UNIVERSITY OF LIVERPOOL

MSc (Eng)

Advanced Aerospace Engineering

Study mode	Duration	
Full-time	12 months	Apply by: **29 August 2025** Starts on: **22 September 2025**

About this course

Discover how to design, build and test different aircraft on this MSc (Eng) for graduates in engineering and physical sciences. This accredited master's includes a practical aircraft design project, independent research project, and opportunities to explore the principles of space flight and spacecraft design.

Introduction

Prepare for a career designing, developing and testing aircraft, spacecraft and satellites on this accredited master's.

Building on your existing knowledge of engineering, you'll learn flight handling qualities for different types of aircraft and design tasks for use in piloted simulation missions.

We'll provide an overview of the aerodynamic characteristics of aircraft components and reveal the role of computer-based design techniques, computational fluid dynamics, flow diagnostics and finite element analysis in aerospace engineering.

You'll put theory into practice on an aircraft design project where you'll work as part of a small team to develop an aircraft from an initial conceptual design to simulated flight testing. To further enhance your employability, we'll also immerse you in a variety of entrepreneurial activity and hone your project management skills.

Optional modules include opportunities to discover the principles and challenges of space flight and explore spacecraft design, navigation and operations for planetary missions.

Accredited by the Royal Aeronautical Society and the Institution of Mechanical Engineers, the programme includes a supervised independent research project. This enables you to enhance your skills and knowledge in an area of aerospace engineering of your choice, supported by our specialist research and flight simulation 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 aerospace engineering.

What you'll learn

- Flight handling qualities for fixed and rotary-wing aircraft
- The aerodynamic characteristics of aircraft components
- Advanced understanding of computational fluid dynamics
- How to conduct static and dynamic structural analyses of rods, shafts and beams
- How to undertake an aerospace design project, from the conceptual design phase to a flight test exercise
- Fundamental techniques in project management, risk management and cost management
- Knowledge of static and dynamic aeroelasticity
- Key concepts of space flight and space mission design
- Entrepreneurial concepts, activities and challenges
- Transferable skills in problem solving, critical analysis, teamwork and communication.

Accreditation

This programme is accredited by:

- The Royal Aeronautical Society (RAeS), the world’s only professional membership association dedicated to the aerospace and aviation industry

- The Institute of Mechanical Engineering (IMechE), the professional body for mechanical engineers in the UK.

This means that successful completion of the programme will contribute towards the academic requirements for registration with RAeS and IMechE as as a Chartered Engineer.

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.

Royal Aeronautical Society

The Royal Aeronautical Society is licensed by the Engineering Council to accredit academic programmes that provide the exemplifying level of understanding, knowledge and skills to underpin professional competence to help graduates on their way to registration as Chartered Engineers (CEng) or as Incorporated Engineers (IEng).

Back to top

Course content

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

Semester one

Module AERO420 Aerospace Capstone Group Design Project spans semesters one and two.

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 30 credits of optional modules across semesters one and two. If you need to study ENGG596, 22.5 credits of optional modules will be chosen.

Please note: University of Liverpool graduates will not be able to choose optional modules on this programme that you have already studied on your degree.

Modules

Compulsory modules	Credits
FLIGHT HANDLING QUALITIES (15CR) (AERO401)	15
ADVANCED FLUID MECHANICS AND AERODYNAMICS (AERO406)	15
FURTHER AEROSTRUCTURAL ANALYSIS (AERO417)	7.5
AEROSPACE CAPSTONE GROUP DESIGN PROJECT (AERO420)	30
TECHNICAL WRITING FOR ENGINEERS (ENGG596)	7.5
PROJECT MANAGEMENT (MNGT502)	7.5

Optional modules	Credits
SPACEFLIGHT (AERO319)	7.5

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

Semester two

Module AERO420 Aerospace Capstone Group Design Project spans semesters one and two.

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 30 credits of optional modules across semesters one and two. If you need to study ENGG596, 22.5 credits of optional modules will be chosen.

Please note: University of Liverpool graduates will not be able to choose optional modules on this programme that you have already studied on your degree.

Modules

Compulsory modules	Credits
AEROSPACE CAPSTONE GROUP DESIGN PROJECT (AERO420)	30
AEROELASTICITY (AERO415)	7.5
ENTERPRISE STUDIES (MNGT414)	7.5

Optional modules	Credits
SPACE MISSION DESIGN (AERO419)	15

Optional modules	Credits
ROTORCRAFT FLIGHT (AERO314)	7.5
ADVANCED GUIDANCE SYSTEMS (AERO430)	7.5
STRUCTURAL OPTIMISATION (ENGG414)	7.5
BUSINESS AND THE ENVIRONMENT (ENVS470)	15
ENERGY AND THE ENVIRONMENT (MECH433)	15
ADVANCED ENGINEERING MATERIALS (MATS631)	15

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

Final project

You will undertake your research project over the summer.

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

This programme aligns with, and is co-taught with, the final year of our four-year MEng (Hons) degree in aerospace engineering.

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, simulation and practical activities, and independent study.

How you're assessed

You'll be assessed through a combination of written exams, revision tests, individual and group presentations, written reports, log books, posters 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.

Back to top

Careers and employability

If you're seeking a career designing, developing and testing aircraft, spacecraft, satellites and missiles, well-qualified and industry-ready engineers are in high demand in the aerospace industry in both the UK and abroad.

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

Our professional accreditation with the Royal Aeronautical Society and 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 the aerospace industry. Your skills can also be applied to a range of other exciting opportunities in engineering, manufacturing or industrial research.

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

Back to top

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.

Back to top

Entry requirements

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

Postgraduate entry requirements

We accept a 2:2 honours degree from a UK university, or an equivalent academic qualification from a similar non-UK institution. This degree should be in Aerospace Engineering. If your degree is not in Aerospace Engineering, you will need a 2:1 honours degree from a UK university, or an equivalent academic qualification from a similar non-UK institution.

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

125 overall, with writing not less than 125, speaking and reading not less than 115, and listening not below 110

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.

Back to top

Generated: 27 Mar 2025, 13:56