



Loughborough
University

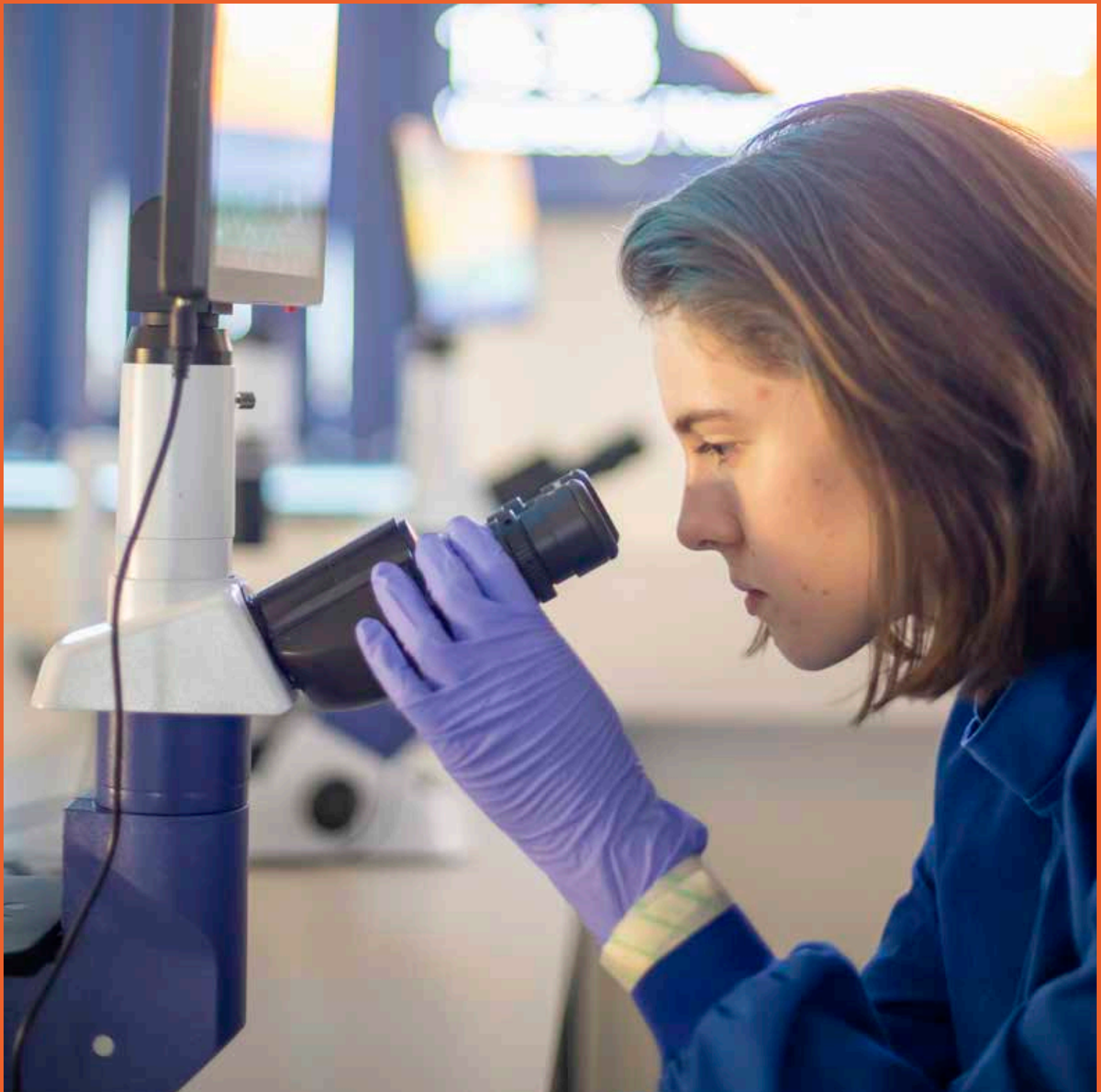
2ND IN THE UK
FOR MATERIALS
TECHNOLOGY
THE GUARDIAN
UNIVERSITY GUIDE 2022

**TOP
5** IN THE UK
FOR MEDICAL
TECHNOLOGY AND
BIOENGINEERING
THE COMPLETE
UNIVERSITY GUIDE 2023

**TOP
10** IN THE UK
FOR GENERAL
ENGINEERING
THE GUARDIAN
UNIVERSITY GUIDE 2022

Bioengineering

School of Aeronautical, Automotive,
Chemical and Materials Engineering





Contents

Welcome	01
Why study Bioengineering at Loughborough?	02
Engineer your career	04
Inspiring graduates	06
Outstanding facilities	08
Bioengineering MEng/BEng (Hons)	10
Bioengineering with a Foundation Year	12

**Our Bioengineering course is based within the Department of Materials and benefits from its teaching and facilities*

Welcome

Loughborough University has a long history as a leader in many fields of engineering. We have combined our excellence in Chemical Engineering, Materials, Mechanical, Electrical and Manufacturing Engineering with our international excellence in Sport, Exercise and Health Sciences to create a cross-disciplinary research team to lead the advancement of Bioengineering.

Our course content is industrially relevant and research-driven, thanks to the active involvement of our academics. Taught by a team of international experts, this course represents the very latest knowledge in this rapidly developing discipline.

You will get the opportunity to acquire practical experience with access to state-of-the-art equipment. Since 2009 our Centre for Biological Engineering has successfully developed the interface between engineering, biology and medicine attracting over £20 million of external investment. Our National Centre for Sport and Exercise Medicine delivers world-class education, research and clinical services to benefit the health and wellbeing of the nation – from everyday people at risk of ill health through to elite athletes.

You may also choose to undertake a year working in industry, which will provide you with the opportunity to gain vital paid work experience in a professional environment boosting your graduate employability prospects.

Studying at Loughborough is an enriching and valuable experience that opens routes to many career possibilities. We aim to realise the potential of all our students, and to help you find your place in the busy, exciting and fulfilling world of engineering.

Professor Chris Rielly
Dean of the School of Aeronautical, Automotive, Chemical and Materials Engineering



Why study Bioengineering at Loughborough?

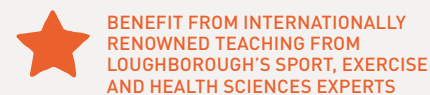
Bioengineering is a cutting-edge, multidisciplinary field that applies engineering and technological principles to biological and medical problems. It aims to improve human health through combining engineering expertise with medical needs for the enhancement of healthcare.

Major advances in bioengineering include the development of prosthetics, artificial joints, magnetic resonance imaging (MRI), pacemakers, angioplasty, bioengineered skin, kidney dialysis and the heart-lung machine.

This rapidly developing field of engineering allows bioengineering professionals to work in a wide range of areas. For instance, they may design computer software to run complicated three-dimensional scans, develop new drug therapies, or build models to understand the signals transmitted by the brain or heart. Whichever area they specialise in, Bioengineers can make a real difference to the quality of people's lives around the world.

Truly interdisciplinary, our course features teaching from across Loughborough's Engineering Schools by experts in Chemical, Materials, Mechanical and Manufacturing, Electrical and Electronic Engineering. This is combined with the internationally renowned teaching from Loughborough's Sport, Exercise and Health Sciences experts.

By combining areas of expertise across Loughborough University, this course is specifically designed to supply bioengineering industries with graduates that have a thorough grounding in the bioengineering disciplines, and the ability to apply their knowledge and skills effectively to bioengineering problems.



Women in Engineering

In 1919, four female engineering students were admitted onto an entirely male dominated engineering programme at the then Loughborough Technical College. 100 years on and Loughborough University continues to celebrate women in engineering through our annual memorial lecture dedicated to Claudia Parsons, one of the original four students. The University is a strong advocate for women in Science, Technology, Engineering and Mathematics (STEM) – creating a professional network of female engineers, celebrating women in engineering and showcasing what can be achieved in the field to future engineers.

The Loughborough Women's Engineering Society (WES) offers support, networking and volunteering opportunities for all students. Many of our engineering departments have achieved Athena SWAN awards, recognising our commitment to advancing women's careers in engineering.

lboro.ac.uk/engineering/engineering-centenary





Engineer your career

If you are looking for hands-on industry experience with some of the world's top companies, our department is the place for you.

All students are given the option to undertake a year in industry. During your placement year, you will work towards one of three Diplomas: Diploma in Industrial Studies (DIS) or Diploma in Professional Studies (DPS), both of which count as an additional qualification to your degree, and some students may opt to complete a Diploma in International Studies (DIntS) for work completed outside the UK.

This year of practical work will contextualise your academic studies, allowing you to experience industry first hand, as well as developing your professional skills. It will give you a distinct advantage in the job market upon graduation.

You will be supported by dedicated staff in securing a placement that best suits your skills and professional aspirations.

During the placement year, your employer will nominate an industry specialist who will supervise you. You will also be visited by your University tutor at your place of work and will be required to write reports on your progress and experience.

The value of a placement year:

- **Improved career prospects.** A placement gives you real life experience that will help you stand out when applying for jobs. It can often lead to sponsorship during the final year of your course and a job offer upon graduation.

- **Salary.** Most placements are fully salaried, with typical salaries from £15,000 to £20,000.
- **Professional skill development.** A placement year helps you develop your skills in time management, team working, presentation skills and project management that will be essential for your future career.
- **Put your knowledge to the test.** It is your chance to put your knowledge gained during your degree into practice within a professional environment and get a feel for your future role.

A selection of the companies providing recent placements include:

- Fujifilm Diosynth Biotechnologies
- General Electric
- GlaxoSmithKline
- Johnson & Johnson
- Malvern Instruments
- Oval Medical Technologies
- PepsiCo
- Pfizer
- Proctor & Gamble
- Renshaw
- Unilever
- Virgin Media



5th IN THE UK FOR
CAREER PROSPECTS
WHATUNI STUDENT CHOICE
AWARDS 2022



DEDICATED UNIVERSITY
STAFF TO HELP YOU FIND
A PLACEMENT



TOP 5 IN THE UK FOR GRADUATE PROSPECTS
THE TIMES AND SUNDAY TIMES
GOOD UNIVERSITY GUIDE 2022



Bioengineers are responsible for some of the most innovative healthcare solutions, including:

- Prosthetics and biomaterial implants
- Software engineering for advanced and 3D medical imaging
- Image-guided and robot assisted surgery
- Regenerative medicine against incurable diseases
- Tissue engineering such as bioengineered skin for wounds
- 3D bioprinting
- Medical device development and new assistive technologies (wearable technology, mobile and e-health).



Inspiring graduates

Your time at Loughborough will form a launchpad from which you can build an exciting career. With so many opportunities available, you'll never be short of ways to improve your employability prospects.

Engineers have some of the top-earning starting salaries due to the unique and specialist skill set. Chartered Engineers and Commercial Managers command even higher salaries and once you have reached this status you can expect to earn a salary of over £50,000 per year.

Our degree programmes provide you with a diverse skill set that includes project management, communication, teamwork, leadership, critical thinking and analysis. These skills, combined with your specific, technical expertise, will set you up for a successful career.

The University holds its own engineering-specific careers fair. In recent years, this has had over 70 companies attending specifically to recruit our students. This includes major consulting and contracting companies as well as more local and specialist firms.

Bioengineering fields are rapidly developing and graduates work in a wide variety of sectors globally. Developing products and creating technology to help people achieve a better quality of life, they help to break barriers in medical and sporting achievements.

Our students develop excellent skills and knowledge which can be applied to a range of bioengineering careers. Additionally, these skills are highly transferable and can be applied to a range of graduate roles across a diverse number of industries. Across Loughborough engineering we have graduates employed by Pfizer, 3M, Fujifilm Diosynth Biotechnologies and elsewhere within the bioengineering and biotechnology sectors.

Careers Network

Our award-winning Careers Network team is here to help and support you, offering everything from CV workshops, one-to-one advice sessions and mock interview practice sessions to high-profile employer events. We've got everything you need for a successful future

lboro.ac.uk/services/careers

£28,000 AVERAGE STARTING SALARY
GRADUATE OUTCOMES SURVEY, 2019-20 GRADUATES*

HOME TO ONE OF THE UK'S LARGEST ANNUAL CAREERS FAIRS

* average salary 15 months post-graduation – UK domiciled

Outstanding facilities

Our world-class facilities allow you the opportunity to gain practical, hands-on experience with industry relevant equipment, offering you an enhanced learning experience.

A highly interdisciplinary subject, you will benefit from expertise across a range of schools and departments, as well as the equipment and facilities on offer there. In addition, access to state-of-the-art equipment in materials processing, testing and characterisation, you'll also experience facilities such as the sports biomechanics laboratory, design suite, anatomy laboratory, and additive manufacturing laboratory.

STEMLab

STEMLab is a £17 million investment in state-of-the-art laboratory facilities. It includes a suite of laboratories for practical work in bioengineering, allowing you crucial opportunities to gain applied experience with biological samples in a safe and modern environment.

STEMLab also allows us to offer new ways to learn and collaborate, for example a 'drop-in' engineering workshop, alongside teaching laboratories, workshops, computer-aided design facilities, a design studio and informal learning spaces. Many of our lab and practical classes are taught in these facilities.

Take an interactive tour of STEMLab

lboro.ac.uk/stemlab

Additionally, we have invested £25 million into the facilities in S-Building, home to our Bioengineering course. This means that you will benefit from new laboratory space and equipment – including a 87 seater IT laboratory – for taught sessions, but also available for project work and private study.

Our courses have a very practical focus and include considerable hands-on experience within our world-class facilities. We have invested significantly in the quality of our equipment and laboratory spaces to offer you an enhanced learning experience, extensive practical teaching, and the opportunity to gain essential skills for your future career in industry.



£17M
STEMLAB TEACHING
FACILITIES



Fern

Bioengineering BEng

“I enjoy maths and biology and wanted to apply my knowledge of both to engineering. Bioengineering is an emerging field and I wanted to be part of a course that I could watch evolve. I liked that bioengineering makes a difference in the quality of people’s lives and improves the future. I also knew I wouldn’t be limited with career options after I’d completed my degree.”



Bioengineering
MEng/BEng

MEng (Hons) DIS/DPS/DIntS*: 5 years full-time with placement year
UCAS code: H163

MEng (Hons): 4 years full-time
UCAS code: H162

BEng (Hons) DIS/DPS/DIntS*: 4 years full-time with placement year
UCAS code: H161

BEng (Hons): 3 years full-time
UCAS code: H160

Typical offers
A level: AAA (MEng) or AAB (BEng) including Maths and either Chemistry, Biology and Physics (two of these subjects are preferred)
IB: (MEng) 37 (6,6,6 HL) or (BEng) 35 (6,6,5 HL) including HL Maths and one of Biology, Chemistry or Physics at HL
BTEC Level 3 National Extended Diploma: D*DD (MEng) or DDD (BEng) in a relevant subject plus grade A in A level Maths



**Diploma in Industrial/Professional/International Studies*
Typical offers correct at the time of print. Please check our website for the latest version and other qualifications.
Please note that optional modules are subject to availability and timetable permitting.

Our Bioengineering degree is an interdisciplinary course from Loughborough’s Engineering Schools in the application of engineering to biology and medicine.

Bioengineers apply engineering techniques and innovative technology to solve real world, complex, biological and medical problems. It is a cutting-edge, multidisciplinary subject that aims to improve human health, bridging the gap between health, medicine and engineering for the enhancement of healthcare.

About the course
Our Bioengineering degree has been specifically designed to supply the bioengineering industries with graduates that have a thorough grounding in engineering systems and applications in bioengineering disciplines, a sound understanding of human anatomy, physiology and biological functions and the ability to apply their knowledge and skills effectively to bioengineering problems.

The field is rapidly developing, and bioengineers work in a wide variety of sectors globally, developing products and creating technology to help people achieve a better quality of life and break barriers in medical and sporting achievements. Examples include prosthetics and biomaterial implants, software engineering for advanced and 3D medical imaging, image-guided and robot assisted surgery, regenerative medicine against incurable diseases, tissue engineering such as bioengineered skin for wounds, 3D bioprinting, medical device development and new assistive technologies such as wearable technology, mobile and e-health.

Year 1
This year is made up of compulsory modules, providing you with an introduction to bioengineering and a solid grounding for the rest of your studies. Modules include Computer-Aided Engineering, Design and Make, Mathematics, and Anatomy and Physiology.

Year 2
This year allows more focus for you to develop your understanding of bioengineering. Modules include Biochemistry and Cell Biology, Control Engineering, Materials Characterisation, Engineering Systems and Engineering Computation.

Optional placement year/study abroad

Year 3 MEng/final year BEng
This year sees the introduction of optional modules, allowing you to specialise in your preferred areas of bioengineering. Modules typically cover Additive Manufacturing, Body Composition, Biomedical Component Design and Sports Engineering. Compulsory modules include Product Innovation Management, Bioelectricity and Biophotonics Engineering and Healthcare Engineering, and you will also work on your individual project.

Optional placement year/study abroad

Final year MEng
You’ll be working on a group design project in this academic year, allowing you to develop project management skills, but you’ll also focus on optional modules meaning that you can explore topics of your choice. Some of these include Advances in Biomaterials, Drug Delivery and Targeting, and Regenerative Medicine.

Jake

Bioengineering with a Foundation Year

“Bioengineering allows you to study some new and exciting ideas and provides a great environment for expressing your own. The breadth of the course really allows you to explore different areas and may lead to you finding a new passion or a career path that you hadn’t considered before. The support from the course staff will ensure you are able to do your absolute best in all aspects of your life.”



Bioengineering with a Foundation Year

UCAS code

UK/EU entry: H1FY

International entry: H1PF

Typical offers

A level: BBB from three A levels (or equivalent) in any subjects

GCSE: A minimum of 5 GCSEs grade A to C (7-4). Minimum grade 6/B in Maths

Other qualifications: Will be considered on an individual basis

If you don't have the usual scientific or mathematical background for an engineering degree, then a foundation degree is an excellent option to provide a solid grounding of knowledge of engineering, scientific and mathematical principles.

Our Foundation Studies course is primarily for those who wish to embark on an exciting career in bioengineering but are missing prerequisite subjects or whose existing qualifications are not usually considered directly relevant for entry onto the core degree.

Our International Foundation course is designed for high-calibre international students who have successfully completed 12 years of education but need an extra year of study to apply for a UK undergraduate degree.

Loughborough also offers an Elite Athletes pathway for students who perform at a very high standard in their chosen sport and wish to study at Loughborough, but do not have the required qualifications due to sporting commitments.

About the course

If this is your situation, then one of our Foundation Studies courses could be what you require to bridge the gap in your studies and provide the platform for successful progression into the world of bioengineering.

Completing your foundation year will enable you to progress onto the first year of a course within the department, provided the relevant progression criteria are met.

You will be taught by University staff, including specialist Foundation Studies teaching staff. You will be a full member of the Loughborough family, with the same access to the Students' Union, clubs, societies, sports facilities and support.

Completing a foundation year can be a real attribute to your overall degree success. It not only opens doors to courses that may have previously looked closed, but also provides a sound base on which to establish a successful academic career. Many who have completed the foundation year also said how beneficial it was, supporting their transition into University life.

Module overview






The Foundation Studies programme provides a background of mathematical and physical sciences, along with other essential subjects in bioengineering, designed to prepare you for successful progression onto the first year of your chosen degree programme.

TOP IN EVERY UK
10 UNIVERSITY
LEAGUE TABLE

Department of Materials
Loughborough University
Leicestershire LE11 3TU UK

lboro.ac.uk/ug/bioeng

This brochure was written several months in advance of the academic year to which it applies (2023). Every effort has been made to ensure that the information contained within is accurate at the time of publishing, but updates (for example to course content) are likely to occur due to the time between publication and the course start date. It is therefore important to visit our online prospectus at www.lboro.ac.uk/study before applying to check for any updates, as this will be the most up-to-date repository of information.

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