



The
University
Of
Sheffield.

Department Of
Materials
Science &
Engineering.

A photograph of two students, a man and a woman, standing in a laboratory. They are both wearing white lab coats and blue gloves. The man is on the left, and the woman is on the right. They are standing in front of a laboratory bench with various pieces of equipment, including a sink, bottles, and a fume hood. The background shows more laboratory equipment and a window.

Undergraduate
Courses.

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Materials Science and Engineering is key to most of the technology upon which society depends.

Please ask if you require copies of this brochure in alternative formats (eg Braille).

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What do materials scientists and engineers do?

A degree in Materials Science and Engineering will equip you for many different careers in a wide range of industries and professions, from Research and Development to Process Engineering on a large industrial plant.

Over 80% of our graduates choose to continue in the Materials sector after graduation. Some of our graduates go on to work with materials producers, such as glass or composites manufacturers. Others gain employment in a materials-user industry, such as the automotive industry, telecommunications or the sports equipment industry. Our graduates are also employed in related industries, such as food processing, forensics, environmental engineering, teaching, sales and finance. Many of our graduates also go on to work in Materials research, in areas such as nanotechnology, nuclear engineering, metallurgy, functional ceramics, composite materials or biomaterials.

After graduation, many take on increasing managerial responsibilities, with some going on to become company directors. Others progress to become specialist consultants as they gain experience.

Our courses help you develop many transferable skills, including:

- Good analytical and problem-solving skills
- The ability to apply scientific understanding and engineering principles to large and smaller scale processes
- The ability to work effectively in a multidisciplinary team
- The ability to manage projects, people, resources and time

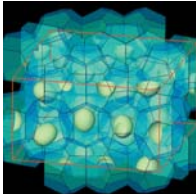
For more information and examples of our graduates' careers, see 'Where are our graduates now?' (Page 8).

What is Materials Science and Engineering?

Materials Science and Engineering is key to most of the technology upon which society depends. It covers areas ranging from lightweight alloys for aircraft to semiconductors for PCs, photovoltaics for energy generation, superconductors for whole body scanners in hospitals and implants for human body repairs.

Materials scientists and engineers are employed in the areas of materials design, materials performance and materials selection, tailoring the properties of materials to meet design requirements in a wide range of engineering contexts. To do this, they apply their understanding of how composition and processing conditions affect the structure and properties of materials. Some develop sophisticated computer modelling programs to help them predict the outcome of changes to these variables.

The demands for miniaturisation, reduction of environmental impact, replacement body parts, smart materials, information technology, changes in the built environment and transport all influence materials development. By studying Materials, you can be part of this vital and dynamic process.



“The Department of Materials Science and Engineering has a reputation for excellent teaching”

Why choose to study Materials at The University of Sheffield?

Strong teaching record

The Department of Materials Science and Engineering has a reputation for excellent teaching, and was awarded 22 out of a possible 24 in the latest HEFCE teaching quality assessment. Our 2011 Accreditation Report from the Institute of Materials, Mining and Minerals noted that our students are ‘...high calibre with excellent employability prospects on completion of the course’.

Teaching on our courses is mostly carried out by full-time academic staff, with occasional lectures contributed by visiting industrialists.

Accredited programmes

Our Materials Science and Engineering degree programmes are accredited by the Institute of Materials, Minerals, and Mining. This facilitates progression to Chartered Engineer status (CEng) if you enter a Materials-related profession after graduating.

Accreditation is an accepted and rigorous process of peer review against standards published by the Engineering Council in the UK Standard for Professional Engineering Competence (UK SPEC). An accredited degree meets the Engineering Council’s required output standards and provides some or all of the underpinning knowledge, understanding and skills for eventual registration as an Incorporated or Chartered Engineer. It may be recognised by other countries that are signatories to international accords.

International reputation

The University of Sheffield has a strong international reputation. In the last national Research Assessment Exercise in 2008 the Department was rated as one of the leading departments in the country with all its research activity rated as being “recognised internationally in terms of originality, significance and rigour” or above. Our academic staff are regularly invited to give keynote lectures abroad, publish extensively, and hold key offices in international organisations. This means that you are taught by academic staff who are at the cutting edge of their particular field.

We are also particularly proud of the quality of our graduates, many of whom have received national honours, for example:

Michael Robinson, 23, who graduated from the Department in July 2009, received the **Morgan Crucible Award for Best Materials Student** at the **2009 Science, Engineering & Technology Awards** for his project on High-Speed Machining of Aerospace Titanium Alloys supervised by Dr Martin Jackson. Michael has now started on the Engineering Professional Excellence Graduate Programme at Rolls-Royce. Michael said: *“It was a real honour to receive such a prestigious award, particularly having been competing against students from other top universities in the country. My final year project produced some really original research*

and will form the beginning of much further work into the area.

I think the achievement shows the strength of the Materials Science and Engineering Department at The University of Sheffield, both in terms of teaching and research.”

Excellent resources

Our high level of research funding provides excellent resources that are used by undergraduate students as well as postgraduate students and staff; for example, our second year undergraduate students use scanning electron microscopes, and state-of-the-art testing and other characterisation machines for practical classes, and our final year students have access to the latest technology for their research projects. Our latest accreditation report noted the ‘excellent practical and library resources and the University’s support for the Materials Department is demonstrated by the fact that considerable capital expenditure has been committed to that area over the next five years.’

Friendly atmosphere

Our latest Accreditation Report also commented that ‘the Department is a caring and stimulating place in which to study materials science and engineering’. The Turner Museum, a nationally recognised glass museum, is located in the Department, providing a Departmental café and a pleasant environment for a break. It encourages our students to socialise and creates a relaxed but engaging atmosphere.



“We provide you with a solid basis in the underlying science, taught in a stimulating intellectual environment.”

What courses are available?

Our courses lead to either BEng or MEng degrees, involving three or four years of study respectively. All of the Materials courses we offer are described below, together with the relevant UCAS codes:

Materials Science and Engineering (MEng J500, BEng JH51)

This is our core degree. Students learn subjects right across the Materials discipline, reflecting the broad expertise in our Department and providing an excellent springboard for a future career in Materials.

Materials Science with Nuclear Engineering (MEng F2HB)

This new degree builds upon the considerable expertise we have in the nuclear sector. Government plans means there will be a strong demand for scientists and engineers entering the UK nuclear industry for decades to come. This course includes a strong grounding in Materials Science that develops into an increasing number of nuclear-based modules. Graduates of this course will be ideally placed for a career in the energy sector.

Metallurgy (MEng J200)

This course shares a common first and second year with the Materials Science and Engineering courses but thereafter provides specialisation in the study, processing, analysis and applications of metals.

Materials Science and Engineering (Modern Language) (MEng J5R9)

Each year of this course offers an opportunity to develop your language skills. The languages studied are French, German, Italian or Spanish. The course structure is basically the same as our standard MEng programme in Materials. The difference is that you study extra language modules. Your work placement in Year 3, an integral part of the MEng course, is in a country appropriate to your choice of language. This degree is offered as a four-year MEng course only, to ensure sufficient time for language teaching.

Materials Science and Engineering (Industrial Management) (MEng FH21, BEng FHF1)

This degree incorporates business modules in each year of study. They aim to meet the increasing demand for graduates who are highly trained and experienced in both management and materials issues.

Aerospace Materials (MEng H403, BEng H401)

This course will provide you with the technical knowledge and skills needed to work at the interface between pure science and engineering, develop new materials, and new technologies, and contribute to the international aerospace industry of the future.

Materials Science and Engineering (Biomaterials) (MEng JH5P, BEng JH56)

This course develops an understanding of both materials engineering and human anatomy, physiology and cell biology. This understanding is developed in the context of applications in both research and in industry. There is a clear demand for graduates skilled in the field of biomaterials science and engineering. This course provides a broad-based training for industry, which is nonetheless a suitably detailed background for students wishing to pursue research.

Alternatively, if your entry qualifications are not in the required subjects, **Materials Science and Engineering with a Foundation Year (J501)** will get you up to speed in all the underpinning sciences.

The Foundation Year is part of your degree course and gives you access to the same University facilities as other first year students. On successfully completing the Foundation Year you can enter any of our mainstream undergraduate courses.

All of these courses lead to classified degrees with Honours and are accredited by the Institute of Mining, Minerals and Materials.

Materials Science and Engineering courses



Course title	Qualification	UCAS code
Materials Science and Engineering	MEng	J500
Materials Science and Engineering	BEng	JH51
Materials Science with Nuclear Engineering	MEng	F2H8
Materials Science and Engineering (Biomaterials)	MEng	JH5P
Materials Science and Engineering (Biomaterials)	BEng	JH56
Metallurgy	MEng	J200
Materials Science and Engineering (Industrial Management)	MEng	FH21
Materials Science and Engineering (Industrial Management)	BEng	FHF1
Aerospace Materials	MEng	H403
Aerospace Materials	BEng	H401
Materials Science and Engineering (Modern Language)	MEng	J5R9
Materials Science and Engineering with a Foundation Year	MEng	J501

All of these courses lead to classified degrees with Honours.

BEng or MEng^P

Our courses leading to BEng or MEng qualifications involve three or four years of study respectively. The first two years of study are common to both routes. This means that, regardless of which route you register for initially, you can defer making your choice about which qualification to study for until the end of the second year. The entry requirements for the MEng route are higher than for the BEng route. However, if you register initially for the BEng degree course and do well in your first two years, you can transfer to an MEng course. The advantages of the different routes are:

BEng (three years)

The BEng course provides the quickest route to graduation, enabling you to gain employment or progress to higher degree studies one year earlier. You can then acquire the industrial/research experience and undertake the further study needed to gain CEng (Chartered Engineer) status once you begin employment.

MEng (four years)

The MEng course includes extra, higher level courses and provides problem-solving and group project exercises with some management emphasis.

This course includes a five-month work placement starting in April of the third year.

The MEng course provides faster progression to CEng (Chartered Engineer) status after graduating. This is because you will meet some of the industrial training requirements of the Engineering Council on your work placement and all academic study requirements are covered on the course.

Meet our students

Here are comments from some of our current students:

Jim Williams (UK), Second year MEng Materials Science and Engineering
My time at the University of Sheffield has been the most exciting, demanding and enjoyable period of my life. What initially attracted me to the University was its standing in league tables for teaching and research quality, and student satisfaction. As I read reviews of the city and spoke to friends who studied there, it became clear that people who come to Sheffield tend to have a pretty amazing time.

Studying Materials Science and Engineering at Sheffield puts you in an excellent position both academically and socially. The course is very highly regarded, as can be seen by our standings in national league tables (where we compete with the elite universities for the top spot) and by the frequent employment of our graduates at top companies. The Department has a friendly, welcoming atmosphere and the lecturers are all very approachable and helpful. The social side of the course is also strong thanks to the MATSOC (Materials Department Society) committee who regularly organise all kinds of trips and events to bring the students together.

After my first year I was offered a summer placement in the Department and gained exposure to an extraordinary amount of cutting-edge technology. I was able to participate in research on aerospace technologies and advanced manufacturing techniques for motorsport applications. These industrial links also enable students to go to interesting and world-leading firms during their third year placements. The opportunities available to students at Sheffield are endless. I originally planned to seek employment in industry immediately after graduating, but now find myself drawn to the idea of doing a PhD as I'm enjoying the Materials course so much.

Lizzie Roberts (UK), Third year MEng Materials Science and Engineering (Biomaterials)

How and why things work has always sparked my curiosity, particularly the human body. I am interested in furthering medicine to improve healthcare and the quality of life of individuals. I found this course combined my passion for biology and people with the practical engineering required to provide solutions to medical problems.

I chose to come to Sheffield because I liked the course and I knew Sheffield is one of the top Materials departments in the country. However, it was the warm and friendly atmosphere of the Department that finally won me over. Even though I come from London, I enjoy the fact that Sheffield is smaller and at a slower pace. Sheffield has everything a student needs, from the academic facilities, to the societies, to the shops, to the night life and to the Peak District.

The Sheffield Materials Science and Engineering Department is excellent. It is a privilege to be taught by the many successful and reputable academics in the Department. The staff are genuinely interested in their students as individuals, supporting their progress in their studies and on to a future career. This area is very cutting-edge which makes the course very interesting and exciting, pushing you to further yourself.

I have not decided on what to do after graduation. I am considering studying for a PhD or pursuing a career in clinical engineering, working alongside doctors and patients in hospitals. I have really enjoyed the course and want to remain in the medical field in the hope to contribute to improving healthcare and the quality of life of individuals.

Kitso Selohilwe (Botswana), Third year MEng Metallurgy

I was interested in Materials engineering because it combines the Maths, Physics and Chemistry I had studied at school. After visiting the Department of Materials Science and Engineering's website to look at the course structure and facilities they have, I decided to come to Sheffield. Also Sheffield has a great history as a steel-making city. I wanted to gain exposure to industrial production of metals, and large companies like ForgeMasters and Firth Rixon operate in the Sheffield area.

Sheffield is a peaceful city, and its people are very welcoming and friendly. There is always something for everyone to do. I love walking, so often stroll to one of the many parks. The University is an international centre of excellence. The environment here promotes cultural and intellectual exchange of ideas and experiences between students. I love meeting and making friends with different people from across the globe.

The Department is great to be part of. Its size means that you meet and interact with most people at a personal level. You are also assigned a tutor who helps you with academic and welfare issues. The Turner Museum of Glass is a good place to relax between and after lectures, having a café, computers and Wi-Fi access. As an international student it is great to celebrate Christmas at the annual party the traditional English way with carols and English food.

When I graduate I want to work in the steel industry – something that I have always wanted to do. I have become more aware of my responsibilities as a person and as an engineer on society. I believe I have gained the tools that will help me contribute towards development of the world.



Where are our graduates now?

In recent years our new graduates have begun their careers with companies such as Pilkington, Airbus, Rolls-Royce, Sheffield Forgemasters, Corus, Morgan Ceramics, and TWI. Others have gone into teaching, the army and the police. Many others choose to continue their education by taking taught Masters degrees, Knowledge Transfer Partnerships or PhDs.

The range of possible career paths open to Materials Scientists and Engineers is as wide ranging as the subject itself.

The following case studies give some examples of the achievements of some of our recent graduates and we are also particularly proud of the quality of our graduates, many of whom have received national honours, for example:

Dr Sinan Al-Bermani graduated with a first class MEng degree in Materials Science and Engineering in 2005. During the summer of 2004, he carried out his five month industrial placement at Outokumpu Stainless in Sheffield, working on projects concerned with the gauge control of steel rolled strip products. For his final year research project he carried out tomographical reconstruction of crystals in glass. After graduating he spent 18 months on the Firth Rixson graduate training scheme to gain industrial experience of forgings and rolling processes at various sites in the South Yorkshire area. From 2006-2010, Sinan pursued a PhD in the Department of Materials Science and Engineering, studying "Additive Layer Manufacturing of Titanium Alloys". The PhD was sponsored by Renault F1 and Sinan presented his findings at

international conferences in both Europe and the US. Since 2010, Sinan has been working as a Development Engineer for Sheffield Forgemasters Engineering Limited, leading projects of manufacturing large scale forgings for the nuclear industry.

Martyn Jones entered the Department after successfully completing a Pure Sciences Foundation Year. Martyn went on to graduate with a first class MEng degree in Aerospace Materials in 2011 and was awarded the Armourers and Brasiers Medal for academic distinction. During the first two summers of his degree, Martyn worked on internships in the Innovative Metals Processing Centre on diverse projects such as titanium foam manufacture for hydrogen storage and additive layer manufacturing of complex components. During his five month industrial placement in the summer of 2010, he worked at Rolls-Royce, Derby on improving the mechanical properties of nickel superalloys, alloys for civil aircraft, turbine disks and developing new engineering alloys. During his final year research project, he investigated the effects of emerging machining practices on zirconium alloys in conjunction with the Advanced Manufacturing Research Centre with Boeing and was subsequently awarded the Nesthill Medal for excellence in physical metallurgy. Due to his successful industrial placement, Martyn was offered a position on the Rolls-Royce graduate training scheme, which he took up in September 2011.

What do our courses involve?

Our courses are all about giving you the ability to tackle situations that materials scientists and engineers encounter on an everyday basis.

We provide you with a solid basis in the underlying science, taught in a stimulating intellectual environment, and we use a hands-on approach and exposure to real situations to give you a good understanding of practical applications. Case studies, design projects, group industrial projects, laboratory work, manufacturing plant visits and tutorials are central to your development as a scientist and engineer.

We aim to develop your skills in knowledge acquisition, research, IT and written and oral communication, and to equip you for lifelong personal development in a stimulating and satisfying career.

First and Second Year course structure:

Examples of some of the modules taken in the first and second years of our Materials Science and Engineering courses are given below:

Introduction to Materials Chemistry (Year 1)

The aims of this module are to develop a qualitative and quantitative understanding of crystal chemistry and molecular structure for both small and macromolecules and to demonstrate the application of crystal and molecular structures to materials problems.

Introduction to Materials Engineering (Year 1)

This module introduces students to the mechanical behaviour of both hard and soft materials, including natural materials. The module will emphasise the links between the microscopic behaviour and the macroscopic performance of materials.

Introduction to Materials Properties (Year 1)

This module considers materials properties as the link between what is done to a material and how the material responds and hence discusses linking properties to devices and structures. Topics covered include the behaviour of magnetic, electrical and optical materials.

Biomaterials (Year 1)

This module introduces the human body from an engineering perspective; looking at it as a structure, a mechanism and a sensor. It then introduces both natural and replacement biomaterials discussing properties in relation to function using Ashby charts. Finally, the course discusses lessons that can be learnt from biomaterials by materials engineers in general (biomimetics).

Deformation and Failure of Materials (Year 2)

This module describes the plastic deformation of metals, polymers and glasses indicating the fundamental

mechanisms that give rise to sample strain in response to applied stress or arising from thermally induced effects. The deformation mechanisms are related to microstructure and processing and the implications for design considered.

Industrial Materials Processing (Year 2)

This module provides a broad overview of the main industrial processing and manufacturing routes for metallic, glass, ceramic and polymeric materials and components. Important engineering principles such as viscosity, heat transfer and fluid flow will be introduced where relevant and a number of case studies will be used in order to highlight the equipment, technology and philosophy behind the choice of process and manufacturing route for these materials.

Advanced Mechanics and Selection of Materials (Year 2)

This module aims to build a comprehensive understanding of the interrelationship between materials selection, materials processing, product design and product performance in order to develop a holistic approach to optimum selection of materials for engineering and industrial applications.

Practicals and Transferable Skills

Materials Science is a very hands-on discipline and you will have two or three laboratory sessions per week in the first and second years. Each module will have a number of laboratory practicals associated with it, and in these you will build on what you have already learned in the module, as well as learning about experimental design and techniques, and data analysis.

In the first semester of Year 1, you will take part in Skills Week. This involves an industrial visit, a number of workshops aimed at developing transferable skills, seminars given by

the Institute of Materials, Minerals and Mining amongst others, and a group activity involving problem solving, presentation skills, communication and teamwork. Here's what some of our students have to say about Skills Week.

"Skills Week made the course more relevant and allowed me to see where my degree would fit into a career."
Caroline Gabbott

"I feel I have really benefited from Skills Week in terms of information received and skills developed. I definitely think it was a worthwhile experience and I really enjoyed it."
Alys Davies

Optional modules

Each academic year is split into two semesters and carries 120 credits overall. Depending on which course you are taking, you may have some options to choose from. You may select options from this Department (on Nanomaterials or Materials and the Environment) or from other departments (eg Philosophy, Management or Modern Languages). If you wish, you can also spend one or two semesters studying at a foreign university. This does not increase the length of your course because you continue to study Materials while you are abroad. This opportunity is available to students on all our Materials courses. See 'Travel Abroad' (page 12) for more details.



Third and Fourth Year course structure

The structure of your third year depends largely on two important choices made at the end of the second year: whether to take a three-year BEng or four-year MEng degree (see page 6), and whether to specialise (see page 5).

For either route you undertake a Final Year Research Project, which is worth a quarter or a third of the final year marks and involves approximately one and a half days work per week for 20 weeks. The Final Year Project is your chance to use some of this Department's world-class research facilities. It allows you to spend time studying a topic that particularly interests you and gives you hands-on experience in advanced research techniques, such as:

Materials Processing – for example, synthesising electrically conducting polymers or manufacturing glass-polymer composites; Materials Characterisation – using, for example, an electron microscope or X-ray

diffraction – or testing the optical, electrical, mechanical, or magnetic properties of a novel material.

Third and fourth year lecture courses include advanced classes in materials modelling, as well as metals, glasses, ceramics and polymers. The MEng course (except JH5P) also includes a 12 week group industrial project, and case studies as well as a five-month work placement.

Five-month industrial placement (MEng only, except JH5P)

By April of the third year you are ready to carry out your paid industrial work placement. We can help by providing you with the contact details of companies in the UK or abroad who are happy to employ our students. We expect you to be able to carry out a useful project or assignment for the company. Placements are usually highly successful and our students frequently warrant glowing praise from their employers.

One of our recent graduates, Andrew, carried out a placement at TWI in South Yorkshire. He says, "I greatly enjoyed my placement for the variety of jobs and tasks that I was able to undertake, which has benefited me greatly. It also gave me a valuable insight into working with materials in a professional environment as well as the running of a global business organisation."

We continually update our courses to reflect the latest developments in the subject. For more detailed and up-to-date information on course content, including full module descriptions, please visit our web pages: www.sheffield.ac.uk/materials/

Industrial liaison, sponsorship and awards

We encourage you to think about your eventual career aims and to take every available opportunity to develop your transferable skills. With this goal, companies and industrialists are actively involved in teaching our courses. Their input includes presentations on current topics and hosting visits to manufacturing plants and research centres. We encourage you to go to technical lectures organised by local branches of the national Materials organisations and we subsidise attendance at their annual dinners. We also support student membership of the Institute of Materials, Minerals and Mining, the IoM³. The Institute provides valuable help with professional development as well as technical information.

The University Careers Service provides an integrated guidance, vacancy information and work experience service for current students and recent graduates of the University.

Vacation work

Relevant summer vacation work provides you with a breadth of experience and skills that are attractive to employers. The University Careers Service advertises summer work vacancies and we can provide you with the contact details of companies seeking to recruit Materials Science and Engineering students. The MEng course involves a five-month placement of paid industrial training, and a few students take a year out in industry. We can help to arrange placements both in the UK and abroad. In addition, some final year projects can be undertaken with industrial partners, and many of our students have been offered employment after graduation, partly as a result of a successful project.

Sponsorship

Several firms and trade organisations are willing to sponsor able students whose long-term goal is a job in industry. Sponsorships involve a bursary and paid vacation work

experience. Some are available from Year 1 but if you do not wish to commit yourself initially you may also receive offers in later years. Continuation usually depends on satisfactory progress. Henry was sponsored by BNFL: "Sponsorship has given me an opportunity to get involved with a company and learn much more about what they do and how they do it – hopefully making my first job easier to find. It also pays well! A bonus to get me through the year!"

Awards

If you enter our courses with high academic qualifications, you may be eligible for a First Year Entrance Bursary. More information about Entrance Bursaries is included in our accompanying literature, or you can ask any member of our admissions team. Our contact details are on the back of this brochure.

Our Department and the Engineering Faculty are well endowed with prizes for students at each level of the course.



Hui Zheng who graduated in 2010 is seen receiving an award from Professor Allan Matthews, the head of department.



Student life

University life presents countless new opportunities. Here are some of the possibilities for broadening your horizons during your time at University.

TRAVEL ABROAD

Our courses provide you with numerous opportunities to travel abroad. For example, we have exchange schemes with an American university and with universities in France, Spain, Portugal, Finland and Austria. An exchange can be for one semester or a whole year without increasing the length of your course because you continue to study Materials while you are abroad. Students from our partner universities join our courses in Sheffield and you have the opportunity to enhance your cultural experience by meeting them.

The exchange to Alfred University in New York State, which specialises in Ceramics and Glasses, is particularly popular. Some travel bursaries are available to support this. Robert spent his first semester of the second year at Alfred University. He says, "I was able to do some travelling during my stay, including a trip to the Niagara Falls, both the American and Canadian sides. Over the Thanksgiving break, my

Spanish friend, Lluís, and I went on a road trip to Montreal, Canada and New York City, where we saw the Macey's Thanksgiving Day Parade. Our Chinese friend, Jun, showed us around China Town, which again was an insight into a very different culture. Academically, I have experienced a very different style of teaching and assessment, and socially, I have grown in confidence, while experiencing a different culture and way of life."

Many MEng students choose to carry out their five-month work placement abroad, recent destinations include New Zealand, India, the USA and Holland. Various scholarships are available to support students who plan industrial visits or placements abroad.

SOCIAL ACTIVITIES

The Materials Society (MatSoc), is run by students and provides a social focus for students in the department. The elected MatSoc Officers have a small budget raised by membership fees plus a departmental grant. Social activities for staff and students include a Christmas Party and Annual Dinner.

NATIONAL PRIZES

Our graduates have been notably successful in winning many national

awards for their achievements. For five out of the last six years, at least one of our students or new graduates has been awarded a national or international prize. These have included two of the coveted Royal Charter prizes awarded to the top Materials graduate in the country, a BEST award for Engineering students, and winners at the national SET awards.



Location and facilities

The Department of Materials Science and Engineering is located in the Sir Robert Hadfield Building. This is situated in the St George's complex, alongside the other Engineering departments. Many self-catering residential blocks are just a five-minute walk away and the Halls of Residence at the Endcliffe and Ranmoor Student Villages are within 25-minutes walking distance. There are frequent public transport links and some cycle routes. After Year 1 most students move into private accommodation in neighbouring areas.

The city centre and Students' Union are a 10-minute walk from the Department, and the Goodwin Sports Centre, with its state-of-the-art facilities, is just a mile away. A Supertram stop adjacent to the University takes you to the railway station, and to the Meadowhall shopping and leisure complex.

There are lecture theatres and practical laboratories in the Sir Robert Hadfield Building and usually you are taught here or in buildings nearby. We have recently opened a new Materials Teaching Laboratory and invested £300,000

in 2011 in new teaching equipment, including industry-standard materials testing instruments. Networked computer rooms are available throughout the University. The St George's Library, which covers all Engineering disciplines, is just a three-minute walk away.

Soft drinks and light snacks are sold in the Department; local outlets offer excellent value for lunch or you can bring your own and eat in the Turner Museum (see page 4).

For more information about accommodation at the University, please visit the University web page www.sheffield.ac.uk/accommodation

Living in Sheffield

Sheffield is England's fourth-largest city and is located on the edge of the Peak District National Park and about two hours by train from London. Sheffield is a thriving city with theatres, cinemas, shopping facilities, bowling, ice-skating, nightclubs, art galleries and museums. Shopping facilities include Meadowhall, the popular shopping and leisure complex, and Division Street, a fashionable student haunt that is a two-minute walk away from the Faculty of Engineering.

Sheffield has world-class sports facilities, and the nearby Peak District provides excellent facilities for climbing, walking, caving, canoeing, sailing, windsurfing, gliding, hang-gliding and mountain biking. We also have the largest dry ski slope and snowboarding facilities in Europe, two climbing walls, reservoirs that offer a variety of water sports and more trees per head of population than any other UK city! The NatWest Student Living Index rated Sheffield as one of the cheapest cities in the UK to live and study, and according to the Home Office, Sheffield is among the safest major cities in the UK.

For more information about living in Sheffield, please visit the University web page www.sheffield.ac.uk/undergraduate/studentlife



Admission process

To apply for a place on one of our courses you need to complete a UCAS application form (see the University prospectus), or visit the UCAS website on www.ucas.com

Selection procedure

We receive a copy of your UCAS form a few weeks after its submission. If you live in the UK and have a suitable academic background, you will be invited to an Open Day. We encourage you to visit and learn more about our courses, the Department, the University and its surroundings, as well as to learn about the various accommodation options and meet current students and staff. We run a number of Open Days each year, usually on Thursdays in term, and offer parallel tours and presentations for parents. We contribute towards your travel costs, and can usually arrange inexpensive, overnight accommodation for those with long journeys. During the Open Day you will have the chance to talk on a one-to-

one basis to a member of academic staff. This is an opportunity for you to ask questions and find out more about the course, as well as for us to discover more about you.

We are particularly pleased to encourage applications from students who wish to take a gap year before entering the course or from mature students.

If you are an overseas student, and are unable to attend an Open Day in person, we will arrange a telephone interview with a member of academic staff at a time that is convenient for you.

If you wish to visit outside the normal cycle of Open Days, particularly if you live overseas, then please contact Mrs Louise Mason, our Undergraduate Admissions Secretary (see back cover for contact details).

Aspects of admission such as accommodation, registration, fees and their payment are dealt with centrally

by the University and the prospectus has further information. They send you an accommodation pack and booking form in March of your year of entry although final allocations are not made until August. You receive a registration pack shortly before your first week and this confirms arrangements for your entry onto the course, including medical provision, how to pay fees, registration for computing facilities and library cards, as well as details of 'Intro Week', an induction period which takes place immediately before the first semester starts. If you are an overseas student, you can arrive before Intro Week for an Orientation Programme to help you cope with the transition to life here, and you can also take English classes to improve your language ability.

Entry requirements

To enter the University you need English and Mathematics GCSE at grade C minimum, or equivalent qualifications. Additionally, we set entry standards to ensure that you are able to cope with the demands of the course. If you are taking A levels, we ask for good results in at least two of the required subjects (see table) and a B or above at GCSE level in any other required subject (Dual Science award is acceptable); the Maths qualification should include pure and mechanical elements. If you are taking A Level Design and Technology, we also encourage you to apply. The Aerospace Materials courses require A level Mathematics and Physics.

Our Foundation Year course (J501) requires no more than one of Maths, Physics and Chemistry. Materials Science and Engineering (Modern Language) requires a minimum of a modern language GCSE at A grade. If you are unsure about the acceptability of your particular qualification please see our on-line prospectus or contact us for further details.

We read your personal statement and the reference to assess your motivation and to learn more about you; you should receive an offer unless our entry grades seem beyond your reach. If you choose Sheffield and meet the offer your place is assured; if not we consider all aspects of your performance and your potential to

Entry requirements are:

Qualification	Typical Entry Requirement (Course UCAS Code)
GCE A Levels	AAB MEng courses BBB or ABC BEng courses & Foundation Year programme
Scottish Highers	AAABB/BBBBB + AB/BB in Advanced Highers in required subjects
Irish Leaving Certificate	AAAABB/BBBBBB
BTEC Level N	DDD/DDM in a relevant subject area including Distinction in Further Mathematics
International Baccalaureate	32-35 points with 6 points from two of Higher Level required subjects

We look for two required subjects at A level (or equivalent), with other subjects at a minimum of a B Grade at GCSE.

Course code	Required subjects
J500, JH51, J200, FH21, FHF1, J5R9	Maths, Physics, Chemistry
JH5P, JH56	Maths, Physics, Chemistry, Biology
H401, H403	Maths, Physics

benefit from our course. Although exam qualifications are important, they are not the only estimate of potential and students with results just below the offer are not necessarily excluded. Students with other backgrounds are welcome to apply and are considered on merit. Again we look for competence in at least two of Maths, Physics and Chemistry.

We also consider direct second year entry if you have good overseas qualifications and your previous

course overlaps sufficiently with our first year. If you are well qualified but have not studied appropriate sciences we can offer a Foundation Year. Please contact us if you are unsure about your position in either case.

A qualification in Key Skills is not a requirement for entry to our courses. However, we encourage you to highlight such skills in your application.

The improved fatigue characteristics of composite materials have allowed major developments in helicopter blade shapes.





The
University
Of
Sheffield.



Contact:

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Undergraduate Admissions Secretary
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Email: l.c.mason@sheffield.ac.uk
www.sheffield.ac.uk/materials

Every effort has been made to ensure the accuracy of the information given in this publication. However, the University reserves the right to make changes.