global challenges of climate change and energy conservation, this qualification provides support and shows how environmental management affects us all.

This qualification is designed to expand your knowledge of environmental management and develop the skills to participate in more effective, informed and creative environmental decision making – whether you’re already a specialist working in the field or planning to get involved, professionally or personally.

You will examine current concerns of environmental protection, natural resource management and rapidly changing environmental legislation and policy, in local and global contexts. You’ll also develop the skills you need to unpack the issues and participate creatively in the process of improving environmental performance in all sectors of society.

<table>
<thead>
<tr>
<th>MODULE SUMMARY</th>
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<th>CODE</th>
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<tr>
<td>120 credits from the following qualification:</td>
<td></td>
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<td>120</td>
<td>E79</td>
</tr>
<tr>
<td>Plus 60 credits from either the Research route or the Professional route below:</td>
<td></td>
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</tr>
<tr>
<td>Research project</td>
<td>60</td>
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<tr>
<td><strong>RESEARCH ROUTE</strong></td>
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<tr>
<td><strong>PROFESSIONAL ROUTE</strong></td>
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<td></td>
</tr>
<tr>
<td>The MSc professional project</td>
<td>30</td>
<td>T847</td>
</tr>
<tr>
<td>Plus 30 credits from the modules listed for the Postgraduate Diploma in Environmental Management (E79) – see page 71.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For module descriptions see pages 73–79 or go to [openuniversity.co.uk/f65](http://openuniversity.co.uk/f65). Module availability is subject to change.
POSTGRADUATE MODULES

The following pages provide more detail on each of the core postgraduate modules. For more information on modules not listed in the section, go to openuniversity.co.uk/pg.

ASSESSMENT KEY

<table>
<thead>
<tr>
<th>TMA:</th>
<th>Tutor-marked assignment</th>
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<tbody>
<tr>
<td>iCMA:</td>
<td>Interactive computer-marked assignment</td>
</tr>
<tr>
<td>EMA:</td>
<td>End-of-module assessment</td>
</tr>
</tbody>
</table>
### CAPACITIES FOR MANAGING DEVELOPMENT (T878)

- **CREDITS:** 30 at PG level
- **STUDY WEEKS:** 21
- **ASSESSMENT:** 3 TMAAs, 1 examination
- **START:**
  - 01 May 2017 register by 31 Mar 2017
  - 01 Nov 2017 register by 12 Oct 2017
  - 01 May 2018 register by 12 Apr 2018

Development management engages with the multiple challenges of development. This module sets out to help you build your capacities for managing those challenges. It rests on the assumption that management is a political and ethical process, a matter of the use of power to bring about desired goals in contexts characterised by conflicts of interests, values and agendas. The module teaches a range of skills you need to manage development well, skills of strategic thinking, research, advocacy, planning, policy making and evaluation. You will find it relevant whatever sector you are in, and whether your work is local or global.

### DEVELOPMENT: CONTEXT AND PRACTICE (T877)

- **CREDITS:** 30 at PG level
- **STUDY WEEKS:** 21
- **ASSESSMENT:** 3 TMAAs, 1 examination
- **START:**
  - 01 May 2017 register by 31 Mar 2017
  - 05 Nov 2017 register by 12 Oct 2017
  - 01 May 2018 register by 12 Apr 2018

This online module explores the context in which development practice takes place. It asks you to think about development activities from multiple perspectives – to think ‘outside the box’ – about what development activity and theory are all about. It takes a multidisciplinary approach to development, highlighting the interconnectedness of different historical and theoretical perspectives as well as the contradictions between these and the reality on the ground. This module provides an ideal introduction to international development, facilitating the building of skills that will give you a good grasp of contemporary development theory and practice.

### ENVIRONMENTAL MONITORING AND PROTECTION (T868)

- **CREDITS:** 30 at PG level
- **STUDY WEEKS:** 20
- **ASSESSMENT:** 3 TMAAs, 1 examination
- **START:**
  - 01 Nov 2017 register by 12 Oct 2017

To conserve our environment, we need to ensure that any deterioration which can be prevented is addressed. This online module will equip you with the knowledge of the different environmental monitoring techniques for water, noise, air and wastes; how to model and interpret the impacts of pollutants; and the techniques available to eliminate the pollutants. Computer models and rich examples make for an interesting and useful coverage of water pollution control, noise control, air quality management, and solid wastes management. You will gain the skills necessary to undertake environmental assessment work, interpret the results, and suggest appropriate remedial measures, bearing in mind pollutants can be a reusable resource.
Engineering is at the heart of modern life. Today, engineers use computers and software in the design and manufacture of most of the products, processes and systems that make up our lifestyles. This module introduces the finite element method and instils the need for comprehensive evaluation and checking when interpreting results. It covers basic theory; modelling, meshing and analysing component models for stresses, deflections, temperatures and vibrations under operating conditions and loads; treatment of boundary conditions and restraints; and examples of good practice for safe and effective application in use.

Many decisions and actions, both individual and collective, affect our environment; yet economic and political considerations often dominate. Defining environment to include biophysical, social, political, economic and other factors, this online module uses a systems framework to integrate environment with other elements when making environmental decisions in complex situations. You will explore a contemporary case of environmental decision making concerning fracking, as well as further examples from different parts of the world around water, energy, agriculture, forestry and climate change. You will also be able to consider an environmental decision-making situation of your own choosing, through the development of a project.

This module will increase your understanding of delivering and supporting sustainability management. You will develop a multidisciplinary perspective on resources, sustainability and health and safety management which will incorporate strategy, policy, data collection and knowledge management. It will introduce you to a systemic approach for studying organisational operations and methods for quantifying and optimising resource use and energy use while using tools to reduce environmental, societal and financial risk. You will also learn how to improve the efficiency and effectiveness with which your organisation can incorporate sustainability issues and to identify future trends and drivers for change in this area.
MANAGING SYSTEMIC CHANGE: INQUIRY, ACTION AND INTERACTION (TU812)

CREDITS: 30 at PG level
STUDY WEEKS: 24
ASSessment: 3 TMA, 1 EMA
START: 01 Nov 2017 register by 12 Oct 2017

This module views change as inescapable in managing everyday situations ranging from personal to workplace to society in general. Rather than passively accepting change, this module will equip you with skills to shape the nature and direction of change. It will develop your abilities to manage change with others to avoid systemic failures and improve joined-up actions amongst stakeholders along supply chains, in projects or, even, social activism. It is about learning to use systems thinking and practice to help you engage with change and act accordingly to recognise the interconnected nature of organisations and environments.
The history of technological innovation has been nothing short of remarkable, affecting our lives, the effectiveness of organisations, the profitability of industries, the wellbeing of societies and the prosperity of nations. Understanding the processes that underpin technological innovation is therefore crucial, whether you are a user or producer. And if you are involved in managing innovation processes, an understanding of the overall process of innovation and its variations is a core professional competence. This module examines innovation from a management perspective, enabling you to improve how you contribute to the process and management of technological innovation.

Introducing materials processing from the perspective of a design engineer, this entirely online module explores how to make components. You will focus on the interactions between manufacturing, materials and design, rather than studying each one independently. Online texts combined with investigative learning activities help you develop the ability to make manufacturing decisions. The manufacturing processes covered are: casting, forming, cutting and joining, additive manufacturing and surface engineering. By gaining a deeper understanding of the scientific and technological principles that govern these basic processes, you will be able to play a more effective role as a professional engineer. Manupedia, an online database of manufacturing processes, plays a key role in your study.

Problem solving is a necessary activity for all organisations. However, it is frequently ineffective: chronic problems that were supposedly solved re-emerge, and opportunities remain unrealised. Although many organisations have had early successes with mechanisms for problem solving and improvement, these have often foundered over time. This module provides a wide range of problem solving approaches, methods and techniques and examines their underpinning concepts, principles and theoretical backgrounds. It will enable you to investigate problems properly; and generate robust, effective solutions that are sustainable. The module also explores the nature of problems and solutions, and the management of problem solving and improvement.
<table>
<thead>
<tr>
<th>COURSE</th>
<th>CREDITS:</th>
<th>STUDY WEEKS:</th>
<th>ASSESSMENT:</th>
<th>START:</th>
<th>REGISTRATION DEADLINE:</th>
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<tr>
<td><strong>PROJECT MANAGEMENT (M815)</strong></td>
<td>30 at PG level</td>
<td>22</td>
<td>3 TMA, 1 EMA</td>
<td>01 May 2017 register by 13 Apr 2017</td>
<td>01 May 2018 register by 12 Apr 2018</td>
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<tr>
<td><strong>STRATEGIC CAPABILITIES FOR TECHNOLOGICAL INNOVATION (T849)</strong></td>
<td>30 at PG level</td>
<td>24</td>
<td>3 TMA, 1 EMA</td>
<td>01 May 2017 register by 13 Apr 2017</td>
<td>01 Nov 2017 register by 12 Oct 2017</td>
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<tr>
<td><strong>TEAM ENGINEERING (T885)</strong></td>
<td>30 at PG level</td>
<td>32</td>
<td>4 TMA, 1 EMA</td>
<td>15 Sep 2017 register by 17 Aug 2017</td>
<td>19 Jan 2018 register by 14 Dec 2017</td>
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</tbody>
</table>

Whether you are a project manager, an aspiring project manager or a member of a project team, this online module will support you in improving your practice and making your contribution to the project even more effective. You will gain an understanding of the essential steps in the project life cycle and reflect on the techniques available to you and how they can be applied. You will have the opportunity to review, in the light of your new knowledge and experience, a project on which you have already worked. The topics covered include stakeholders, finance, risk, people, project administration and quality.

The need for ongoing technological innovation has become a strategic necessity for many organisations. Even in traditionally stable sectors the option of maintaining the status quo is seldom viable. This creates challenges for how organisations acquire and manage the resources and capabilities necessary for effective approaches to innovation; and create and maintain contexts that support strategic action. This online module draws on material from the resource-based view of organisations, and strategic and innovation management more generally, to produce a multi-layered, practical, approach to the development and management of technological innovation. It is suitable for anyone interested in developing or improving their skills and expertise in this area.

Team engineering aims to develop the essential professional engineering skill of working with others. There are two weekend residential schools: you’ll work as part of a small project team, formed at the first residential school. Projects will encompass a broad sweep of engineering, requiring cooperative development of the knowledge and skills needed to analyse an engineering system and produce a revised specification for that system. You’ll work together in a team, meeting regularly online and using a shared virtual workspace, under guidance from your tutor. Your team’s results will be presented and assessed at the second residential weekend school and through submission of a written report.
<table>
<thead>
<tr>
<th>Module</th>
<th>CREDITS:</th>
<th>STUDY WEEKS:</th>
<th>ASSESSMENT:</th>
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<tr>
<td>THINKING STRATEGICALLY: SYSTEMS TOOLS FOR MANAGING CHANGE (TU811)</td>
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<td>24</td>
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<td>01 May 2018 register by 12 Apr 2018</td>
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<tr>
<td>RESEARCH PROJECT (T802)</td>
<td>60 at PG level</td>
<td>52</td>
<td>4 TMA, 1 EMA</td>
<td>01 Oct 2017 register by 31 Jul 2017</td>
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<td>01 Feb 2018 register by 30 Nov 2017</td>
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<tr>
<td>THE MSc PROFESSIONAL PROJECT (T847)</td>
<td>30 at PG level</td>
<td>24</td>
<td>3 TMA, 1 EMA</td>
<td>01 Nov 2017 register by 12 Oct 2017</td>
</tr>
</tbody>
</table>

This module is about managing complex situations. Managing is ultimately about taking action where others involved may have contrasting understandings, motivations and interests, and where conflicts inevitably arise. You will develop your understanding of complex situations using robust tools from significant traditions of systems practice to think strategically about change and uncertainty. The situations that you choose to work with in the module to develop your practice with systems tools can either derive from your existing, or aspiring, professional capacity or simply be of general interest to you.

This research module builds on your existing postgraduate diploma to enable you to complete your MSc. You’ll design your own research proposal by identifying and developing a research problem relevant to your MSc. Your research will involve a literature review, original data collection, data analysis and the drawing of conclusions. You will then communicate the outcome of your research by writing up and submitting your dissertation. Support is available to you at every stage from the study materials, your supervisor and online forums. Early registration is recommended as you will need to complete preparatory work before the module starts.

This research-based module is your opportunity to investigate a topic of your choice in what is likely to be a professional employment-related setting. Acting as an informed investigator you will design, conduct, analyse and report on your chosen research project, applying relevant conceptual, theoretical and methodological material at all stages of your work. You will be expected to carry out your research in a rigorous fashion and to an appropriate academic standard. Spanning only six months, this module provides a challenging but valuable opportunity to engage in – and learn from – a research scenario of your choosing.
OTHER USEFUL INFORMATION

STUDY FROM OUTSIDE THE UK
You may be able to study with the OU wherever you are in the world. Find out more by visiting openuniversity.edu or call +44 (0)300 303 0266.

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We’re committed to creating an inclusive university community where everyone is treated with dignity and respect. We challenge inequality, and anticipate and respond positively to different needs so that everyone can achieve their potential. Find out more by visiting openuniversity.co.uk/equality.

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CONTACT US IN WRITING
Write to us at:
Student Recruitment
The Open University
PO Box 197
Milton Keynes
MK7 6BJ
United Kingdom

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When you register, we ask you whether you have a physical or mental health disability, health condition, or specific learning difficulty (such as dyslexia) that may affect your study. If you do, we’ll give you more detailed information about how we might be able to help.

DISABLED STUDENTS’ ALLOWANCE (DSA) – UK STUDENTS ONLY
A DSA can help you with study costs that result directly from your disability or specific learning difficulty. DSAs are not means-tested. They may go towards specialist equipment (such as an adapted computer), non-medical study support (e.g. a dyslexia support worker) or other related expenses. You can also apply for help with study-related travel costs that directly result from your disability. Your eligibility and the allowances you may get depend on where you live and what you’re studying. Find out more by talking to us on +44 (0)300 303 5303 or go to openuniversity.co.uk/disability.
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Saturday: 09:00–17:00
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- Go to openuniversity.co.uk
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- Call our Belfast office on 028 9032 3722

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- Email us ireland@open.ac.uk
- Call our Enquiry and Advice Centre in Dublin on (01)6785399 or our Belfast office on +44 (0)28 9032 3722

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- Call us on +44 (0)300 303 0266

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Os ydych yn siarad Cymraeg a byddai’n well gennych drafod eich anghenion astudio drwy gyfrwng y Gymraeg, cysylltwch à:
Y Brifysgol Agored yng Nghymru, 18 Heol y Tollty, Caerdydd, CF10 1AP
- Ffoniwch ni ar 029 2047 1170
- Ebost wales-support@open.ac.uk

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