

School of Engineering and Technology

Title of Programme: BSc Honours in Technology with Management (Automotive,  
Motorsport and Aerospace)

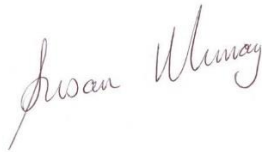
Programme Code: EITM

## Programme Specification

This programme specification is relevant to students entering:  
23 September 2019

Associate Dean of School (Academic Quality Assurance):  
Susan Murray

Signature



A programme specification is a collection of key information about a programme of study (or course). It identifies the aims and learning outcomes of the programme, lists the modules that make up each stage (or year) of the programme, and the teaching, learning and assessment methods used by teaching staff. It also describes the structure of the programme, its progression requirements and any programme-specific regulations. This information is therefore useful to potential students to help them choose the right programme of study, to current students on the programme, and to staff teaching and administering the programme.

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### Summary of amendments to the programme:

Section	Amendment
Section D	Work-Based Sandwich Programme
Section F	Other Source of Information
Section 2	Programme Management
Section D	Module "Health & Safety as an Engineering Professional" 4ENT1151 introduced to all programmes.
Section D	Module 6ENT1001 replaced with modules 6ENT1149 and 6ENT1151. Module 6ENT1070 replaced with modules 6ENT1131 and 6ENT1133.
Section G	Entry Requirements
Table 2	Table updated to reflect changes in Section D

If you have any queries regarding the changes, please email [AQO@herts.ac.uk](mailto:AQO@herts.ac.uk)

# Programme Specification

BSc Honours Aerospace Technology with Management

BSc Honours Aerospace Technology with Pilot Studies

BSc Honours Automotive Technology with Management

BSc Honours Motorsport Technology

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This programme specification (PS) is designed for prospective students, enrolled students, academic staff and potential employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content for each module can be found in Definitive Module Documents (DMDs) and Module Guides.

## Section 1

<b>Awarding Institution/Body</b>	University of Hertfordshire
<b>Teaching Institution</b>	University of Hertfordshire
<b>University/partner campuses</b>	College Lane
<b>Programme accredited by</b>	Institution of Mechanical Engineers and/or Royal Aeronautical Society, as appropriate to the disciplines (see section D)
<b>Final Qualification</b>	BSc Honours
<b>All Final Award titles (Qualification and Subject)</b>	Aerospace Technology with Management Aerospace Technology with Pilot Studies Automotive Technology with Management Motorsport Technology Aerospace Technology with Management (Sandwich) Aerospace Technology with Pilot Studies (Sandwich) Automotive Technology with Management (Sandwich) Motorsport Technology (Sandwich) Aerospace Technology with Management with Year Abroad Aerospace Technology with Pilot Studies with Year Abroad Automotive Technology with Management with Year Abroad Motorsport Technology with Year Abroad Aerospace Technology with Management with Study Abroad Aerospace Technology with Pilot Studies with Study Abroad Automotive Technology with Management with Study Abroad Motorsport Technology with Study Abroad
<b>FHEQ level of award</b>	6
<b>UCAS code(s)</b>	H422, H490, H342, H331
<b>Language of Delivery</b>	English

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### A. Programme Rationale

The School of Engineering and Technology offers BSc awards in Aerospace Technology with Management or Pilot Studies, Automotive Technology with Management and Motorsport Technology. The programme has been developed to (i) satisfy the QAA Engineering Benchmark requirements (ii) to fulfil the academic requirements of UK-SPEC for IEng status and (iii) meet the professional employment needs of industry.

The technological emphasis of the Aerospace Technology with Management degree is on aircraft aerodynamics, structures and materials, stability and control, performance and propulsion, manufacture and logistics. There is also a group design project (within level 6 Aerospace Performance, Propulsion, Design and Manufacture) that integrates all these disciplines together with management skills, with the design of an aircraft.

The BSc programme in Aerospace Technology with Pilot Studies provides the opportunity to undertake training and flying experience that can contribute towards the student obtaining a National Private Pilot's License (NPPL) or Private Pilot's License (PPL) by the end of level 6. Thus the programme provides a practical knowledge of aviation gained through extensive piloting opportunities and offers initial experience for students considering a piloting career.

The technological emphasis of the Automotive Technology with Management degree is on automotive design, chassis and powertrain technology, body engineering including materials and manufacturing methods and vehicle aerodynamics. There is also a group design project (level 6 Vehicle Design) that integrates all of these disciplines, together with management skills.

The technological focus of the Motorsport Technology degree is on automotive design, chassis and powertrain technology, performance engine design, body engineering including materials and manufacturing methods and vehicle aerodynamics with the emphasis on Motorsport applications and high performance. There is also a group design project (level 6 Vehicle Design) that integrates all of these disciplines, together with management skills.

Students will study modules covering operational management issues that face managers, engineers and technologists in modern organisations. Topics will include engineering management, finance, project management and product development, the management of innovation, reliability, organisational processes, team working and leadership, aspects of management theory and quality. Techniques and concepts such as total quality management, lean manufacturing, cost benefit analysis, the product life cycle and six sigma will be introduced. Students will also be introduced to sustainability and the importance that engineering and technology plays in ensuring that products are designed, developed and operated with minimal impact on the environment. Students will examine issues such as minimising weight in design, technologies for alternative power sources in vehicles, ways of minimising emissions and reducing noise, as well as aspects of re-cycling and reuse of materials.

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## B. Educational Aims of the Programme

The programme has been devised in accordance with the University's graduate attributes of programmes of study as set out in [UPR TL03](#).

### **Additionally this programme aims to:**

- provide a high quality education in aerospace and automotive technology;
- provide an education for the individual that enhances his/her prospects of employment in business both nationally and internationally;
- meet the professional employment needs of industry, by providing graduates with the ability to work in the aviation and automotive sectors, product development and commercial environments.
- provide studies which enable the student to attain a specific expertise in a range of topics appropriate to their named award:
  - Aerospace Technology with Management students will particularly study aircraft systems operations management and manufacture strategies appropriate to the aerospace industry.
  - Aerospace Technology with Pilot Studies students will particularly develop their flying skills and study the influence of pilot performance on aircraft design.
  - Automotive Technology with Management students will particularly study technologies employed in the design of automotive vehicles, operations management and manufacturing strategies appropriate to the automotive industry.
  - Motorsport Technology students will particularly study emerging technologies and how they can be used to enhance vehicle performance.

## C. Intended Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas. The programme outcomes are referenced to the QAA benchmark statements for Engineering and the Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (2014) and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education (2016) have been used as a guiding framework for curriculum design.

Knowledge and Understanding	Teaching and learning methods	Assessment strategy
<p>A1-Mathematical methods and fundamental engineering sciences appropriate to technology.</p> <p>A2- The fundamental engineering sciences.</p> <p>A3-The basic principles and economic, social, legal, ethical and sustainability considerations of the business of engineering.</p> <p>A4 - Professional engineering and management practice.</p> <p>A5 - Principles of IT and communications.</p> <p>Additionally for:</p> <p><b>Aerospace Technology with Management (A)</b></p> <p>A6a - Aerospace technology and its application in the design, performance and manufacture of aircraft.</p> <p>A7a - The industrial context of the aerospace sector and its regulatory bodies.</p> <p><b>Aerospace Technology with Pilot Studies (A)</b></p> <p>A6a - Aerospace technology and its application in the design, performance and manufacture of aircraft.</p> <p>A8 - The theory and control of flight, aircraft handling, air law, the aerospace sector and its regulatory bodies.</p> <p><b>Motorsport Technology (MS)</b></p>	<p>Acquisition of knowledge and understanding is through the following approaches:</p> <p>Acquisition of A1 is through a combination of lectures, small group tutorials, coursework and laboratory work, mainly at levels 4 and 5 of the programme. Additional support is provided through the Mathematics Drop-In Centre.</p> <p>Acquisition of A2 is through a combination of lectures, projects and coursework, mainly at levels 4 and 5 of the programme.</p> <p>Acquisition of A3, A4 and A5 – A8 is through lectures, projects and coursework throughout the programme and in particular at level 6.</p> <p>Acquisition of A5 is through a combination of lectures, small group tutorials, coursework and computer work, mainly at levels 4 and 5 of the programme.</p> <p>On this programme, staff use a range of teaching and learning strategies in the most appropriate way for each individual module. This will vary depending on the subject nature of a particular module and the level of study. A more didactic approach will tend to be adopted at lower levels, in particular for A1 and A5. An increasingly self-directed and interactive approach will be used at higher levels, particularly for A2 – A8.</p>	<p>Knowledge and understanding are assessed through a combination of unseen examinations (A1, A4 – A5) and in-course assessments (A1-A13), in the form of laboratory reports (A2), essay assignments (A2, A3), phase tests (A1), design exercises (A2) and project reports, portfolios and presentations (A2-A8).</p>

<p>A6ms - Motorsport technology and its application in the design, performance and manufacture of high performance vehicles.</p> <p>A7ms-The industrial context of the motorsport sector.</p> <p><b>Automotive Technology with Management (V)</b></p> <p>A6v - Automotive technology and its application in the design, performance and manufacture of volume production vehicles.</p> <p>A7v - The industrial context of the automotive sector.</p>	<p>The learner is encouraged to undertake independent reading both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject. Feedback is given to all students on all work produced.</p> <p>Throughout, the learner is encouraged to undertake independent study both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.</p>	
<u>Intellectual skills</u>	<u>Teaching and learning methods</u>	<u>Assessment strategy</u>
<p>B1 - Use appropriate mathematical / scientific principles to solve problems.</p> <p>B2 - Select commercial software packages for engineering and communication.</p> <p>B3 - Evaluate external influences on the design and manufacturing process.</p> <p>B4 - Design appropriate systems, components or processes.</p> <p>Additionally for:</p> <p><b>Aerospace Technology with Management</b></p> <p>B5a - Model and analyse relevant aerospace technology systems.</p> <p><b>For Aerospace Technology with Pilot Studies</b></p> <p>B5a - Model and analyse relevant aerospace technology systems.</p> <p><b>For Motorsport Technology</b></p> <p>B5ms - Model and analyse relevant motorsport technology systems.</p> <p><b>For Automotive Technology with Management</b></p>	<p>Intellectual skills are developed throughout the programme by the methods and strategies outlined in section A, above, again moving from a more didactic approach to an increasingly self-directed and interactive approach at higher levels, particularly for B3, B4 and B5.</p> <p>Analysis, problem solving and modelling skills are further developed through tutorial work, laboratory work and in-course exercises at levels 5 and 6 of the programme.</p> <p>Design and IT skills are further developed through project work, design exercises and case studies at all levels of the programme.</p> <p>Feedback is given to all students on all work produced.</p> <p>Throughout, the learner is encouraged to further develop intellectual skills by independent study.</p>	<p>Intellectual skills are assessed through Analysis, problem solving and modelling skills (B1, B2, B5) are assessed through unseen examination papers, laboratory reports and coursework related to in-course exercises.</p> <p>Design and IT skills (B3, B4) are assessed through coursework related to in-course exercises, presentations, portfolios and project reports</p>

B5v - Model and analyse relevant automotive technology systems.		
<b>Practical skills</b>	<b>Teaching and learning methods</b>	<b>Assessment strategy</b>
<p>C1 - Apply appropriate analytical and modelling techniques.</p> <p>C2 - Perform experimental and manufacturing work and draw conclusions.</p> <p>C3 - Use computer-based engineering tools.</p> <p>C4 - Prepare technical documentation.</p> <p>C5 - Plan and manage a project, taking into account economic, social, legal, ethical and sustainability constraints.</p> <p>Additionally for:  <b>Aerospace Technology with Management</b>  C6a - Evaluate the design of aerospace systems, components or processes.</p> <p><b>Aerospace Technology with Pilot Studies</b>  C6a - Evaluate the design of aerospace systems, components or processes.</p> <p>C7 - Fly an aircraft</p> <p><b>Motorsport Technology</b>  C6ms - Evaluate the design of high performance vehicles, components or processes.</p> <p><b>Automotive Technology with Management</b>  C6v - Evaluate the design of vehicles, components or processes.</p>	<p>Practical skills are developed throughout the programme by the methods and strategies outlined in sections A and B, above, again moving from a more didactic approach to an increasingly self-directed and interactive approach at higher levels, particularly for C4, C5, C6, C7 and C8.</p> <p>C1 is developed through computing work, coursework assignments and tutorial work.  C2 is developed through computing, workshop and laboratory work.  C3 is developed through computing work, design exercises, coursework assignments and tutorial work.  C4 is developed through project work and design exercises.  C5 is developed through case study and project work.  C6 is developed through project work.</p> <p>C7 is developed through one to one flying tuition at an approved flying school.</p> <p>Feedback is given to all students on all work produced</p>	<p>Practical skills are assessed through laboratory reports, coursework assignments, design exercise submissions, case study reports, presentations and project reports.</p>
<b>Transferable skills</b>	<b>Teaching and learning methods</b>	<b>Assessment strategy</b>
<p>D1 - Communicate effectively, both orally and in writing.</p> <p>D2 - Use commonly available IT tools.</p> <p>D3 - Manage time and resources effectively.</p> <p>D4 - Work effectively within a team.</p>	<p>Transferable skills are developed throughout the programme by the methods and strategies outlined in sections A, B and C, above.</p> <p>D1 is developed through feedback on coursework reports, oral presentations and project reports.</p>	<p>Transferable skills are assessed through the following approaches.</p> <p>D1, D2, D5 and D7 are assessed through coursework reports, oral presentations and project reports.</p>



<p>D5 - Manipulate, sort and present data.</p> <p>D6 - Solve problems in a logical manner.</p> <p>D7 - Learn effectively and independently, in all aspects of life.</p>	<p>D2 is developed through their use in preparing project reports, laboratory reports, case studies, design work, etc.</p> <p>D3 is developed through project work planning and throughout the programme.</p> <p>D4 is developed through group project and assignment work.</p> <p>D5 and D6 are developed through lectures and tutorial work throughout the programme.</p> <p>D7 is developed and promoted throughout the programme.</p> <p>Throughout, the learner is encouraged to develop transferable skills by maintaining a record of evidence and completing a personal development plan.</p>	<p>D3 is assessed by review of project management work.</p> <p>D4 is assessed by review of group project work</p> <p>D6 is assessed through coursework, project work and examination.</p>
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## D. Programme Structures, Features, Levels, Modules, and Credits

The programme is offered in full-time (3 years), part-time (4 years at level 5 entry and 6 years at level 4 entry) and sandwich (4 years) modes and leads to the award of a BSc Degree with Honours in one of the named courses as listed in Section 1 (page 2).

Entry is normally at level 4 (with A-Level, or equivalent qualifications) but is possible at level 5 with suitable qualifications (e.g. an Edexcel HND in Engineering). Direct entry into level 6 is also possible, for example following successful completion of two years of a similar BSc degree programme at another HE institution. Intake is normally in Semester A.

### Professional and Statutory Regulatory Bodies

The following Bachelor's degrees are accredited by IMechE and RAes as meeting the academic requirement, in full, for Incorporated Engineer registration for the cohort intakes from 2016 up to, and including, 2020:

BSc (Hons) Aerospace Technology with Management (Full Time - 3 years duration; Sandwich 4 years duration; Part Time 6 years duration)

BSc (Hons) Aerospace Technology with Pilot Studies (Full Time - 3 years duration; Sandwich 4 years duration; Part Time 6 years duration)

BSc (Hons) Automotive Technology with Management (Full Time - 3 years duration; Sandwich - 4 years duration; Part Time 6 years duration)

BSc (Hons) Motorsport Technology (Full Time - 3 years duration; Sandwich - 4 years duration; Part Time 6 years duration)

### Work-Based Learning, including Sandwich Programmes

A designated sandwich programme leads to a University award in the sandwich mode and the word "sandwich" appears on the award certificate. In order for the BSc to lead to an award in the sandwich mode, the student must undertake a period of approved work experience (industrial placement) of not

less than 36 weeks, excluding holidays, normally during year 3. A maximum of two (2) separate placements can be taken neither of which should normally be less than 12 weeks in duration. As defined in UPR AS11.

The work experience will normally be completed within the United Kingdom but with approval may be completed within other countries. Progress of the student's training is monitored by visits from University academic staff. Students will be required to document this period of work in accordance with the guidelines produced by the School. Students on industrial placement will be registered on the Placement Year Module (6AAD0015)

Students who have not achieved the minimum progression requirements at the end of level 5 may be prevented from undertaking a sandwich placement. The policy relating to progression onto the placement year from level 5 is given in the School Guidelines on Industrial Placements. Additionally, students on industrial placement but who have level 4 or 5 modules to repeat, will not normally be allowed to re-enrol on these modules until they return from industrial placement. This is to avoid a conflict between UH attendance requirements and the student's commitment to their employer.

Students who do not take the sandwich option, progressing directly to level 6, are automatically transferred to the full-time mode and are required to complete a Careers Portfolio to demonstrate their employability skills (6ENT1021). This portfolio will include evidence of any employment experiences the student has, evidence of any voluntary work experience, an audit of their employability skills and a careers action plan to further their employability skills post-graduation. It is expected that much of this evidence will have been gathered during the Career Skills Development module (4ENT1096) and Career Planning module (5ENT1082).

#### Erasmus programme

Students may opt to study all, or a single semester, of level 5 abroad as part of a reciprocal agreement with a partner university. To be eligible for an exchange option, students must have passed 120 credits at level 4 with an average of at least 60%. The remaining requirements and details are as set out in Study Abroad Options below.

#### Study Abroad Options

Students may also opt to take additional studies through the Year Abroad or Semester Abroad options at a partner institution in place of the sandwich placement year, i.e. between Levels 5 and 6. To be eligible for these options students will be expected to have passed 120 credits at level 4 and 120 credits at level 5 with an average of at least 60%. In order to maintain registration with UH, students studying abroad for a full year will be registered on 6ENT0001 whilst students studying abroad for a single semester will be enrolled on 6ENT1051. In recognition of the extra study, provided a full transcript of their achievement in the host academic institution is submitted to the Board of Examiners, this will lead to an award of a BEng Degree with Honours in one of the named awards as listed in Section 1 (page 2) "with Year Abroad" or "with Study Abroad" on the award. Since the student will have completed all the modules on the full time award at UH the degree accreditation is unaffected and the degree classification is based only on modules studied at UH. It is not permissible for students to undertake an exchange year, where studies at a partner institution replace part of their studies at UH.

#### Further Features

In order to recognise the significant programme related extra-curricular commitment and experience which can be gained by students who participate in Formula Student, the BMFA Heavy/Electric Lift Challenge, IMechE UAS Challenge, Imagine Cup or other similar competitions, there are three zero credit rated elective modules which students may take. These are:

Formula Student (6ENT1043)  
UAV Projects (6ENT1042)  
Smart Systems Integration (6ENT1044)

They are assessed on a Pass/Fail basis. If taken, they do not contribute to degree classification, but will appear on a student's results transcript.



### Programme Structure

The programme structure and progression information below (Table 1a and 1b) is provided for the Honours award. Any interim awards are identified in Table 1b. The Programme Learning Outcomes detailed above are developed and assessed through the constituent modules. Table 2 identifies where each learning outcome is assessed.

Major projects (group and individual) i.e. Final Year Project cannot be compensated.

### Table 1a Outline Programme Structure

**Mode of study** Full Time: 3 years; Sandwich: 4 years and Part-time: 6 years

**Entry point** Semester A

The following notations should be read in conjunction with tables below:

TMA – Aerospace Technology with Management

TPS – Aerospace Technology with Pilot Studies,

TMV – Automotive Technology with Management

TMS – Motorsport Technology

## Level 4

c = compulsory module

o = optional module

Module Title	Module Code	Award				Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semester	Year of Study	
		TMA	TPS	TMV	TMS							Full Time Mode	Part Time Mode
Career Skills Development	4ENT1096	c	c	c	c	0	English	-	100	-	AB	1	1
Mathematics for Engineering	4PAM1047	c	c	c	c	15	English	-	100	-	A	1	1
Aerospace Technology & Industry	4AAD0016	c	c	-	-	15	English	-	100	-	A	1	1
Motorsport and Automotive Technology	4ENT1128	-	-	c	c	15	English	-	100	-	A	1	1
Materials and Electrical Technology	4ENT1129	c	c	c	c	15	English	-	100	-	A	1	2
Introduction to Design for Technologists	4ENT1108	c	c	c	c	15	English	-	100	-	A	1	2
Introduction to Manufacturing for Technologists	4ENT1109	c	c	c	c	15	English	-	100	-	B	1	2
Computing for Business and Technology	4ENT1130	c	c	c	c	15	English	-	100	-	B	1	1
Mechanical Experimental Engineering	4ENT1006	c	c	c	c	15	English	-	100	-	B	1	1
Engineering Statistics	4ENT1045	c	c	c	c	15	English	60	40	-	B	1	2
Health & Safety as an Engineering Professional	4ENT1151	c	c	c	c	0	English	-	0	-	A	1	1

Progression to level 5 requires:

A minimum of 90 credits to remain on honours award.

Progression to non-honours level 5 with 75 credits may be permissible. The maximum study rate in such an instance would normally be 120 credits but students would be expected to remedy any failed modules from level 4 in the first instance.

## Level 5

c = compulsory module

o = optional module (See page 8 for further details about the Exchange Year and Exchange Semester).

Module Title	Module Code	Award				Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semester	Year of Study	
		TMA	TPS	TMV	TMS							Full Time Mode	Part Time Mode
Exchange Year	5ENT1063	o	o	o	o	120	English	-	-	-	AB	2	-
Exchange Semester	5ENT1064	o	o	o	o	60	English	-	-	-	A or B	2	3 or 4
Computer Aided Design	5AAD0046	c	c	c	c	15	English	-	100	-	A	2	3
Thermofluid Experimental Engineering	5ENT1086	c	c	c	c	15	English	-	100	-	A	2	3
Engineering Operations Management	5ENT1087	c	c	c	c	15	English	60	40	-	A	2	4
Principles of Aircraft Systems	5ENT1035	c	c	-	-	15	English	-	100	-	A	2	4
Automotive Electrical Systems	5ENT1004	-	-	c	c	15	English	60	40	-	A	2	4
Simulation & Analysis Techniques	5ENT1088	c	c	c	c	15	English	-	100	-	B	2	3
Computer Aided Manufacture	5ENT1001	c	c	c	c	15	English	-	100	-	B	2	3
Product and Project Management	5ENT1030	c	-	c	c	15	English	60	40	-	B	2	4
Aerospace Design, Test and Certification	5AAD0006	c	c	-	-	15	English	-	100	-	B	2	4
Vehicle Aerodynamics and Design	5ENT1089	-	-	c	c	15	English	-	100	-	B	2	4
Air Law, Navigation and Meteorology	5ENT1091	-	c	-	-	15	English	-	100	-	B	2	4
Career Planning	5ENT1082	c	c	c	c	0	English	-	100	-	AB	2	4

Progression to level 6 requires:

210 credit points and above to Honours award.

Progression to non-honours level 6 with 180 credits may be permissible. The maximum study rate in such an instance would normally be 120 credits but students would be expected to remedy any failed modules from level 5 in the first instance.

## Level 6

c = compulsory module, o = optional module. All students who do not take the Placement Year module must take the Careers Portfolio module in year 4 (year 5 if Part Time and not employed by an appropriate engineering company). See Page 9 for details of the Study Abroad options.

Module Title	Module Code	Award				Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semester	Year of Study	
		TMA	TPS	TMV	TMS							Full Time Mode	Part Time Mode
Industrial Placement (Placement Year)	6AAD0015	o	o	o	o	-	English	-	100	-	ABC	3	-
Year Abroad	6ENT0001	o	o	o	o	-	English	-	-	-	AB	3	-
Semester Abroad	6ENT1051	o	o	o	o	-	English	-	-	-	A/B	3	-
Careers Portfolio	6ENT1021	o	o	o	o	0	English	-	100	-	AB	4	5
Instrumentation and Control Systems	6ENT1009	c	c	c	c	15	English	60	40	-	A	4	5
Aerospace Performance & Manufacture	6ENT1131	c	c	-	-	15	English	60	40	-	A	4	6
Pilot Studies and Flight Planning	6ENT1149	-	c	-	-	30	English	-	100	-	AB	4	5
Piloting Experience	6ENT1151	-	c	-	-	0	English	-	100	-	AB	4	6
Engineering Management and Finance	6AAD0020	c	-	c	-	15	English	-	100	-	A	4	5
Motorsport Technology	6ENT1057	-	-	-	c	15	English	-	100	-	A	4	5
Vehicle Design	6ENT1067	-	-	c	c	15	English	-	100	-	A	4	6
Reliability Engineering	6ENT1006	c	-	c	-	15	English	60	40	-	B	4	5
Avionics Technology	6ENT1059	c	c	-	-	15	English	-	100	-	B	4	5
Automotive Body Engineering	6ENT1112	-	-	c	-	15	English	-	100	-	B	4	5
Racing Car Body Engineering	6ENT1113	-	-	-	c	15	English	-	100	-	B	4	5
Design of High Performance Engines	6ENT1060	-	-	-	c	15	English	60	40	-	B	4	5
Automotive Chassis & Powertrain Technology	6AAD0006	-	-	c	c	15	English	60	40	-	B	4	6
Aerospace Vehicle Design	6ENT1133	c	c	-	-	15	English	-	100	-	B	4	6
BSc Individual Project (Aerospace Technology)	6ENT1105	c	c	-	-	30	English	-	100	-	AB	4	6
BSc Individual Project (Automotive Technology)	6ENT1107	-	-	c	c	30	English	-	100	-	AB	4	6

If any of the progression requirements stated above are not met then the Board of Examiners is empowered to require the student to transfer to the BSc (non-Honours). The study pattern for students transferring onto the BSc (non-Honours) route shall be agreed on a case-by-case basis with the BSc Programme Tutor or Associate Dean of School.

#### Honours classification

The University has approved structure and assessment regulations common to all programmes. Full details are provided in [UPR AS14](#), Section D.

#### Table 1b Final and interim awards available

The programme provides the following final and interim awards:

Final Award	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
BSc (Hons) in the named award	Aerospace Technology with Management;	360 credit points including 240 at level 6/5 of which 120 must be at level 6	6	All relevant award related programme learning outcomes
BSc (Hons) in the named award (Sandwich)	Aerospace Technology with Pilot Studies;	360 credit points including 240 at level 6/5 of which 120 must be at level 6. Additionally, students must satisfactorily complete the Placement Year module.	6	All relevant award related programme learning outcomes
BSc (Hons) in the named award with Study Abroad	Automotive Technology with Management;	360 credit points including 240 at level 6/5 of which 120 must be at level 6. Additionally, students must satisfactorily complete the Semester Abroad module.	6	All relevant award related programme learning outcomes
BSc (Hons) in the named award with Year Abroad	Motorsport Technology	360 credit points including 240 at level 6/5 of which 120 must be at level 6. Additionally, students must satisfactorily complete the Year Abroad module.	6	All relevant award related programme learning outcomes

Interim Award	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
University Certificate		45 credit points at level 4	4	See UPR AS11, section 13: <a href="http://sitem.herts.ac.uk/secreg/upr/AS11.htm">http://sitem.herts.ac.uk/secreg/upr/AS11.htm</a>
Certificate of Higher Education		120 credit points at level 4	4, 5	See UPR AS11, section 13: <a href="http://sitem.herts.ac.uk/secreg/upr/AS11.htm">http://sitem.herts.ac.uk/secreg/upr/AS11.htm</a>
Diploma of Higher Education		240 credit points including at least 120 at level 5	5, 6	A1, A2, B1, B2, C2, C3, D5, D6
BSc in the named award	Aerospace Technology with Management;  Aerospace Technology with Pilot Studies;  Automotive Technology with Management;	300 credit points including 180 at level 6/5 of which 60 must be at level 6 excluding the final year project. For students entering directly at level 6 only, 75 UH specified credits must be at level 6 excluding the final year project (*).	6	A1, A2, A3, A4, A5, B1, B2, B3, B4, C1, C2, C3, D5, D6
BSc in the named award (Sandwich)	Management;  Motorsport Technology;  Aerospace Technology**	300 credit points including 180 at level 6/5 of which 60 must be at level 6 excluding the final year project. Additionally, students must satisfactorily complete the Placement Year.	6	A1, A2, A3, A4, A5, B1, B2, B3, B4, C1, C2, C3, D5, D6
BSc in the named award with Study Abroad		300 credit points including 180 at level 6/5 of which 60 must be at level 6 excluding the final year project. Additionally, students must satisfactorily complete the Semester Abroad module.	6	A1, A2, A3, A4, A5, B1, B2, B3, B4, C1, C2, C3, D5, D6
BSc in the named award with Year Abroad		300 credit points including 180 at level 6/5 of which 60 must be at level 6 excluding the final year	6	A1, A2, A3, A4, A5, B1, B2, B3, B4, C1, C2, C3, D5, D6



project.  
Additionally,  
students must  
satisfactorily  
complete the  
Year Abroad  
module.

Notes:

(\*) in accordance with AS11, the maximum APL permitted towards this interim award is 225 points at levels 4/5

(\*\*) see Programme-specific assessment regulations, first bullet point below, and subject to approval by the Academic Development Committee

## Programme-specific assessment regulations

The programme complies with the University's academic regulations (in particular, [UPR AS11](#), [UPR AS12/UPR AS13](#) and [UPR AS14](#)) with the exception of those listed below, which have been approved by the University:

- Students who fail the Piloting Experience module cannot be considered for a degree in Aerospace Technology with Pilot Studies. However, the Programme Board of Examiners may award an Honours degree in Aerospace Technology (which is not currently accredited) as an Interim Award.
- As specified by the accrediting body, a compensated pass cannot be awarded for the Final Year Project, which must be included in the calculation of degree classification.
- There is a requirement by some Engineering Professional Bodies (notably the IMechE) that the Final Year Project must be passed at the first attempt to gain an accredited award.
- Students who do not succeed in the Individual Major Project may be eligible to repeat, and will be allocated an entirely different project.

Course Code	Course Instance	Award Title	Modules (child instance codes & title)	Must be included in classification algorithm?
EITM	TMA3F, TMA4S, TMA6P	BSc (Hons) Aerospace Technology with Management	6ENT1105 BSc Individual Project (Aerospace Technology)	yes
EITM	TPS3F, TPS4S, TPS6P	BSc (Hons) Aerospace Technology with Pilot Studies	6ENT1105 BSc Individual Project (Aerospace Technology)	yes
EITM	TMV3F, TMV4S, TMV6P	BSc (Hons) Automotive Technology with Management	6ENT1107 BSc Individual Project (Automotive Technology)	yes
EITM	TMS3F, TMS4S, TMS6P	BSc (Hons) Motorsport Technology	6ENT1107 BSc Individual Project (Automotive Technology)	yes

Further points of clarification and interpretation relevant to this specific programme are given below:

- students wishing to take the CAA or FAA PPL, or BMAA NPPL, Ground School Examinations are responsible for paying the examination fees;
- in order to fly solo, students must meet the medical requirements specified by the relevant regulatory body (EASA, CAA, FAA or BMAA). Where a specific medical examination is required it can be carried out by any UK CAA approved Authorised Medical Examiner (AME) and can be arranged through the flying school. However, there are several AMEs in each county and others overseas. Further details of the medical requirements for flying and the necessary medical examination can be found on the UK

Civil Aviation Authority website <http://www.caa.co.uk> which must be consulted; the costs of any medical certificate shall be borne by the student. (Note that the medical requirements for flying are currently under review, so may change during the currency of this document.)

- The costs of Headsets, Charts, Navigation Equipment and other items necessary for the Aerospace Technology with Pilot Studies pathway shall be borne by the student.
- The minimum 20 hours flying requirement associated with the Piloting Experience module 6ENT1051 shall be completed by students by the end of Semester B in their final year of study (level 6). Students should note that they may commence flying at a University-approved Flying School in the UK at any point after the commencement of their study on the programme. Students may also optionally pay for additional flying by direct arrangement with the Flying School. This might be done, for example, to top up to a PPL.
- The following zero credit modules are taken by students at Level 4 and 5 respectively. They are compulsory modules although they have no academic impact on the student's degree outcome:
  - Career Skills Development - 4ENT1096
  - Career Planning - 5ENT1082

Students who do not pass at their first attempt may be offered a referral (second assessment) opportunity for these modules. However, students who do not pass their referral assessment will not be given an opportunity to repeat the module in a subsequent year (FREN). If students do not pass the assessment at the second attempt their final transcript will show "FNFA" (Fail No Further Attempts).

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## E. Management of Programme & Support for student learning.

### Management

The programme is managed and administered through:

- Dean of School;
- Associate Dean of School (AQA) who has overall responsibility for Quality Assurance;
- Associate Dean of School (L&T) who has overall responsibility for Learning & Teaching;
- the Programme Leader who is responsible for chairing the programme committee and advising students on the programme as a whole;
- the Student Administrator responsible for the administration associated with the programme;
- Programme Leaders who are responsible for the day to day management;
- an Admissions Tutor, with specific responsibility for selection;
- a programme committee that includes the above plus student representation;
- module leaders who are responsible for individual modules.

### Support

Students are supported by:

- an induction week at the beginning of each new academic session;
- an extensive Learning Resources Centre, incorporating a library and computer centre;
- guided student-centred learning through the use of StudyNet;
- a student handbook that is specific to the programme;
- a Programme Leader who can advise on programme issues;
- a Student Administrator and admin assistants in the school office;
- Module teaching teams who provide academic support;
- Computer and technical laboratories facilities and technical support staff;
- a project supervisor;
- student representatives on the programme committee;
- the Mathematics Drop-in Centre;
- the Careers, Employment and Enterprise Service that support students looking for either graduate employment or an industrial placement.
- a substantial Student Centre that provides advice on issues such as finance, University regulations, legal matters etc;
- the Medical Centre;
- the Accommodation Office;
- the International Students Centre who organise an Overseas Student Orientation induction programme;

- printing, photocopying, laminating and document binding facilities;
- Nightline – a confidential student listening and information service in the evening when other services are not available;
- a confidential counselling service;
- University Disability Advisors;
- an Equal Opportunities Officer;
- the Students' Union.

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## F. Other sources of information

In addition to this Programme Specification, the University publishes guidance to registered students on the programme and its constituent modules:

- A Programme (or Student) Handbook;
- A Definitive Module Document (DMD) for each constituent module;
- A Module Guide for each constituent module.

The [Ask Herts](#) website provides information on a wide range of resources and services available at the University of Hertfordshire including academic support, accommodation, fees, funding, visas, wellbeing services and student societies.

As a condition of registration, all students of the University of Hertfordshire are required to comply with the University's rules, regulations and procedures. These are published in a series of documents called 'University Policies and Regulations' (UPRs). The University requires that all students consult these documents which are available on-line, on the UPR web site, at: <http://www.herts.ac.uk/secreg/upr/>. In particular, [UPR SA07](#) 'Regulations and Advice for Students' Particular Attention - Index' provides information on the UPRs that contain the academic regulations of particular relevance for undergraduate and taught postgraduate students.

In accordance with section 4(5) of the Higher Education and Research Act 2017 (HERA), the UK Office for Students (OfS) has registered the University of Hertfordshire in the register of English higher education providers. The Register can be viewed at: <https://www.officeforstudents.org.uk/advice-and-guidance/the-register/the-ofs-register/>. Furthermore, the OfS has judged that the University of Hertfordshire delivers consistently outstanding teaching, learning and outcomes for its students. It is of the highest quality found in the UK. Consequently, the University received a Gold award in the 2018 Teaching Excellence and Student Outcomes (TEF) exercise. This award was made in June 2018 and is valid for up to 3 years. The TEF panel's report and conclusions can be accessed at: <https://www.officeforstudents.org.uk/advice-and-guidance/teaching/tef-outcomes/#/provider/10007147>

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## G. Entry Requirements

The normal entry requirements for the programme are:

- 72 - 168 UCAS points.
- Minimum of 2 A levels. Engineering or Technology based BTEC Diploma NQF/QCF, Advanced Diploma, or Progression Diploma.
- Access to Engineering or Technology Diploma with merit profile.
- IB - 72 points from a minimum of 2 HL subjects at grade 4 or above (with the remaining points to come from a combination of HL, SL and Core).
- GCSE Maths at grade 4 (C), English Language at grade 4 (C) or above.
- All students from non-majority English speaking countries require proof of English language proficiency. The following qualifications and grades will be considered:
  - GCSE English language grade 4 or above
  - IELTS 6.0 (with no less than 5.5 in any band)
  - Other English language tests are accepted.
- All International students are required to demonstrate an English language capability of IELTS 6.0 with no less than 5.5 in each band.

Applications are also welcomed from those holding other qualifications including equivalent Scottish Higher or Irish Higher Certificates, International Baccalaureate, and appropriate equivalent international qualifications.

All International students are required to demonstrate an English language capability of IELTS 6.0 with no less than 5.5 in each band.

In addition to the academic fees, students studying the module 6ENT1051 Piloting Experience as part of the BSc in Aerospace Technology with Pilot Studies will be responsible for the cost of at least 20 hours flying tuition at a UH approved flying school. Students who are unable to pay these fees may transfer to the BSc (Hons) Aerospace Technology with Management programme (but note the different module structure and its implications), or may continue on the original programme but be awarded an Interim Award as stated in the Programme-Specific Regulations.

#### English Language Requirements

In addition to the requirements stated above, students entering the programme and whose first language is not English will be required to demonstrate a proficiency in English to IELTS 6.0 or an equivalent recognised qualification. For IELTS, this should include a minimum score of 5.5 in each band.

#### Direct Entry at Second and Final Year

In accordance with University Admissions Policy to allow flexible entry at different levels, it may be possible for applicants to enter the programme at second and final year level. In all instances, candidates will be required to discuss their individual circumstances with the appropriate Admissions Tutor.

Students applying for direct entry into level 5 are required to have an Edexcel HND in an appropriate discipline with merits and distinctions in appropriate subjects which must include Mathematics plus technical or physical sciences. Equivalent European and overseas qualifications are also accepted subject to University approval.

Direct entry into level 6 is also possible, for example following successful completion of two years of a similar BEng or MEng degree programme at another HE institution.

Level 4 of this programme includes provision to Hertfordshire International College (HIC), through parallel HIC modules. HIC students, having completed Level 4, may articulate onto this programme at Level 5. In order to do so, they must have successfully completed 120 credits of study at Level 4.

The programme is subject to the University's Principles, Policies and Regulations for the Admission of Students to Undergraduate and Taught Postgraduate Programmes (in [UPR SA03](#)), along with associated procedures. These will take account of University policy and guidelines for assessing accredited prior certificated learning (APCL) and accredited prior experiential learning (APEL).

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If you would like this information in an alternative format please contact: the School Administration Manager

If you wish to receive a copy of the latest Programme Annual Monitoring and Evaluation Report (AMER) and/or the External Examiner's Report for the programme, please email a request to [aqo@herts.ac.uk](mailto:aqo@herts.ac.uk)

## BSc with Honours in Aerospace Technology with Management

Table 2: Development of Intended Programme Learning Outcomes in the Constituent Modules

This map identifies where the programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own learning, personal and professional development as the programme progresses.

		Programme Learning Outcomes (as identified in section 1 and the last page)																										
		Knowledge & Understanding							Intellectual Skills					Practical Skills						Transferable Skills								
Module Title	Module Code	A1	A2	A3	A4	A5	A6a	A7a	B1	B2	B3	B4	B5a	C1	C2	C3	C4	C5	C6a	D1	D2	D3	D4	D5	D6	D7		
Level 4	Mathematics for Engineering	4PAM1047	X													X									X	X		
	Materials and Electrical Technology	4ENT1129	X						X					X	X													
	Introduction to Manufacturing for Technologists	4ENT1109		X								X			X													
	Introduction to Design for Technologists	4ENT1108		X								X				X	X						X					
	Computing for Business & Technology	4ENT1130					X									X	X				X							
	Mechanical Experimental Engineering	4ENT1006							X						X					X						X		
	Engineering Statistics	4ENT1045	X						X																X			
	Aerospace Technology & Industry	4AAD0016		X		X		X	X			X	X								X							
	Career Skills Development	4ENT1096					X									X				X	X	X		X	X	X		
Level 5	Health & Safety as an Engineering Professional	4ENT1151				X																						
	Computer Aided Design	5AAD0046				X				X	X	X				X							X					
	Thermofluid Experimental Engineering	5ENT1086	X						X					X	X													
	Engineering Operations Management	5ENT1087		X	X	X								X	X		X			X		X	X					
	Principles of Aircraft Systems	5ENT1035				X		X	X		X	X		X	X				X	X								
	Product & Project Management	5ENT1030			X	X			X			X				X		X		X			X	X				
	Simulation & Analysis Techniques	5ENT1088					X		X	X	X			X		X												
	Computer Aided Manufacture	5ENT1001	X				X							X		X	X											
	Aerospace Design, Test & Certification	5AAD0006		X			X	X	X			X	X	X		X			X	X	X		X				X	
	Career Planning	5ENT1082																									X	
Level 6	Year Abroad	6ENT0001																										
	Semester Abroad	6ENT1051																										
	Placement Year	6AAD0015			X	X											X	X		X	X							
	Instrumentation & Control	6ENT1009			X	X										X			X									
	Engineering Management and Finance	6AAD0020			X	X												X										
	Reliability Engineering	6ENT1006	X			X			X		X		X											X	X			
	Avionics Technology	6ENT1059					X	X		X	X		X	X			X			X		X						
	BSc Individual Project (Aerospace)	6ENT1105			X												X	X	X	X	X	X	X	X	X	X	X	
	Aerospace Performance and Manufacture	6ENT1131			X			X	X										X									
	Aerospace Vehicle Design	6ENT1133			X	X	X	X	X				X							X				X				
Careers Portfolio	6ENT1021				X															X		X	X		X			

## Key to Programme Learning Outcomes for Aerospace Technology with Management

### Knowledge and Understanding e.g.

- A1 Mathematical methods and fundamental engineering sciences appropriate to technology.
- A2 The design-to-build process.
- A3 The basic principles and economic, social, legal, ethical and sustainability considerations of the business of engineering.
- A4 Professional engineering and management practice.
- A5 Principles of IT and communications.
  
- A6a Aerospace technology and its application in the design, performance and manufacture of aircraft.
- A7a The industrial context of the aerospace sector and its regulatory bodies.

### Intellectual Skills e.g.

- B1 Use appropriate mathematical / scientific principles to solve problems.
- B2 Select commercial software packages for engineering and communication.
- B3 Evaluate external influences on the design and manufacturing process.
- B4 Design appropriate systems, components or processes.
- B5a Model and analyse relevant aerospace technology systems.

### Practical Skills

- C1 Apply appropriate analytical and modelling techniques.
- C2 Perform experimental and manufacturing work and draw conclusions.
- C3 Use computer-based engineering tools.
- C4 Prepare technical documentation.
- C5 Plan and manage a project, taking into account economic, social, legal, ethical and sustainability constraints.
- C6a Evaluate the design of aerospace systems, components or processes

### Transferable Skills

- D1 Communicate effectively, both orally and in writing.
- D2 Use commonly available IT tools.
- D3 Manage time and resources effectively.
- D4 Work effectively within a team as a member.
- D5 Manipulate, sort and present data.
- D6 Solve problems in a logical manner.
- D7 Learn effectively and independently, in all aspects of life.



## BSc with Honours in Aerospace Technology with Pilot Studies

		Programme Learning Outcomes (as identified in section 1 and the last page)																										
		Knowledge & Understanding							Intellectual Skills					Practical Skills					Transferable Skills									
Module Title	Module Code	A1	A2	A3	A4	A5	A6a	A8	B1	B2	B3	B4	B5a	C1	C2	C3	C4	C5	C6a	C7	D1	D2	D3	D4	D5	D6	D7	
Level 4	Mathematics for Engineering	4PAM1047	X													X	X									X	X	
	Materials and Electrical Technology	4ENT1129	X						X					X	X													
	Introduction to Manufacturing for Technologists	4ENT1109		X								X																
	Introduction to Design for Technologists	4ENT1108		X								X					X	X						X				
	Computing for Business & Technology	4ENT1130					X										X					X						
	Mechanical Experimental Engineering	4ENT1006							X							X					X						X	
	Engineering Statistics	4ENT1045	X						X																	X		
	Aerospace Technology & Industry	4AAD0016		X		X		X	X			X	X									X						
	Career Skills Development	4ENT1096					X										X					X	X	X		X	X	X
	Health & Safety as an Engineering Professional	4ENT1151					X																					
Level 5	Computer Aided Design	5AAD0046					X			X	X	X				X								X				
	Thermofluid Experimental Engineering	5ENT1086	X						X					X	X													
	Engineering Operations Management	5ENT1087		X	X	X									X			X			X		X	X				
	Principles of Aircraft Systems	5ENT1035				X		X	X		X	X		X	X					X		X						
	Air Law, Navigation and Meteorology	5ENT1091	X		X	X		X	X	X				X				X	X			X					X	
	Simulation & Analysis Techniques	5ENT1088					X		X	X	X			X		X												
	Computer Aided Manufacture	5ENT1001	X				X							X		X	X											
	Aerospace Design, Test & Certification	5AAD0006		X			X	X	X			X	X	X		X			X	X		X		X				X
	Career Planning	5ENT1082																										X
	Level 6	Year Abroad	6ENT0001																									
Semester Abroad		6ENT1051																										
Placement Year		6AAD0015			X	X											X	X			X	X						
Instrumentation & Control		6ENT1009			X	X											X			X								
Avionics Technology		6ENT1059					X	X		X	X		X	X			X				X							
BSc Individual project (Aerospace)		6ENT1105			X												X	X	X		X	X	X		X	X	X	
Aerospace Performance and Manufacture		6ENT1131			X			X	X											X								
Aerospace Vehicle Design		6ENT1133			X	X	X	X	X				X						X					X				
Pilot Studies and Flight Planning		6ENT1149	X			X		X	X	X	X		X	X						X		X		X			X	
Piloting Experience		6ENT1151																			X							
Careers Portfolio	6ENT1021				X																X		X		X		X	

## Key to Programme Learning Outcomes for Aerospace Technology with Pilot Studies

### Knowledge and Understanding e.g.

- A1 Mathematical methods and fundamental engineering sciences appropriate to technology.
- A2 The design-to-build process.
- A3 The basic principles and economic, social, legal, ethical and sustainability considerations of the business of engineering.
- A4 Professional engineering and management practice.
- A5 Principles of IT and communications.
  
- A6a Aerospace technology and its application in the design, performance and manufacture of aircraft.
- A8 The theory and control of flight, aircraft handling, air law, the aerospace sector and its regulatory bodies

### Intellectual Skills e.g.

- B1 Use appropriate mathematical / scientific principles to solve problems.
- B2 Select commercial software packages for engineering and communication.
- B3 Evaluate external influences on the design and manufacturing process.
- B4 Design appropriate systems, components or processes.
- B5a Model and analyse relevant aerospace technology systems.

### Practical Skills

- C1 Apply appropriate analytical and modelling techniques.
- C2 Perform experimental and manufacturing work and draw conclusions.
- C3 Use computer-based engineering tools.
- C4 Prepare technical documentation.
- C5 Plan and manage a project, taking into account economic, social, legal, ethical and sustainability constraints.
- C6a Evaluate the design of aerospace systems, components or processes
- C7 Fly an aircraft.

### Transferable Skills

- D1 Communicate effectively, both orally and in writing.
- D2 Use commonly available IT tools.
- D3 Manage time and resources effectively.
- D4 Work effectively within a team as a member.
- D5 Manipulate, sort and present data.
- D6 Solve problems in a logical manner.
- D7 Learn effectively and independently, in all aspects of life.

## BSc with Honours in Automotive Technology with Management

Module Title	Module Code	A1	A2	A3	A4	A5	A6v	A7v	B1	B2	B3	B4	B5v	C1	C2	C3	C4	C5	C6v	D1	D2	D3	D4	D5	D6	D7
Level 4	Mathematics for Engineering	4PAM1047	X													X								X	X	
	Materials and Electrical Technology	4ENT1129	X						X					X	X											
	Introduction to Manufacturing for Technologists	4ENT1109		X								X			X											
	Introduction to Design for Technologists	4ENT1108		X								X				X	X						X			
	Computing for Business & Technology	4ENT1030					X									X					X					
	Mechanical Experimental Engineering	4ENT1006							X						X					X					X	
	Engineering Statistics	4ENT1045	X						X															X		
	Motorsport and Automotive Technology	4ENT1128		X			X	X				X	X		X					X					X	
	Career Skills Development	4ENT1096					X									X				X	X	X		X	X	X
	Health & Safety as an Engineering Professional	4ENT1151					X																			
Level 5	Computer Aided Design	5AAD0046					X			X	X	X				X							X			
	Thermofluid Experimental Engineering	5ENT1086	X						X					X	X											
	Engineering Operations Management	5ENT1087		X	X	X									X		X			X		X	X			
	Automotive Electrical Systems	5ENT1004		X			X	X		X	X	X	X						X	X						
	Product & Project Management	5ENT1030			X	X			X			X				X		X		X			X	X		
	Simulation & Analysis Techniques	5ENT1088					X		X	X	X			X		X				X			X	X		
	Computer Aided Manufacture	5ENT1001	X				X							X		X	X									
	Vehicle Aerodynamics & Design	5ENT1089	X				X			X	X	X	X		X				X					X		
	Career Planning	5AAD0032																							X	
	Year Abroad	6ENT0001																								
	Semester Abroad	6ENT1051																								
	Placement Year	6AAD0015			X	X											X	X		X	X					
Level 6	Instrumentation & Control	6ENT1009			X	X										X			X							
	Engineering Management and Finance	6AAD0020			X	X												X								
	Reliability Engineering	6ENT1006	X			X			X		X		X											X	X	
	Vehicle Design	6ENT1067		X	X	X		X	X		X	X	X				X	X	X	X	X		X			
	Automotive Body Engineering	6ENT1112		X				X	X		X		X			X			X		X					
	Automotive Chassis & Powertrain Technology	6AAD0006				X		X	X		X					X			X	X						
	BSc Individual Project (Automotive)	6ENT1107			X												X	X	X	X	X	X		X	X	X
	Careers Portfolio	6ENT1021				X														X	X	X	X	X	X	

## Key to Programme Learning Outcomes for Automotive Technology with Management

### Knowledge and Understanding e.g.

- A1 Mathematical methods and fundamental engineering sciences appropriate to technology.
- A2 The design-to-build process.
- A3 The basic principles and economic, social, legal, ethical and sustainability considerations of the business of engineering.
- A4 Professional engineering and management practice.
- A5 Principles of IT and communications.
  
- A6v Automotive technology and its application in the design, performance and manufacture of volume production vehicles.
- A7v The industrial context of the automotive sector.

### Intellectual Skills e.g.

- B1 Use appropriate mathematical / scientific principles to solve problems.
- B2 Select commercial software packages for engineering and communication.
- B3 Evaluate external influences on the design and manufacturing process.
- B4 Design appropriate systems, components or processes.
- B5v Model and analyse relevant automotive technology systems.

### Practical Skills

- C1 Apply appropriate analytical and modelling techniques.
- C2 Perform experimental and manufacturing work and draw conclusions.
- C3 Use computer-based engineering tools.
- C4 Prepare technical documentation.
- C5 Plan and manage a project, taking into account economic, social, legal, ethical and sustainability constraints.
- C6v Evaluate the design of vehicles, components or processes.

### Transferable Skills

- D1 Communicate effectively, both orally and in writing.
- D2 Use commonly available IT tools.
- D3 Manage time and resources effectively.
- D4 Work effectively within a team as a member.
- D5 Manipulate, sort and present data.
- D6 Solve problems in a logical manner.
- D7 Learn effectively and independently, in all aspects of life.



## Key to Programme Learning Outcomes for Motorsport Technology

### Knowledge and Understanding e.g.

- A1 Mathematical methods and fundamental engineering sciences appropriate to technology.
- A2 The design-to-build process.
- A3 The basic principles and economic, social, legal, ethical and sustainability considerations of the business of engineering.
- A4 Professional engineering and management practice.
- A5 Principles of IT and communications.
  
- A6ms Motorsport technology and its application in the design, performance and manufacture of high performance vehicles.
- A7ms The industrial context of the motorsport sector.

### Intellectual Skills e.g.

- B1 Use appropriate mathematical / scientific principles to solve problems.
- B2 Select commercial software packages for engineering and communication.
- B3 Evaluate external influences on the design and manufacturing process.
- B4 Design appropriate systems, components or processes.
- B5ms Model and analyse relevant motorsport technology systems

### Practical Skills

- C1 Apply appropriate analytical and modelling techniques.
- C2 Perform experimental and manufacturing work and draw conclusions.
- C3 Use computer-based engineering tools.
- C4 Prepare technical documentation.
- C5 Plan and manage a project, taking into account economic, social, legal, ethical and sustainability constraints.
- C6ms Evaluate the design of high performance vehicles, components or processes.

### Transferable Skills

- D1 Communicate effectively, both orally and in writing.
- D2 Use commonly available IT tools.
- D3 Manage time and resources effectively.
- D4 Work effectively within a team as a member.
- D5 Manipulate, sort and present data.
- D6 Solve problems in a logical manner.
- D7 Learn effectively and independently, in all aspects of life.



## Section 2

### Programme management

<b>Relevant QAA subject benchmarking statements</b>	Engineering
<b>Type of programme</b>	Undergraduate
<b>Date of validation/last periodic review</b>	October 15
<b>Date of production/ last revision of PS</b>	April 19
<b>Relevant to level/cohort</b>	Level 4 entering September 2019
<b>Administrative School</b>	School of Engineering and Technology

Table 3 Course structure

Course details		
Course code	Course description	JACS/HECOS
EITMAE	BSc Hons Technology with Management (Aerospace Engineering)	H400/100115

Course details		
Course code	Course description	JACS/HECOS
EITMAU	BSc Hons Technology with Management (Automotive Engineering)	H342/100201

Course details		
Course code	Course description	JACS/HECOS
EITMAU	BSc Hons Technology with Management (Motorsport Technology)	H331/100201

Course details		
Course code	Course description	JACS/HECOS
EITMAE	BSc Hons Technology with Management (Aerospace Engineering with Pilot Studies)	H490/100115