UNIVERSITY OF WOLVERHAMPTON

Course Specification

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Core Information

Awarding Body / Institution:	University of Wolverhampton		
School / Institute:	School of Architecture, Computing and Engineering		
Course Code(s):	MA050H01UF	Full-time	3 Years
UCAS Code:	H405		
Course Title:	BEng (Hons) Aerospace Engineering with Pilot Studies		
Hierarchy of Awards:	Bachelor of Engineering with Honours Aerospace Engineering with Pilot Studies Bachelor of Engineering Aerospace Engineering with Pilot Studies Diploma of Higher Education Aerospace Engineering with Pilot Studies Certificate of Higher Education Aerospace Engineering		
Language of Study:	English		
Date of DAG approval:	14/Sep/2026		
Last Review:			
Course Specification valid from:	2025/6		
Course Specification valid to:			

Academic Staff

Course Leader:	Andrew Barnett
Head of Department:	

Course Information

Location of Delivery:	University of Wolverhampton
Category of Partnership:	Standard Provision (Not delivered in partnership)
Teaching Institution:	University of Wolverhampton
Open / Closed Course:	This course is open to all suitably qualified candidates.

Entry Requirements:

Entry requirements are subject to regular review. The entry requirements applicable to a particular academic year will be published on the University website (and externally as appropriate e.g. UCAS

BEng (Hons) Aerospace Engineering with Pilot Studies:

- 104 UCAS points
- A Levels - grades BCC including Maths and either a Technology or Science-based subject
- BTEC L3 Extended Diploma (Technology or Science-based subject) or OCR Cambridge L3 Technical Extended Diploma (Technology or Science-based subject) - grades DMM
- Access to HE Diploma (60 credits) of which a minimum of 45 must be at Level 3 (104 UCAS points equivalence) in a Maths, Science or Technology based subject.

  Applicants will normally be expected to hold GCSE English and Maths at grade C+/4 or above (or equivalent).

Other Requirements

Students must have studied a minimum of two years post GCSE level. However, it is expected that some applicants will be mature students with work experience, who wish to further their career development.

These applicants will be processed through standard procedures, which may involve an interview as part of the process. Please see http://wlv.ac.uk/mature for further information.

Those who do not meet the entry requirements may be offered an alternative course.

English language

If English isn’t the applicant’s first language, they must provide evidence of English language ability. We accept:

- IELTS (Academic) at 6.0 overall with no individual component below 5.5 or equivalent.

Distinctive Features of the Course:

Course Overview Our BEng (Hons) Aerospace Engineering with Pilot Studies course equips you with the knowledge and practical skills needed to thrive in the fast-moving aerospace and aviation sectors. The course follows the AHEP 4 standards set by the Engineering Council UK, ensuring your learning meets the expectations of the profession and enable future professional recognition as Incorporated or Chartered Engineer.

The highlight? An industry informed blend of theory, hands on practice and pilot centred learning. You will take part in industry led projects, hear from aviation specialists, and gain experience using professional flight simulation environments that mirror real world cockpit operations. You will benefit from our partnership with flight schools at Wolverhampton Airport and have the opportunity for real flying hours. You will also have access to the University’s own training aircraft, giving you a unique opportunity to explore real aircraft systems, cockpit layout and operational considerations up close. This integrated approach helps you understand how engineering decisions affect pilots, aircraft performance and operational safety.

Year 1: Foundations and Fundamentals

- Core Concepts: Dive into essential engineering topics like solid and fluid mechanics.
- Industry-Led Projects: Collaborate on projects tackling real-world challenges such as sustainable fuels and alternative propulsion systems.
- Cutting-Edge Skills: Get introduced to Computer Aided Design (CAD), Computational Fluid Dynamics (CFD), and Finite Element Analysis (FEA), core analytical tools used across the aerospace and aviation sectors for airframe design, aerodynamic optimisation and structural analysis.

Year 2: Specialisation and Depth

- Focused Learning: Deepen your understanding of aircraft systems and control.
- Advanced Computational Analysis: Apply CFD and FEA to aerospace-specific problems.
- Design Project: Work in multidisciplinary teams to deliver an aerospace design solution, integrating engineering principles with pilot-centred considerations such as workload, situational awareness and operational safety.
- Pilot Operation Studies: Explore flight operations from a pilot's perspective, including flight planning, human factors, decision-making and how engineering choices influence real-world flying.

Year 3: Application and Innovation

- Specialist Knowledge: Further specialise and develop key skills that enhance your employability.
- Practical Application: Work on new models and parts for our industrial partners.
- Showcase Your Talent: Present your individual and group projects at our annual "Innovations Unleashed" event, celebrating with industry leaders.

Distinctive Features

1. Pilot-Informed Engineering Curriculum: Engineering content shaped with input from practising pilots and instructors, so what you learn reflects current operational practice rather than textbook theory alone.
2. Access to a Real Aircraft: Explore real aircraft systems, cockpit layout and operational considerations using the University's own training aircraft, providing a unique bridge between engineering theory and pilot experience.
3. Twin-Track CAA Pathway: Private Pilot's Licence theoretical content is aligned with your engineering modules, supporting progression toward sitting the Civil Aviation Authority (CAA) PPL written examinations alongside your degree.
4. Two Career Pathways from a Single Degree: Graduates can progress into aerospace engineering roles with employers such as Airbus, BAE Systems, Rolls-Royce and Leonardo, or continue toward commercial pilot training.
5. Interactive Flight Learning: Gain practical insight into flight operations using flight simulation environments that mirror real-world cockpit scenarios, helping you understand workload, situational awareness and operational decision-making.
6. Royal Aeronautical Society Engagement: Active links with the Royal Aeronautical Society (RAeS), including student membership opportunities and engagement with the wider professional aviation community.
7. Springfield Campus Aviation Setting: Proximity to Wolverhampton Airport places you within an active aviation operating environment, supporting visits, networking and observational learning that few campus locations can match.
8. Industry-Led Projects: Work on authentic aerospace and aviation challenges set by industry partners, developing solutions that consider both engineering performance and pilot impact.

Ready to take the controls? Step into the cockpit of your future and launch your career in the UK's growing aviation and aerospace sector.

Educational Aims of the Course:

Launch Your Engineering Career — and Take to the Skies

Course Aim

We're here to ensure you get hands-on learning combined with in-depth knowledge of Aerospace

Engineering, all recognised by the professional engineering community with an accredited degree. Here’s how:

• Integrated Engineering and Pilot Knowledge

Develop a deep understanding of aircraft design, propulsion, aerodynamics and systems, combined with pilot-centred knowledge of flight performance, operational procedures and cockpit decision-making.

• Practical Flight Awareness

Gain hands-on experience through flight simulators, pilot studies and opportunities for real flying hours via our flight school partners at Wolverhampton Airport. Build an engineer’s understanding of aircraft behaviour informed by a pilot’s perspective.

• Applied, Industry-Focused Learning

Engage in live aircraft design challenges and industry-aligned projects that reflect the processes used by modern aerospace companies and aviation operators. Learn how engineering decisions translate into real-world flight operations.

• High-Tech Analytical Skills

Develop confidence using industry-standard tools such as CFD and FEA to model aerodynamic behaviour, structural loads and aircraft performance — essential for both engineers and aspiring pilots.

• Professional and Ethical Judgement

Learn to make informed, safety-critical decisions in complex engineering and aviation contexts, grounded in responsible, ethical and sustainable practice.

• Collaborative and Operational Skills

Strengthen communication, teamwork, situational awareness and problem-solving through project-based learning and pilot-focused exercises. Work with industrial partners and aviation specialists on real-world challenges.

Intakes:

September

Major Source of Funding:

Office for Students (OFS)

Tuition Fees:

Tuition fees are reviewed on an annual basis. The fees applicable to a particular academic year will be published on the University website.

Year	Status	Mode	Amount
2020/1	H	Full Time / Sandwich	£9250.00
2020/1	Overseas	Full Time / Sandwich	£12250.00
2021/2	H	Full Time / Sandwich	£9250.00
2021/2	Overseas	Full Time / Sandwich	£12950.00
2022/3	H	Full Time / Sandwich	£9250.00
2022/3	Overseas	Full Time / Sandwich	£13450.00
2023/4	H	Full Time / Sandwich	£9250.00
2023/4	Overseas	Full Time / Sandwich	£14450.00
2024/5	H	Full Time / Sandwich	£9250.00
2024/5	Overseas	Full Time / Sandwich	£14950.00
2025/6	H	Full Time / Sandwich	£9535.00
2025/6	Overseas	Full Time / Sandwich	£15995.00
2026/7	H	Full Time / Sandwich	£9790.00
2026/7	Overseas	Full Time / Sandwich	£17600.00

PSRB:

None

Course Structure:

September (Full-time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Module	Title	Credits	Period	Type
4MA031	Engineering Principles	40	YEAR	Core
4MA032	Engineering Analysis	40	YEAR	Core
4MA033	Engineering Practice	40	YEAR	Core

September (Full-time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Module	Title	Credits	Period	Type
5MA046	Applied Computational Engineering Analysis	40	YEAR	Core
5MA051	Thermofluids and aircraft propulsion	20	SEM1	Core
5MA047	Applied Instrumentation and Control	20	SEM2	Core
5MA055	Design Project	20	YEAR	Core
5MA056	Pilot Operations Studies	20	SEM1	Core

September (Full-time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Module	Title	Credits	Period	Type
6MA055	Advanced Aerospace Design and Analysis	40	YEAR	Core
6MA056	Group Aircraft Design and Enterprise	40	YEAR	Core
6MA054	Individual Innovation project	40	YEAR	Core

Please note: Optional modules might not run every year, the course team will decide on an annual basis which options will be running, based on student demand and academic factors, to create the best learning experience.

Learning, Teaching and Assessment

Regulations Exemption:

Section 1.2.8 - Exemption to permit less than 33% differentiation (40 credits at Level 5) between two cognate degree programmes, BEng (Hons) Aerospace Engineering and BEng (Hons) Aerospace Engineering with Pilot Studies, in order to retain common diets as Level 4 and Level 6.

Section 4.6.2 - A maximum of 30 credits can be compensated and major individual project modules (40 credits) cannot be compensated in line with PSRB (IMechE) guidelines.
Section 6.2.3 - The best 180 credits, including the project modules at Level 5 and Level 6, count towards degree classification in line with PSRB (IMechE) guidelines.

Reference Points:

UK Quality Code for Higher Education

Qualifications and Credit Frameworks

Subject Benchmark Statements

University Policies and Regulations

University Inclusive Framework

Equality Act (2010).

Overview of Assessment:

As part of the course approval process, the course learning outcomes were mapped to each of the modules forming the diet of the programme of study. This process confirmed that all course learning

outcomes can be met through successful completion of the modules. This mapping applies to the final award as well as to all of the intermediate awards.

Learning Outcomes	Modules
CERTHE01 Science and Maths: Demonstrate knowledge of the underlying concepts and principles associated with aerospace engineering, and an ability to evaluate and interpret these within the context of aerospace projects.	
CERTHE02 Engineering Analysis: Demonstrate an ability to present, evaluate and interpret qualitative and quantitative data in aerospace engineering, in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of aerospace principles. · Evaluate the appropriateness of different approaches to solving problems related to aerospace engineering and/or projects.	
CERTHE03 Design and Innovation: Apply basic project specific aerospace principles including, where relevant, the use of flight simulation environments.	
CERTHE04 The Engineer and Society: Communicate the results of your aerospace study/work accurately and reliably, and with structured and coherent arguments.	
CERTHE05 Engineering Practice: Demonstrate the qualities and transferable skills necessary for employment in the aerospace industry, requiring the exercise of some personal responsibility.	
DIPHE01 Science and Maths: Show understanding and critical understanding of the core principles of aerospace engineering and flight operations practice, how they have evolved, and recognise the limits of your knowledge and its impact on analysis and interpretation within aerospace and pilot centred projects.	
DIPHE02 Engineering Analysis: Demonstrate the ability to apply the underlying concepts in aerospace engineering, critically evaluate different problem solving approaches, and use established techniques to analyse information and propose solutions in aerospace and operational projects.	
DIPHE03 Design and Innovation: Apply fundamental aerospace principles in new contexts, including simulation based and workplace relevant aviation environments, where relevant.	
DIPHE04 The Engineer and Society: Communicate effectively information, arguments, and analyses of key engineering concepts to both specialist and non specialist audiences, integrating engineering and pilot centred perspectives.	
DIPHE05 Engineering Practice: Demonstrate transferable skills for employment in the aerospace and aviation industry, including personal responsibility, decision making, and the ability to undertake further training, developing existing skills and acquire new competences that will enable them to assume significant responsibility within organisations.	

Learning Outcomes	Modules
BHONSN01 Science and Maths: Apply advanced knowledge of mathematics, statistics, natural science, and aerospace engineering principles including flight operations considerations to analyse and solve complex problems in the aerospace and aviation industry.	
BHONSN02 Engineering Analysis: Utilise computational and analytical techniques, including simulation based tools, along with aerospace and aviation technical literature, to model and address complex problems in aerospace projects.	
BHONSN03 Design and Innovation: Design integrated aerospace solutions for complex problems that meet diverse needs while considering health, safety, societal, environmental, and commercial factors specific to the aerospace and aviation industry, including pilot workload and operational constraints.	
BHONSN04 The Engineer and Society: Evaluate and minimise the environmental and societal impacts of aerospace and aviation engineering solutions, make ethical decisions, and support equality, diversity, and inclusion within aerospace and flight operations principles.	
BHONSN05 Engineering Practice: Demonstrate and develop practical skills, appropriate materials, and technologies in aerospace engineering, including relevant flight simulation tools, manage risks, ensure quality, and communicate effectively while continuously developing professionally in aerospace and aviation projects.	
BHONS01 Science and Maths: Apply advanced knowledge of mathematics, statistics, natural science, and aerospace engineering principles and flight operations concepts to analyse and solve complex problems in the aerospace and aviation industry.	
BHONS02 Engineering Analysis: Utilise computational and analytical techniques, including simulation based tools, along with aerospace and aviation technical literature, to model and address complex problems in aerospace projects.	
BHONS03 Design and Innovation: Design integrated aerospace solutions for complex problems that meet diverse needs while considering health, safety, societal, environmental, and commercial factors specific to the aerospace and aviation industry, including operational safety and pilot centred constraints.	
BHONS04 The Engineer and Society: Evaluate and minimise the environmental and societal impacts of aerospace and aviation engineering solutions, make ethical decisions, and support equality, diversity, and inclusion within aerospace and flight operations principles.	
BHONS05 Engineering Practice: Demonstrate and develop practical skills, appropriate materials, and technologies in aerospace engineering, including flight simulation platforms, manage risks, ensure quality, and communicate effectively while continuously developing professionally in aerospace and aviation projects.	

Learning Outcomes	Modules
BHONS06 Research and Development: Demonstrate the ability to conceptualise, design, and solve a complex aerospace or aviation focused project supported by technical literature review and critically developed milestones, and generate a technical report.	

Teaching, Learning & Assessment Strategy/(Learning and Teaching):

The following learning activities support the achievement of the course learning outcomes:

1. Industry-Informed Content: Course structure and content informed by our industrial partners across the aerospace and aviation sectors, including aircraft manufacturers, operators and approved flight training organisations, enhancing practical learning and industry readiness.
2. Industry Interaction: Learn from guest lectures by industry professionals and insights from experienced alumni, enhancing both learning and employability.
3. Project-Based Learning: Apply problem-solving techniques through design projects and case studies.
4. Real-World Solutions: Provide innovative solutions to meet real-world engineering problems and requirements.
5. Software and Simulation: Use computer software and hardware to model and simulate engineering systems and products.
6. Small Group Tutorials: Personalised instruction in small groups to enhance learning and provide tailored support.
7. Formative and Summative Assessments: Combination of ongoing formative assessments to guide learning and summative assessments to evaluate overall mastery.
8. Personalized Assessments: Experience thorough evaluations designed to enhance your unique strengths and foster your growth, tailored to your individual skills.
9. Research and Criticality: Core and supplementary texts, journals, and electronic sources to stay updated with the latest developments, critically gauge and inform your design decisions.
10. Professional Practice Activities and Team Projects: Participate in the IMechE UAS Challenge (Unmanned Aircraft Systems Challenge) through UWA (University of Wolverhampton Aerospace), one of our professional practice activities, alongside other team-based projects that develop teamwork skills in a multi-disciplinary environment.
11. Written and Oral Presentations: Prepare and present analytical and textual reports, both individually and in groups.
12. Systematic Methods: Apply structured methods to develop novel solutions and critically examine data.
13. Build Your Expertise: Learn new skills and build your own skill-set following an evidence-based certification by experts.
14. Innovation Unleashed: Annual engineering innovation fair celebrating student success and offering networking opportunities.
15. Employability: Set yourself ahead of the competition by networking with our industrial partners from your first year and building the confidence to engage in fruitful discussions and interviews.
16. Inclusive Curriculum Design: Learning materials, case studies and examples draw on a diverse range of engineers, pilots and aviation professionals, in line with the University's Inclusive Curriculum Framework, so that all students can see themselves reflected in the discipline.
17. Flexible Assessment: The 40% Fundamentals / 60% Specialisation structure allows you to demonstrate your strengths through a mix of continuous and project-based assessment, recognising that students learn and demonstrate competence in different ways.
18. Accessible Learning Materials: All teaching materials are made available through the VLE in accessible formats, supporting students with disabilities, long-term health conditions and specific learning differences.

Unique assessment structure with:

- 40% Fundamentals: Continuously assessed throughout the semesters.

60% Specialisation: Focused on specialised skills and advanced knowledge within your Discipline.

Assessment Methods/Assessments:

Further Information for Student:

University Library and Study Skills

The University Library is a key source of academic information for students. The Library provides access to a wide range of online information sources, including eBooks, e-Journals and subject databases as well as printed material. A range of study spaces are available in each of our libraries, including social, quiet and silent areas. In addition to our day to day on campus support, our online Ask the Library chat service, ASSIST, is staffed 24 hours a day.

The University Library also provides students with academic skills support via the Skills for Learning programme. Students can attend workshops or ask for one-to-one help on a range of skills such as academic writing and referencing. Support is available both on campus and virtually via the VLE, and a range of online skills material is also available at: www.wlv.ac.uk/lib/skills

Student Life

The University offers a range of counselling and support services with specialists teams including:

1. Disability and Inclusion
2. Mental Health and Wellbeing
3. Multi-faith Chaplaincy
4. Care leavers/estranged students
5. Student Funding

Students are encouraged to contact any team through their dedicated pages at Student Life - University of Wolverhampton or via the ASK@WLV helpdesk. Support is provided face-to-face or online with routine drop-in sessions and appointments.

Reasonable adjustments are arranged in partnership with the University's Disability and Inclusion team. Where elements of the course intersect with aviation medical or licensing requirements that may affect students with certain disabilities or health conditions, the course team provides one-to-one advice on alternative pathways within the degree, ensuring that aviation-specific barriers do not become barriers to graduation.

Currency:

This course is currently under review for re-accreditation by the Institution for Mechanical Engineering (IMechE) on behalf of Engineering UK as partly meeting the requirements for registration as Chartered Engineer (CEng) and in full for Incorporated Engineering (IEng).

Personalisation Opportunities:

Employability in the Curriculum/Employability and Professional Development:

Competitive Edge

This course will give you a competitive edge when seeking employment by combining technical aerospace knowledge with the operational, pilot-centred awareness that few engineering graduates can offer. You will:

• Develop a strong blend of aerospace engineering expertise and pilot-centred operational awareness.
• Build practical skills through hands-on flight simulation, real aircraft systems, and industry-aligned engineering tools.
• Strengthen essential soft skills — problem-solving, teamwork, communication, situational awareness and adaptability — all highly valued across the aviation and aerospace sectors.

• Build access to professional aviation networks that support graduates from a wide range of

backgrounds, including the Royal Aeronautical Society's Women in Aviation and Aerospace networks and external schemes such as Aviation Inspires and the Air League scholarships.

Learning Experience

Your learning experience has been designed to mirror the working environment of a practising aerospace engineer, so the transition from study to industry feels familiar rather than abrupt. You will:

• Engage in practical, project-based learning that mirrors real engineering and aviation environments.
• Apply theoretical knowledge to live design challenges, flight-focused exercises and operational case studies.
• Unleash your creativity through frequent team projects that integrate engineering analysis with pilot-centred decision-making.

Career Readiness

You will graduate ready to enter the aerospace and aviation workforce because your curriculum is shaped by the people who hire engineers in this sector. Specifically, you will:

• Study a curriculum shaped by industry requirements and aligned with AHEP 4 professional standards.
• Benefit from regular engagement with aviation specialists, aerospace engineers and flight-operations professionals.
• Gain insight into real training environments through our partnership with flight schools at Wolverhampton Airport, with opportunities for real flying hours.
• Build confidence working with professional tools such as CFD, FEA and flight simulation platforms.
• Graduate with the technical, analytical and operational skills sought by employers across the aviation and aerospace industries.

Employment Opportunities

Graduates are equipped for a wide range of roles in global aerospace and aviation environments, including:
• Progression to professional pilot training

• Aircraft design and manufacturing

• Aircraft maintenance and operational analysis
• Flight operations and aviation support roles
• Aerospace systems engineering
• High-performance technical consultancy

• Research and development.