Programme Specification for Postgraduate Programme Leading to:
MSc Automotive and Motorsport Engineering

Applicable for all postgraduate students starting in 2020

Version No.	Date	Notes – QA USE ONLY	AO
2020-21 v1	*6 October 2020*	*Programme Specification updated for 2020/21 entrants..* *Senate approved that a PGDip may be awarded by substitution of the dissertation for up to 30 credits of modular/assessment blocks in the taught part of the programme, provided the learning outcomes have been met.*	*JP*

Postgraduate Taught Programme	
1. Awarding institution	Brunel University London
2. Teaching institution(s)	Brunel University London
3. Home college/department/division	College of Engineering, Design and Physical Sciences/ Dept of Mechanical and Aerospace Engineering / Mechanical Engineering/
4. Contributing college/department/division /associated institution	None
5. Programme accredited by	Institution of Mechanical Engineers
6. Final award(s) and FHEQ Level of Award	MSc Automotive and Motorsport Engineering - FHEQ Level 7
7. Programme title	MSc Automotive and Motorsport Engineering
8. Programme type (Single honours/joint)	N/A
9. Normal length of programme (in months) for each mode of study	12 months
10. Maximum period of registration for each mode of study	Normal period of study plus two years up to a maximum of five years
11. Variation(s) to September start	None
12. Modes of study	Full time
13. Modes of delivery	Standard
14. Intermediate awards, titles and FHEQ Level of Award	PGDip Automotive and Motorsport Engineering – FHEQ level 7
15. UCAS Code	N/A
16. JACS / HECoS Code	H330/TBC
17. Route Code	H330PSAUTMTE
18. Relevant subject benchmark statements and other external and internal reference points used to inform programme design	UK Quality Code for Higher Education QAA Subject Benchmark Statement (Engineering) Brunel 2030 Brunel Placement Learning Policy, as published under the 'Placements' section of the 'Managing Higher Education Provision with Others' page. Engineering Council, UK-SPEC document "Chartered Engineer and Incorporated Engineer Standard"
19. Admission Requirements	Details of entry requirements are provided on the University's and College website. Levels of English for non-native speakers are outlined on Brunel International's language requirements pages

20. Other relevant information (e.g. study abroad, additional information on placements)	The primary focus of the programme is to create Master's Degree graduates who are well equipped with the knowledge and skills to work in a multi-discipline subject area, typically encountered in the automotive and motorsport engineering industries. The program assists students to develop their imagination and creativity to follow a successful engineering career and enables the students to attain senior positions within national and international companies and organisation. The programme is designed to allow students to develop themes of expertise in particular subject areas, mainly through the group project and dissertation. The course also provides a useful introduction for students who may wish to study for a higher degree.
21. Programme regulations not specified in Senate Regulation 3. Any departure from regulations specified in Senate Regulation 3 must be stated here and approved by Senate.	N/A
22. Further information about the programme is available from:	Course webpage

23. EDUCATIONAL AIMS OF THE PROGRAMME

The main aim of this programme is to create Master's Degree graduates with qualities and transferable skills for challenging employment in the motorsport and automotive industries. The graduates will have the independent learning ability required for continuing professional development and acquiring new skills at a high level.

24. PROGRAMME AND INTERMEDIATE LEARNING OUTCOMES

The programme provides opportunities for students to develop and demonstrate knowledge and understanding (K) cognitive (thinking) skills (C) and other skills and attributes (S) in the following areas:

Level 7	Category (K = knowledge and understanding, C = cognitive (thinking) skills, S = other skills and attributes)	**Learning Outcome**	**Masters Only**	**Associated Assessment Blocks Code(s)**	**Associated Study Blocks Code(s)**	**Associated Modular Blocks Code(s)**
	K	1. Theoretical basis and practical implementation of vehicle dynamics				**ME5537**

	K	2. Design and analysis of high-performance engines				**ME5537**
	K	3. Principles of material selection and manufacturing				**ME5537**
	K	4. Principles of team management and vehicle testing				**ME5536**
	K	5. Research Methods and risk management techniques to mitigate environmental impacts and health-safety risks				**ME5571**
	K	6. Sustainable development concepts, policy drivers and environmental impact appraisal				**ME5571**
	K	7. Principles and practical implementation of the engineering design process				**ME5538**
	K	8. Advanced numerical models for the solution of engineering problems				**ME5542**
	K	9. Developing and applying advanced Computer Aided Engineering packages in an interactive environment				**ME5542**
	K	10. Advanced Computational Fluid Dynamics modelling and experimental techniques and their applications				**ME5535**

	K	11. Racing legislation and financial sponsorship				**ME5540**
	K	12. Management accounting techniques relevant to engineering evaluation				**ME5540**
	K	13. Principles of racing vehicle design and its optimisation for performance				**ME5541**
	C	14. Analyse and evaluate the performance of engines and vehicles				**ME5537**
	C	15. Identify and analyse design requirements for vehicle dynamics				**ME5537**
	C	16. Critical evaluation of literature to generate realistic, relevant, research aims and objectives, application of risk management knowledge to problem-solving and decision-making in research projects				**ME5571**
	C	17. Selection and use of appropriate numerical models for the analysis of engineering problems				**ME5542**
	C	18. Selection and use of appropriate computational and experimental techniques for the analysis of complex fluid flows				**ME5535**

	C	19. Evaluation of motor racing regulations and their implication to vehicle designs				**ME5540**
	C	20. Select and optimise the most suitable vehicle design for competition				**ME5541, ME5538**
	S	21. Selection and employment of appropriate research methods				**ME5571**
	S	22. Ability to prepare and disseminate quality written and oral research communications in a responsible manner				**ME5571, ME5538**
	S	23. Ability to work in line with Health and Safety regulations				**ME5571**
	S	24. Ability to select and adapt appropriate motivational methods				**ME5538**

	S	25. Ability to organise technical information into a concise, coherent document				**ME5538**
	S	26. Ability to employ conventional methods of technical communication				**ME5538**
	S	27. Team work and team management				**ME5538**
	K	28. Conceptual and theoretical attributes of a subject in which research is being undertaken	x			**ME5500**
	K	29. Procedures and techniques, which are necessary to manage and to deliver a coherent programme of original investigation involving independent analysis and research	x			**ME5500**
	C	30. Develop and sustain a logical argument that demonstrates intellectual maturity, academic judgement, critical insight and self reflection	x			**ME5500**

	C	31. Competence in the collection, synthesis and analysis of data	x			**ME5500**
	C	32. Selection and use of appropriate investigative techniques	x			**ME5500**
	C	33. Planning and evaluation of personal projects	x			**ME5500**
	S	34. Ability to define and organise a substantial investigation	x			**ME5500**
	S	35. Ability to develop a thesis by following a coherent argument	x			**ME5500**

Learning/teaching strategies and methods to enable learning outcomes to be achieved, including formative assessments

Learning outcomes 1-27 are achieved through a combination of lectures, seminars, tutorials (mostly in small group classes), laboratory and practical sessions, and coursework (undertaking and presentation of assignments, group project work).
The remaining learning outcomes, 28-35, are achieved through the dissertation project.

Summative assessment strategies and methods to enable learning outcomes to be demonstrated.

Learning outcomes achieved through module ME5571 are assessed using an unseen written exam.
Learning outcomes achieved through modules ME5536, ME5540 and ME5542 are assessed using written assignments.
Learning outcomes achieved through modules ME5535, ME5537 and ME5541 are assessed using written assignments and unseen written exams.
Learning outcomes achieved through the group project, ME5538, are assessed using written coursework (technical reports, portfolio, design critique) and oral presentation.
Learning outcomes achieved through the dissertation, ME5500, are assessed using the dissertation report.

25. Programme Structure, progression and award requirements

Programme structures and features: levels, assessment blocks, credit and progression and award requirements

- **Compulsory block:** one which all students registered for the award are required to take as part of their programme of study. These will be listed in the left hand column;
- **Optional block:** one which students choose from an 'option range'. These will be listed in the right hand column**;**
- A **core assessment** is an assessment identified within an assessment block or modular block (either compulsory or optional) which must be passed (at grade C- or better) in order to be eligible to progress and to be eligible for the final award. All core assessments must be specified on the programme specification next to the appropriate assessment or modular block:

  Where students are expected to pass the block at C- or better, but not necessarily all elements,

then the block itself is core.
e.g. AB5500 Project (40)
Core: Block

Where only some elements of assessments are required to be passed at C- or better, these will be identified by listing each element that is core
e.g. ABXXX1 Title (XX credits)
Core: 1 & 4

Where students are expected to pass all assessments in a block then this will be identified. By setting the assessment this way, students are also required to pass the block by default. This will be identified thus:
e.g. ABXXXX Title (XX credits)
Core: All, Block

- A **non-core assessment** does not have to be passed at grade C- or better, but must D- or better in order to be eligible for the final award.

FHEQ Level 7	
Compulsory assessment block codes, titles and credit	**Optional assessment block codes, titles and credits**
Compulsory study block codes, titles and credit volume	**Optional Study block codes, titles and credit volume**
Compulsory modular block codes, titles and credits ME5571 Research Methods and Sustainable Engineering (15 credits) ME5536 Racing Team Management and Vehicle Testing (15 credits) ME5537 Advanced Vehicle Dynamics, IC Engines, Materials and Manufacturing (15 credits) ME5538 Major Group Project (45 Credits) ME5500 Dissertation (60 Credits) Core: block	**Optional modular block codes, titles and credits** Students have to choose two of the four modules below: ME5542 Advanced Modelling and Design (15 credits) ME5535 Advanced Thermofluids (15 credits) ME5540 Racing Legislation, Finance and Sponsorship (15 credits) ME5541 Racing Vehicle Design and Performance (15 credits)

FHEQ Level 7 Progression and Award Requirements

As per Senate Regulation 3

PGDip may be awarded by substitution of the dissertation (ME5500) for modular/assessment blocks in the taught part of the programme, provided the learning outcomes have been met.