

MECHANICAL ENGINEERING

UNDERGRADUATE



A DEGREE IN MECHANICAL ENGINEERING IS YOUR PASSPORT TO SUCCESS

WHAT IS MECHANICAL ENGINEERING?

Mechanical engineering is the broadest engineering discipline and a degree in this subject provides an excellent springboard for careers not only in engineering, but also in many other challenging fields. For example, mechanical engineers are vital to the car industry, the oil, gas and renewable energies industries, IT and finance, music technology, medical engineering and many other sectors.

WHY STUDY MECHANICAL ENGINEERING AT LJMU?

Delivered by the Faculty of Engineering and Technology. The School of Engineering has long-term partnerships with universities and employers in the UK and overseas and all courses are taught by academics active in industrially- oriented research and scholarship. The School recruits students from around the world and staff provide excellent levels of support to help ensure you reach your full potential. Plus you will have access to specialist labs and facilities, including the Vehicle Engineering Laboratory, and have the opportunity to join the LJMU Racing Team, which designs, builds and races a single-seater racing car on professional circuits as part of the Formula Student competition.

CHOOSE FROM THE FOLLOWING DEGREE PROGRAMMES:

- Marine and Mechanical Engineering BEng (Hons)
- Mechanical Engineering BEng (Hons)
- Product Design Engineering BSc (Hons)

WE ALSO OFFER THE FOLLOWING INTEGRATED MASTERS PROGRAMMES IN:

- Marine and Mechanical Engineering MEng (Hons)
- Mechanical Engineering MEng (Hons)

INTEGRATED MASTER'S PROGRAMMES IN MECHANICAL ENGINEERING

WHAT IS AN INTEGRATED MASTER'S (MEng) PROGRAMME?

All of our MEng programmes are integrated Master's degrees. This means that they combine undergraduate and postgraduate study into a single course.

They take four years to complete or five years if you choose the sandwich version of the programme in which case you will complete a years paid placement out in industry.

HOW DOES AN MEng DIFFER TO A BEng (HONS) COURSE?

For the first three years of the course, an MEng follows a similar structure to a BEng (Hons); the real difference comes in your final year of study at LJMU.

Unlike a BEng (Hons), this last year is at an advanced Master's level and you will be expected to complete a substantial project, often with a research element to it. This extra year is intended to give you an opportunity to undertake in-depth work, broaden your skills and knowledge, and ultimately, increase your employability as an engineer.

Entry requirements for MEng courses are higher than for a BEng (Hons). However, if you start on a BEng (Hons) course at LJMU you may be able to transfer onto an MEng if you meet the required academic standards.

COMPLETING AN MEng DEGREE?

- You will graduate with a Master's level degree without having to apply for an MSc course
- You will gain a depth of specialist knowledge and experience highly sought after by employers
- You will be able to undertake the Initial Professional Development (on-the-job training) required to become a Chartered Engineer as soon as you graduate
- You will enjoy excellent career prospects and expect to command higher salaries than graduates with a BEng (Hons)

WHAT FINANCIAL SUPPORT IS AVAILABLE TO MEng STUDENTS?

You will be eligible to apply for the same financial support as other undergraduates for the duration of your MEng. This includes student loans to cover your tuition fees and living expenses plus means-tested grants and bursaries. This financial support is not available to students who enrol on an MSc degree after completing a BEng programme. Furthermore, if you are awarded an LJMU scholarship – worth £1,000 or £10,000 – you will receive this award for every year of your degree as well.

90% of graduates from the Mechanical Engineering and Maritime subject areas went on to secure employment or further study.

LJMU Destination of Leavers from Higher Education Survey, 2017



WE WANT YOU TO GET A JOB AFTER GRADUATION

Last year, **87%** of our engineering and technology graduates went on to secure a graduate level job.

WHY?

- Every single one of our undergraduate students has the opportunity to do a year-long industry placement (last year 100% of students who took up a placement got a graduate job)
- Employer engagement – every year we host up to 100 companies from a multitude of engineering and technology sectors at our jobs fair
- We offer a range of opportunities to gain experience outside of the lecture hall, for example you could go on a site visit or travel abroad to maximise your skillset.



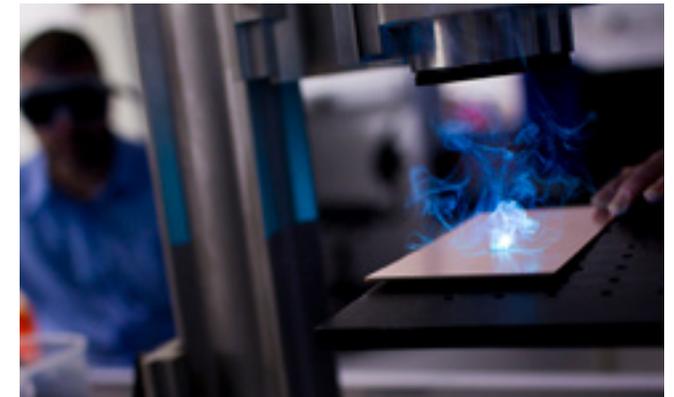
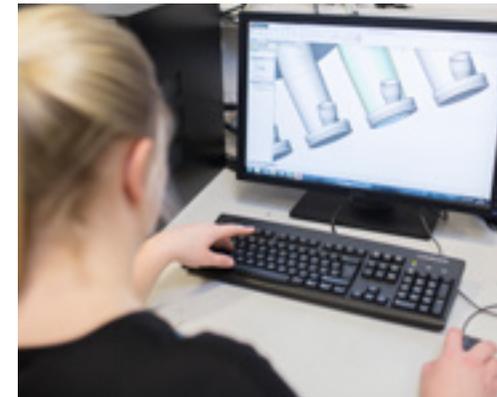
HOW WE WORK WITH INDUSTRY

The Faculty of Engineering and Technology's collaboration with local, national and international industrial partners is critical in fulfilling the University's core mission to serve "its people and communities, at home and further afield; enriching the lives of those they work with and acting as an anchor institution in the City of Liverpool".

The projects contained within the Faculty bridge across a number of technology areas, such as fourth industrial revolution, low carbon technologies, creative and digital, and maritime skills. The projects may differ in their subject specialities, however they all unite in their industry-focused approach of helping industry solve their everyday challenges - transferring cutting edge technologies and know-how from LJMU's highly experienced academics to the businesses they support. This valuable knowledge transfer mechanism enables both the business and academics to benefit, feeding directly into enhancing the student experience through promoting a progressive entrepreneurial spirit.

THE FACULTY OF ENGINEERING AND TECHNOLOGY IS COMMITTED TO INCREASING DIVERSITY IN STEM SUBJECTS.

The opportunity to do good things for society and the world has never been greater. We're in the midst of creative and innovative times and society deserves to have input and perspective from both males and females. Research shows that more diverse teams create better solutions; more diversity equals more creativity.



ALUMNI PERSPECTIVE



“ I chose engineering after learning about it during my HNC. I had never considered any additional element to construction other than the builder or architect before. When I learned what a civil engineer does, and how they do it – and all the different sectors within engineering, I knew (at 36) that was the path I was to follow. I think by the fact that we have some very interesting engineering projects in the UK at the moment, with women in prominent roles, this is highlighting what a fantastic job can be done whether you're male or female. ”

Louisa King, Project Engineer at Black & Veatch, BEng Civil Engineering graduate from LJMU and one of The Telegraph's Top 50 Women in Engineering.

MARINE AND MECHANICAL ENGINEERING

BEng (HONS) MEng (HONS) FOUNDATION

If you enjoy solving problems and relish the idea of working as part of a professional team of naval architects, electrical engineers and marine scientists to provide mechanical solutions, this could be the course for you.

COURSE OVERVIEW

- Available as BEng and MEng qualification
- Excellent paid placement opportunities including an internal placement with the Formula Student Team
- Accredited by The Institution of Mechanical Engineers

CORE MODULES

Level 4

Engineering Mathematics 1a; Engineering Mathematics 1b; Applied Mechanics 1; Thermodynamics and Fluid Mechanics 1; Materials; Engineering Practice 1; Electrical and Electronic Engineering

Level 5

Engineering Mathematics 2; Materials and Processes; Applied Mechanics; Thermodynamics and Fluid Mechanics; Marine Design and Technology; Engineering Practice 2; Mechatronics

Sandwich degree: Year-long placement.

Level 6

Engineering Project; Engineering Analysis; Industrial Management; Marine Design and Propulsion.

Level 6 (Option) – Choose two

Fluid Dynamics and Heat Transfer; Thermodynamics; Materials Engineering; Structural Integrity; Manufacturing Processes and Industrial Automation; Dynamics and Control.

Level 7 (MEng only) - core

Maritime and Offshore Safety Analysis; Group Project; Operations Research.

Level 7 (MEng only) – option (choose two)

Marine Design Engineering; Finite Element Analysis; Offshore Engineering; Computational Fluid Dynamics; Advanced Materials and Manufacturing Processes;

WORK-RELATED LEARNING

This course offers an invaluable opportunity to undertake an industrial placement after your second year. This experience cannot be underestimated as it will give you a chance to put into practice what you have learnt in the first two years, enhance your skills and provide a

Professional engineers regularly contribute to courses while industrial visits provide insights into careers in professional engineering.

taste of what it's really like to work in industry. It will also give you a head start when you come to negotiate your way around the competitive job market.

CAREER PROSPECTS

Specific employment sectors include marine surveying with companies including: Lloyds of Londonship and port operations offshore structure spetro chemicals offshore renewable energy and power generation. Recent graduate roles include: sea-going chief engineer, marine superintendent, power plant manager, marine surveyor, and petrochemical plant manager.

EXPLORE THE WORLD

Did you know that LJMU students have the opportunity to discover more about the world by studying, working or volunteering abroad? Whether you are looking to enhance your degree, improve your employability or have a life-changing experience, you could gain funding to help you realise your goals. Where and when you can go will depend on your programme of study.

[ljmu.ac.uk/goabroad](https://www.ljmu.ac.uk/goabroad)

[@LJMUGlobalOpps](https://www.ljmu.ac.uk/globalops)

SCHOLARSHIPS

LJMU recognises hard working and inspirational applications through our generous scholarship fund. Awarded in recognition of personal achievement, you could receive either £1,000 or £10,000 for every year of your course*. So whether you're an academic high flyer or a dedicated volunteer, we want to reward your success.

**Provided you meet certain criteria, see terms and conditions online:*

[ljmu.ac.uk/scholarships](https://www.ljmu.ac.uk/scholarships)

ACCREDITATION



£4M

AWARDED ANNUALLY IN SCHOLARSHIPS, PRIZES AND HARDSHIP FUNDS

UCAS code: BEng (Hons) **H350** MEng (Hons) **H390**

FOUNDATION ROUTE AVAILABLE

UCAS Tariff points required: BEng: 112, MEng: 128 | **A levels minimum requirement: 2** | **A levels subject specific requirement:** BEng minimum of 64 and MEng minimum of 80 UCAS points at A Level (or equivalent) from Maths and one of the following: Physics, Chemistry, Computing, Further Maths, Electronics or Engineering | **General Studies acceptable?** Yes | **BTEC Diploma grades/subjects required:** Only acceptable when combined with Mathematics at A Level (BEng grade C or above; MEng grade B or above). Specific option units must be completed - contact faculty for more information. BEng - to the total of 112 UCAS points; MEng - to the total of 128 UCAS points | **BTEC Extended Diploma grades/subjects required:** Engineering subject required with a distinction grade in Further Engineering Mathematics unit. Specific option units must be completed - contact faculty for further information. BEng - DMM if studied on its own or to the total of 112 UCAS points; MEng - DDM if studied on its own or to the total of 128 UCAS points | **GCSE/standard grade:** Grade C/Grade 4 or above in Mathematics and English Language. Equivalent qualifications may be accepted | **Interview required?** No | **DBS check required?** No

Course duration (Yrs): BEng (Hons) 3/4 FT MEng (Hons) 4/5 FT **Start month:** September

Campus location: City Campus

MECHANICAL ENGINEERING

BEng (HONS) MEng (HONS) FOUNDATION

In a rapidly changing world, mechanical engineers are in demand more than ever before to design and build the new generation of engines, power plants, structures and vehicles that keep the world running.

COURSE OVERVIEW

- Available as BEng and MEng qualification
- Our students run a thriving Autosport Society which competes in the Formula Student competition
- Professionally-accredited, designed engineering curriculum
- Teaching is supported by well-equipped laboratories and workshops
- Industrial visits provide insights into careers in professional engineering; plus you have the option of completing an industrial placement.

CORE MODULES

Level 4

Engineering Mathematics 1a; Engineering Mathematics 1b; Applied Mechanics 1; Thermodynamics and Fluid Mechanics 1; Materials; Engineering Practice 1; Electrical and Electronic Engineering

Level 5

Engineering Mathematics 2; Materials and Processes; Applied Mechanics; Thermodynamics and Fluid Mechanics; Mechanical Engineering Design 2; Engineering Practice 2; Mechatronics

Sandwich degree: Year-long placement.

Level 6 (core)

Engineering Project; Engineering Analysis; Mechanical Engineering Design 3; Industrial Management.

Level 6 (Option) – Choose two

Fluid Dynamics and Heat Transfer; Thermodynamics; Materials Engineering; Structural Integrity; Manufacturing Processes and Industrial Automation; Dynamics and Control; Vehicle Dynamics.

Level 7 (MEng only) - core

Group Project, Operations Research

Level 7 (MEng only) – option

Finite Element Analysis; Conventional and Alternative Energy Systems; Offshore Engineering; Computational Fluid Dynamics; Advanced Materials and Manufacturing Processes; Structural Dynamics.



A challenging but rewarding accredited programme of study with the long-term benefit of excellent career prospects.

Simon Gahan Student

WORK-RELATED LEARNING

This course offers an invaluable opportunity to undertake an industrial placement after your second year. This experience cannot be underestimated as it will give you a chance to put into practice what you have learnt in the first two years, enhance your skills and provide a taste of what it's really like to work in industry. It will also give you a head start when you come to negotiate your way around the competitive job market.

CAREER PROSPECTS

Mechanical engineers are employed in almost every sector of economic activity. Specific employment sectors include: aerospace, automotive, power generation engineering, utilities and pharmaceuticals manufacturing.

EXPLORE THE WORLD

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[ljmu.ac.uk/goabroad](https://www.ljmu.ac.uk/goabroad)

@LJMUGlobalOpps

SCHOLARSHIPS

LJMU recognises hard working and inspirational applications through our generous scholarship fund. Awarded in recognition of personal achievement, you could receive either £1,000 or £10,000 for every year of your course*. So whether you're an academic high flyer or a dedicated volunteer, we want to reward your success.

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UCAS code: BEng (Hons) **H300** MEng (Hons) **H301**

FOUNDATION ROUTE AVAILABLE

UCAS Tariff points required: BEng: 112, MEng: 128 | **A levels minimum requirement:** 2 | **A levels subject specific requirement:** BEng minimum of 64 and MEng minimum of 80 UCAS points at A Level (or equivalent) from Maths and one of the following: Physics, Chemistry, Computing, Further Maths, Electronics or Engineering | **General Studies acceptable?** Yes | **BTEC Diploma grades/subjects required:** Only acceptable when combined with Mathematics at A Level (BEng grade C or above; MEng grade B or above). Specific option units must be completed - contact faculty for more information. BEng - to the total of 112 UCAS points; MEng - to the total of 128 UCAS points | **BTEC Extended Diploma grades/subjects required:** Engineering subject required with a distinction grade in Further Engineering Mathematics unit. Specific option units must be completed - contact faculty for further information. BEng - DMM if studied on its own or to the total of 112 UCAS points; MEng - DDM if studied on its own or to the total of 128 UCAS points | **GCSE/standard grade:** Grade C/Grade 4 or above in Mathematics and English Language. Equivalent qualifications may be accepted | **Interview required?** No | **DBS check required?** No

Course duration (Yrs): BEng (Hons) 3/4 FT MEng (Hons) 4/5 FT **Start month:** September
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UNDERGRADUATE COURSES 2022 [ljmu.ac.uk](https://www.ljmu.ac.uk)

84% OF STUDENTS SURVEYED SAID THEY WERE SATISFIED WITH THEIR OVERALL LJMU STUDENT EXPERIENCE

National Student Survey (NSS) 2018

[ljmu.ac.uk](https://www.ljmu.ac.uk) UNDERGRADUATE COURSES 2022

PRODUCT DESIGN ENGINEERING

BSc (HONS)

Innovation and creativity in almost all stages of design and production are critical to the success of many products and multimedia technology plays an increasingly important role in enabling companies to compete globally. This professionally-accredited course combines skills development in traditional hand-generated design work, with the latest computer-aided design techniques.

COURSE OVERVIEW

- Design-led curriculum and opportunities to exhibit at the University's annual Product Innovation Show
- Teaching delivered in well-equipped laboratories with state-of-the-art software plus excellent technical support
- All students receive a personal copy of SolidWorks 3D CAD software and access to all Autodesk products
- Thriving student industrial design society
- Option of completing a year-long industrial placement or International module

CORE MODULES

Level 4

Computer Aided 3D Solid Modelling,

Freehand and Digital Sketching, Engineering Drawing, Mathematics and Scientific Principles for Designers, New Product Development Process, Application of Electronics and Software in Product Design, Model Making and Engineering Workshop Practice

Level 5

Advanced Computer Aided 3D Surface and Solid Modelling, Posters and Process Book Presentation, Static and Dynamic Analysis of Product Components, Design for Manufacture and Assembly, Mechatronic Design, Digital Marketing and Business Model Development

Sandwich degree: Year-long placement.

Level 6

Design Project Management, Product Design Research Methods, User Centred Design, Embodiment Design Process, Sustainability and Ethics in Design

WORK-RELATED LEARNING

Local companies contribute to the design and development of this course and in fact many of them offer work placements to our students. These placements offer an invaluable opportunity to join a commercial company for a year and put all you have learnt in the first two years into practice.

CAREER PROSPECTS

Design is a growing sector, offering opportunities in many different industries. Increasingly complex product design and manufacturing processes mean designers will continue to enjoy good employment prospects. Many design professionals go freelance or decide to start their own business. Such as graduates Troy Baker (Managing Director) and Graham Wilson (Technical Director), founders of Design Reality, a design consultancy



The course is very hands-on and fast paced but if you work hard the results will show.

Emma Rawling Student

based in St Asaph, who also deliver guest lectures on the course.

**Provided you meet certain criteria, see terms and conditions online: ljmu.ac.uk/scholarships*

ADDITIONAL COSTS

Throughout the course students can expect to incur expenses over and above their ordinary living costs. The faculty will provide certain basic design materials; above this students are expected to provide their own design materials.

ACCREDITATION



EXPLORE THE WORLD

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SEE ALSO:

Architecture*
Fine Art*
Graphic Design and Illustration*
Interior Architecture*

*Foundation routes available.

UCAS code: **H772**

UCAS Tariff points required: 112 | **A levels minimum requirement:** 2 | **A levels subject specific requirement:** Minimum of 64 UCAS points at A Level from DT, Maths Engineering, Chemistry, Physics, other subjects may be considered | **General Studies acceptable?** Yes | **BTEC Diploma grades/subjects required:** D*D* from a relevant subject area if studied on its own or to the total of 112 UCAS points if combined with other qualifications | **BTEC Extended Diploma grades/subjects required:** DMM from a relevant subject area if studied on its own or to the total of 112 UCAS points if combined with other qualifications | **GCSE/standard grade:** Grade C/Grade 4 or above in English Language and Mathematics. Equivalent qualifications may be accepted | **Interview required?** No | **DBS check required?** No

Course duration (Yrs): 3/4 FT | **Start month:** September | **Campus location:** City Campus

LIVERPOOL VOTED
SECOND IN THE TOP
10 STUDENT CITIES
IN THE UK

#2

LJMU ON DEMAND Available 24/7



Watch **on-demand videos** and explore our **courses, campus facilities, accommodation, funding, life at LJMU** and more.

ljmu.ac.uk/on-demand



FURTHER INFORMATION

Please contact the Faculty of Engineering and Technology on:

Tel: **0151 231 2777**

Email: fetadmissions@ljmu.ac.uk

If you have any queries relating to LJMU or university life in general please contact:

Tel: **+44(0)151 231 5090**

Email: courses@ljmu.ac.uk

Web: ljmu.ac.uk

The university offers the information contained in this brochure as a general guide only, to prospective undergraduate students wishing to apply for a place at the university. It does not constitute or form part of any contract and is not binding on prospective students, students or the university.

The information in this brochure is correct at the time of going to press (May 2021) and the university hopes to provide the programmes and facilities set out in this brochure. However, some changes will inevitably occur in the interval between publication and the academic year to which the brochure relates and the university reserves the right to withdraw or make alterations to courses and facilities if necessary. Applicants should not rely solely on this brochure and should use this brochure in conjunction with the university website which we shall maintain and keep up-to-date: ljmu.ac.uk

All images, experiences and opportunities referenced in this handbook relate to the period before and occasionally during the Covid-19 pandemic. Whilst LJMU wishes to continue to offer its students the best possible student experience for the 2022 academic year, it is committed to protecting its students, staff and wider community in respect of the Covid-19 pandemic and as such adherence to all applicable laws and government guidance is of utmost importance. This may result in certain experiences or opportunities not being available or being modified or adjusted in light of the same. LJMU continues to monitor the position and provides regular updates on its website ljmu.ac.uk/movingforward

All opportunities, and experiences offered to students from September 2022 will be subject to government guidance and may not be available due to the Covid-19 pandemic.

This guide is available in different formats, please contact us for more information.

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