OUR PROGRAMMES

Single Honours
BEng Aerospace Engineering
MEng Aerospace Engineering

UCAS CODE
H400
H402
In 2018, civil aviation was responsible for transporting 4.4 billion travellers worldwide. The number of passengers is expected to grow at a rate of 3–5% every year, doubling by 2035. Although downturns happen due to global events such as pandemics, civil aviation typically recovers quickly after such events. Space transport is also becoming increasingly important: ever-more companies are specialising in cheaper sub-orbital and orbital flights, both for leisure and to deliver state-of-the-art satellites. This growing industry will require skilled graduates who will be centre stage in solving important technological challenges.

WHY STUDY AEROSPACE ENGINEERING WITH US?

- Exciting new programme, building on our experience across many aspects of aerospace engineering, including materials, spacecraft design, propulsion and battery technology
- Research-led teaching, with many lecturers actively working with industry on real-world applications
- Opportunities to do paid placements both within our research groups and at our industrial partners
- Flexible programme structure, with optional module choices and opportunities to do intercalated years in industry, abroad, or developing advanced computer science and programming skills
- Accredited by IOM³, which gives our students a clear pathway to become Chartered Engineers
- A range of state-of-the-art facilities, including a £40 million collaborative teaching laboratory, and a £55 million sports centre that provides some unique facilities, such as a 50m swimming pool
- The University is based within a campus only eight minutes away from the city centre by train

ACADEMIC PROFILE

Professor Alison Davenport OBE
Head of school

'Aerospace is an ever-exciting branch of engineering, providing plenty of stimulating career opportunities for graduates. As we move into the future, aerospace engineers will have a central role in making society more sustainable. I find the prospect of hybrid and whole-electric planes particularly stimulating. Many challenges will have to be overcome. For hybrid planes, jet engines will have to be miniaturised in order to act as on-board power stations, and provide enough power for fans driven by electric motors. For whole-electric planes to become feasible, battery technology will have to undergo a step-change in energy density by weight. At the same time, avionics systems will become more sophisticated, and improvements in aerodynamics will make flight more efficient. I hope this brochure will highlight some of the opportunities you will have as a student at the University of Birmingham.'
WHERE COULD YOUR DEGREE TAKE YOU?

As an Aerospace Engineering graduate, the skills you develop at the University of Birmingham will allow you to seek employment across a variety of sectors. A degree in Aerospace Engineering unlocks career pathways in both civil and military aviation, in space and satellite companies, as well as in the financial sector.

Our graduates have gone on to work for well-known employers such as:
- Airbus
- Rolls-Royce
- Leonardo
- BAE Systems
- UK Space Agency
- European Space Agency

Our graduates can be found in roles as diverse as:
- Graduate engineer
- Design engineer
- Maintenance engineer
- Propulsion engineer
- Inspector and compliance officer
- Mission specialist

RUMAANAH

BEng Aerospace Engineering

‘The exceptional teaching standards have given me the opportunity to enhance academic skills by having direct access to a wealth of resources, leading researchers and laboratory equipment. Personally, a highlight of the course is the application of theoretical knowledge in labs. Each module is accompanied by labs designed to prepare students to apply their academic experiences once graduating to industry. The balance of learning materials accompanied by the support of academic staff has allowed me to develop into a well-rounded engineer.’
PATHWAYS

You will benefit from the flexibility to tailor your degree to match your strengths, interests and aspirations. You can start making these choices during your second year. The ability to tailor your degree will make your unique profile stand out in the eyes of future employers and recruiters.

Optional modules
Optional modules in Years 3 and 4 allow you to specialise in areas that fit your interests. Optional modules can focus on communications, sensing and control, aeroengine design, human factors, advanced alloys and more.

Year in Industry
You can opt to take a year to work in industry between Years 2 and 3, to experience work before you graduate. This boosts your confidence, helps you develop workplace skills, and makes your profile unique.

Year Abroad
You can spend a year at a partner foreign university. This gives you an opportunity to perfect a foreign language and embed yourself in a new culture. Spending a year abroad may also allow you to complement the curriculum covered at Birmingham with different specialist topics.

Year in Computer Science
We offer an innovative one-year programme called ‘Intercalated Year in Computer Science’ between Year 2 and Year 3. During this intercalated year, you can gain in-depth knowledge of computing, including advanced topics such as artificial intelligence and machine learning.

MODULES

The programme is jointly taught by the School of Engineering and the School of Metallurgy and Materials. In Year 1, you will cover the fundamental engineering concepts that are relevant to aerospace engineers, and you will start to apply those concepts to aerospace engineering applications. By the end of Year 2, you will be able to choose to focus on either the structural and communications aspects or the materials aspects of aerospace engineering.

Your modules in the first year will be:
- Engineering Mathematics
- Mechanics
- Fluid Mechanics and Energy Transfer
- Electrical Engineering
- Fundamentals of Materials Science
- Design for Structural Applications

Our students spend their year in industry at Airbus, AMG Mercedes, the European Space Agency and many others.

ACADEMIC PROFILE

Dr Mark Ward
Course Director

‘Our courses offer not only the science and engineering behind aircraft, rockets, propulsion and aerodynamics, but also the more hands-on and creative areas of designing, building and flying. Three subjects that are explicitly included are spaceflight, electrical engineering, and how materials respond to stress and harsh conditions. We think that understanding materials’ ultimate limits is crucial for designing the most energy-efficient vehicles; electrical engineering is vital for electric aircraft; and access to space is increasing rapidly.'
ENTRY REQUIREMENTS

The qualifications you need to achieve a place on one of our degree programmes can be found on our website. We accept A levels, the International Baccalaureate Diploma and a range of other equivalent qualifications. Our offers are tailored to your academic profile. For specific information on entry requirements, please contact us.

Subjects
We require A levels or equivalent qualifications in Maths and a physical science such as Physics or Chemistry. This ensures you will have the required background to succeed on our course.

Extended Project Qualification (EPQ)
We do not require students to take an EPQ to study with us. However, for students who are taking an EPQ we can reduce your offer by one grade if you achieve at least an A grade in this qualification.

Foundation Year
If you happen not to have the required qualifications, please contact us. We offer a foundation year which covers the background knowledge you will need to succeed on our programmes. Students that join our foundation year spend a year covering mathematics, physics and chemistry, as well as essential studying and communication skills. At the end of the year, provided they satisfy our entry criteria, they will be able to progress to the first year of our programmes.

Visit www.birmingham.ac.uk/aerospace for details.

SOCIETY

The Aerospace Society is the student society that looks after the Aerospace Engineering students at the University of Birmingham. It is led by a committee of elected students, and aims to provide enjoyable social and professional support to all of our students, as well as run aerospace-related projects and activities. For example, the society has set up competing teams to build remote-controlled planes that fit a number of specifications while maximising flight performance. We look forward to you getting involved in its activities and committee.
When you join our programmes, you will be assigned a personal tutor. Your personal tutor is an academic member of staff whose role is to provide academic support throughout your studies. Your personal tutor will also be able to advise you should you require any additional support whilst studying, including supporting any wellbeing issues, and will be an important contact when you begin considering future careers or further study. You will meet your personal tutor on a weekly basis in a small group (maximum five students) or one-on-one.

Our professional wellbeing officers are available to help you throughout your time at the University. They are able to advise on anything you might be struggling with and get you the support you need to succeed. If you have a disability, they will work with you to determine what adjustment will need to be made to your teaching and learning in order to ensure you achieve your goals. If you become ill, they are able to arrange for your deadlines to be extended, or for your illness to be taken into account when monitoring your progress.

At the start of the academic year, a large variety of accessible and friendly events will take place to ensure you settle well at the University and form strong, long-lasting relationships with staff and peers.
By choosing to study Aerospace Engineering at Birmingham, you are choosing to join an institution with a strong international research profile, and world-leading research groups in many key areas such as aerodynamic; turbulence and noise; jet engine materials; satellite design; battery systems; and human factors. You will find this becomes increasingly important as you progress through your degree towards the very forefront of Aerospace engineering.

As a research-intensive Russell Group university, our staff have a passion for achieving significant advances in materials science and engineering, and sharing their knowledge and discoveries with students. You will also experience cutting-edge research during your group and individual projects.

DANIEL
BEng Aerospace Engineering

‘Amongst the reasons for picking the University, I particularly valued the campus, its proximity to the second largest city in England, and the level of diversity amongst students, which made me feel welcome as openly queer. My time here has given me unique opportunities such as joining the aerospace society, learning how to fly in our flight simulator, to working on a concept mission to Mars for NASA, as well as being able to explore different parts of England with my friends.’
INDUSTRIAL LINKS

The University of Birmingham has strong links with industry and we work closely with industry to translate fundamental research into commercial products and services. For example, we operate the High Temperature Research Centre (HTRC), a £60 million facility sponsored by Rolls-Royce and the UK government. HTRC plays a key role in exploiting our knowhow to manufacture advanced components for new and upcoming jet engines for Rolls-Royce.

Our Industrial Advisory Board includes:
- Rolls-Royce
- BAE Systems
- General Electric
- Timet/PCC

The role of the Industrial Advisory Board is to comment on our activities and help us formulate a strategy that ensures our graduates are well-equipped to succeed in their engaging and rewarding careers.

ACADEMIC PROFILE

Professor Paul Withey
Chair of Industrial Liaison Board

'Industrial links are key for an engineering degree as the course needs to be relevant to the constantly evolving roles in the workplace, and I am proud to be part of a forum where engineering leaders of today influence the education of leaders of tomorrow. I have worked for over 20 years in an aerospace company before joining the University, so I have seen engineering roles evolve over the last two decades, and I am aware of the engineering skills which today’s graduates have to deploy to be successful in their careers.'
APPLICATION TIPS

We will make offers to individuals who are enthusiastic and motivated students who have the ability to succeed here. Information we consider carefully includes prior qualifications you have such as your GCSE grades, your personal statement, the academic reference, and the qualifications you are currently working towards, along with any predicted grades. Your personal statement is your opportunity to explain why you are interested in materials science and engineering, and the events, readings and interests that shaped and sparked your interest in the subject. You do not necessarily have to have work experience, although this can help you to explain how your interests have developed over time.

CONTACT US

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FIND OUT MORE ABOUT AEROSPACE ENGINEERING AT BIRMINGHAM NOW: WWW.BIRMINGHAM.AC.UK/AEROSPACE
This leaflet was written several months in advance of the start of the academic year. It is intended to provide prospective students with a general picture of the programmes and courses offered by the School. Please note that not all programmes or all courses are offered every year. Also, because our research is constantly exploring new areas and directions of study some courses may be discontinued and new ones offered in their place.

Please note the information in this brochure is correct at time of publication but may be subject to change (July 2020).