Materials: career insight

A career in Materials Science and Engineering can take many forms, in whatever area you want, wherever in the world you want to work.
Materials is a vital area of technology as all physical things are created from materials, and performance is controlled by those materials' properties.

For example:

- a fusion reactor, where the structure needs to resist extreme temperatures and radiation
- a jet aircraft structure, which needs to be lightweight and reliably strong
- a magnetic hard disc where a high density of data has to be encoded
- an artificial heart valve which has to interact with the body just like a real one

Materials scientists work in all these areas and more, and like all engineers, will advise and make decisions on critical aspects of technology, with the potential to rise to senior levels of responsibility within the organisations they work in.
The average salary of Sheffield materials graduates is **£26,500**

90% of our graduates are employed in professional jobs, or in further study, 6 months after graduating

Recent employers include **Rolls-Royce**, Atkins, Airbus, British Telecom and Pirelli

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<th>The UK materials industry contributes <strong>£200 billion</strong> annually to the economy (about 15% of GDP)</th>
<th>5.5 million people are employed in over 600,000 companies in the engineering sector</th>
<th>Engineering employers have predicted another <strong>182,000</strong> people will be needed per year to 2022</th>
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<td>There will be an expected 2.56 million job openings in engineering companies up to 2022. <strong>257,000</strong> of these jobs will be new vacancies</td>
<td>Engineers, skilled trade and technical workers are the most <strong>in-demand</strong> jobs globally</td>
<td>The engineering sector contributed an estimated <strong>27%</strong> of the UK’s <strong>£455.6 billion</strong> GDP in 2014</td>
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Taken from the Engineering UK 2016 Report

Materials: careers
How we support your career

Employers are increasingly looking for evidence of practical work experience as it demonstrates a genuine interest and means you will have the practical skills to work in a real industrial environment.

Studying for a degree in materials science gives you a strong set of transferable skills valued by employers across a wide range of industries, including:

— analytical and problem-solving skills
— time management, planning and organisation
— research and report writing
— team working
— numerical skills

In order to get the best of the jobs out there, you need to make sure your CV stands out from the crowd. Less than 3% of UK engineering graduates are from Materials.

*Our courses are accredited, or seeking accreditation, by the IoM® and count towards professional registration as an Incorporated Engineer (IEng) or Chartered Engineer (CEng).
Our courses are designed to include a significant portion of practical work, allowing students to get hands on experience of important processes and the latest investigative equipment. There are frequent occasions when we will ask you to work in the same way as professional engineers, with opportunities to work in industry or on projects of direct industrial interest.

“The industrial training project gave us the opportunity to fully tackle a problem with real world applications. In my opinion there is no substitute for the pressure which a real task, real deadlines, and a real customer provide. I can therefore confidently say having been a part of the programme, I have grown to have a much more complete understanding of what is expected of a material scientist within modern industry.”

Matthew Allen, MEng Materials Science and Engineering

In addition, you will work in multidisciplinary teams with students from other engineering departments, in two project weeks (Engineering You’re Hired and the Global Engineering Challenge), to develop an outline solution to a real engineering problem.

We also encourage our students to take the initiative in getting involved in new activities, which they may have devised themselves or with other students, and we are happy to provide whatever help we can to such endeavours.
A third year student, Bethany is part of the Sheffield Engineering Leadership Academy (SELA); a two year program for students which aims to address the UK skills gap in engineering by equipping graduates to take on leadership roles.

“I was attracted to SELA as it was a great opportunity to enhance my leadership skills, not only to use throughout University but in the working world after I graduate. I believe that participating in such a programme has helped to hone my skills so that I can really make an impact in the world of engineering, be that in industry or research.

I think that when the time comes to find a job having participated in the leadership academy, founded by a respected university such as Sheffield, will be a fantastic advantage.”
Materials: careers
We believe in having a strong relationship with our students, and this often continues after they graduate. Through initiatives such as our alumni speed networking event, we help students to meet alumni and find out about their career paths, gain advice and make contacts that will stand them in good stead in the future.

What was the best part of meeting Materials Alumni?

“Getting to know and learn about the careers of people who studied your degree at Sheffield”

“Hearing possibilities that an engineering degree provides”

“Discussing career progression with professionals”

“Getting an idea for my future”

What was the most useful piece of advice or information you received?

“Getting prepared for the first role of your career is really important, making decisions can change a lot in life”

“To always do a job that you enjoy”

“That establishing a good technical basis in a field can separate you from other post grads”

“Be friendly and confident”
Where will your degree take you?

An insight into what our graduates are doing now.

Sinan Saadi Al-Bermani
Development Engineer at Forgemasters RD26 Ltd

MEng Materials Science and Engineering 2005 and PhD Metallurgy 2011

As a Development Engineer, Sinan’s main responsibilities revolve around assisting customers and colleagues with research and computer simulations, as well as helping solve metallurgical and engineering issues.

“The most enjoyable aspect of my job is the freedom that I have to work in different areas of the company; most people work in one area of the business, however, my colleagues and I get to work on forgings, castings, heat treatment operations, machining, inspection, implementation of new technology, mechanical testing plus whatever other challenges there are on site that benefit from R&D activities.

I would advise current students who are interested in a career in industry to show a passion for their field of interest by gaining as much experience in it as they can. This experience can take many guises but evidence of some extra-curricular activities will make you stand out from other potential job applicants.”
Holly initially began as a Graduate Engineer in the Atkins Defence team. Her role includes technical report writing, liaising with clients directly to complete specific tasks, and internal project investigations, which includes data collection and staff liaison.

“Working through the Atkins graduate scheme, you get to experience a huge variety of work; graduates tend to spend around three to twelve months on a particular project before changing to another. Working for a very large company means there are always a lot of opportunities to move around the UK, increase your personal and technical development, and to meet lots of people. The projects within defence are very interesting and it appealed to me that Atkins’ clients are well-known companies within the UK.

My advice would be to apply to a wide range of industries – I applied for a lot of different jobs during my final year, mainly because initially I was not sure what type of job I wanted. The application process enables you to find out a lot about the companies you are applying to and helps you to decide if you are making the right choices.”
While most graduates from Sheffield go to jobs where they use their Materials Science and Engineering knowledge and skills, some do use the degree to follow a career path in other directions such as in the financial and legal sector, where the transferable skills are also valued, others undertake further study for higher degrees, such as PhDs, which can be a route to an academic or industrial career.

MEng Biomaterial Science and Tissue Engineering 2009 – a forerunner of the MEng Materials Science and Engineering (Biomaterials) course.

Working as a Trainee Patent Attorney within the Advanced Engineering Group at Withers & Rogers LLP, Richard has been involved in all stages of obtaining patent protection for engineering inventions. His experience includes meeting with inventors, both private and from within industry, drafting patent applications and liaising with patent examiners to ensure the successful progress of an application.

“Start researching and planning your career whilst still at university to avoid stress, and be better equipped to achieve your goals. Make the most of the opportunities outside university that complement your academic CV. Work and industrial placements can make a huge difference to your employability.

I never appreciated just how advantageous it is to start thinking about your career during your undergraduate degree instead of panicking about it after.”
MEng Materials Science and Engineering 2015

“Over the four years of my undergraduate course, I was exposed to so many different fields that I had serious trouble deciding what to do after graduating.

Quickly I found that functional ceramics and light alloys were areas that, to me, were more exciting. I gained a good knowledge of many subject areas that was heavily influenced by up-to-date research from the leading academics in the department or by working in partnership with major materials industries such as Rolls-Royce.

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Taking up a placement, between 3rd and 4th year, with a medical device manufacturer, DePuy Synthes, I learned more about working in the materials industry than I ever could have done in a classroom. I enjoyed being given responsibility to deliver results for the company even as a 'mere' placement student!”
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