The University Of Sheffield.

Programme Specification

A statement of the knowledge, understanding and skills that underpin a taught programme of study leading to an award from The University of Sheffield

1	**Programme Title**	Aerospace Engineering with an Industrial Placement Year
2	**Programme Code**	AERU14
3	**JACS Code**	H400
4	**Level of Study**	Undergraduate
5a	**Final Qualification**	Master of Engineering (MEng)
5b	**QAA FHEQ Level**	Masters
6a	**Intermediate Qualification(s)**	Bachelor of Engineering (BEng) for students transferring their registration in Years 1 and 2 (see separate programme specification for AERU15)
6b	**QAA FHEQ Level**	Honours
7	**Teaching Institution** (if not Sheffield)	Not applicable
8	**Faculty**	Engineering
9	**Department**	Interdisciplinary Programmes - Engineering
10	**Other Department(s) involved in teaching the programme**	Automatic Control and Systems Engineering Computer Science Electronic and Electrical Engineering Management Materials Science and Engineering Mathematics and Statistics Mechanical Engineering
11	**Mode(s) of Attendance**	Full-time
12	**Duration of the Programme**	5 years (including a year in industry)
13	**Accrediting Professional or Statutory Body**	Royal Aeronautical Society (RAeS) Institution of Engineering and Technology (IET) Institution of Mechanical Engineers (IMechE) Institute of Materials, Minerals and Mining (IoM^3)
14	**Date of production/revision**	September 2022, March 2023

15. Background to the programme and subject area

Aerospace engineering is a complex, rapidly changing field. Its primary application is the design and development of flight vehicles such as aircraft, spacecraft, rockets and satellites. Graduate aerospace engineers can look forward to a career in the leading organisations in the sector, including Airbus UK, BAE Systems, Boeing and Rolls-Royce – companies that have significant involvement in our programmes.

Students on the MEng in Aerospace Engineering with an Industrial Placement Year spend the fourth year of the five-year degree working in an engineering company of their choice. This provides them with wide-ranging experiences and opportunities to put their academic studies into context, and to improve their technical and professional skills. It enhances their employment prospects, enabling them to gain direct experience of industry culture, make contacts and strengthen their CV. Students who complete their placement successfully can often fast-track to employment within the same company.

Aerospace Engineering at Sheffield differs from conventional aeronautical engineering degrees, which traditionally focus on the materials, structures, aerodynamics and propulsion necessary in the design of high-speed flight and lightweight aircraft. Our degrees cover all these topics but also address concepts of systems integration and autonomous control that are essential to the production of more efficient and environmentally-friendly aircraft and aerospace systems. This means that our students study avionics, dynamic control, information and communication technology, software integration and computer-based tools, in a curriculum that draws on the expertise of six departments in the Faculties of Engineering and Science, plus the University's Management School. Our unique test facilities include wind tunnels, jet-aeroengine simulators, an engine test bed and a suite of flight simulators where students can undertake a flight test course to support their theoretical understanding of flight.

Another distinctive feature of our degrees is that at the same time as providing a breadth of knowledge, students can tailor their studies to suit their individual interests and career aspirations. Our MEng Aerospace Engineering with an Industrial Placement Year degree offers the opportunity, after Year 2, to specialise in-depth in either aeromechanics or avionic systems. In addition to the year-long placement, there are opportunities throughout the degree to participate in industrial seminars, to visit industry and to undertake research into real-life problems through a Group Design Project and Industrial Training Programmes.

Our MEng Aerospace Engineering with an Industrial Placement Year degree satisfies the academic and practical requirements for the award of Chartered Engineer status. It is accredited by the Royal Aeronautical Society (RAeS), the Institution of Engineering and Technology (IET), the Institution of Mechanical Engineers (IMechE) and the Institute of Materials, Minerals and Mining (IoM³). Our students graduate equipped with the knowledge and skills they need to meet the challenges of working within this fast-moving engineering discipline and to succeed in their chosen career. Furthermore, due to the interdisciplinary nature of the degree our graduates are increasingly being recruited by the growing automotive sector as well as a wide range of other sectors including manufacturing, off-shore, energy and power, consultancy, education, research and finance.

16. Programme aims

The University's Mission is to provide students from a wide variety of educational and social backgrounds with high quality education in a research-led environment, delivered by staff working at the frontiers of academic enquiry. Aerospace Engineering with an Industrial Placement Year at Sheffield implements this through its strong commitment to both teaching and research. It also aims to engender in students a commitment to future self-learning and social responsibility.

The overall aim of the degree is to admit intelligent and motivated students and, in a research-led environment, to create graduates who will become the future leaders and innovators in the engineering economy by:

1. providing teaching that is informed and invigorated by the research and scholarship of its staff and alert to the benefits of student-centred learning;
2. providing comprehensive knowledge and understanding of aerospace engineering systems, aerodynamics, propulsion, materials and structures, together with a more detailed and critical understanding in selected areas of aeromechanics or avionic systems;
3. developing in students independence of thought, intellectual curiosity, ethical awareness and the business and management skills necessary for a professional engineer in aerospace engineering or a related field;
4. developing in students an extensive and diverse range of subject-specific and generic skills appropriate to graduate employment both within and outside aerospace engineering;
5. enabling students to maximise their potential and imparting in students a commitment to life-long learning;
6. providing students with direct experience of working in an engineering company;
7. providing an increased emphasis on industrial relevance. Individual project work, wide-ranging group design projects with strong industrial involvement and Industrial Training Programmes (in partnership with Rolls-Royce) give students first hand experience of working alongside aerospace engineers and manufacturing engineers;
8. satisfying the academic and practical requirements for the award of Chartered Engineer status by meeting the latest accreditation requirements of the Engineering Council Accreditation of Higher Education Programmes (AHEP) in engineering, the RAeS, the IET, the IMechE and the IOM³.

17. Programme learning outcomes

AHEP4 requirements for the MEng in aerospace engineering with an Industrial Placement Year:	
By graduation students will have:	
M1	a comprehensive knowledge of mathematics, statistics, natural science and engineering principles to solve complex problems at the cutting edge of aerospace engineering, and with a knowledge of the wider engineering context.
M2	the ability to formulate and analyse complex aircraft and spacecraft related problems to reach substantiated conclusions, by using data and engineering judgement to work with uncertain or incomplete data, discussing the limitations of the techniques employed.
M3	the ability to select and apply appropriate computational and analytical techniques to model complex aerospace problems, discussing the limitations of the techniques employed.

M4	the ability to select and critically evaluate technical literature and other sources of information to solve complex problems.
M5	an understanding of how to design original solutions to complex problems to meet a combination of societal, user, business and customer needs, realising the interaction of these in a global industry such as aerospace engineering. This will necessitate the consideration of health and safety, diversity and inclusion, cultural and societal, environmental and commercial requirements, while accounting for legal and certification requirements.
M6	the ability to apply an integrated or systems approach to the solution of complex problems.
M7	the ability to evaluate the environmental and societal impact of solutions to complex problems (to include the entire lifecycle of a product or process) and minimise adverse impacts, as relating to aerospace engineering.
M8	the ability to identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.
M9	the ability to use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity.
M10	the ability to adopt a holistic and proportionate approach to the mitigation of security risks.
M11	an understanding of how to adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion.
M12	the ability to use practical laboratory, industrial and workshop skills to investigate complex problems.
M13	the ability to select and apply appropriate materials, equipment, engineering technologies and processes, recognising their limitations.
M14	the ability to discuss the role of quality management systems and continuous improvement in the context of complex problems.
M15	the ability to apply knowledge of engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights.
M16	the ability to function effectively as an individual, and as a member or leader of a team, using their industrial experience to inform this understanding.
M17	the ability to communicate effectively on complex engineering matters with technical and non-technical audiences in an academic and industrial context.
M18	the ability to plan and record self-learning and development as the foundation for lifelong learning/CPD, in relation to career development through their industrial placement.

18. Teaching, learning and assessment

Development of the learning outcomes is promoted through the following teaching and learning methods:

- **Lectures:** The principal means of transmitting academic material and analysis techniques. Most lecture courses provide tutorial sheets to enable students to develop their understanding of the subject matter and methods during their private study.
- **Laboratory Classes:** These introduce experimental methods and provide a good opportunity for developing team-working and communication skills.
- **Coursework Assignments, Oral and Poster Presentations:** A number of modules have coursework assignments that require students to seek additional information and work on their own, or sometimes in small groups. They are designed to enable students to develop and show their understanding of the content of the module. Oral and poster presentations are included as part of some coursework assignments to provide opportunities for developing essential presentation and communication skills.
- **Tutorials and Example Classes:** These may be small group or up to class sized tutorials and are a main source of providing help to students to resolve problems in their understanding of course material.
- **Design Classes:** These enable students to work on ‘open-ended’ and often ill-defined problems related to real engineering situations. They also provide good opportunities for developing team-working and communication skills as well as individual skills.
- **Industrial and Research Seminars:** Seminars led by visiting industrialists and research academic staff take place throughout the degree. They enable students to develop their understanding of the industrial application of concepts they are learning in class, and of the role and responsibilities of a professional engineer.
- **Group Design Project:** These are completed in years 1,2 and 3, with the complexity developing as the

students progress through the course. In Year 1, working in groups of 3 or 4, students design, build and test a fixed wing aircraft made using only supplied materials. In Year 2, working in groups of 5 to 7, students design, build and test a quadcopter that is based on a design which they are given, optimising it to a given task. In Year 3, working in groups of 5 to 7, students undertake the complete design of an aircraft to address a given application, with freedom to make all the significant choices about design and manufacture. The first semester consists of the design phase and some prototyping to decide on manufacturing routes. In the 2nd Semester, students realise their designs. In all of these projects, students must communicate their learning both as engineers and as team members, and justify their designs, building each time in a manner that ultimately reflects industrial practice.

- **Industrial Training Programme:** These modules (available to students on the Aeromechanics stream and the Avionic Systems stream) enables students to work in groups on real aerospace engineering challenges. The modules have a very strong link with the aerospace industry. For example, Rolls-Royce set the challenge and provide support, feedback and guidance throughout. Students also spend significant time at the company.
- **Individual Industrial Placement:** Year 4 is spent in industry. This provides students with experience of working in an engineering company, consolidates the knowledge gained during their academic studies in Years 1 to 3, and enhances their understanding of how to apply this in practice.
- **Individual Investigative Project:** This is undertaken in Year 5. It is an individual research and/or industrial project at the frontiers of engineering. It is completed under the supervision of a member of academic staff and provides an excellent opportunity for a student to pull together every aspect of their development during the degree.

Opportunities to demonstrate achievement of the learning outcomes are provided through the following assessment methods:

- **Written Examinations:** These are typically 2 or 3 hours in duration depending on the module credit value (10credits ~ 2hours, 15 credits ~ 3 hours); many modules use this as the only or major assessment method.
- **Coursework Assignments, Oral and Poster Presentations:** Coursework assignments are widely used in design studies, computational exercises, laboratory reports, essays or other work designed to assess the understanding of the module. Assignments are mainly undertaken on an individual basis but are sometimes carried out in small groups. Some assignments use oral and poster presentations in order to assess the development of presentation and communication skills. Some modules use coursework assignments as the only or main method of assessment whilst others have this as a minor part with a written examination forming the major part of the overall assessment.
- **Class Tests:** These are small tests conducted during the main teaching periods to assess progress and understanding; they supplement more formal examinations and may take the form of online exercises or quizzes completed before and/or during a lecture, laboratory class or tutorial/example class.
- **Group Design Project:** These are assessed using a range of assessment approaches, including short technical reports, design briefings with prepared progress documents, operational safety cases and operations manuals, and formal presentations. Each approach is selected to help students meet the challenges that they will face during design meetings and test stages of industrial projects. In the 3rd year, students are expected to complete these tasks at a professional level.
- **Individual Industrial Placement:** Two methods are used to assess the placement undertaken in Year 4. The student must write a 3000-word report, and give a presentation to academic staff at the end of the placement.
- **Individual Investigative Project:** This is the final and largest individual project on the degree and is undertaken in Year 5. The project is assessed on the student's commitment and progress throughout the project, a written report, an oral presentation to a panel of staff and the response to questions from the panel. The project is expected to be at a professional level.

The main teaching, learning and assessment methods adopted for each learning outcome are shown below. In most cases a combination of methods is used.

	Teaching/learning										Assessment				
LEARNING OUTCOME (abbreviated - see Section 17 for full text) Some individual projects will cover other LO's, but it depends on the project. All LOs are covered in multiple places so this is not critical.	Lectures	Laboratory classes	Coursework assignments, oral and poster presentations	Tutorials / examples classes	Design classes	Industrial / research seminars	Group Project	Industrial training partnerships	Individual project		Written examinations	Coursework assignments, oral and poster presentations	Class tests	Group P Individual project	Individual project
M1 Science, mathematics and engineering principles	x	x	x	x	x		x	x	x		x	x	x	x	x
M2 Problem analysis	x	x	x	x	x		x	x	x		x	x	x	x	x
M3 Analytical tools and techniques		x		x	x		x	x	x			x		x	x
M4 Technical literature				x			x		x			x		x	x
M5 Design			x	x	x		x	x	x		x	x		x	
M6 Integrated/systems approach				x	x	x		x						x	
M7 Sustainability	x		x	x	x	x	x	x	x		x	x		x	x
M8 Ethics	x		x				x		x		x	x		x	
M9 Risk	x	x	x			x	x	x	x		x	x		x	x
M10 Security	x	x		x			x		x		x	x	x	x	
M11 Equality, diversity and inclusion	x	x		x	x	x	x	x	x		x	x	x	x	x
M12 Practical and workshop skills		x			x		x		x					x	x
M13 Materials, equipment, technologies and processes	x	x	x		x		x	x	x		x	x		x	x

M14 Quality management	x						x				x	x		x	
M15 Engineering and project management	x		x				x		x			x		x	x
M16 Teamwork	x	x					x	x						x	
M17 Communication	x	x	x				x	x	x			x		x	x
M18 Life-long learning				x			x	x	x			x		x	

Proportions of types of assessment by level can be found on the UniStats website: http://unistats.direct.gov.uk/

19. Reference points

The learning outcomes have been developed to reflect the following points of reference:

Subject Benchmark Statement (Engineering) October 2019
https://www.qaa.ac.uk/quality-code/subject-benchmark-statements

UK Quality Code for Higher Education, 2018
https://www.qaa.ac.uk/quality-code

University of Sheffield Strategic Plan 2020-2025 (https://www.sheffield.ac.uk/vision)

The Accreditation of Higher Education Programmes: UK Standard for Professional Engineering Competence, Engineering Council, third edition.
https://www.engc.org.uk/standards-guidance/standards/accreditation-of-higher-education-programmes-ahep/fourth-edition-implemented-by-31-december-2021/

Faculty-wide research activities (Faculty Aerospace Network)

Feedback from External Examiners and industrial members on the Aerospace Industrial Advisory Board

Requirements of the professional bodies accrediting our programmes: RAeS, the IET, the iMechE, the IoM[3]

The University of Sheffield Placement Learning Guidelines and Organizer Checklist.
http://www.shef.ac.uk/lets/pp/support/placement

In assessing the learning outcomes, the level of performance, e.g. the extent of knowledge and depth of understanding, will be compliant with guidance given in the above references.

20. Programme structure and regulations

The degree structure is modular. At each level students study modules worth a total of 120 credits. Most modules are worth 10, 15 or 20 credits with one 45 credit module in the final year.

During the first two years, the syllabus is the same for all the MEng and BEng Aerospace Engineering degrees.

In these years, all In Year 1 all modules are core (compulsory).

In Year 1, the 'Aerospace Engineering Design, Build and Test' module, taught over two semesters, introduces students to the basic concepts of aircraft and aircraft design with a particular focus on systems engineering, interdisciplinary design and aircraft performance, culminating with students working in a group to design build and test a simple powered glider. As part of this taught module, students undertake 'Engineering Applications' which covers basic manufacturing processes and workshop tools, and is a requirement for accreditation, as well as a short course in engineering drawing and computer-aided design. Students also participate in a compulsory week-long 'Global Engineering Challenge'. Based on the Engineers without Borders Challenge (a national competition for engineering undergraduates), this gives all first-year engineering students at the University the opportunity to work together in teams to tackle a real-world problem with a global perspective. Formal credits are not awarded for participation in the Challenge Week; however, it is vital for developing the technical competence, understanding of global context and the professional skills that are the hallmark of an excellent engineer. To progress to Year 2, students must pass the compulsory first-year Mathematics module.

In Year 2, again the course is common with students extending their knowledge in each of the key areas of

Aerospace Engineering, including Materials and Manufacturing, Structural Design, Thermodynamics, Control Systems and Avionics. Students also complete modules in mathematics and complete a group project to further develop their skills in aircraft design. Students take part in a compulsory week-long project called 'Engineering – You're Hired'. Working again with students from other engineering disciplines, this project enables them to put their skills in collaborative working into practice to solve a technical case-study. Formal credits are not awarded for participation in the project week; however, it enables students to develop and demonstrate many of the key general skills required by employers, including entrepreneurial problem solving, accomplished communication, and cultural agility.

At the end of Year 2 students select the elective which they will pursued in Years 3 and 4. They follow this stream for the remainder of their degree. Any student who, by the end of Year 2, has not attained a satisfactory standard in the 'Engineering Applications' and drawing courses usually taken in Year 1 as part of the 'Aerospace Engineering Design, Build and Test' module is not allowed to continue into Year 3. Likewise, students must attain a satisfactory standard in the 'Global Engineering Challenge Week' and in 'Engineering – You're Hired' by the end of Year 2.

In Year 3 all students take core modules in aerospace and project management, finance and law (60 credits). Practical work comprises 20-credits group design project work. The remaining modules taken depend on the student's chosen elective stream, with a limited choice of optional modules across Years 3 and 4 (from 20 to 50 credits depending on elective stream). As an integral part of the degree, students attend a practical flight laboratory course where flying experience is related to the theory of flight dynamics. This course is a requirement for accreditation by the RAeS, and so students must attain a satisfactory standard in order to be allowed to progress. Students can replace one 10-credit module with a Ground and Flight Training module taught by a local Aero Club; this is dependent on payment of the required fee (£949 in 2020-21). They are responsible for securing a suitable industrial placement for Year 4. If they do not find a suitable placement, they are required to transfer to the four-year MEng in Aerospace Engineering at the end of Year 3.

In Year 4, students work in an engineering company for a minimum of 38 weeks. To reflect on the skills they have developed during the placement, students write a 3,000-word report and give a presentation to academic staff. No mark is awarded for the placement; students either pass or fail.

In Year 5 a significant part of the degree is a 45-credit individual investigative project, which allows students to specialise in their particular area of interest. The project is supervised by an academic member of staff from the engineering department appropriate to the research topic. The remaining modules follow the elective stream pursued in Year 3. Students on the Aeromechanics stream and the Avionic Systems stream can take an Industrial Training Programme module, working with industry to solve a real-world problem.

During Years 1 and 2 students may transfer their registration to study for the four-year BEng in Aerospace Engineering with an Industrial Placement Year. At the end of Years 2 and 3, students not meeting specified progression criteria for the MEng Year in Industry degree are required to transfer to the BEng or MEng in Aerospace Engineering. At the end of Year 3, students not meeting specified progression criteria for Year 4 of the MEng degree are required to exit the programme with an unaccredited BEng degree in Aerospace Technology. In Year 4, a student who fails the placement may be permitted to transfer to the fourth year of the MEng Aerospace Engineering degree. In Year 5, no changes of registration are allowed. A student who does not pass the individual investigative project at the first attempt may be permitted to graduate with a BEng in Aerospace Engineering with an Industrial Placement Year.

The weightings of each year towards the overall classification of the degree are:

Year 1	0
Year 2	20%
Year 3	40%
Year 4	0% (The year in industry is assessed on a pass/fail basis. It does not contribute to the degree classification.
Year 5	40%

Detailed information about the structure of programmes, regulations concerning assessment and progression and descriptions of individual modules are published in the University Calendar available on-line at http://www.shef.ac.uk/calendar/.

21. Student development over the course of study

Year 1: Students will consolidate their mathematical and scientific knowledge and be introduced to the fundamentals of aerospace engineering. They will undertake laboratory work and will be enabled to evaluate and interpret data, and present the results in a clear and reliable manner. They will also undertake design and problem-solving activities, both individually and in small groups, which require conceptual thinking, simple analysis, logical thought, judgement and the clear presentation of their ideas, and which will develop their awareness of the global dimension to many real-life engineering problems. They will develop their independent learning and team-working skills. Students will have laboratory experience after which they will have knowledge of the use of basic materials processing and testing equipment, and of simple manufacturing methods. A short course in engineering drawing and computer-aided design (part of the 'Aerospace Engineering Design, Build and Test' module) will enable them to present and understand engineering manual and computer generated drawings prepared to industry-standard conventions. In the same module they will apply their growing knowledge of aircraft design in the creation and testing of a simple fixed-wing powered glider. Through Personal Tutorials students will develop professional skills, including professional conduct and the avoidance of unfair means, as well as gaining awareness of the breadth and real-life applications of the aerospace research undertaken by academic staff in engineering.

Year 2: Students will continue the core studies introduced in Year 1, increasing their knowledge across the spectrum of aerospace engineering. This will give them a more extensive knowledge and understanding of the broad subject areas within aerospace engineering and also in the appropriate areas of mathematics. They will be applying these to more advanced laboratory work and a group design activity in which they will apply their knowledge to produce a structurally optimised and well-controlled unmanned aerial system. They will therefore continue to develop their independent learning and communication skills and their ability to work in teams. At the end of their 2nd year students will choose to specialise in either Avionics or Aeromechanics depending on their preferred subjects and career path.

Year 3: Students begin to study, in depth, their chosen area of specialisation. At this level they are exposed to engineering management techniques that can be used to enhance the application of their core engineering skills. By this stage they are expected to have become self-motivated, efficient and organised independent learners. They will undertake a group design project over two semesters in which students from each elective stream will work together to deliver a high quality unmanned aerial system. The project enables them to demonstrate their aerospace engineering knowledge, design abilities and also their project management, inter-personal and communication skills. They also gain experience of flight instrumentation by attending a flight laboratory course involving flight exercises aboard a range of aircraft and briefing sessions on flight mechanics.

Year 4: Students spend the year in an engineering company. They will work with time and funding constraints on a graduate-level industrial project (or series of projects). Their written report and oral presentation will allow them to record and reflect on their experiences. They will be able to develop enhanced technical and professional skills, and specialist knowledge, which they can then apply to their studies in the final year.

Year 5: A substantial amount of Year 5 (45 credits) is an individual investigative project, undertaken over two semesters, in which students can demonstrate the full range of personal, communication and academic skills they have developed during the degree. It is assessed at the end of Year 5 through a report, the professional engineering skills displayed by the student during the project, and an oral or poster presentation at which students are questioned on their research by a panel of academic staff and industrialists. This assessment enables the student to demonstrate the level of their professional development as an aerospace engineer. The taught modules continue to be appropriate to the student's chosen elective, and allow them to specialise still further. Many of these modules are at the cutting edge of their discipline.

On successful completion of the programme: Students have obtained the necessary academic qualification and practical engineering applications experience to become a Chartered Engineer. Full Chartered Engineer status requires appropriate experience working as a graduate engineer. Students will be well prepared for a career in aerospace engineering, other engineering sectors, the aviation/commercial airline industry and also a wide range of other graduate careers. They will be able to assess whether or not they have the ability, motivation and interest to pursue postgraduate training in aerospace, or other engineering disciplines.

22. Criteria for admission to the programme

Detailed information regarding admission to the degree is available at
http://www.sheffield.ac.uk/aerospace/undergraduates

Aerospace Engineering with an Industrial Placement Year at Sheffield is suitable for well-qualified and motivated students. The admissions procedure is aimed at ensuring all new students meet the requirements for successful completion regardless of their educational or other background.

Applicants typically have A-levels in Mathematics and Physics, plus one other subject. Other equivalent qualifications are also acceptable. These include some VCE A-levels and BTEC qualifications, Scottish Advanced Highers, Irish Leaving Certificate and a range of overseas diplomas and certificates.

All applicants require an English language qualification, typically GCSE or IELTS, with a result at an appropriate level.

For applicants who have not taken Mathematics and Physics the University offers a Foundation Year in Engineering.

Direct entry into the second year of the degree may be possible with suitable qualifications, such as a good BTEC HND in aerospace engineering.

23. Additional information

Aerospace Engineering at Sheffield has an academic Director, who is responsible for overseeing the degree, and an administrative team who deal with its day-to-day running. They are all available to provide general help and advice on all aspects of the degree and university life. Every student has a Personal Tutor who is an academic member of the staff in one of the engineering departments participating in the degree, and who acts as a professional mentor to guide, help and support the student. This includes advising on module choices, career decisions and providing references. Students also have the opportunity during tutorials to learn more about the scope of aerospace research across engineering and its relevance to their studies, Students see their Personal Tutor regularly in the first year, at least three times a semester in Years 2, 3 and 5. Attendance at tutorials is compulsory and monitored.

Students gain part of their practical experience through: (1) practical hands-on workshop practice experience – this is a requirement for accreditation; (2) a short course in engineering drawing and computer-aided design (both 1) and 2) are taught as part of the first-year ‘ Aerospace Engineering Design, Build and Test’ module); (3) a flight laboratory course, which is also a requirement for accreditation, which provides flight exercises in a range of aircraft and classes on flight mechanics; (4) group design projects which develop through years 1, 2 and 3 where students design, build and fly an increasingly complex unmanned aerial vehicle.

Students are expected to find their own placement (either in the UK or abroad), although we are able to assist through the many contacts University staff have with industry. The Employability Hub in the Faculty of Engineering regularly updates students on companies with suitable placements and briefs them on CV writing, strategies for securing a placement, and the practicalities of placement work. It is expected that students receive a salary for their work; around £14k per annum is the norm. The Year in Industry Tutor and the administrative staff maintain regular contact with the student and the placement provider throughout the year to check that the placement is going well. For all UK- and EU-based placements, a member of academic staff also visits the company. Students are encouraged to make use of the placement company’s mentoring scheme in order to work towards Chartered Engineer status.

The University and the Faculty of Engineering place strong emphasis on ensuring our graduates have all the attributes necessary for success in their chosen career. Students are assisted in their self-development and continuing professional development through activities embedded throughout the entire degree, including personal tutorials, the ‘Global Engineering Challenge’ and the ‘Engineering – You’re Hired’ project, and via various taught modules. Students benefit from wide ranging individual support and guidance to assist them in securing industrial placements (summer vacation placements as well as the year in industry) and jobs. This includes Careers events specifically for Aerospace Engineering students in each year of their degree, which provide career inspiration and guidance, and enable our students to meet potential employers, and to refine their CVs and understanding of how to succeed in the application process. This reinforces the careers support available throughout the degree from the University’s Careers Service (http://www.shef.ac.uk/careers/) and the Employability Hub. This support continues after students have graduated.

We maintain strong links with our graduates who provide input into our courses and provide practical help to students in preparing for employment.

Further details about Aerospace Engineering, including student profiles and the latest news from our students and staff, can be found at http://www.shef.ac.uk/aerospace/

This specification represents a concise statement about the main features of the programme and should be considered alongside other sources of information provided by the teaching department(s) and the University. In addition to programme specific information, further information about studying at The University of Sheffield can be accessed via our Student Services web site at http://www.shef.ac.uk/ssid