OXFORD BROOKES UNIVERSITY

Programme Specification

BSc Honours Motorsport Technology (Final Year Programme)

Valid from: September 2015

Faculty of Technology Design & Environment/ University Centre Somerset

OXFORD BROOKES UNIVERSITY

SECTION 1: GENERAL INFORMATION

Awarding body:	Oxford Brookes University
Teaching institution and location:	University Centre Somerset, Bridgwater & Taunton College, Bridgwater Centre
Final award:	BSc (Honours)
Programme title:	Motorsport Technology
Interim exit awards and award titles:	BSc Motorsport Technology
Brookes course code:	BW20
UCAS/UKPASS code:	
JACS code:	H333
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: *(applicable to programmes with professional body approval)*	Partial IEng (further learning) with the IET (http://www.theiet.org/) and the IMechE (http://www.imeche.org/)
Faculty managing the programme:	Technology, Design & Environment
Date of production (or most recent revision) of specification:	September 2015 April 2017

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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.

The programme will utilise its facilities to provide students with the same opportunities as those on the same course offered at Oxford Brookes University. Cohort size will follow a similar pattern to that of the in-house FdEng course and will allow natural progression in a familiar environment to that of the previous course studied.

Local employers such as Anderson Racing Engines and Mark Bailey Racing will be contacted to ensure the programmes relevance to industry and that the facilities, software and equipment is to the correct standards.

Graduates from the course will have a range of skills and knowledge to help them progress into the workplace or onto a higher degree course.

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 Bridgwater & Taunton 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.

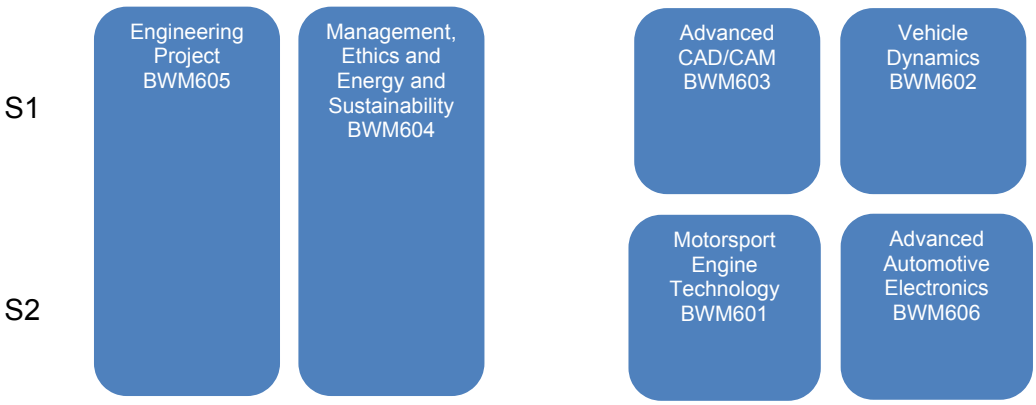
SECTION 4: PROGRAMME STRUCTURE AND CURRICULUM

4.1 Programme structure and requirements:

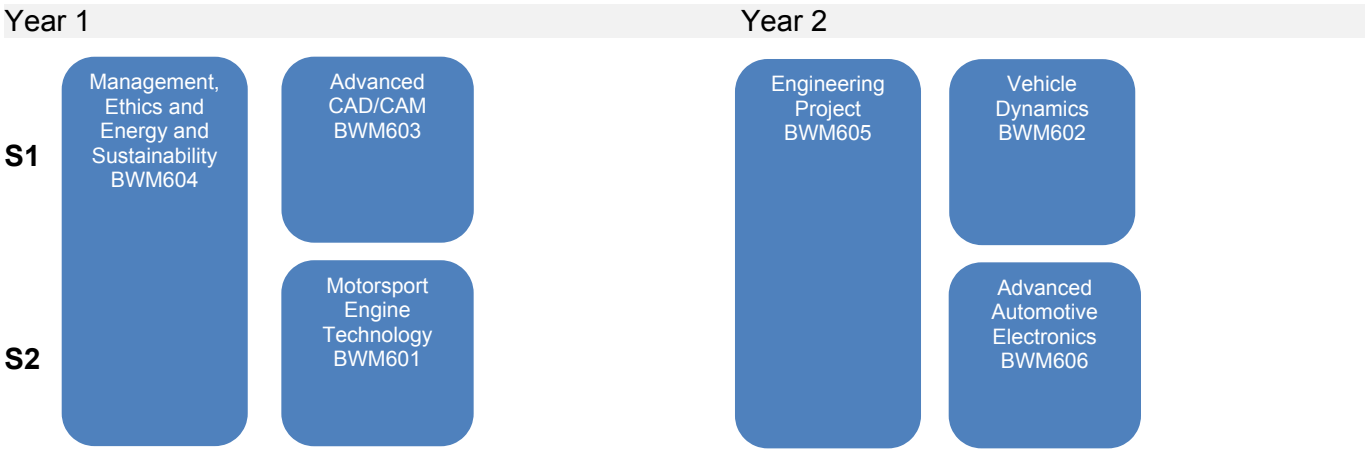
The level and status of the modules are:

Module Code	Module Title	Credits	Level	Status	Semester of delivery	Prerequisites
BWM601	Motorsport Engine Technology	15	6	compulsory	2	N/A
BWM602	Vehicle Dynamics	15	6	compulsory	1	N/A
BWM603	Advanced CAD/CAM	15	6	compulsory	1	N/A
BWM604	Management, Ethics and Energy and Sustainability	30	6	compulsory	1&2	N/A
BWM605	Engineering Project	30	6	compulsory	1&2	N/A
BWM606	Advanced Automotive Electronics	15	6	compulsory	2	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)
BWM601	Motorsport Engine Technology	30%	70%	
BWM602	Vehicle Dynamics	50%	50%	
BWM603	Advanced CAD/CAM	70%	30%	
BWM604	Management, Ethics and Energy and Sustainability	50%	50%	
BWM605	Engineering Project	85%		15%
BWM606	Advanced Automotive Electronics	100%		
	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 (BWM604). The subject specific modules being: Motorsport Engine Technology (BWM601), Vehicle Dynamics (BWM602), Advanced CAD/CAM (BWM603), Advanced Automotive Electronics (BWM606), and the double Engineering Project (BWM605) 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 BWM604 Management, Ethics and Energy and Sustainability and BWM605 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 BWM605, and BWM604 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 BWM603 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 BWM603 Advanced CAD CAM and BWM604 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 Bridgwater & Taunton 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

Bridgwater 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
- E-resources
- Plagiarism

General support is available from Student Support, email studentsupport@bridgwater.ac.uk

SECTION 8: GRADUATE EMPLOYABILITY

Students entering this course on the part-time programme may be sponsored by Industry having completed a Foundation Degree at Bridgwater & Taunton College.
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://www.bridgwater.ac.uk/college-information.php?category=4&page=50

http://www.brookescareerscentre.co.uk

Your Programme team will also be able to provide support and guidance around careers interests you may wish to explore.

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.

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 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.

Bridgwater & Taunton College's QAA Integrated Quality and Enhancement Review (IQER) report published in July 2014 stated that:

"The QAA review team formed the following judgements about the higher education provision at Bridgwater & Taunton College.

- *The maintenance of the threshold academic standards of awards offered on behalf of its degree-awarding bodies and awarding organisation meets UK expectations.*
- *The quality of student learning opportunities at Bridgwater & Taunton College meets UK expectations.*
- *The quality of the information produced about its provision meets UK expectations.*
- *The enhancement of student learning opportunities meets UK expectations.*

The QAA review team identified the following features of good practice at Bridgwater & Taunton College.

- *The integrated approach to transition from entry to higher education, through to further study and employment (Expectation B4).*
- *The embedding of employability into the curriculum (Expectation B4).*
- *The extensive engagement with employers, including work-based learning (Expectations B4, B10).*
- *The clear and comprehensive information available to prospective students on employment opportunities relevant to their programmes (Expectations C, B4)."*

The programmes at Brookes' Department of Mechanical Engineering and Mathematical Sciences also benefit from rigorous quality assurance procedures and regularly receive excellent feedback from external examiners, employers, students and professional bodies. Other FD programmes have also recently been subject to a rigorous accreditation visit by the IET and IMechE. Examples of how quality assurance of the programme is addressed include:

- Programme Committee meetings, held once a semester, to enable staff and students to feedback on the programme.
- A rigorous annual and periodic review process to ensure the currency of the programme.
- An external examining process that follows the University guidelines.
- Systematic end of module and end of programme monitoring and evaluation.

Other indicators of quality include:

- Academic staff who are Chartered Engineers / Chartered Physicists / Chartered Scientists.
- Academic staff who are fellows of senior fellows of the HEA.
- Strong performance in the last Research Excellence Framework.
- Feedback from Industrial Advisory Board drawn from senior industrialists.
- Strong performance in the National Student Survey & Graduate Employability surveys
- The programme adheres to the nationally accepted benchmark statements for Engineering.