MANCHESTER 1824

The University of Manchester

Materials Science and Engineering

UNDERGRADUATE BROCHURE

From the car you drive to the bridge you cross, the clothes you wear to the medicines you may take, materials shape every part of our world. If you want to know what makes some materials strong, others stretchy, and how they can be manipulated and designed to have special, smart, more sustainable and commercially viable properties, then a materials science degree could be for you.

Materials science and engineering involves an understanding of the fundamental behaviour of materials. We aim to improve the performance of existing materials and discover and develop new materials, such as graphene, for novel applications. Materials science is a practical subject at the heart of all major industrial sectors, which combines theory with practical application to meet engineering challenges - from jet engines to nano-robots, artificial tendons to bullet-proof vests, and much more.

Why Manchester

All our courses are accredited by the IOM3 for both Chartered Engineer and Chartered Scientist pathways.

We're in the top five in the UK for Materials Science (QS World University Rankings, 2022).

We offer field trips to materials companies such as TWI, Victrex, and many more.

We are the home of graphene host to the Henry Royce Institute, the UK National Institute for Advanced Materials, and our Graphene Engineering Innovation Centre.

Read more about why Manchester should be your first choice: uom.link/ug-materials-why-mcr

"It s in the makerspace that we come together, and our ideas come to life! You can tell it s designed with Engineering and Materials students in mind, because it s the perfect place to collaborate, connect, and create with each other!"

Olivia Del Pino Herrera, Engineering Student

Our campus

Come to our new home for Engineering and Materials; a place like no other. This is where engineers, material scientists and fashion students collaborate, innovate and make their mark on the world. Unleash your potential in our creative, academic playground that signals the evolution of a proud history of innovation spanning almost 200 years.

In this very special place, we're ripping up the rule book, offering you a truly innovative teaching and learning experience. As well as our creative classrooms, you'll also have access to world-leading sustainable research facilities. There are a world of possibilities, whether you are interested in aerospace, robotics, or sustainable fashion, there's a home for you here.

Manchester is synonymous with the Worker Bee and our Makerspace will be the hive of activity. It's led by students, for students, as the place to connect and tackle real-life challenges together with support from across our disciplines.

Our new home for Engineering and Materials is equipped and ready for students to unleash their potential.

uom.link/ug-materials-campus

Our courses

Materials Science and Engineering BSc

Materials Science and Engineering MEng

Materials Science and Engineering with Biomaterials MEng

Materials Science and Engineering with Polymers MEng

Materials Science and Engineering with Metallurgy MEng

Materials Science and Engineering with Corrosion MEng

Materials Science and Engineering with Textile Technology MEng

Materials Science and Engineering with Nanomaterials MEng

Materials Science with an Integrated Foundation Year

FLEXIBLE OPTIONS

Our courses have a common first year and mainly common second year, giving students flexibility to transfer to their chosen course up to the end of Year 2, when they are better informed about the pathways and have a deeper understanding of each specialisation.

FOUNDATION YEAR AVAILABLE

You can prepare for the full degree course if you do not have the appropriate qualifications for direct entry by undertaking our foundation course first.

Find out more about the different courses and options on offer on our department website: uom.link/ug-materials

What you'll learn

Our materials science courses provide a broad coverage of the principles, techniques and applications of materials and, after the first year, offer a wide range of specialist course units, enabling you to focus on areas of particular interest.

DEGREE SPECIALISATIONS

Our four-year MEng courses give you extensive knowledge of both the fundamentals of materials science and engineering, with the opportunity to specialise in the areas that interest you most. For example, you can develop your understanding of how materials interact with the human body on our biomaterials pathway, choose the nanomaterials pathway to concentrate on the applications of advanced materials such as graphene, or explore the newest developments in advanced alloys and how they're applied to areas such as environmentally friendly transport as part of our metallurgy specialism.

RESEARCH PROJECT

A key feature of our MEng courses is the six-month research project, this can be carried out in an industry setting, giving you the opportunity to develop your understanding by applying your theoretical and technical knowledge to a substantial research project. Through this project you will gain in-depth experience of using cutting-edge research facilities and develop the interpersonal, communication and presentation skills required by industry.

Special features

INDUSTRIAL EXPERIENCE

During the first semester on the final year of the MEng courses you'll be required to complete a project. You'll have the option to complete this either in the University or in industry. These industrial placements have previously included companies such as McLaren, working on advanced materials for sports cars.

Read more about our industrial experience option here: uom.link/ug-materials-ind-exp

FACILITIES

Our students have access to state-of-the-art facilities including:

- electron microscopy
- X-ray tomography
- electrochemical imaging
- surface and bulk analytical facilities
- processing equipment for metals, polymers, ceramics and composites.

FIELD TRIPS

Several industrial field trips are organised each year, particularly for second and third-year students. These involve visits to potential employer sites to see facilities and applications in the real world.

OUR STUDENT COMMUNITY

The Materials Society (MATSOC), run by our students, is the hub of our flourishing social and sporting activities. The society organises many events throughout the year, including an annual ball, sporting events, days out to places of interest and the annual 'Made in Manchester' event, aimed at promoting graduate opportunities in the field of materials science and engineering.

uom.link/ug-materials-student-union

Open days

The University holds undergraduate open days regularly where you have the opportunity to find out more about our courses, the support we offer and see our facilities. Attending an open day is a great way to find out what studying at Manchester is like and to hear from our staff and students.

For information about our open days visit: uom.link/ug-materials-open-days

"Manchester prepared me greatly for my move into a high-performance company like McLaren, because the potential of the university is phenomenal. If you have an interest and a drive to discover, learn, develop, you can find a way at Manchester to do it."

Ella Podmore / MEng Materials Science and Engineering alumni
Fault Analysis Engineer, McLaren and IET Young Woman Engineer of the Year 2020

Read more about Ella's time at Manchester: uom.link/ug-materials-ella

Employability and careers

Our graduates are recognised by employers for their knowledge, advanced research skills and independent thinking and are amongst the most sought after by employers in a wide range of industrial sectors. They go on to fill key posts in industry and academia.

WHAT OUR GRADUATES DO

- Materials Scientist
- Materials Engineer
- Development Scientist
- Materials Technologist
- Research Associate
- Materials Chemist
- Product Development Scientist.

WHERE OUR GRADUATES WORK

- Rolls Royce
- Jaguar Land Rover
- BP
- 3M
- Airbus
- Smith and Nephew
- DePuy
- McLaren
- BAE Systems
- Siemens
- Bentley Motors.

Find out more about the careers opportunities the University and our department offer, so that you graduate ready to make your mark: uom.link/ug-materials-careers

Department of Materials
The University of Manchester
Engineering Buildings A and B
Oxford Rd
Manchester
M13 9PL
United Kingdom

t +44 (0)161 543 4019

e ug-materials@manchester.ac.uk

w manchester.ac.uk/materials

@UoMMaterials

@materialsuom

uom.link/ug-materials-blog

DISCLAIMER
This brochure was produced in 2022 It has therefore been produced in advance of course starting dates. For this reason, course information, including course content, may be amended prior to your applying for a place on a course of study. There are a number of reasons why changes to course information and/or published term dates may need to be made prior to your applying for a place on a course. These may include, but are not limited to: the need to make reasonable changes to the content and teaching offered in relation to any course for operational and/or academic reasons; the withdrawal of courses due to insufficient numbers; a course not receiving the required accreditation; and/or interruption or loss of key services due to circumstances beyond our control, including fire, flood or other operational issues.

Prospective students are therefore reminded that they are responsible for ensuring, prior to applying to study at The University of Manchester, that they review up-to-date information by searching for the relevant course at uom.link/fse-ug-courses

INDUSTRIAL EXPERIENCE DISCLAIMER
Some aspects of the industrial experience programmes may continue to be impacted by the COVID-19 pandemic. The situation is fast-moving and dynamic and may require adjustments at short notice.

FIELDWORK DISCLAIMER
The Department aims to run advertised fieldwork and we very much hope that students will be able to enjoy the fieldwork experience in the usual way. The ability of fieldwork to proceed, and whether any changes to proposed fieldwork might be necessary, will remain subject to COVID-19 restrictions and based on the U.K. government guidelines. We will therefore assess on a regular basis the viability of any travel and fieldwork and communicate any decisions to our students at the earliest possible opportunity.