UNIVERSITY OF LIVERPOOL

MSc (Eng)

Advanced Manufacturing Systems and Technology

Study mode	Duration	
Full-time	12 months	Apply by: **31 October 2025** Starts on: **26 January 2026**

About this course

Gain the advanced skills and knowledge to become a manufacturing engineer or researcher on this MSc (Eng). We'll provide a comprehensive overview of the materials, processes, technologies and systems in manufacturing. You'll encounter real-world challenges and discover the opportunities offered by this growing industry worldwide.

Introduction

In modern manufacturing, engineers are being continuously challenged to make more effective use of technology, management systems, production techniques and processes.

On this master's degree, developed in conjunction with industry partners, we'll equip you with skills to become an industry-ready engineer with advanced knowledge of manufacturing technology, management and systems.

You'll gain insights into manufacturing systems of different scales and examine how they function at each level. Material manufacturing and processing technologies will be introduced, including key factors in the selection of materials.

Immersing you in computer aided design and robotics, we'll introduce the latest 3D tools and techniques and reveal how to design, build and operate industrial robotic systems.

The role of additive manufacturing in new product development will also be explored and you'll discover how the principles of advanced manufacturing techniques using lasers are being adopted by industry.

Accredited by the Institution of Mechanical Engineers, the programme includes a supervised independent research project. This provides the opportunity to enhance your skills and knowledge in an area of manufacturing of your choice, supported by our specialist research facilities.

Who is this course for?

This programme is designed for engineers and physical scientists who want to develop specialist skills and knowledge in advanced manufacturing systems and technology.

What you'll learn

- Computer aided design methodologies, tools and techniques
- How manufacturing systems function, on a global, company, factory and shop floor scale
- Material manufacturing and processing technologies
- The role of additive manufacturing in new product development
- Advanced manufacturing techniques using lasers
- Entrepreneurial concepts, activities and challenges
- How to design, build and operate industrial robotic systems
- Transferable skills in problem solving, critical analysis, teamwork and communication
- The critical role of supply chain management in the operations of modern organisations
- Tools and methods of eco-design, design for manufacturing, and design for assembly

Accreditation

This programme is accredited by the Institute of Mechanical Engineering (IMechE), the professional body for mechanical engineers in the UK. This means that successful completion of the programme will put you on track to gain Chartered Engineer (CEng) status in the UK.

Accreditation in detail

Institution of Mechanical Engineers

All mechanical engineering programmes are accredited, or pending accreditation, by the Institution of Mechanical Engineers. This is the professional body for Mechanical Engineers. Our programmes are a recognised qualification on the route to Chartered Engineer status.

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Course content

Discover what you'll learn, what you'll study, and how you'll be taught and assessed.

Semester one

This course is available to start in September or January. If you choose to start in January, you'll undertake the Semester two modules first, from January to May. This will be followed by your research project over the summer and then your Semester one modules from September to January. On successful completion of the course, following a January start, you can expect to graduate at our summer graduation ceremonies.

Please note, UK students are exempt from module ENGG596 Technical Writing for Engineers in semester one. EU and international students with strong English language skills may also be exempt, subject to the approval of the programme director.

If you're exempt from ENGG596, you'll select a total of 37.5 credits of optional modules across semesters one and two. If you need to study ENGG596, 30 credits of optional modules will be chosen.

Modules

Compulsory modules	Credits
MANUFACTURING SYSTEMS (MNFG401)	15
MATERIALS PROCESSING AND SELECTION (MATS520)	15
TECHNICAL WRITING FOR ENGINEERS (ENGG596)	7.5
COMPUTER AIDED DESIGN (MNFG604)	7.5
ADDITIVE MANUFACTURING (MNFG603)	15

Optional modules	Credits
FINITE ELEMENT ANALYSIS (MECH452)	7.5
OPERATIONS MODELLING AND SIMULATION (EBUS504)	15
SUPPLY CHAIN OPERATIONS MANAGEMENT (EBUS506)	15
LASER MATERIALS PROCESSING (MECH605)	15

Programme details and modules listed are illustrative only and subject to change.

Semester two

This course is available to start in September or January. If you choose to start in January, you'll undertake the Semester two modules first, from January to May. This will be followed by your research project over the summer and then your Semester one modules from September to January. On successful completion of the course, following a January start, you can expect to graduate at our summer graduation ceremonies.

Modules

Compulsory modules	Credits
ADVANCED MANUFACTURING WITH LASERS (MECH607)	15
INDUSTRIAL ROBOTICS AND AUTOMATED ASSEMBLY (MNFG409)	15

Optional modules	Credits
DESIGN FOR ENVIRONMENT, MANUFACTURE AND ASSEMBLY (MNFG413)	7.5

Optional modules	Credits
MANAGEMENT OF DESIGN (MNGT413)	7.5
ENTERPRISE STUDIES (MNGT414)	7.5
SMART MATERIALS (MATS515)	7.5

Programme details and modules listed are illustrative only and subject to change.

Final project

This course is available to start in September or January. If you choose to start in January, you'll undertake the Semester two modules first, from January to May. This will be followed by your research project over the summer and then your Semester one modules from September to January. On successful completion of the course, following a January start, you can expect to graduate at our summer graduation ceremonies.

Modules

Compulsory modules	Credits
MSC(ENG) PROJECT (60 CREDITS) (ENGG660)	60

Programme details and modules listed are illustrative only and subject to change.

Teaching and assessment

How you'll learn

You'll be taught through a combination of traditional lectures and practical classes, benefitting from research-led teaching and active learning methods.

There will be a mixture of lectures, seminars, tutorials, laboratory work, demonstrations, problem-solving exercises, group projects and independent study.

How you're assessed

You'll be assessed through a combination of written exams, class tests and coursework.

Coursework-based assignments include essays, reports, oral presentations, mini-project work, key skills exercises and a dissertation.

Liverpool Hallmarks

We have a distinctive approach to education, the Liverpool Curriculum Framework, which focuses on research-connected teaching, active learning, and authentic assessment to ensure our students graduate as digitally fluent and confident global citizens.

The Liverpool Curriculum framework sets out our distinctive approach to education. Our teaching staff support our students to develop academic knowledge, skills, and understanding alongside our **graduate attributes**:

- Digital fluency
- Confidence
- Global citizenship

Our curriculum is characterised by the three **Liverpool Hallmarks**:

- Research-connected teaching
- Active learning
- Authentic assessment

All this is underpinned by our core value of **inclusivity** and commitment to providing a curriculum that is accessible to all students.

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Careers and employability

Whether you're seeking a career bringing new products to market, embracing potentially transformative technologies, working in Government laboratories, focusing on research and development, or leading manufacturing teams, this MSc (Eng) will prepare you for a variety of opportunities in the UK and abroad.

The programme includes a strong practical element and incorporates the latest academic and industry research, preparing you to work effectively at the forefront of manufacturing and engineering.

Our professional accreditation with the Institution of Mechanical Engineers means you'll graduate with a recognised qualification on the route to Chartered Engineer status.

You'll graduate from this MSc (Eng) ready for a career in manufacturing industries, industrial research and development laboratories, Government laboratories and engineering consultancies.

Career destinations for our previous graduates include working for:

- Agusta Westland
- National Health Service
- BAE Systems
- Ford
- Jaguar
- Unilever
- Armed Forces
- QinetiQ
- National and international bodies such as the Engineering and Physical Sciences Research Council and the European Commission.

You'll also be well placed to pursue PhD study. Some of our previous graduates have secured fully-funded PhD studentships.

Career support from day one to graduation and beyond

Career planning

From education to employment

Networking events

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Fees and funding

Your tuition fees, funding your studies, and other costs to consider.

Tuition fees

UK fees (applies to Channel Islands, Isle of Man and Republic of Ireland)

Full-time place, per year - £13,300

International fees

Full-time place, per year - £29,900

Fees stated are for the 2025-26 academic year.

Tuition fees cover the cost of your teaching and assessment, operating facilities such as libraries, IT equipment, and access to academic and personal support.

- You can pay your tuition fees in instalments.
- All or part of your tuition fees can be funded by external sponsorship.
- International applicants who accept an offer of a place will need to pay a tuition fee deposit.

If you're a UK national, or have settled status in the UK, you may be eligible to apply for a Postgraduate Loan worth up to £12,167 to help with course fees and living costs. **Learn more about paying for your studies.**.

Additional costs

We understand that budgeting for your time at university is important, and we want to make sure you understand any course-related costs that are not covered by your tuition fee. This could include buying a laptop, books, or stationery.

Find out more about the additional study costs that may apply to this course.

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Entry requirements

The qualifications and exam results you'll need to apply for this course.

Postgraduate entry requirements

You will normally need a 2:1 honours degree, or above, or equivalent. This degree should be in engineering or science and provide appropriate knowledge of core engineering science topics.

Applicants with a 2:2 honours degree will be considered on a case-by-case basis.

International qualifications

Select your country or region to view specific entry requirements.

Many countries have a different education system to that of the UK, meaning your qualifications may not meet our entry requirements. Completing your Foundation Certificate, such as that offered by the University of Liverpool International College, means you're guaranteed a place on your chosen course.

English language requirements

You'll need to demonstrate competence in the use of English language, unless you're from a majority English speaking country.

We accept a variety of international language tests and country-specific qualifications.

International applicants who do not meet the minimum required standard of English language can complete one of our Pre-Sessional English courses to achieve the required level.

IELTS

6.5 overall, with no component below 6.0

TOEFL iBT

88 overall, with minimum scores of listening 19, writing 19, reading 19 and speaking 20. TOEFL Home Edition not accepted.

Duolingo English Test

120 overall, with no component below 105

Pearson PTE Academic

61 overall, with no component below 59

LanguageCert Academic

70 overall, with no skill below 65

PSI Skills for English

B2 Pass with Merit in all bands

INDIA Standard XII

National Curriculum (CBSE/ISC) - 75% and above in English. Accepted State Boards - 80% and above in English.

WAEC

C6 or above

Pre-sessional English

Do you need to complete a Pre-sessional English course to meet the English language requirements for this course?

The length of Pre-sessional English course you'll need to take depends on your current level of English language ability.

Pre-sessional English in detail

If you don’t meet our English language requirements, we can use your most recent IELTS score, or the equivalent score in selected other English language tests, to determine the length of Pre-sessional English course you require.

Use the table below to check the course length you're likely to require for your current English language ability and see whether the course is available on campus or online.

Your most recent IELTS score	Pre-sessional English course length	On campus or online
6.0 overall, with no component below 6.0	6 weeks	On campus
6.0 overall, with no component below 5.5	10 weeks	On campus and online options available
6.0 overall, with no more than one component below 5.5, and no component below 5.0	12 weeks	On campus and online options available
5.5 overall, with no more than one component below 5.5, and no component below 5.0	20 weeks	On campus
5.0 overall, with no more than one component below 5.0, and no component below 4.5	30 weeks	On campus
4.5 overall, with no more than one component below 4.5, and no component below 4.0	40 weeks	On campus

If you've completed an alternative English language test to IELTS, we may be able to use this to assess your English language ability and determine the Pre-sessional English course length you require.

Please see our guide to Pre-sessional English entry requirements for IELTS 6.5 overall, with no component below 6.0, for further details.

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