Course Specification

Course Summary Information		
1	**Course Title**	MSc Mechanical Engineering
2	**BCU Course Code**	PT0939
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**
	By studying this programme you will engineer a better future. **What's covered in the course?** Advance your knowledge and understanding, develop your critical thinking and prepare to work across a range of organisations with our MSc Mechanical Engineering course. You will engage in independent study and systematic enquiry at an advanced level, developing new skills and becoming capable of undertaking mechanical engineering tasks using the latest technologies. You'll also work on industry-standard complex analytical tools such as Matlab/Simulink, CATIA, Ansys and ADAMS Mechanisms. You will work collaboratively with tutors, practitioners, theorists and designers, equipping you with everything you need to launch your career. In the UK, companies such as Jaguar Land Rover, BMW and Honda require a constant supply of highly-skilled engineers with the kind of fully-rounded experience which our course will give you. 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, hence, there is expected to be continuing demand for competent, versatile postgraduates who can design and implement innovative solutions for industry.

7	**Course Awards**		
7a	**Name of Final Award**	**Level**	**Credits Awarded**
	Master of Science Mechanical Engineering	7	180
7b	**Exit Awards and Credits Awarded**		
	Postgraduate Certificate Mechanical Engineering Postgraduate Diploma Mechanical Engineering	7 7	60 120

8	Derogation from the University Regulations
	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	PT0939
Full Time January	City Centre	15 months	PT0939
Part Time September	City Centre	24 months	PT0938
Part Time January	City Centre	28 months	PT0942

10	Entry Requirements

The admission requirements for this course are stated on the course page of the BCU website at https://www.bcu.ac.uk/.

11	**Course Learning Outcomes**
Science and Mathematics (SM)	
SM7M	A comprehensive understanding of the relevant scientific principles of the mechanical 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 mechanical engineering specialisation.
SM9M	Understanding of concepts relevant to the mechanical engineering discipline, some from outside mechanical 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	**Level 7:** ***In order to complete this course a student must successfully complete all the following CORE modules (totalling 180 credits):***

Module Code	Module Name	Credit Value
ENG7149	Thermofluids	20
ENG7148	Control Engineering	20
ENG7151	Advanced Systems Engineering	20
ENG7150	Advanced Dynamics	20
ENG7152	Advanced Materials and Manufacture	20
ENG7142	Research Methods	20
ENG7200	Individual Master's Project	60

12b Structure Diagram

Course Module Grid Full-Time Mechanical Engineering

September Entry

September

Advanced Systems Engineering (c) (ENG7151)	Control Engineering (c) (ENG7148)	Advanced Materials and Manufacture (ENG7152)	**Sem 1**

January

Research Methods (c) (ENG7142)	Advanced Dynamics (c) (ENG7150)	Thermofluids (ENG7149)	**Sem 2**

May

Master's Project (ENG7200)

January Entry

January

Research Methods (c) (ENG7142)	Advanced Dynamics (c) (ENG7150)	Thermofluids (ENG7149)	**Sem 1**

Summer Break

September

Advanced Systems Engineering (c) (ENG7151)	Control Engineering (c) (ENG7148)	Advanced Materials and Manufacture (ENG7152)	**Sem 2**

January

Master's Project (ENG7200)

Course Module Grid Part-Time Mechanical Engineering

September Entry

September		
Control Engineering (c) (ENG7148)	Advanced Systems Engineering (c) (ENG7151)	**Sem 1**
January		
Research Methods (c) (ENG7142)	Thermofluids (ENG7149)	**Sem 2**
Summer Break		
September		
Advanced Materials and Manufacture (ENG7152)	Master's Project (ENG7200) 60 Credits	**Sem 3**
January		
Advanced Dynamics (c) (ENG7150)		**Sem 4**
May		
		Sem 5 (Summer)

January Entry

January		
Thermofluids (ENG7149)	Research Methods (c) (ENG7142)	**Sem 1**
Summer Break		
September		
Advanced Systems Engineering (c) (ENG7151)	Advanced Materials and Manufacture (ENG7152)	**Sem 2**
January		
Advanced Dynamics (c) (ENG7150)	Master's Project (ENG7069) 60 Credits	**Sem 3**
September		
Control Engineering (c) (ENG7148)		**Sem 4**
January		

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	57%
Exam	36%
In-Person	7%