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Metallurgy and Materials with Foundation Year

Undergraduate degree programme Metallurgy and Materials with Foundation Year JJF5:

Materials scientists are at the forefront of new technology, pushing forward the boundaries of science and engineering with designers and engineers of every discipline. Research and development produce new materials to meet the demands of modern technology. For instance, metals grown from single crystals for advanced engines are making air travel safer. More durable plastic and glass components for mobile 'phones, make them thinner and lighter. Team GB won 7 out of 10 golds in cycling at the 2012 Olympics using bicycles made from advanced carbon fibre materials.

Our School (http://www.birmingham.ac.uk/schools/metallurgy-materials/index.aspx) and the **Interdisciplinary Research Centre in Materials Processing (http://www.birmingham.ac.uk/research/activity/irc-materials-processing/index.aspx)** together make up the largest centre for materials research in the UK. We work on a diverse range of projects in the aerospace, automotive, biomedical, sport and sustainable development fields. Join us, and become part of an academic elite designing a safer, more sustainable and brighter future!

Study here and find out why the University of Birmingham has been awarded The Times and The Sunday Times University of the Year 2013-14 (http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx)

Course fact file

UCAS code: JJF5

Duration: 1 year

Typical Offer: BBB depending on your previous study and the discipline you are applying for, please contact the relevant admissions tutor for further advice (**More detailed entry requirements and the international qualifications accepted can be found in the course details (?OpenSection=EntryRequirements)**)

Start date: September

Related courses

Metallurgy and Materials undergraduate degree courses (/schools/metallurgy-materials/undergraduate-courses/index.aspx)

Contact

Admissions Tutor: Dr Mark Ward
Telephone enquiries: +44 (0)121 414 5235/5175
Email: met-admissions@bham.ac.uk (mailto:met-admissions@bham.ac.uk)

School of Metallurgy and Materials (/schools/metallurgy-materials/index.aspx)

Details

This is a multidisciplinary year, giving you experience of teamwork and developing computer literacy and presentation skills. You study a mix of compulsory and optional modules that could include:

- Mathematics
- Mechanics
- Electrical and Chemical Engineering
- Computing
- Design
- Engineering Materials
- Manufacturing and Business Studies
- Engineering and Design Studies

You learn about the particular engineering discipline you may wish to follow. If you have ambitions to pursue a particular branch of engineering (chemical; civil; electronic, electrical and computer; metallurgy and materials; or mechanical), you should select the appropriate programme title. This determines which modules are required and which are optional. It is often possible to change branch at the end of the year.

International students

International students should see the Birmingham Foundation Academy, specific course details are located on the Engineering and Physical Sciences Pathway.

Foundation Year Handbook

The EPS Foundation Year programmes, including Mechanical Metallurgy and Materials with Foundation Year, are currently under review for 2012 entry. All the progression routes onto first year courses will be maintained and the core content of modules offered will be similar, but the module structure may be different. For information about the current programme **please see the course Handbook for 2011-12 (PDF 204 kb) (/Documents/college-eps/foundation/foundation-handbook.pdf)**.

Related links

- **Metallurgy and Materials undergraduate degree courses (/schools/metallurgy-materials/undergraduate-courses/index.aspx)**

- Birmingham Foundation Academy (international students)

Why study this course

The information below relates to our BEng/M Eng courses:

Why Birmingham?

- The School of Metallurgy and Materials at Birmingham is a major research centre with world class facilities, and is consistently rated in the top three of research centres of its kind in the UK. Success in joint research with industry has been recognised by the award of the Secretary of State for Industry's University/Industry Partnership Prize.
- Successful Metallurgy and Materials graduates are creative, numerate, good communicators and skilled at solving problems and delivering results. With these qualities our graduates not only develop careers as high-quality practising scientists and engineers, but are sought after by top companies for their potential in management, finance, consulting and other senior professional positions.
- Our students experience the whole range of materials science technology and engineering and have a strong science base. As professional engineers, they have every prospect of working with new ideas which encourage the application of science.
- Our students enjoy exceptionally high employment prospects

What our students say

'The balance between practical and theory work was excellent. I had so much choice of research areas for my final year project and then for my PhD. My future career prospects are numerous; a materials degree offers loads of opportunities. When I started the course I was amazed at how broad and relevant the subject is. The practical aspects of the course are great fun, particularly as we get to break things!'

- Dr. Jane Berry, Texaco

'I found the Birmingham materials course diverse, we were able to choose modules which enabled me to tailor my degree to my strengths and interests. A materials degree leaves your career options open and gives you lots of transferable skills that you can use in almost any area of work in the future.'
- Dr Stephanie Ankrah, Nike UK Ltd.

'From my perspective, the highlight of the MEng course was the 6 months spent in industry. I was working in a 'high technology' company called Hycalog which made high performance diamond tipped drill bits for the drilling industry. The placement allowed me to use the transferable skills components of the course, this enabled me to become part of the team. The placement also gave me the experience of working in other departments of the company such as quality testing.'
- Andy Fones, PhD Student in Metallurgy and Materials

Fees and funding

Standard fees (http://www.birmingham.ac.uk/students/ug/courses/fees/standard) apply
Learn more about **fees and funding (http://www.birmingham.ac.uk/students/ug/feesandfinance/loans.aspx)**

Scholarships
Learn more about our **scholarships and awards (http://www.birmingham.ac.uk/students/ug/feesandfinance/funding/index.aspx)**

Entry requirements

Typical offer: BBB depending on your previous study and the discipline you are applying for, please contact the relevant admissions tutor for further advice

Required subjects and grades: GCSE Physics and Chemistry or Science double award at grade C; GCSE Mathematics at grade B

General Studies: Accepted

Additional information:

Other qualifications are considered – learn more about **entry requirements (http://www.birmingham.ac.uk/students/ug/requirements)**. Offers may vary according to discipline.

International students:

International students should see the Birmingham Foundation Academy, specific course details are located on the Engineering and Physical Sciences Pathway.

Depending on your chosen course of study, you may also be interested in the Birmingham Foundation Academy, a specially structured programme for international students whose qualifications are not accepted for direct entry to UK universities. Further details can be found on the **foundation academy web pages (http://www.birmingham.ac.uk/students/foundation-academy/Pathways/index.aspx)**.

How to apply

Apply through UCAS at **www.ucas.com (http://www.ucas.com/)**
Learn more about **applying (http://www.birmingham.ac.uk/students/ug/courses/apply)**

Key Information Set (KIS)

Key Information Sets (KIS) are comparable sets of information about full- or part-time undergraduate courses and are designed to meet the information needs of prospective students.

All KIS information has been published on the Unistats website and can also be accessed via the small advert, or 'widget', below. On the **Unistats website (http://unistats.direct.gov.uk)** you are able to compare all the KIS data for each course with data for other courses.

The development of Key Information Sets (KIS) formed part of HEFCE's work to enhance the information that is available about higher education. They give you access

to reliable and comparable information in order to help you make informed decisions about what and where to study.

The KIS contains information which prospective students have identified as useful, such as student satisfaction, graduate outcomes, learning and teaching activities, assessment methods, tuition fees and student finance, accommodation and professional accreditation.

Related links

EPS Foundation Year Handbook (pdf 303 KB) (/Documents/college-eps/foundation/foundation-handbook.pdf)

Metallurgy and Materials undergraduate degree courses (/schools/metallurgy-materials/undergraduate-courses/index.aspx)

EPS Foundation Year for Home/EU students (pdf 270 KB) (/Documents/college-eps/foundation/EPS-foundation-year.pdf)

Learning and teaching

The information below relates to our BEng/M Eng courses:

As a Birmingham student you are part of an academic elite and will learn from world-leading experts. At Birmingham we advocate an enquiry based learning approach, from the outset you will be encouraged to become an independent and self-motivated learner, qualities that are highly sought after by employers. We want you to be challenged and will encourage you to think for yourself.

Your learning will take place in a range of different settings, from scheduled teaching in lectures and small group tutorials, to self-study and peer group learning (for example preparing and delivering presentations with your classmates).

To begin with you may find this way of working challenging, but rest assured that we?ll enable you to make this transition. You will have access to a comprehensive support system that will assist and encourage you, including personal tutors and welfare tutors who can help with both academic and welfare issues, and a formal **transition review (https://intranet.birmingham.ac.uk/student/transitionreview/index.aspx)** during your first year to check on your progress and offer you help for any particular areas where you need support.

Personal Tutor: At the start of your degree, you will be assigned a Personal Tutor who will remain with you throughout your studies to help you in three important areas: supporting your academic progress, developing transferable skills and dealing with any welfare issues.

Delivery of the course
In your first and second years, the course is delivered as lectures, small group workshops, laboratories, computer-based activities, enquiry-based learning and tutorials. A strong emphasis is placed on design and research project work in your third and fourth years respectively.

Laboratory-based practical work forms an integral part of the School's degree programmes. Laboratory classes are embedded within a module and used, not only to develop your experimental practical skills, but also to reinforce concepts introduced in lectures or to explore a particular phenomenon. First year practical sessions, typically, last two hours and increase in length in subsequent years to allow for more advanced experiments.

Small-group tutorials/personal tutorials run alongside the lecture course, addressing any individual problems you may have and allowing you to consolidate the lecture material, as well as test your understanding through problem-solving exercises.

Enquiry Based Learning (EBL) provides an environment where your learning process is driven by enquiry and the lecturer's role is purely as a facilitator. EBL is typically a group activity.

This requires working in a team and you can be assessed in a variety of ways: in either a group or individually, by written reports and/or oral presentations. EBL will give you a research-orientated approach to a problem, and has a synergy within research-led institutions like the University of Birmingham.

Project work: A strong emphasis is placed on project work in your final year. The range of projects includes practical work in the laboratory, or computer-based projects. You can choose the topic of your project from a pool of titles and work with your project supervisor to tailor the project to your particular research interests.

Assessment methods

The information below relates to our BEng/M Eng courses:

The course modules are taught through lectures, tutorial problem classes, case studies, laboratory and/or project work. You will be assessed through a mixture of written examinations and continually assessed coursework. Examinations are taken in May and June.

Assessment methods used include end-of-year examinations, written assignments, and oral presentations, computer-based tests, laboratory and project reports. Each module is assessed independently and most contain some components of continuous assessment, which usually account for 15% to 40% of the marks. Some modules are completely assessed by either examination or coursework.

We place strong emphasis on providing prompt and informative feedback on all pieces of work that you submit during your studies. Feedback comes in a variety of forms, including written feedback on pieces of assessment, class feedback sessions and one-on-one discussions with your tutors. In all cases, the feedback will highlight the good points as well as those areas that require more attention.

As your degree progresses, you will attend fewer lectures and perform more independent studies and practical work in preparation for your final year project.

During your first year the University will require you to undergo a formal 'transition' review, mentioned above, to see how you are getting on and if there are particular areas where you need support. This is in addition to the personal tutor who is based in the School and can help with any academic issue you encounter. Our Academic Skills Centre also offers you support with your learning. The centre is a place where you can develop your mathematical, academic writing and general academic skills. It is the centre?s aim to help you to become a more effective and independent learner through the use of a range of high-quality and appropriate learning support services. These range from drop-in sessions with support with mathematics and statistics based problems provided by experienced mathematicians, to workshops on a range of topics including note taking, reading, writing and presentation skills.

At the beginning of each module, you will be given information on how and when you will be assessed for your particular programme of study. You will receive feedback on each assessment within four weeks, so that you can learn from and build upon what you have done. You will be given feedback on any exams that you take; if you should fail an exam, we will ensure that particularly detailed feedback is made available to enable you to learn for the future.

Employability

The information below relates to our BEng/M Eng courses:

Preparing for your future career should be one of the first things you think about as you start university. As one of our Materials students, exciting career choices will open up to you when you graduate with an accredited degree such as this. You could pursue a career in one of the automotive, aerospace or energy sectors; one of the manufacturing industries; or you could work in other areas of science and technology, such as materials testing or failure analysis. Other areas that favour the problem-solving skills you will acquire are finance, law and marketing as well as teaching and/or research.

Superb opportunities exist for you to gain industrial experience before you graduate. You will gain relevant work experience, and earn money putting into practice the skills and knowledge gained from your degree. Students on placement get involved in serious projects which ask difficult questions that require good engineering answers - and which often lead to sponsorship and/or the offer of a graduate job.

Another option is to join our MEng programme with industrial experience and spend up to six months with one of our industrial partners; usually between your third and fourth study years.

A rich vein of expertise will be available for you to tap into, not only through the University's dedicated Careers Network, but from the School's own industrial liaison officer. From these careers professionals you will gain the skills to help you secure a range of placements from vacation jobs to, eventually, your graduate job.

At School-level, you can opt to add a year to your programme, whatever the course you are studying, and spend this time on placement in industry. You will gain relevant work experience, and earn money putting into practice the skills and knowledge gained from your degree. Students on placement get involved in serious projects which ask searching questions that require good engineering answers - and which often lead to sponsorship and/or the offer of a graduate job. On successful completion of a placement in industry organised by the School, and success in your studies, you will be awarded the Certificate in Industrial Studies to add to your degree and improve your employability prospects.

At University-level, our unique careers guidance service is tailored to academic subject areas, offering a specialised team (in each of the five academic colleges) who can give you expert advice. Our team sources exclusive work experience opportunities to help you stand out amongst the competition, with mentoring, global internships and placements available to you. Once you have a career in your sights, one-to-one support with CVs and job applications will help give you the edge. In addition, our employer-endorsed award-winning Personal Skills Award (PSA) recognises your extra-curricular activities, and provides an accredited employability programme designed to improve your career prospects.

We also offer voluntary work which complements your studies by helping you gain practical experiences in occupational settings while contributing back to society. This can bring new skills that will be useful throughout your future and can make a positive impact on your learning whilst at university. Volunteering enables you to develop skills such as communication, interpersonal skills, teamwork, self-confidence and self-discipline all of which can be transferred into your studies.

Whichever of the above forms of careers guidance, or combination of such, you select you will find your prospects for employment after graduation considerably enhanced. If you make the most of the wide range of careers advice we can offer, you will be able to develop your career from the moment you arrive.

Career destinations of previous graduates include:

- Rolls Royce,
- AeroEngine Controls,
- Jaguar Land Rover,
- BMW Group,
- BP,
- Tata Steel,
- Schlumberger,
- Doncasters Limited,
- Sandvik,
- BAe Systems

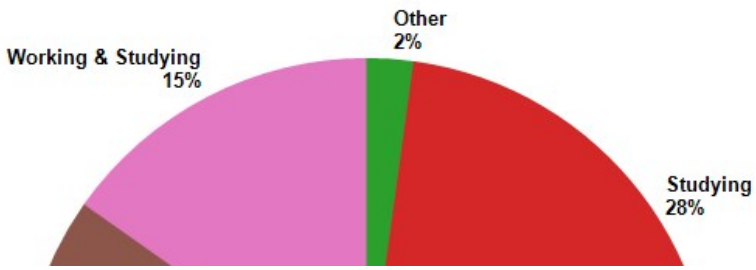
University Careers Network

Preparation for your career should be one of the first things you think about as you start university. Whether you have a clear idea of where your future aspirations lie or want to consider the broad range of opportunities available once you have a Birmingham degree, our Careers Network can help you achieve your goal.

If you make the most of the **wide range of services (https://intranet.birmingham.ac.uk/as/employability/careers/college/eps/index.aspx)** you will be able to develop your career from the moment you arrive.

Destinations of Leavers from Higher Education (DLHE) 2011/12

The DLHE survey is conducted 6 months after graduation.



Examples of occupations

- Applications Engineer
- Engineering Officer Cadet
- Mechanical Engineering
- Advanced Manufacturing Engineer
- Junior Accounts Manager
- Graduate Consultant Engineer
- Teaching Assistant

- School Sports Partnerships Coach
- Product Development Engineer

Further study - examples of courses

- MSc Advanced Materials
- MSc Material Science
- MSc Diagnostic Radiography
- MSc Energy Engineering
- MRes Science and Engineering
- PhD Metallurgy and Materials

Visit the **Careers section of the University website**

(https://intranet.birmingham.ac.uk/as/employability/careers/college/eps.aspx) for further information.

79% Students agreed staff are good at explaining things

BEng (Hons) Metallurgy/Materials Engineering
Full time
Foundation year

To see more details and compare with other courses
Visit UNISTATS
Official data collected by HEFCE

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