



UNIVERSITY OF  
LIVERPOOL

BEng (Hons)

# Aerospace Engineering with Pilot Studies

UCAS code H401

## Entry requirements

A level: AAB

## Study mode

Full-time

## Duration

3 years

Apply by: **29 January 2025**

Starts on: **22 September 2025**

## About this course

If you are interested in becoming either private or professional pilot, this is the programme for you.

## Introduction

In addition to studying the core aerospace engineering topics outlined below, you will also take the pilot studies modules and develop knowledge, skills and experience of flying. As well as the flight training, pilot studies students also have access to and use of the students pilots lab and can join the Flight Simulation Group (FSG). Study Aerospace Engineering and by the end of your time at Liverpool, you will be able to show that you can now design, build, test and fly an aircraft.

As an aerospace engineering student, you will experience a wide variety of topics and modes of study, whether it be conducting research, analysing reports or designing and building an aircraft. You will have the opportunity to study a wide range of topics during your time at Liverpool such as; aerodynamics, aerostructures, flight dynamics and control, propulsion systems, avionics, aerospace materials and aircraft design.

Aerospace engineers design, analyse, build, test and maintain vehicles, their sub-assemblies and components as well as their associated systems that fly. Flight is not limited to simply within the Earth's atmosphere, and can also be outside of it.

Conducting independent research as part of an individual project will provide you with the knowledge to develop innovative concepts in your preferred technical area of interest. All of our Aerospace Engineering degree programmes are accredited, or pending accreditation, by our professional bodies, the Royal Aeronautical Society and the Institute of Mechanical Engineers and are a recognised qualification on the route to Chartered Engineer status.

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## What you'll learn

- Aircraft design and manufacturing
  - Flight testing
  - Systems engineering
  - How to conduct independent research
  - Aerodynamics
  - Flight dynamics and control
  - How to deal with complex problems that may require compromise to meet competing requirements
  - Access to and use of pilots lab
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## Accreditation

All of our BEng/MEng degree programmes are accredited, or preparing for accreditation, by at least one professional engineering institution, providing you with a solid foundation for your career. We have excellent links with the professional engineering institutions and benefit from their support.

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### 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).

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# Course content

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

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## Year one

You will study the core engineering topics that provide a firm background and understanding of aerospace engineering, in addition you will also study pilot studies modules and develop your knowledge, skills and experience of flying.

The pilot studies module is based on the Private Pilot's License (PPL) ground school syllabus. It is studied alongside either the mandatory 20-hour flight training programme for fixed-wing flying (aeroplanes) or the 20-hour flight and ground training programme for rotary-wing flying (helicopters). For the latter, the 20-hour training programme is divided between 10.5 hours flight training and 9.5 hours of helicopter-relevant ground school.

## Modules

Compulsory modules	Credits
<u>SOLIDS AND STRUCTURES 1 (ENGG110)</u>	15
<u>PROFESSIONAL ENGINEERING: A SKILLS TOOLKIT (ENGG111)</u>	30
<u>ENERGY SCIENCE (ENGG116)</u>	15
<u>DIGITAL ENGINEERING (ENGG125)</u>	15
<u>ENGINEERING MATHEMATICS (ENGG198)</u>	22.5
<u>INTRODUCTION TO ENGINEERING MATERIALS (MATS105)</u>	15
<u>PRIVATE PILOT'S LICENSE STUDIES (AERO132)</u>	7.5

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

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## Year two

Year two includes a two-day flight test course in the national flying laboratory aircraft. In year two, the pilot studies modules are based on the Air Transport Pilot's Licence (ATPL) ground school syllabus.

Students will continue to study the core engineering topics as well as taking part in a two-day flight test course in the national flying laboratory aircraft.

## Modules

Compulsory modules	Credits
<u>AEROENGINES (AERO213)</u>	15
<u>AEROSPACE ENGINEERING DESIGN 2 (AERO220)</u>	15
<u>DYNAMIC SYSTEMS (MECH215)</u>	15
<u>PROJECT MANAGEMENT (MNGT202)</u>	7.5
<u>SOLIDS &amp; STRUCTURES 2 (ENGG209)</u>	15
<u>ENGINEERING MATHEMATICS AND COMPUTING (ENGG295)</u>	15
<u>FLIGHT MECHANICS (AERO202)</u>	15
<u>EXPERIMENTAL METHODS (ENGG201)</u>	7.5
<u>AIRLINE TRANSPORT PILOT'S LICENSE STUDIES (AERO234)</u>	15

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

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## Year three

During your third year you will undertake an individual project. This provides you with the opportunity to conduct independent research and/or develop innovative concepts in your preferred technical area of interest.

## Modules

Compulsory modules	Credits
<u>ADVANCED MODERN MANAGEMENT (MNGT352)</u>	7.5
<u>FLIGHT DYNAMICS AND CONTROL (AERO317)</u>	15
<u>AEROSTRUCTURES (AERO318)</u>	15
<u>AEROSPACE ENGINEERING DESIGN 3 (AERO321)</u>	15
<u>INDIVIDUAL PROJECT (ENGG341)</u>	30
<u>AERODYNAMICS (AERO316)</u>	15
<u>COMPUTATIONAL METHODS IN ENGINEERING (ENGG386)</u>	15

  

Optional modules	Credits
<u>SPACEFLIGHT (AERO319)</u>	7.5
<u>ROTORCRAFT FLIGHT (AERO314)</u>	7.5

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

## Teaching and assessment

## How you'll learn

We are leading the UK's involvement in the international Conceive-Design-Implement-Operate (CDIO) initiative – an innovative educational framework for producing the next generation of engineers.

Our degree programmes encompass the development of a holistic, systems approach to engineering. Technical knowledge and skills are complemented by a sound appreciation of the life-cycle processes involved in engineering and an awareness of the ethical, safety, environmental, economic, and social considerations involved in practicing as a professional engineer.

You will be taught through a combination of face-to-face teaching in group lectures, laboratory sessions, tutorials, and seminars. Our programmes include a substantial practical component, with an increasing emphasis on project work as you progress through to the final year. You will be supported throughout by an individual academic adviser.

## How you're assessed

Assessment takes many forms, each appropriate to the learning outcomes of the particular module studied. The main modes of assessment are coursework and examination. Depending on the modules taken, you may encounter project work, presentations (individual and/or group), and specific tests or tasks focused on solidifying learning outcomes.

## 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

As a graduate of aerospace engineering, you will be equipped with the skills to work in the development and maintenance of aircraft, satellites, and space vehicles.

Typical types of work our graduates have gone on include:

- Airline operators
- Armed forces,
- Government research agencies like the Ministry of Defence (MoD)

Recent employers of our graduates are from the following industries and companies:

- Engineering and Infrastructure: ABB Ltd, Bentley, Metronet Rail, Rolls Royce;
- Utilities: United Utilities;
- Defence and Military: BAE Systems, British Army, RAF (Royal Air Force), Royal Navy;
- Aviation: British Airways;
- Government organisations: National Nuclear Laboratory (Government-owned).

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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 - £9,535

Year in industry fee - £1,905

Year abroad fee - £1,430 (applies to year in China)

### International fees

Full-time place, per year - £29,100

Year in industry fee - £1,905

Year abroad fee - £14,550 (applies to year in China)

The tuition fees shown are correct for 2025/26 entry. Please note that the year abroad fee also applies to the year in China.

Tuition fees cover the cost of your teaching and assessment, operating facilities such as libraries, IT equipment, and access to academic and personal support. [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 includes the cost of flight training, an aircraft checklist, and a study pack. All safety equipment, other than boots, is provided free of charge by the department.

Pilot studies students should expect to cover the following additional costs:

Stationery and equipment:

All essential safety equipment, other than boots, is provided free of charge by the department.

## Flight training:

There is a one-off up-front fee of approximately £4,700 inclusive of VAT for training using the Tomahawk aircraft and £5,300 inclusive of VAT for the Warrior aircraft. A total of 20 hours of ground and airborne rotary-wing flight training is conducted by HELISPEED at Blackpool International Airport. There is a one-off up-front fee of £9112.20 inclusive of VAT for this training.

Please note, these prices are correct at the time of publication but may change at any time. Please check with the School for the correct pricing.

## Study pack:

Costs are only for those doing their flight training at Liverpool Flying School. Students have to pay for their own travel to and from the airport.

Students are also required to purchase a study pack costing approximately £100 (for the smaller pack) or £210 (for the larger pack) and an aircraft checklist for £10 (2022 entry costs).

[Find out more about additional study costs.](#)

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# Entry requirements

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

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## A levels

AAB including Mathematics and a second science.

Applicants with the Extended Project Qualification (EPQ) are eligible for a reduction in grade requirements. For this course, the offer is **ABB** with **A** in the EPQ.

You may automatically qualify for reduced entry requirements through our contextual offers scheme. Based on your personal circumstances, you may automatically qualify for up to a two-grade reduction in the entry requirements needed for this course. When you apply, we consider a range of factors – such as where you live – to assess if you're eligible for a grade reduction. You don't have to make an application for a grade reduction – we'll do all the work.

Find out more about [how we make reduced grade offers](#).

If you don't meet the entry requirements, you may be able to complete a foundation year which would allow you to progress to this course.

Available foundation years:

- [Engineering Foundation \(4 year route including a Foundation Year at Carmel College\) BEng \(Hons\)](#)

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## T levels

T levels are not currently accepted.

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## GCSE

4/C in English and 4/C in Mathematics

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## Subject requirements

Mathematics and a second science.

Applicants following the modular Mathematics A Level must be studying A Level Physics or Further Mathematics as the second science (or must be studying at least one Mechanics module in their Mathematics A Level).

Accepted Science subjects are Biology, Chemistry, Computing, Economics, Electronics, Environmental Science, Further Mathematics, Geography, Geology,

Human Biology, Physics and Statistics.

For applicants from England: For science A levels that include the separately graded practical endorsement, a "Pass" is required.

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### **BTEC Level 3 National Extended Certificate**

Acceptable at grade Distinction\* alongside BB in A Level Mathematics and a second science.

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### **BTEC Level 3 Diploma**

Distinction\* Distinction\* in relevant BTEC considered alongside A Level Mathematics grade B. Accepted BTECs include Aeronautical, Aerospace, Construction, Mechanical, Mechatronics and Engineering.

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### **BTEC Level 3 National Extended Diploma**

D\*DD in acceptable BTEC, plus B in A level Maths (not accepted without B in A level Maths)

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### **International Baccalaureate**

35 overall including 5 in Higher Level Mathematics and 5 in Higher Level Physics.

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### **Irish Leaving Certificate**

H1,H1,H2,H2,H2,H3, including H2 in Higher Maths and Higher Second Science. We also require a minimum of H6 in Higher English or O3 in Ordinary English

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### **Scottish Higher/Advanced Higher**

Pass Scottish Advanced Highers with grades AAB including Mathematics and second science

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### **Welsh Baccalaureate Advanced**

Acceptable at grade B alongside AA in A Level Mathematics and a second science

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### **Cambridge Pre-U Diploma**

D3 in Cambridge Pre U Principal Subject is accepted as equivalent to A-Level grade A M2 in Cambridge Pre U Principal Subject is accepted as equivalent to A-Level grade B Global Perspectives and Short Courses are not accepted.

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## **Access**

Considered if taking a relevant subject. Check with Department or Admissions team.

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## **International qualifications**

Select your country or region to view specific entry requirements.

If you hold a bachelor's degree or equivalent, but don't meet our entry requirements, you could be eligible for a Pre-Master's course. This is offered on campus at the University of Liverpool International College, in partnership with Kaplan International Pathways. It's a specialist preparation course for postgraduate study, and when you pass the Pre-Master's at the required level with good attendance, you're guaranteed entry to a University of Liverpool master's degree.

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## **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.

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## **IELTS**

6.0 overall, with no component below 5.5

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## **TOEFL iBT**

78 overall, with minimum scores of listening 17, writing 17, reading 17 and speaking 19. TOEFL Home Edition not accepted.

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## **TOEFL Paper**

Grade 6 at Standard Level or grade 5 at Higher Level

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## **Duolingo English Test**

115 overall, with speaking, reading and writing not less than 105, and listening not below 100

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## **Pearson PTE Academic**

59 overall, with no component below 59

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## **LanguageCert Academic**

65 overall, with no skill below 60

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## **Cambridge IGCSE First Language English 0500**

Grade C overall, with a minimum of grade 2 in speaking and listening. Speaking and listening must be separately endorsed on the certificate.

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## **Cambridge IGCSE First Language English 0990**

Grade 4 overall, with Merit in speaking and listening

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## **Cambridge IGCSE Second Language English 0510/0511**

0510: Grade C overall, with a minimum of grade 2 in speaking. Speaking must be separately endorsed on the certificate. 0511: Grade C overall.

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## **Cambridge IGCSE Second Language English 0993/0991**

0993: Grade 5 overall, with a minimum of grade 2 in speaking. Speaking must be separately endorsed on the certificate. 0991: Grade 5 overall.

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## **Cambridge ESOL Level 2/3 Advanced**

169 overall, with no paper below 162

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## LanguageCert

Grade 4 at Standard Level or grade 4 at Higher Level

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## 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.

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### 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
5.5 overall, with no component below 5.5	6 weeks	On campus
5.5 overall, with no component below 5.0	10 weeks	On campus and online options available
5.0 overall, with no component below 5.0	12 weeks	On campus and online options available

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Your most recent IELTS score	Pre-sessional English course length	On campus or online
5.0 overall, with no component below 4.5	20 weeks	On campus
4.5 overall, with no component below 4.5	30 weeks	On campus
4.0 overall, with 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 6.0 overall, with no component below 5.5, for further details.

## Alternative entry requirements

- If your qualification isn't listed here, or you're taking a combination of qualifications, [contact us](#) for advice
- [Applications from mature students](#) are welcome.

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