SECTION 1: KEY PROGRAMME DETAILS

PART A: PROGRAMME INFORMATION	
Highest Award	BEng (Hons) Aerospace Engineering with Pilot Studies
Interim Award	BEng Aerospace Engineering with Pilot Studies
Interim Award	DipHE Aerospace Engineering with Pilot Studies
Interim Award	CertHE Aerospace Engineering with Pilot Studies

Awarding Institution	UWE Bristol
Teaching Institution	UWE Bristol
Delivery Location	Frenchay Campus
Study Abroad / Exchange / Credit Recognition	Placement X Sandwich Year ✓ Credit Recognition X Year Abroad X
Faculty Responsible For Programme	Faculty of Environment & Technology
Department Responsible For Programme	FET Dept of Engineering Design & Mathematics
Apprenticeships	
Mode of Delivery	Sandwich

ENTRY REQUIREMENTS	UCAS Tariff Points: For the current entry requirements see the UWE public website.
For Implementation From	1 Sep 2020
ISIS Code/s	Programme Code H493-SEP-SW-FR-H405 Other codes:

	JACS Aerospace engineering HECoS 100115: Aerospace Engineering UCAS SLC

SECTION 2: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES

PART A: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES

1. (Programme) Overview (c. 400 words)

The curriculum is designed for students seeking an engineering education closely aligned to engineering practice. Technical knowledge, engineering practice, business awareness and sustainability are integrated through projects and revisited to produce confident graduates able to apply their skills to novel situations and create engineering solutions that benefit society.

Professional development is placed at the heart of the curriculum. From day one, students are taken on a journey from student engineer to graduate engineer, preparing them for life as an engineering professional. Students will identify, develop and demonstrate competencies expected of a professional engineer in the workplace. Projects and activities, embedded throughout the curriculum, are designed to develop the engineering habits of mind such as: Problem-finding, Problem-solving, Improving, Adapting, and Systems and Critical Thinking. Foundation principles of engineering science, skills and practice are integrated throughout all years of study.

Aerospace engineers are predominantly employed throughout the aerospace, aviation and the wider technical sector in the design, manufacture and improvement of aerospace vehicles, integrated systems, and associated operations. Consequently, aerospace engineering graduates need to be able to integrate engineering knowledge skills from across engineering and be able to be an effective member of a multidisciplinary team. Aerospace engineering topics including systems design, engineering analysis, materials, structures, stress analysis and manufacturing, aerodynamics, thermofluids, flight and propulsion are developed throughout the core modules and taken an advanced level in the optional modules. Approaches commonly found in the Aerospace industry such as flight simulation, systems engineering, safety management systems and have been included in the core programme of study.

Pilot studies element of the programme answers to the needs of the growing airline industry, which, despite periodic declines, tends to be a future of contemporary transportation. A complete ground school training towards the Private Pilot License is included in the ICAO PPL Ground School module. In the third year of the programme students are introduced to the pilot's role in the airline business. The minimum required practical flight training experience from the student when graduated is 20 hours. However, we encourage to complete their licenses and higher ratings.

The ability to work in multidisciplinary teams on projects that require a broader view of the role of engineering in industry and society is developed through the core programme using project weeks to bring students together in problem finding and solution spaces where students are able to interact with each other as a team, under the supervision of academics and external practitioners.

The integration of knowledge, skills and practice allows the tacking of real engineering challenges and encourage students to engage with the wider role that aerospace engineers and specifically engineering habits of mind can play in tackling global challenges. This is an accessible and modern engineering curriculum designed to attract students from diverse backgrounds able to see the future role of engineering in industry and society.

2. Educational Aims (c. 4-6 aims)

PART A: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES

As a result of successful completion of this programme, a student will

Be able to work as a graduate Aerospace engineer across the engineering sector as an effective member of a multidisciplinary team.

Have acquired the knowledge and understanding of scientific principles and methods necessary to underpin an education in engineering. The programme will provide insight into, and practical skills in, the design, operation manufacture and improvement of complex aerospace vehicles and will explore the environmental impact of engineering.

Have demonstrated an ability to integrate their knowledge and understanding of core subject material in order to solve a substantial range of engineering problems, including ones of a complex nature either individually or as part of a team.

Have developed and demonstrated understanding of the competencies and social responsibilities required by a professional engineer in the workplace and society. Activities to scaffold this development are embedded throughout the core curriculum to develop the engineering habits of mind. As a consequence, students will be able to critically appraise the value and effectiveness of future engineering innovations in the field in terms of business improvement and environmental sustainability.

Have the requisite academic knowledge, skills and preparation for progression to study for higher degrees in appropriate engineering disciplines.

3. Programme and Stage Learning Outcomes (c. 6-8 outcomes)

Programme (Learning) Outcomes (POs)

Programme Learning Outcomes

PO1	Understand, identify and demonstrate the role and professional values of the engineer in industry, including upholding legal, ethical, health and safety requirements.
PO2	Apply mathematical and scientific principles, concepts and theories appropriate to aerospace engineering, as a method for formulating, assessing and communicating solutions for complex problems
PO3	Model aerospace vehicles, components and systems using analytical, numerical and experimental techniques, compatible with industrial practice
PO4	Evaluate the manufacturing, financial, marketing implications of design proposals developed
PO5	Apply an integrated or systems approach, and established and novel engineering analysis concepts to solve complex aerospace engineering problems
PO6	Communicate and operate effectively either as members of inter-disciplinary or multi-disciplinary teams; managing time and resources to given constraints
PO7	Pursue independent study, undertake enquiry into novel and unfamiliar concepts and implement change in an engineering environment.
PO8	Make considered judgements and decisions on complex engineering issues in which not all facts and consequences are accurately known.

PART B: Programme Structure

1. Structure

Year 1

Year 1 Compulsory Modules

Code	Module Title	Credit	Type
UFMFQU-15-1	Aerospace Thermofluids 2020-21	15	Compulsory
UFMFMS-30-1	Dynamics Modelling and Simulation 2020-21	30	Compulsory
UFMFKS-30-1	Engineering Practice 1 2020-21	30	Compulsory
UFMF8W-15-1	ICAO PPL Ground School 2020-21	15	Compulsory
UFMFLS-30-1	Solid Mechanics, Materials and Manufacturing 2020-21	30	Compulsory

Year 2

Year 2 Compulsory Modules

Code	Module Title	Credit	Type
UFMFSU-15-2	Aerospace Systems Design 2021-22	15	Compulsory
UFMFQS-15-2	Engineering Practice 2 2021-22	15	Compulsory

UFMFRS-15-2	Engineering Research 2021-22	15	Compulsory
UFMFFK-15-2	Flight 2021-22	15	Compulsory
UFMFTU-15-2	Fundamental Aero-Propulsion 2021-22	15	Compulsory
UFMFRK-15-2	Fundamental Aerodynamics 2021-22	15	Compulsory
UFMFSS-30-2	Structural Mechanics 2021-22	30	Compulsory

Year 3

Year 3 Compulsory Modules

Code	Module Title	Credit	Type
UFMF89-15-3	Industrial Placement 2022-23	15	Compulsory

Year 4

Year 4 Compulsory Modules

Code	Module Title	Credit	Type
UFMFUU-15-3	Aerospace Group Design Project 2023-24	15	Compulsory
UFMFX8-30-3	Engineering Project 2023-24	30	Compulsory
UFMFAW-30-3	Pilot and Airline Operations 2023-24	30	Compulsory

Year 4 Optional Modules
Students select 30 credits from the following:

Code	Module Title	Credit	Type
UFMFYJ-15-3	Control Engineering 2023-24	15	Compulsory
UFMFVU-15-3	Aero Structures 2023-24	15	Optional
UFMFWU-15-3	Avionics 2023-24	15	Optional
UFMFU6-15-3	Composite Engineering 2023-24	15	Optional

UFMF7V-15-3	Digital Manufacturing in Aerospace 2023-24	15	Optional
UFMFYU-15-3	Further Aero-Propulsion 2023-24	15	Optional
UFMFXU-15-3	Further Aerodynamics 2023-24	15	Optional
UFMFSL-15-3	Integrated Electro-Mechanical Systems 2023-24	15	Optional
UFMF8V-15-3	Space Engineering 2023-24	15	Optional
UFMFCH-15-3	Spaceflight 2023-24	15	Optional

PART C: Higher Education Achievement Record (HEAR) Synopsis

Graduates of this programme will be equipped with a broad understanding of systems design, engineering analysis, materials, structures, stress analysis and manufacturing, aerodynamics, thermofluids, flight and aero-propulsion.

The programme produces graduates with an integrated or systems engineering approach to engineering problem solving. Graduates from this programme will also be equipped to work in multi-disciplinary teams, able to critically appraise existing ideas and practice and produce creative solutions to engineering problems.

PART D: EXTERNAL REFERENCE POINTS AND BENCHMARKS

QAA UK Quality Code for HE

Framework for higher education qualifications (FHEQ)

Subject benchmark statement for Higher Education qualifications in engineering (Oct 2019)

Strategy 2030

University policies

Staff research projects

Relevant PSRB requirements: AHEP3

Industrial Advisory Board

PART E: REGULATIONS

Approved variant to University Academic Regulations and Procedures

The following variant regulations have been approved by the University Regulations to comply with

conditions set out be Engineering Council UK.

The degree classification for the 360 credit honours degree BEng (Hons) Aerospace Engineering with Pilot Studies (or 480 credit honours degree with an integrated foundation year) is based upon:

the best marks for 100 credits at level 3 and the best marks achieved for the next 100 credits at level 2 or above.

The calculation at level 3 must always use the full credit and mark for the level 3 project module UFMFX8-30-3 followed by the best marks associated with the remaining level 3 credits.

Where the credit size of the best marks associated with the remaining level 3 modules would give a credit total greater than 100, only the relevant portion of credit is counted. The unused credit may be counted towards the set of best marks at level 2 or above.

Marks achieved for the 100 level 3 credits are weighted three times the value of the marks for the 100 credits at level 2 or above.

The classification method for direct entrants to the BEng in Aerospace Engineering will include the marks and whole credit for the project.

For students on this programme it is only possible to condone a maximum of 30 credits.