



## SECTION 1: KEY PROGRAMME DETAILS

This section provides students with key details about their programme.

PROGRAMME INFORMATION	
<b>Final Award Title</b>	MEng Automotive Engineering
<b>Default Award Title (Exit Award)</b>	N/A
<b>Interim Award Titles (Exit Awards)</b>	BEng (Hons) Automotive Engineering BEng Automotive Engineering DIPHE Automotive Engineering CERTHE Automotive Engineering
<b>Awarding Institution</b>	UWE Bristol
<b>Teaching Institutions</b>	UWE Bristol
<b>Partner Institutions</b>	None
<b>Delivery Locations</b>	Frenchay Campus
<b>Study Abroad / Exchange / Credit Recognition</b>	N/A
<b>Faculty Responsible For Programme</b>	Environment and Technology
<b>Department Responsible For Programme</b>	Engineering, Design and Mathematics
<b>Professional Statutory or Regulatory Body (PSRB) Links</b>	Institute of Mechanical Engineers (IMechE)
<b>Apprenticeship</b>	N/A
<b>Mode of Delivery</b>	FT
<b>Entry Requirements</b>	The University's Standard Entry Requirements  Tariff points as appropriate for the year of entry - up to date requirements are available through the <a href="#">courses database</a> .
<b>For Implementation From</b>	Implementation from September 2020
<b>Programme Codes</b>	FOR QUALITY ENHANCEMENT TEAM TO COMPLETE ISIS: H335

<b>PART B: FOR STUDENT AND ACADEMIC SERVICES COMPLETION ONLY</b>	
<b>First UVP Approval Date</b>	<b>Date of first UVP approval</b>
<b>Date of Last Revalidation (through Programme Enhancement Review)</b>	<b>Dates of subsequent PERs and revalidations</b>
<b>Next Programme Enhancement Review Date</b>	<b>Academic year in which next Programme Enhancement Review due (6 years from initial approval or last PER)</b>

## SECTION 2: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES

This section provides students with an overview of the programme, its aims and its learning outcomes. It sets out what prospective and registered students can expect to know, understand and be able to do on successful completion of the programme.

Please write this section in the first person, addressing your prospective students.

### 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 throughout the programme 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, Visualising, Systems Thinking, Improving, and Adapting. Foundation principles of engineering science, skills and practice are integrated throughout all years of study.

The programme will produce Automotive engineering specialists who will also have a strong mechanical engineering background that will allow employment throughout the engineering sector. Automotive engineering is characterised by the coordination of multidisciplinary teams to produce innovative design solutions and an integrated systems approach to performance improvement and manufacturing. The programme is designed to encourage students to integrate engineering knowledge and skills from across engineering and to work alongside students from other engineering disciplines.

Mechanical engineering analysis, design, structures, stress analysis, dynamics, materials, thermofluids, systems and manufacturing are developed throughout the core and taken to an advanced level in the optional modules. Sufficient electrical and electronic content has been included in the core programme for the study of engineering problems involving electromechanical and mechatronic systems with the option of further studying advanced artefacts.

Automotive specialist core modules are offered at level 6 that include the critically important study of emerging technologies to make possible new engineering designs and create power and fuel systems for automotive products designed for a sustainable future for automotive transport.

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, academics and external practitioners.

The MEng year involves students working on a multidisciplinary group project that requires the demonstration of technical and business understanding of an engineering problem. This project module accounts for 50% of the level 7 credit and requires the application of innovative problem

**PART A: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES**

solving and project management skills. Together with the advanced level 7 options, students will graduate from the MEng programme with a significant enhancement of their ability and experience compared to the BEng programme.

The integration of knowledge, skills and practice allows the tackling of real engineering challenges and encourages students to engage with the wider role that 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)**

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

1. be able to work as a graduate engineer in the automotive sector and related disciplines. Students will have demonstrated the appropriate level of knowledge and understanding of mechanical engineering so that they will be in a position to secure employment as automotive specialists and in the wider engineering domain.
2. 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 creation of complex engineering products, particularly in relation to automotive engineering and will explore the environmental impact of automotive technologies.
3. 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.
4. 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.
5. have the requisite academic knowledge, skills and preparation for progression to study for higher degrees in appropriate engineering disciplines.
6. be equipped to make an early contribution to the success of an engineering organization having demonstrated strategic management and leadership skills within the context of a significant innovative engineering project requiring technical and business expertise.

**PART A: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES****3. Programme Learning Outcomes (c. 6-8 outcomes)****Programme (Learning) Outcomes (POs)**

<b>No.</b>	<b>PO Text</b>
PO1	apply established and novel mechanical analysis concepts to solve engineering problems involving design, operations and manufacture that arise within the automotive sector.
PO2	use systems incorporating digital hardware, software, communication, processing algorithms, interfacing circuits and parameter sensing and actuating devices.
PO3	model automotive engineering systems and be able to specify and assess technical designs.
PO4	understand the manufacturing, financial and marketing implications of design proposals.
PO5	identify the links between design, manufacturing and production management and assess the capabilities of manufacturing systems software used in the design, maintenance and improvement of manufacturing facilities within the automotive specialism.
PO6	Communicate and operate effectively either as individuals or as members of a team.
PO7	pursue independent study, research and investigations to 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.
PO9	demonstrated strategic management and leadership skills together with broader engineering knowledge that goes beyond those of the BEng(Hons) degree

*PO9 is included to distinguish outcomes of MEng from BEng and is an expected statement for Engineering PSRBs*

#### 4. Programme (Learning) Outcomes (POs) Mapping

<i><b>Programme Outcomes: Level 4 and 5</b></i>	Module No: UFMFKS-30-1 (c)	Module No: UFMFLS-30-1 (c)	Module No: UFMFMS-30-1 (c)	Module No: UFMFNS-15-1 s (c)	Module No: UFMFPS-15-1 (c)	Module No: UFMFQS-15-2 (c)	Module No: UFMFRS-15-2 (c)	Module No: UFMFSS-30-2 (c)	Module No: UFMFTS-30-2 (c)	Module No: UFMFL8-15-2 (c)	Module No: UFMFUS-15-2 (c)
	PO1:	x	x	x						x	
PO2:											x
PO3:		x	x	x	x			x	x	x	x
PO4:	x	x									
PO5:	x	x									x
PO6:	x	x	x	x	x	x	x	x	x	x	x
PO7:		x	x	x	x						
PO8:	x		x	x	x				x	x	

	<b>Programme Outcomes: Level 6</b> <i>Numbering indicates excluded combinations</i>	Module No: UFMFX8-30-3 (c)	Module No: UFMFV8-15-3 (c)	Module No: UFMFVS-15-3 s (c)	Module No: UFMFWS-15-3 (c)	Module No: UFMFXS-15-3 (c)	Module No: UFMFNQ-15-3 (op 1)	Module No: UFMF89-15-3 (op 1)	Module No: UFMFU6-15-3 (op)	Module No: UFMF7K-15-3 (op)	Module No: UFMFYS-15-3 (op)	Module No: UFMFYJ-15-3 (op)	Module No: UFMFSL-15-3 (op)	Module No: UFMF7T-15-3 (op)	Module No: UFMFCL-15-3 (op)
PO1:		x		x	x	x			x	x	x	x	x	x	
PO2:		x	x									x	x		
PO3:		x		x	x	x			x	x		x	x	x	
PO4:			x			x	x	x			x				
PO5:		x				x					x				
PO6:		x	x	x	x	x	x	x	x	x	x	x	x	x	x
PO7:		x	x				x	x				x	x	x	x
PO8:		x	x	x		x						x	x		x

	<b>Programme Outcomes: Level 7</b>									
	Module No: UFMF8T-60-M (c)	Module No: UFMF9T-15-M (c)	Module No: UFMFAT-15-M (c)	Module No: UFMFTL-15-M (op)	Module No: UFMFWL-15-M (op)	Module No: UFMFVL-15-M (op)	Module No: UFMEE8-15-M (op)	Module No: UFMEEC-15-M (op)	Module No: UFMEBP-15-M (op)	Module No: UFMENU-15-M (op)
PO1:	X	x	x	X		X			X	X
PO2:	X			X	X					
PO3:	X	x	x		X	X			X	X
PO4:	X						X	X		
PO5:	X					X	X	X	X	
PO6:	X	x	x	X	X	X	X	X	X	X
PO7:	X	x	x		X	X			X	X
PO8:	X	x	x	X	X	X	X	X	X	X
PO9:	X	x	x	X		X			X	X



**PART B: PROGRAMME STRUCTURE****1. Structure (Full-time)**

This structure diagram demonstrates the student journey from entry through to Graduation for a typical **full time student** including:

- level and credit requirements
- interim award titles
- compulsory and optional modules

**Year 1**

**Interim award:** CertHE Automotive Engineering requires 120 credits at the appropriate level. Please refer to UWE Academic Regulations for details.

**Compulsory modules**

Module Code	Module Title	Level	Credit
UFMFKS-30-1	Engineering Practice 1	4	30
UFMFLS-30-1	Solid Mechanics, Materials and Manufacturing	4	30
UFMFMS-30-1	Dynamics Modelling and Simulation	4	30
UFMFNS-15-1	Thermofluids	4	15
UFMFPS-15-1	Applied Electrical Technology	4	15

**Year: 2**

**Interim award:** DipHE Automotive Engineering requires 240 credits at the appropriate level. Please refer to UWE Academic Regulations for details.

**Compulsory modules**

Module Code	Module title	Level	Credit
UFMFQS-15-2	Engineering Practice 2	5	15
UFMFRS-15-2	Engineering Research	5	15
UFMFSS-30-2	Structural Mechanics	5	30
UFMFTS-30-2	Applied Thermofluids	5	30
UFMFL8-15-2	Dynamics	5	15
UFMFUS-15-2	Systems Design	5	15

**Year: 2P (Placement Year)**

**Interim award:** DipHE Automotive Engineering requires 240 credits at the appropriate level. Please refer to UWE Academic Regulations for details.

**Optional module**

Module Code	Module title	Level	Credit
UFMF89-15-3	Industrial Placement	6	15

**Year: 3**

**Interim award:** BEng Automotive Engineering requires 300 credits at the appropriate level. Please refer to UWE Academic Regulations for details.

BEng (Hons) Automotive Engineering requires 360 credits at the appropriate level. Please refer to UWE Academic Regulations for details.

**Compulsory modules**

Module Code	Module title	Level	Credit
UFMF8-30-3	Engineering Project	6	30
UFMFV8-15-3	Group Design and Integration Project	6	15
UFMFXS-15-3	Vehicle Design Fundamentals	6	15
UFMFVS-15-3	Vehicle Dynamics	6	15
UFMFWS-15-3	Emerging Automotive Technology 1	6	15

**Optional modules Set 1:** Select 15 credits from

UFMFNQ-15-3	Professionalism for Engineers	6	15
UFMF89-15-3	Industrial Placement (must be selected in year 2P)	6	15

**Optional modules Set 2:** Select 15 credits from

UFMFYS-15-3	Advanced Manufacturing Technology	6	15
UFMFYJ-15-3	Control Engineering	6	15
UFMF7K-15-3	Materials & Structures for Special Applications	6	15
UFMFU6-15-3	Composite Engineering	6	15
UFMFSL-15-3	Integrated Electro-mechanical Systems	6	15
UFMF7T-15-3	Advanced Heat Transfer	6	15
UFMFCL-15-3	Engineering and Society	6	15

**Year: 4**

**Interim award:** BEng (Hons) Automotive Engineering requires 360 credits at the appropriate level. Please refer to UWE Academic Regulations for details.

**Compulsory modules**

Module Code	Module title	Level	Credit
UFMF8T-60-M	Masters Group Capstone Project	7	60
UFMF9T-15-M	Advanced Vehicle Dynamics	7	15
UFMFAT-15-M	Emerging Automotive Technology 2	7	15

**Optional modules Set 1:** Select 30 credits from

UFMF7L-15-M	Computational Fluid Dynamics	7	15
UFMFVL-15-M	Mechanics of Composites	7	15
UFMEE8-15-M	Principles of Lean Engineering	7	15
UFMEEC-15-M	Concurrent Engineering and Design for Manufacture	7	15
UFMFTL-15-M	Advanced Mechatronics	7	15
UFMEBP-15-M	Structural Integrity and Design	7	15
UFMENU-15-M	Design of Fluid Systems	7	15

### PART C: HIGHER EDUCATION ACHIEVEMENT RECORD (HEAR) SYNOPSIS

Graduates of this programme will be equipped with a broad understanding of mechanical and automotive analysis and design, combined with knowledge of engineering practice, information technology and project management.

The programme produces graduates with a broad-based 'systems' approach to engineering problem solving. Graduates from this programme will 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

Set out which reference points and benchmarks have been used in the design of the programme:

- [QAA UK Quality Code for HE](#)
- Framework for higher education qualifications (FHEQ)
- Subject benchmark statement for Higher Education qualifications in engineering (Feb 2015)
- [Strategy 2030](#)
- [University policies](#)
- Staff research projects
- Relevant PSRB requirements: [AHEP3](#)
- [Industrial Advisory Board](#)

### PART E: REGULATIONS

B: Approved variant to University Academic Regulations and Procedures

The 480 credit integrated Bachelor / Masters degree (or 600 credit integrated Bachelor / Masters with foundation year) is not classified, but may be awarded with merit or distinction.

The award of merit or distinction in Automotive Engineering is determined as follows:

#### Distinction

An overall average of 70% has been achieved across 210 credits at level 6 or above. This average will be calculated based upon the marks for all of the level 7 modules **and at level 6, must include the marks and whole credit for the project followed by** the marks for the best remaining level 6 modules which are then required to make up the credit total.

#### Merit

An overall average of 60% has been achieved across 210 credits at level 6 or above. This average will be calculated based upon the marks for all of the level 7 modules **and at level 6, must include the marks and whole credit for the project followed by** the marks for the best remaining level 6 modules which are then required to make up the credit total.

#### Condoned Credit

From September 2020 intake onwards to comply with conditions set out by Engineering Council UK we will only be able to condone a maximum of 30 credits.