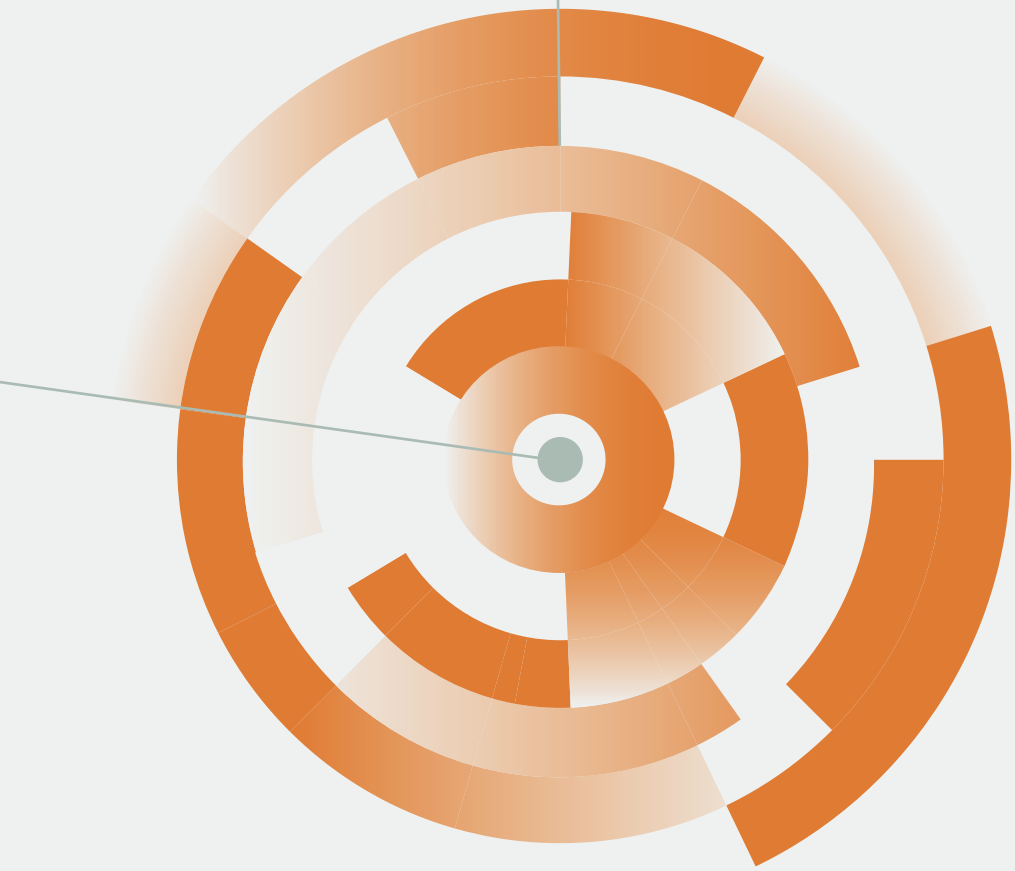
MANCHESTER 1824

The University of Manchester



Mechanical Engineering

2020
Undergraduate brochure

Mechanical Engineering at Manchester

"We are an international centre of engineering education. As a large Department, we are close to a one-stop-shop for someone searching for engineering experts."

Prof Paul Mativenga
Professor in Multi-Scale and Sustainable Manufacturing

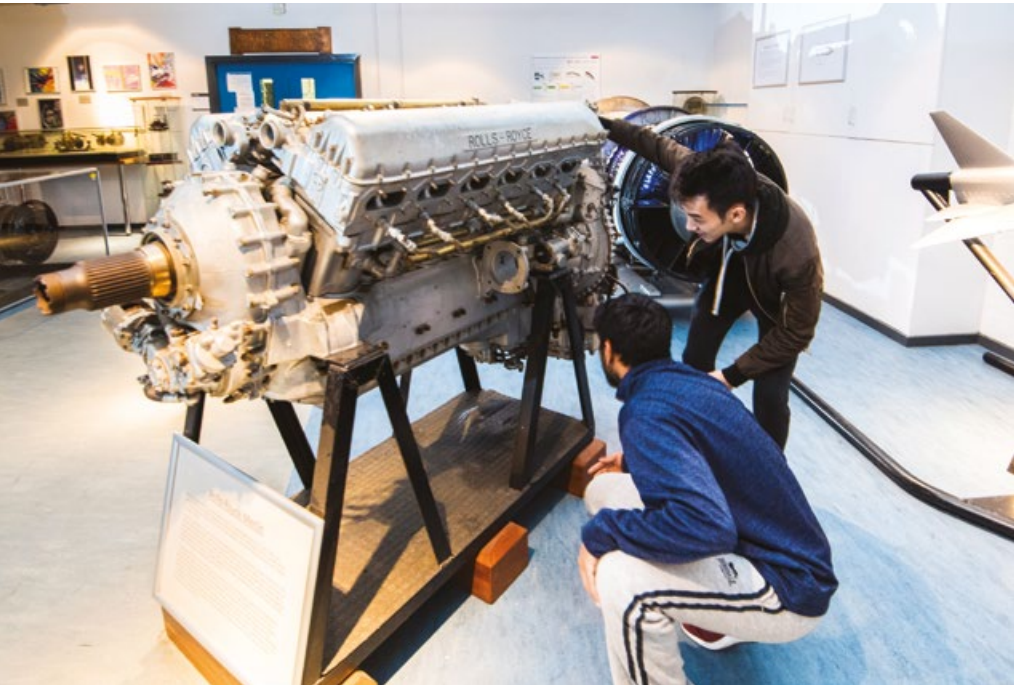
- Ranked 4th in the UK for Mechanical Engineering (QS World University Rankings 2019)
- The first English university to offer an engineering degree
- Courses accredited by the Institution of Mechanical Engineers
- Excellent facilities including extensive manufacturing and laser labs, wind tunnels and engine test beds

What is Mechanical Engineering?

If cogs, fast cars and rockets spring to mind, give yourself half a mark. Because mechanical engineering is so much more than that! Mechanical engineering involves applying science and technology to solve real-world problems, by designing and creating systems with moving parts. Mechanical engineers invent 3D printers, create prosthetic limbs, design new technology to improve food production and water supplies, and even create robotic manufacturing plants. And yes, mechanical engineers do also make fast cars!

We rely on mechanical engineers to find solutions to some of the biggest challenges we face, such as: How can we sustain and feed a growing population? Where will we get our future energy from? How can we live more sustainably?

Mechanical engineers are needed throughout the world, and almost every industry you can think of relies on mechanical engineering - that's why there's such a huge global demand for mechanical engineers.



Open days

Our open days provide an opportunity for you and your family to visit not only our Department but also the wider University.

During your visit you'll have the opportunity to talk to staff and current students, find out more about courses and subjects, visit labs and take part in demonstrations.

If you aren't able to visit us in person, why not take a look around the Department and hear from some of our staff and students on our Virtual Open Day?

www.mace.manchester.ac.uk/study/open-days

Facilities & resources

Our facilities are second to none and provide students with the very best opportunities:

- **Extensive laboratory space and equipment for subjects such as Dynamics, Materials, Control and Thermofluids**

- **A National Instruments lab which is equipped with excellent computer facilities allowing students to design, build and run robotics.**

Our courses are taught through a mixture of lectures, tutorials, example classes and laboratory sessions, supplemented by extensive online resource.

Learning support

Peer support scheme

Our peer support scheme is one of the largest in Europe. Peer mentors are higher-year students on the same degree programme as you, who will help you find your feet when you arrive here and adjust to student life. As they'll have already been a student at Manchester for at least a year, they should be able to help you with anything you might be worried or unsure about.

PASS *(Peer Assisted Study Sessions)*

All our first year students have a PASS group who they meet with weekly. Led by volunteer students, PASS sessions will often be based around a specific area of study. You'll have the opportunity to consolidate and build on your existing knowledge through discussion with other students in an informal and supportive environment, where you can compare notes, analyse, ask questions and talk through ideas.

Find out more about the personal and academic support available to you throughout your studies:
www.manchester.ac.uk/study/experience/student-life/university/student-support

Academic advisers

Our students are assigned an academic adviser who is there to give advice about any academic issues throughout the duration of the course. Your adviser will be able to help you with the transition from school or college to university – and can help you get to grips with studying and learning more independently. They'll also be able to help you develop your skills in academic writing or research, or any other skills that are specific to your degree programme.

Student welfare

Our Department has a dedicated Student Welfare team who are available to help and support with any queries, worries or issues you may face and provide advice and guidance around pastoral issues.

Disability support

If you have additional needs arising from a medical condition, physical or sensory disability, a specific learning disability such as dyslexia, or a mental health difficulty that affects your study, we can provide support. Contact or visit our Disability Advisory and Support Office before you apply, to discuss your needs and the support available.

www.manchester.ac.uk/dass

Apply

How to apply

All applications for entry onto our undergraduate courses are made online through UCAS, where you should include details of your qualifications and your personal statement. A teacher or tutor will then provide a reference and details of any predicted grades.

We do not hold interviews as part of our admissions process, however if we have any queries about your application or qualifications, we will contact you by email to request further information in order to consider your application.

www.manchester.ac.uk/study/undergraduate/applications

Please note that the course units listed in this brochure only represent a sample of the full breadth of available units for each course. Units are reviewed on an annual basis and as such may vary slightly to those advertised.

For up-to-date course information, including unit detail and entry requirements in full, visit our course finder:
www.manchester.ac.uk/undergraduate

Typical offer

BEng

A-level: AAB including Mathematics and Physics

IB: 35 points including 665 at Higher Level to include Mathematics, Physics and one other subject and 5 in English Language at Standard Level

MEng

A-level: AAA including Mathematics and Physics

IB: 36 points including 666 at Higher Level to include Mathematics, Physics and one other subject and 5 in English Language at Standard Level

For full details of our entry requirements:
www.manchester.ac.uk/ugcourses

Our courses

Mechanical Engineering	BEng	3 years
	MEng	4 years
Mechanical Engineering with Industrial Experience	MEng	5 years
Mechanical Engineering with Management	BEng	3 years
	MEng	4 years

"The individual project in your third year provides a great opportunity to choose a particular subject area to gain some specialist knowledge in."

Dr Tim Craft
Senior Lecturer in Mechanical Aerospace and Manufacturing Engineering

Which course?

Choosing your course

Industrial experience

Competition in the graduate job market has risen dramatically over the last ten years, and students are increasingly looking for ways to differentiate themselves.

An excellent way to do this is by choosing an industrial placement as part of your degree course. This involves spending a year working in industry, typically after your 3rd year of study. As well as the salary that you earn during your placement, you also gain practical experience that can be invaluable, both in your final-year project and when competing for graduate jobs.

With management

Many professional engineers will find themselves in positions of responsibility. Projects must be planned, costed and managed, and products must be designed, manufactured and marketed in the real world. An engineer is thus often required to possess skills in management, decision-making and finance.

We collaborate with the Alliance Manchester Business School in order to offer degree courses with management, which provides our students with additional knowledge and skills in engineering management.

Read more about industrial placements and studying with management:
www.mace.manchester.ac.uk/study/undergraduate/industrial-experience

Mechanical Engineering

Our Mechanical Engineering courses give students an excellent grounding in the knowledge of this diverse subject and you'll gain the skills required to become a successful engineer. The course will help you develop strong analytical and problem-solving skills, as well as a high level of competence in engineering design.

We offer a range of core and optional course units which cover both the theoretical and practical aspects of industrially-relevant topics, which means you can select units which suit your particular interests and align with your career aspirations.

MEng students spend an additional year studying more advanced mechanical engineering course units and can develop their skills and knowledge even further.

Course overview

- **Our degrees follow a flexible common pathway during the first two years, which allows transfer between the BEng and MEng, subject to academic performance**
- **The course is developed in consultation with industry to ensure our graduates are prepared for professional careers in industry**
- **Excellent facilities, including our National Instruments robotics lab, 3D printers, formula student car workshop, as well as laboratories for materials and dynamics.**

UCAS code	BEng 3y	**H300**	Institution of MECHANICAL ENGINEERS
	MEng 4y	**H303**	

Year	Sample course units
1	> Mechanics > Thermo and Fluid Dynamics > Mechanical Engineering Systems
2	> Manufacturing > Dynamics > Modelling & Simulation
3	> Control Engineering > Structures > Heat Transfer
4	> Composites & Polymers > Acoustics & Advanced Vibrations > Robotics, Metrology & Bioengineering

Mechanical Engineering with Industrial Experience

This course aims to provide the mechanical engineers of the future with an education that covers the breadth of this diverse subject, imparting the necessary knowledge, understanding and skills so that they can operate effectively in their initial appointment and develop their career. It provides excellent grounding in mechanical engineering principles as well as important practical skills, and prepares our graduates for exciting careers in a variety of engineering sectors. You'll find the integrated industrial year highly beneficial, both to your university education and subsequent employability.

This course offers you the chance to complete a placement year in industry, which would normally be completed after the first three years of the Mechanical Engineering degree, but can be completed between years 2 and 3.

Course overview

- **Five-year integrated master's degree which includes a placement year working in industry**
- **Opportunity to gain valuable work experience and boost your employability.**
- **Excellent facilities, including our National Instruments robotics lab, 3D printers, formula student car workshop as well as laboratories for materials and dynamics.**

Year	Sample course units
1	> Mechanics > Thermo and Fluid Dynamics > Mechanical Engineering Systems
2	> Manufacturing > Dynamics > Modelling & Simulation
3	> Control Engineering > Structures > Heat Transfer
4	> Year in industry
5	> Composites & Polymers > Acoustics & Advanced Vibrations > Robotics. Metrology & Bioengineering

UCAS code	MEng	5y	H301	Institution of MECHANICAL ENGINEERS

"Our links with industry are strong, which means that students have the chance to get involved in industry-relevant research at a very early stage."

Dr Robert Heinemann
Lecturer in Innovative Manufacturing

Mechanical Engineering with Management

Engineering is not just about technology. It is about people, companies, manufacturing and commerce.

Engineering decisions must normally be made within a commercial context and engineers are often found in senior management positions where they are required to be leaders and strategic planners, as well as problem-solvers and designers.

Combining engineering with management produces a lively, interesting and multidisciplinary degree, with excellent career prospects for graduates.

You'll complete this degree a well-rounded graduate with not only a solid engineering training, but also a useful insight into the commercial world. This will equip you for a wide range of careers, including general management and sales, as well as jobs in more technical fields.

Course overview

- **Our degrees follow a flexible common pathway during the first two years, which allows transfer between the BEng and MEng, subject to academic performance**
- **A degree specialising in mechanical engineering, coupled with specialisms in business, finance and project management**
- **Excellent facilities, including our National Instruments robotics lab, 3D printers, formula student car workshop, as well as laboratories for materials and dynamics.**

UCAS code	BEng	3y	**H3N1**	Institution of MECHANICAL ENGINEERS
	MEng	4y	**H3ND**	

Year	Sample course units
1	> Mechanics > Thermo and Fluid Dynamics > Exploring Enterprise
2	> Manufacturing > Dynamics > Marketing
3	> Control Engineering > Structures > Strategy
4	> Composites and Polymers > Robotics, Metrology & Bioengineering > Legal Issues

Career opportunities

Mechanical Engineering graduates from The University of Manchester :

74%
Employed

16%
Further study

Salaries

UK average	£23,000
UK Mech Eng	£26,361
UoM Mech Eng	£26,555

Further study options

MSc – 48%
PhD – 33%
Most popular qualifications

PhD Mechanical Engineering
Most popular course title

MANCHESTER 1824
The University of Manchester
Most popular institution

What our graduates do:

- Engineering Manager
- Project Engineer
- Mechanical Piping Engineer
- Static Maintenance Engineer

Where our graduates work:

- Rolls-Royce
- BP
- Siemens
- Amec Foster Wheeler
- BAE Systems
- Jaguar Land Rover
- Shell

Source: HESA, Destinations of Leavers from Higher Education (DLHE)

Women in Engineering

Very few engineering departments around the world are led by a female academic who holds diversity and equality as central values. Under the direction of Professor Alice Larkin, our Department is driving forward rapidly with a range of initiatives to improve diversity and representation of female staff and students. Our students are taught and inspired by our female staff, we hold networking events and talks to celebrate women in engineering, and we run award-winning peer-to-peer mentor schemes where gender balance is a critical part of ensuring a positive experience for all our students.

Read about our Women of Wonder:
www.se.manchester.ac.uk/people/women-of-wonder

Watch the stories of some of the women in our Faculty:
www.mub.eps.manchester.ac.uk/science-engineering/2017/03/06/women-of-wonder

"Misconceptions you may hear about women in engineering might include: 'they won't find it interesting', 'they wont be so good at the creative and practical elements', or, 'they won't be physically strong enough to conduct activities in workshops and with machinery' - all nonsense!

The future looks bright for women in engineering. The workplace is changing rapidly, and increasingly engineering organisations are recognising the huge value in having a diverse workforce. Furthermore, the societal importance of engineering, and ensuring that there are clear opportunities to make a difference, is helping to inspire more women to take up this exciting and impactful career path.

Diversity is a great thing – and one that can only benefit engineering and help to solve societal challenges. At the moment, the majority of engineering graduates are male – but it doesn't have to be that way. Come to Manchester and be a part of that change!"

Alice Larkin
Head of Department and Professor of Climate Science and Energy Policy

Make your mark with Stellify

"I wanted to try something completely new. Transforming unused and overgrown land into areas where fruit and vegetables can be grown gave my volunteering an environmental focus.

Volunteering is a different experience from study. For me, as a chemical engineering student, it's enabled me to think outside my discipline, which by its nature is very technical.

Here at Manchester, volunteering is embedded in the very heart of the University's culture – there are so many opportunities to try something new, which in turn can have such a positive impact on our communities."

Alessia Xu
MEng Chemical Engineering with Industrial Experience

Read Alessia's story at:
www.manchester.ac.uk/make-your-mark

At Manchester you'll find a whole host of transformational academic and extracurricular activities to help you stand out and make your mark on the world. You could even prove your abilities to potential employers by gaining a prestigious award.

We call this process **Stellify**: to change, or be changed, into a star.

Stellify offers you opportunities to develop and grow at a university leading the way in social responsibility. Here's how.

Learn without boundaries

Enjoy interdisciplinary, international and entrepreneurial study options outside your course.

Understand the issues that matter

Become ethically, socially and politically informed on some of humanity's most pressing global issues.

Make a difference

Contribute to and learn from local and global communities through volunteering.

Step up and lead

Gain confidence and experience by assisting and inspiring your peers.

Create your future

Explore countless opportunities for professional career development.

STELLIFY

www.manchester.ac.uk/stellify

Manchester engineering campus development

A world-leading campus for teaching, learning and research, providing a brand new home for the next generation of engineers and material scientists.

It's a playground for engineers! It's got facilities and spaces - some social, some very technical - to let you work with other people to do some really amazing things.

Its workshops and lab spaces will become amplified centres of creativity, innovation and identity, allowing students to solve problems collaboratively to reflect the way industry works.

Learning will not be confined to the classroom – it will deliver a variety of adaptable and innovative learning spaces, recognising that there is no one right teaching and learning style.

Engineering is about creativity and the first thing you will see when you come into the building is students 'making' and 'doing'.

Our new campus reflects our pride in Manchester's rich academic and civic heritage, while showcasing our ongoing evolution of education and research.

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This brochure was printed in 2019 for the purposes of the 2020 intake. It has therefore been printed in advance of course starting dates and for this reason, course information may be amended prior to you applying for a place. There are a number of reasons why changes to course information and/or published term dates may need to be made prior to you applying for a place – more details can be found on our website. Prospective students are therefore reminded that they are responsible for ensuring, prior to applying to study, that they review up-to-date course information by searching for the relevant course at:

www.manchester.ac.uk/undergraduate/courses

Further information describing the teaching, examination, assessment and other educational services offered by The University of Manchester is available at:

www.manchester.ac.uk/undergraduate

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