

Programme Specification

BSc Honours Motorsport Technology (Final Year Programme)

Valid from: September 2013

**Faculty of Technology Design & Environment/ Brooklands
College**

SECTION 1: GENERAL INFORMATION

Awarding body:	Oxford Brookes University
Teaching institution and location:	Brooklands College, Weybridge Campus
Final award:	BSc (Honours)
Programme title:	Motorsport Technology
Interim exit awards and award titles:	BSc Motorsport Technology
Brookes course code:	BR16
UCAS/UKPASS code:	
JACS code:	H331
Mode of delivery:	Face to face
Mode/s and duration of study:	1 year full time (max 4 years from first registering) 2 years part time (max 4 years from first registering)
Language of study:	English
Relevant QAA subject benchmark statement/s:	QAA Engineering benchmark (revised edition, 2010): http://www.qaa.ac.uk/en/Publications/Documents/Subject-benchmark-statement-Engineering-.pdf Engineering Council UK-SPEC (third edition, 2013): http://www.engc.org.uk/ukspec.aspx
External accreditation/recognition: <i>(applicable to programmes with professional body approval)</i>	Partial IEng (further learning) with the IET (http://www.theiet.org/)
Faculty managing the programme:	Technology, Design & Environment
Date of production (or most recent revision) of specification:	November 2012 April 2017

SECTION 2: OVERVIEW AND PROGRAMME AIMS

2.1 Rationale for and/or Distinctive features of the programme

This course is a one year top-up programme designed to enable students from Foundation Degrees (Engineering) in an appropriate Engineering subject, or equivalent, to obtain a BSc (Hons) in Motorsport Technology.

It has been developed within the Oxford Brookes University Modular Course and has a large project element so that students can tailor their course to the needs of industry. In addition the part-time mode has been designed so that students can continue to work whilst studying for their degree.

Brooklands College have many years of excellent work placements and progression to employment from our Motorsport courses. Some of the companies include McLaren Racing and Automotive, Lotus, Force India, Ferrari, West Surrey Racing, Barwell Motorsport, Carlin Motorsport, Aston Martin and many more. The course will also enable students to take an active part in the Brooklands Race Team to experience first-hand the requirements of a race team engineer.

2.2 Aim/s of the programme

The principal aim of this course is to provide an education in motorsport technology, producing graduates who have the necessary range of skills and depth of understanding to successfully pursue careers as engineers working in the industry.

A distinguishing feature of this Course is its practical and applied motorsport emphasis, which it derives from industries local to the College and the expertise of the staff. Graduates of the course should be able to work effectively in industry as part of design, development or research teams with the skills necessary to turn concepts into drawings and through to the manufacturing and assembly processes.

SECTION 3: PROGRAMME LEARNING OUTCOMES

This course together with the Foundation Degree in Motorsport Engineering at Brooklands College has been designed in accordance with the Engineering Council's policy Statement and the QAA Benchmark Statements summarised in UK-SPEC so that a graduate with Honours in the BSc Motorsport Technology will be able to meet the requirements for an Incorporated Engineer.

In particular, the course extends the student's professional knowledge of motorsport engineering by applying the theoretical concepts to practical applications in various industries; thereby enabling the students to become members of the professional community in their specialist area.

On successful completion of the programme, graduates will demonstrate the following Brookes Attributes:

3.1 Academic literacy

- 3.1.1 The application of basic IT, computing and mathematical tools, including physical relationships, that are fundamental to the design and modelling of motorsport engineering structures and components.
- 3.1.1 The ability to apply basic engineering principles and the ability to work with analytic techniques for problem modelling and simulation.
- 3.1.2 Creative participation in the “Engineering Design Process”, at both the conceptual and detail levels.
- 3.1.3 Knowledge of manufacturing processes and the application of computers to manufacturing of motorsport components and assemblies including disassembly.
- 3.1.4 An understanding of good engineering practice and the properties, behaviour, fabrication and use of relevant materials and components in the Motorsport Industry.
- 3.1.5 The ability to apply scientific and engineering principles to the solution of practical problems of Motorsport systems and processes, with an appreciation and basic understanding of the relevant theory and analysis
- 3.1.6 The ability to apply knowledge in order to analyse data and solve problems in a logical, practical and concise manner.

3.2 Research literacy

- 3.2.1 The ability to learn independently and apply that skill in order to extend the subject knowledge base or apply acquired knowledge to novel situations in Motorsport Engineering.

3.3 Critical self-awareness and personal literacy

- 3.3.1 The ability to develop and use interpersonal communication, presentation and team working skills along with various other enterprise skills.
- 3.3.2 Organisational skills at both the personal level and in the areas of project management and the management of human resources.
- 3.3.3 The ability to communicate effectively using a range of personal presentation skills and techniques.
- 3.3.4 The ability to self-manage and organise their work including the ability to organise, use and present information in a clear, logical and concise manner.

3.4 Digital and information literacy

- 3.4.1 The use and management of information technology within a Motorsport design environment.
- 3.4.2 An understanding of a broad range of appropriate information technology skills and their application within a technical or commercial environment. Particularly CAD systems and data transfer between such systems.
- 3.4.3 The ability to work with and use models that simulate the behaviour of the physical world from which performance can be reliably predicted.
- 3.4.4 The ability to communicate effectively using traditional graphical techniques, reports, presentations and IT tools.

3.5 Global citizenship

- 3.5.1 An understanding of critical factors in both the national and international Motorsport Technology business environment such as marketing skills and financial awareness.

3.5.2 An understanding of the role of engineering and specifically the role of Incorporated Engineers (IEng) in the global context of social, economic and ethical considerations.

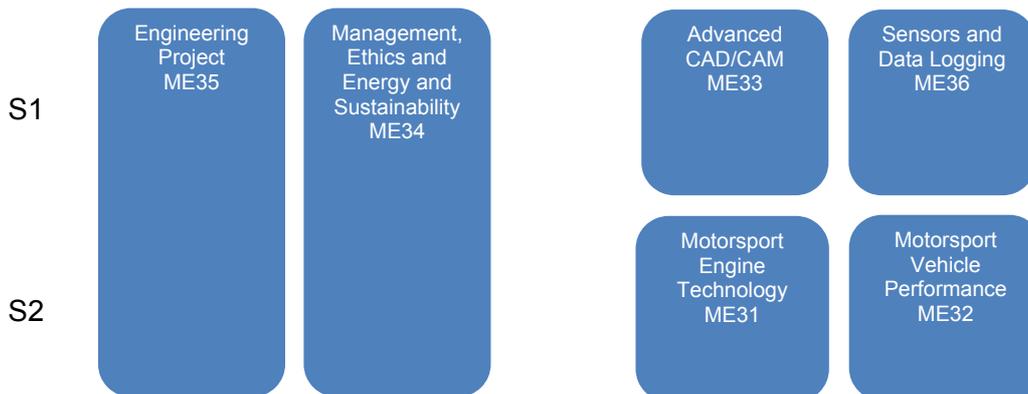
SECTION 4: PROGRAMME STRUCTURE AND CURRICULUM

4.1 Programme structure and requirements:

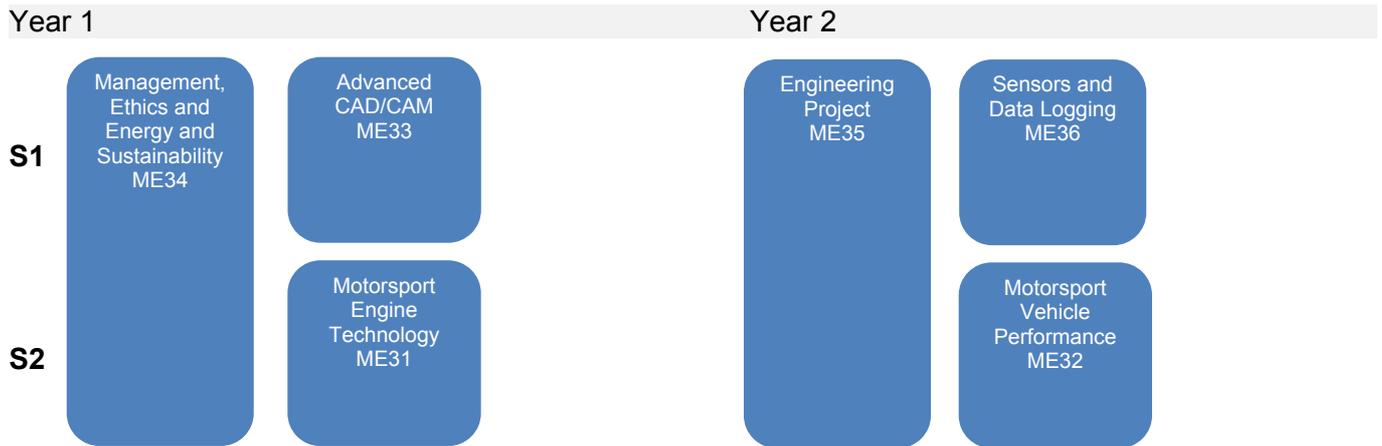
The level and status of the modules are:

Module Code	Module Title	Credits	Level	Status	Semester of delivery	Prerequisites
ME31	Motorsport Engine Technology	15	6	compulsory	2	N/A
ME32	Motorsport Vehicle Performance	15	6	compulsory	2	N/A
ME33	Advanced CAD/CAM	15	6	compulsory	1	N/A
ME34	Management, Ethics and Energy and Sustainability	30	6	compulsory	1&2	N/A
ME35	Project	30	6	compulsory	1&2	N/A
ME36	Sensors and Data Logging	15	6	compulsory	1	N/A

The structure of the full-time course is shown by the following subject diagram:



The structure for the 2 years part-time course is shown by the following diagram:



4.2 Professional requirements

Not applicable

SECTION 5: PROGRAMME DELIVERY

5.1 Teaching, Learning and Assessment

A fundamental philosophy guiding the design of the course is that teaching and learning takes place among a community of students and lecturers together seeking to pass on the principles, skills and knowledge associated with the profession of engineering. In this vein every effort is made to integrate subject material and show its use, effect and application across the course.

Contact time and student effort

Each single undergraduate module is 150 hours of effort. Modules presently consist of 36 hours contact time and are delivered using a mixture of lectures, tutorial/seminar sessions and laboratories. A student can expect to undertake an additional 114 hours of independent work per module. In any given week a student's contact time may be as high as twenty four hours or as low as seventeen hours depending on scheduling of laboratory and workshop timetables. The use and distribution of laboratory work varies significantly between modules and module levels on the programme and is allocated as appropriate by the subject specialist in each area.

Self-study typically consists of solving tutorial problems, writing laboratory reports or group meetings. The strategy for assessment of the learning outcomes is described in each module syllabus where the balance between analytic, design and creative skills as well as personal development and professional skills is outlined. Student engagement with assessment and feedback processes is achieved through such mechanisms as meetings with the programme team, Department policy for timely feedback to allow reflection on assessment and learning, and end-of-module evaluation.

The assessment strategy is guided by "Brookes Assessment Compact" and details may be found at: <http://www.brookes.ac.uk/aske/brookes--assessment-compact/>

Module assessment has been designed with a division between examination and coursework that suits the subject and the module learning outcomes. All assessment is designed to be aligned with module learning outcomes and the combination of learning outcomes and individual modules combines to provide the graduate attributes for the subject.

The current assessment in the programme is as follow:

Module Code	Module Title	Coursework (KIS 1)	Exam, class test (KIS2)	Practical exam (KIS3)
ME31	Motorsport Engine Technology	30%	70%	
ME32	Motorsport Vehicle Performance	100%		
ME33	Advanced CAD/CAM	70%	30%	
ME34	Management, Ethics and Energy and Sustainability	50%	50%	
ME35	Engineering Project	85%		15%
ME36	Sensors and Data Logging	50%	50%	
	Average	65%	31%	4%

Typically, undergraduate examinations last two hours. Coursework assignments are wide-ranging and invariably challenging, making use of strategies such as:

1. Poster presentations and Oral presentations – sometimes videoed;
2. Reports, Essays and other Descriptive Explanation;
3. Short automotive-based design studies and feasibility studies;
4. Problem sheets;
5. Class tests;
6. Written submissions of laboratory work and practical assessment of laboratory skills;
7. Detailed reports of extended laboratory exercises (mini-projects).

The provision of a coursework calendar prevents the bunching of deadlines, whilst student involvement in programme meetings helps to ensure that they have input to the development of assessment policy implemented in the programme. The virtual learning environment is used extensively to provide a wide variety of teaching materials, assessment methods with both formative and summative feedback. The virtual learning environment also provides for widening participation by making learning resources available and peer group support and interaction available outside normal working hours.

Achieving the Graduate Attributes

Graduate attributes are mapped to learning outcomes in groups of modules as follows:

Academic literacy

Students develop their knowledge base by specialising in Management, Ethics and Energy and Sustainability (ME34). The subject specific modules being: Motorsport Engine Technology (ME31), Motorsport Vehicle Performance (ME32), Advanced CAD/CAM (ME33), Sensors and Data Logging (ME36), and the double Engineering Project (ME35) module. Students can expect to measure and test physical theory and relationships in the lab in parallel with the academic literacies that they are acquiring through lectures, tutorial work and self-study so following the constructive alignment described in the University Assessment Compact.

Research literacy

Research literacy underpins each module at Level 6 but is more explicit in ME34 Management, Ethics and Energy and Sustainability and ME35 the double module for Engineering Projects. In these modules students apply skills and research literacies gained in earlier modules to enable them to plan an original piece of work, carry out the necessary research to familiarise themselves with current work and then build on the existing work to make new, original and novel contributions to the subject of study. The combination of group and individual project work give the students the necessary research and group working skills that enable them to progress being useful employees within a short period of time in their first career appointment.

Critical self-awareness and personal literacy

The final year the project module ME35, and ME34 Management, Ethics and Energy and Sustainability, feature critical assessment of one's own work and the work of others while preparing and planning the projects.

Digital information literacy

Graduates of the programme necessarily have very well developed computer based analytical skills because of the large amount of computer software used in the design and analysis of engineering artefacts, for example in module ME33 Advanced CAD CAM. However, the graduate attribute, 'Digital information literacy' extends beyond this to include the use of computers for more general skills such as presentations, literature reviews, preparation of design reports etc.

Global citizenship

This graduate attribute relates to how well the graduates of the programme are prepared for work in the international and global business context. Modules that address these learning outcomes particularly in the subject include ME33 Advanced CAD CAM and ME34 Management, Ethics and Energy and Sustainability.

5.2 Assessment regulations

The programme conforms to the University Regulations for BA, BSc and LLB Degree and Honours Degree, Graduate Diploma, DipHE, CertHE and Foundation Diploma Regulations which may be found at: <http://www.brookes.ac.uk/regulations/current/specific/b2/>

SECTION 6: ADMISSIONS

6.1 Entry criteria

Foundation Degree (Engineering) in Motorsport Engineering from Brooklands College with the optional modules Mathematics II and Motorsport Fluid Dynamics.

Foundation Degrees from other Universities or Colleges will be admitted if their modules are equivalent.

Any other qualification deemed equivalent by the University.

English Language Requirements

Applicants whose first language is not English must also demonstrate that their level of English is acceptable, by achieving a score in a recognised test such as British Council IELTS (normally minimum Level 6.0 overall with a minimum of 6.0 in reading and writing, 5.5 in listening and speaking).

The University's English language requirements can be found at <http://www.brookes.ac.uk/international/how-to-apply/undergraduate/undergraduate-entry-requirements/>

6.2 DBS checks

If applicable

SECTION 7: STUDENT SUPPORT AND GUIDANCE

Brooklands LRC has a study advice service for anyone who wants advice on:

- Study skills – planning and writing essays, assignments and dissertations
- Finding information, literature searching
- Referencing

The head of the LRC is Beth Gibbs who will arrange a tutorial for these topics

The Departmental Administrator – room TA3 – Karen Griffiths, is available for advice on day-to-day issues concerning the course and student access to services across the College.

SECTION 8: GRADUATE EMPLOYABILITY

Students entering this course on the part-time programme may be sponsored by Industry having completed a Foundation Degree at Brooklands College. Amongst these employers are McLaren Automotive and McLaren Racing. The students are working as Engineers in many different areas within these organisations and the employers are keen that the students gain additional qualifications to enable them to perform at higher levels.

Other non-sponsored students are expected to work in the Motorsport Industry as Incorporated Engineers.

The College and University provide advice and careers guidance. See

<http://vle.brooklands.ac.uk/webapps/login/>

<http://www.brookescareerscentre.co.uk>

All students are assigned to Academic Advisors whose roles are to offer help and advice throughout their course. This relationship is important since, in addition to academic counselling, the Academic Advisor is the first person for the student to contact in cases of illness, family problems and career responsibilities. More details are provided at

<http://vle.brooklands.ac.uk/webapps/login/>

SECTION 9: LINKS WITH EMPLOYERS

The College has developed close links with many motorsport employers through work experience placements. In addition the Department of Mechanical Engineering and Mathematical Sciences (MEMS) has run successful employer events such as industrial training and promotional enterprises. Throughout the year the Department may have visiting speakers as part of an “Industrial Lecture Series” to which students are invited to attend.

SECTION 10: QUALITY MANAGEMENT

Indicators of quality/methods for evaluating the quality of provision

The programme adheres to the nationally accepted benchmark statements for Engineering at Incorporated Engineering Level.

The QAA has assessed the provision of Mechanical Engineering at Oxford Brookes University including collaborative provision. The overall quality of observed teaching and learning was judged to be satisfactory. Positive features include the good rapport and interaction between staff and students, the integration of subject matter from different disciplines and the quality of project work.

Other indicators of quality are:

- Annual evaluations of the programme by the External Examiner;
- Feedback from students in the annual evaluations and at the end of each module;
- Employment success rate of current and past graduates in engineering;
- Feedback obtained from the companies who employ our students;
- The same programme at Oxford Brookes University is accredited by the IMechE as meeting the academic standards required for Incorporated Engineer.
- The same programme at Oxford Brookes University meets the internal Quality Standards of the University and is well established.

The programme also conforms to the structure and regulations of the University's Undergraduate Framework. The course is subject to Annual Review and University quality assurance procedures.