

Course Specification

Course Summary Information		
1	Course Title	MSc Automotive Engineering
2	BCU Course Code	PT1033
3	Awarding Institution	Birmingham City University
4	Teaching Institution(s) (if different from point 3)	
5	Professional Statutory or Regulatory Body (PSRB) accreditation (if applicable)	

6	Course Description
	<p>Our MSc Automotive Engineering course will teach you the skills you need to become a highly skilled engineer, capable of undertaking related tasks within and across different organisations.</p> <p>What's covered in the course?</p> <p>The Masters in Automotive Engineering course will encourage creative thinking and the development of engineering leadership skills, as well as teaching you how to solve problems through research. You'll engage in independent study, advancing your understanding and developing new skills.</p> <p>In addition to further academic research opportunities, career prospects are expected to keep pace with the rapid advances in computer aided methods and intelligent technologies.</p> <p>This Engineering degree course gives you an opportunity to pursue a career as a professional automotive engineer, general engineer and more.</p> <p>There is expected to be continuing demand for competent, versatile postgraduates who can design and implement innovative solutions for industry.</p>

7	Course Awards		
7a	Name of Final Award	Level	Credits Awarded
	Master of Science Automotive Engineering	7	180
	Master of Science Automotive Engineering with Professional Placement	7	240
7b	Exit Awards and Credits Awarded		
	Postgraduate Certificate Automotive Engineering	7	60
	Postgraduate Diploma Automotive Engineering	7	120

8	Derogation from the University Regulations
	<ol style="list-style-type: none"> 1. For modules with more than one item of assessment, students must achieve a minimum of 40% (postgraduate) in each item of assessment in order to pass the module 2. Compensation of marginal failure in up to 20 credits is permitted across the course 3. Condonement of failed modules is not permitted

9	Delivery Patterns			
	Mode(s) of Study	Location(s) of Study	Duration of Study	Code(s)
	Full Time September	City Centre	12 months	PT1033
	Full Time January	City Centre	17 months	PT1033
	Part Time September	City Centre	24 months	PT1034
	Part Time January	City Centre	28 months	PT1039
	Full Time January 'with Professional Placement'	City Centre (and placement provider)	23 months	PT1332

10	Entry Requirements
	<p>The admission requirements for this course are stated on the course page of the BCU website at https://www.bcu.ac.uk/ .</p>

11	Course Learning Outcomes	
	Science and Mathematics (SM)	
SM7M	A comprehensive understanding of the relevant scientific principles of the automotive engineering specialisation.	
SM8M	A critical awareness of current problems and/or new insights most of which is at, or informed by, the forefront of the automotive engineering specialisation.	
SM9M	Understanding of concepts relevant to the automotive engineering discipline, some from outside automotive engineering, and the ability to evaluate them critically and to apply them effectively, including multidiscipline engineering projects.	
	Engineering Analysis (EA)	
EA6M	Ability both to apply appropriate engineering analysis methods for solving complex problems in engineering and to assess their limitations.	
EA5m	Ability to use fundamental knowledge to investigate new and emerging technologies	

EA7M	Ability to collect and analyse research data and to use appropriate engineering analysis tools in tackling unfamiliar problems, such as those with uncertain or incomplete data or specifications, by the appropriate innovation, use or adaptation of engineering analytical methods.
Design (D)	
D9M	Knowledge, understanding and skills to work with information that may be incomplete or uncertain, quantify the effect of this on the design and, where appropriate, use theory or experimental research to mitigate deficiencies.
D10M	Knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations.
D11M	Ability to generate an innovative design for products, systems, components or processes to fulfil new needs.
Economic, Legal, Social, Ethical and Environmental Context (EL)	
EL8M	Awareness of the need for a high level of professional and ethical conduct in engineering.
EL9M	Awareness that engineers need to take account of the commercial and social contexts in which they operate.
EL10M	Knowledge and understanding of management and business practices, their limitations, and how these may be applied in the context of the particular specialisation.
EL11M	Awareness that engineering activities should promote sustainable development and ability to apply quantitative techniques where appropriate.
EL12M	Awareness of relevant regulatory requirements governing engineering activities in the context of the particular specialisation.
EL13M	Awareness of and ability to make general evaluations of risk issues in the context of the particular specialisation, including health and safety, environmental and commercial risk.
Engineering Practice (P)	
P12M	Advanced level knowledge and understanding of a wide range of engineering materials and components.
P9m	A thorough understanding of current practice and its limitations, and some appreciation of likely new developments.
P10m	Ability to apply engineering techniques, taking account of a range of commercial and industrial constraints.
P11m	Understanding of different roles within an engineering team and the ability to exercise initiative and personal responsibility, which may be as a team member or leader.
Additional General Skills (G)	
G1	Apply their skills in problem solving, communication, information retrieval, working with others, and the effective use of general IT facilities.
G2	Plan self-learning and improve performance, as the foundation for lifelong learning/CPD.
G3m	Monitor and adjust a personal course of work on an on-going basis.
G4	Exercise initiative and personal responsibility, which may be as a team member or leader.

12	Course Requirements																														
12a	<p>Level 7:</p> <p><i>In order to complete this course a student must successfully complete all the following CORE modules (totalling 180 credits):</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #ffff00;">Module Code</th> <th style="background-color: #ffff00;">Module Name</th> <th style="background-color: #ffff00;">Credit Value</th> </tr> </thead> <tbody> <tr> <td>ENG7147</td> <td>Advanced Powertrains and Control</td> <td>20</td> </tr> <tr> <td>ENG7153</td> <td>Vehicle Control Systems</td> <td>20</td> </tr> <tr> <td>ENG7151</td> <td>Advanced Systems Engineering</td> <td>20</td> </tr> <tr> <td>ENG7150</td> <td>Advanced Dynamics</td> <td>20</td> </tr> <tr> <td>ENG7148</td> <td>Control Engineering</td> <td>20</td> </tr> <tr> <td>ENG7142</td> <td>Research Methods</td> <td>20</td> </tr> <tr> <td>ENG7200</td> <td>Individual Master's Project</td> <td>60</td> </tr> </tbody> </table> <p>Level 6:</p> <p>In order to qualify for the award of MSc Automotive Engineering with Professional Placement, a student must successfully complete all of the Level 7 modules listed above as well as the following Level 6 module:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #ffff00;">Module Code</th> <th style="background-color: #ffff00;">Module Name</th> <th style="background-color: #ffff00;">Credit Value</th> </tr> </thead> <tbody> <tr> <td style="background-color: #ffff00;">TBC</td> <td style="background-color: #ffff00;">Professional Placement</td> <td style="background-color: #ffff00;">60</td> </tr> </tbody> </table>	Module Code	Module Name	Credit Value	ENG7147	Advanced Powertrains and Control	20	ENG7153	Vehicle Control Systems	20	ENG7151	Advanced Systems Engineering	20	ENG7150	Advanced Dynamics	20	ENG7148	Control Engineering	20	ENG7142	Research Methods	20	ENG7200	Individual Master's Project	60	Module Code	Module Name	Credit Value	TBC	Professional Placement	60
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12b Structure Diagram
Course Module Grid Full-Time MSc Automotive Engineering
September Entry

Year 1 1st Semester (Sept – Dec)	Advanced Systems Engineering (c) (ENG7151)	Control Engineering (c) (ENG7148)	Advanced Powertrains and Control (ENG7147)
Year 1 2nd Semester (Jan – May)	Research Methods (c) (ENG7142)	Advanced Dynamics (c) (ENG7150)	Vehicle Control Systems (ENG7153)
Year 1 3rd Semester (May- Sept)	Individual Master's Project (60 credits)		

January Entry

Year 1 1st Semester (Jan – May)	Research Methods (c) (ENG7142)	Advanced Dynamics (c) (ENG7150)	Vehicle Control Systems (ENG7153)
Year 1 2nd Semester (Sept – Dec)	Advanced Systems Engineering (c) (ENG7151)	Control Engineering (c) (ENG7148)	Advanced Powertrains and Control (ENG7147)
Year 2 1st Semester (Jan – May)	Individual Master's Project (60 credits)		

Course Module Grid Part-Time MSc Automotive Engineering
September Entry

Year 1 1st Semester (Sept – Dec)	Control Engineering (c) (ENG7148)	Advanced Systems Engineering (c) (ENG7151)
Year 1 2nd Semester (Jan – May)	Research Methods (c) (ENG7142)	Vehicle Control Systems (ENG7153)
Year 2 1st Semester (Sept – Dec)	Advanced Powertrains and Control (ENG7147)	Individual Master's Project (60 Credits)
Year 2 2nd Semester (Jan – May)	Advanced Dynamics (c) (ENG7150)	
Year 2 3rd Semester (May – Sept)		

January Entry

Year 1 1st Semester (Jan – May)	Vehicle Control Systems (ENG7153)	Research Methods (c) (ENG7142)
Year 1 2nd Semester (Sept – Dec)	Advanced Systems Engineering (c) (ENG7151)	Control Engineering (c) (ENG7148)
Year 2 1st Semester (Jan – May)	Advanced Dynamics (c) (ENG7150)	Individual Master's Project (60 Credits)
Year 2 2nd Semester (Sept – Dec)	Advanced Powertrains and Control (ENG7147)	
Year 3 1st Semester (Jan – May)		

Course Module Grid Part-Time MSc Automotive Engineering with Professional Placement
Professional Placement - January Entry (full time)

Year 1 1st Semester (Jan – May)	Research Methods (c) (ENG7142)	Advanced Dynamics (c) (ENG7150)	Vehicle Control Systems (ENG7153)
Year 1 2nd Semester (Sept – Dec)	Advanced Systems Engineering (c) (ENG7151)	Control Engineering (c) (ENG7148)	Advanced Powertrains and Control (ENG7147)
Year 2 1st Semester (Jan – May)	Individual Master's Project (60 credits)		
Year 2 2nd Semester (May – Nov)	Professional Placement (60 credits)		

13 Overall Student Workload and Balance of Assessment

Overall student *workload* consists of class contact hours, independent learning and assessment activity, with each credit taken equating to a total study time of around 10 hours. While actual contact hours may depend on the optional modules selected, the following information gives an indication of how much time students will need to allocate to different activities at each level of the course.

- *Scheduled Learning* includes lectures, practical classes and workshops, contact time specified in timetable
- *Directed Learning* includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning
- *Private Study* includes preparation for exams

The *balance of assessment* by mode of assessment (e.g. coursework, exam and in-person) depends to some extent on the optional modules chosen by students. The approximate percentage of the course assessed by coursework, exam and in-person is shown below.

Level 7

Workload

% time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	252
Directed Learning	12
Private Study	1536
Total Hours	1800

Balance of Assessment

Assessment Mode	Percentage
Coursework	48%
Exam	42%
In-Person	10%