



Faculty of Technology, Engineering and the Environment

Birmingham City University

Programme Specification

MSc Mechanical Engineering

Date of Course Approval/Review	Current Version Number	Version Date
26 th January 2011	1.02	March 2011

Definitive Documents and Version Control

This document has a version number and reference date in the footer.

The process leading to the introduction of new courses, major changes to courses, and minor changes to courses and modules follows the appropriate formal procedure as described in the Faculty's Academic Procedures and Quality Manual.

On the front sheet of this document, the date of course approval/review refers to the most recent full approval/review event. The version date will be that of the most recent event at which formal consideration was given to course changes.

Further details about the course and document development may be obtained from minutes of the approval or minor changes board. A history of the document since the last full approval/review event is summarised in the table below and further information relating to past versions can be obtained from the Faculty Office.

MSc Automotive Engineering Programme Specification			
Version	Event	Date of event	Authorised by
1.01	Reapproval	26 th January 2011	Dean of Faculty
1.02	Requested Modifications	March 2011	Dean of Faculty

PROGRAMME SPECIFICATION

MSc Mechanical Engineering

Date of Publication to Students: TBC

NOTE: This specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes advantage of the learning opportunities that are provided. More detail on the specific learning outcomes, indicative content and the teaching, learning and assessment methods of each module can be found (1) at <https://mytee.bcu.ac.uk>, (2) in the Course Validation Document, and (3) in the Student Handbook. The accuracy of the information contained in this document is reviewed by the University and may be checked within independent review processes undertaken by the Quality Assurance Agency.

The information from this specification may be selectively extracted and included in documents that are more appropriate for students, intending students and employers.

1 Awarding Institution / Body	Birmingham City University
2 Teaching Institution:	Birmingham City University
3 Programme accredited by:	IMechE
4 Final Award:	MSc
5 Programme Title:	Mechanical Engineering
6 UCAS Code:	N/A
7 QAA Benchmarking Group:	N/A

8 Professional Status of the programme:

This programme is recognised by the Institution of Mechanical Engineers as an Accredited course that meets in part the exemplifying academic benchmark requirements for registration as a Chartered Engineer (CEng IMechE) as recognised by the same Institution.

9 Aims of the programme

Overall, the course aims to provide engineers within the design role in the sector with a rigorous grounding in industrial standard simulation tools. In particular

- To respond to the market need for mechanical engineers competent and skilled in the use of advanced computer modelling and simulation techniques.
- Knowledge in the use and application of advanced software, as both visualisation and solution tools for system representation, underpinned by theoretical and practical aspects to support its application.
- Competence in the skills required to design and analyse complex systems and components within the automotive engineering environment.

10 Intended learning outcomes and the means by which they are achieved and demonstrated: the programme provides learners with opportunities to develop and demonstrate knowledge and understanding, skills and other attributes as follows:

Knowledge and understanding

Knowledge and understanding of:	Teaching, learning and assessment methods used:
<p>A defined body of knowledge, relating to the fundamental principles of mechanical engineering and, where appropriate, professional practice in industry and commerce.</p> <p>The essential skills of analysis, synthesis, decision-making and the ability to apply such to resolve design challenges and unfamiliar problems.</p> <p>Integrated product design and analysis frameworks</p> <p>Design and analysis aspects of the field in respect of Stress Analysis and Dynamics</p> <p>Analysis and design tools such as Adams Mechanisms, Finite Element Analysis and Solid Modelling techniques.</p> <p>Dynamics and control of mechanical vibrations and systems.</p> <p>Manufacturing processes</p>	<p>Face-to-face traditional lecture, seminar, tutorial, self-directed study and peer review sessions.</p> <p>Directed independent learning activities are encouraged at all stages of the course.</p> <p>Knowledge and understanding are also acquired through web based curricula and use of collaborative technologies where appropriate.</p> <p>Knowledge and competence assessment is undertaken by tutors and peers, this both formative and summative. This includes seminars, viva-voce, coursework, practical case studies, theory projects, time constrained examinations, and practical assessments.</p> <p>Students are supported beyond the traditional face-to-face delivery by appropriate tools and technologies developed to support collaborative working.</p>

Skills and other attributes

<p>Intellectual / cognitive skills:</p> <p>Argue rationally and draw independent conclusions based on a rigorous, analytical and critical approach to demonstration and argument.</p> <p>Synthesise theory and practice to design/implement a range of solutions.</p> <p>Assess and resolve issues relating to competing demands on resources.</p> <p>Write fully researched and referenced reports, which evaluate technical issues. This will involve the use of a variety of IT tools.</p> <p>Demonstrate, in an analysis of a specified problem, a high level of competence and understanding of the data manipulation, information presentation and delivery.</p> <p>Apply new technologies and techniques to solve present and future industrial and commercial problems locally, nationally and internationally.</p> <p>Use relevant analytical and modelling techniques to plan and complete a design project.</p> <p>Apply, where appropriate, software tools for design and analysis.</p>	<p>Teaching, learning and assessment methods used:</p> <p>Intellectual skills are developed through teaching and learning programme previously outlined.</p> <p>Analytical and problem solving skills are further developed using a range of appropriate 'real' and 'theoretical' case-studies and problem based learning scenarios.</p> <p>The course comprises 8 modules, all requiring an element of written work, which will demonstrate the students' ability to apply the knowledge gained to a specific problem. Each Module attracts 15 Credits.</p> <p>Assessment includes practical work, individual written coursework, group presentations, viva voce, individual and group reports, practical assessments, closed and open book time constrained examinations.</p>
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<p>Practical, research and independent learning skills:</p> <p>Access information from the internet, journals, books, research papers and appraise its suitability for master's level research.</p> <p>Demonstrate the ability to work autonomously or in a group and accept responsibility for the action taken.</p> <p>Reflect on personal practice, attributes, both theory and practice and modify approach to maximise learning opportunities as required.</p> <p>Interpret and critically evaluate knowledge, concepts and ideas and/or forms of creative expression, to deliver a quality product or service.</p> <p>Apply the knowledge, skills and methodologies of project management to the analysis and solution of complex problems.</p> <p>Possess a defined body of knowledge, skills and understanding and analyse its relationships with conceptual frameworks and, where appropriate, professional practice.</p> <p>Draw independent conclusions based on analysis of argument, opinion and data.</p>	<p>Teaching, learning and assessment methods used:</p> <p>Initiative and independence are fostered throughout, and develop incrementally as the course progresses.</p> <p>Emphasis is place on guided, self-directed and student-centred learning, with increasing independence of approach, thought and process. This independent learning includes a process of peer review in order to evaluate the effectiveness of the learning.</p> <p>Learners are encouraged to plan their own work schedules and are required to meet strict deadlines.</p> <p>Learners are required to plan and execute a related dissertation.</p>
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<p>Transferable / key skills:</p> <p>Elicit the co-operation of others and contribute to team goals</p> <p>Manage time and prioritise workloads</p> <p>Make effective oral and written presentations which are coherent and comprehensible to others</p> <p>Access and make appropriate use of relevant mathematical, statistical and theoretical information.</p> <p>Use various forms of communication and expression, then to employ them selectively, appropriately and effectively according to the requirements of the solution.</p> <p>Plan and deliver an oral presentation, including viva-voce, lead discussion and facilitate arguments, in an eloquent and professional manner, making use of a computer-based presentation aids, where necessary.</p> <p>Identify career opportunities and begin to build a recruitment strategy, including obtaining placement opportunities.</p> <p>Show confidence and self-awareness, reflect on own learning, and be self-reliant and constructively self-critical.</p>	<p>Teaching, learning and assessment methods used:</p> <p>Transferable/key skills are core to the learning strategy of the programme. They are pervasive, and are incorporated into modules and assessments as appropriate, for example; team-working skills are fostered through the use of group, task-based practical projects.</p> <p>Keeping logbooks and submitting self-assessment documentation in support of personal performance fosters self management and personal development.</p> <p>The use of information technology plays an integral role throughout the course. The support materials are available through the URLs provided on the module guides.</p> <p>A full range of resources are identified including books, journals as well as locally created material.</p>
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11 Programme structure and requirements, levels, modules, credits and awards

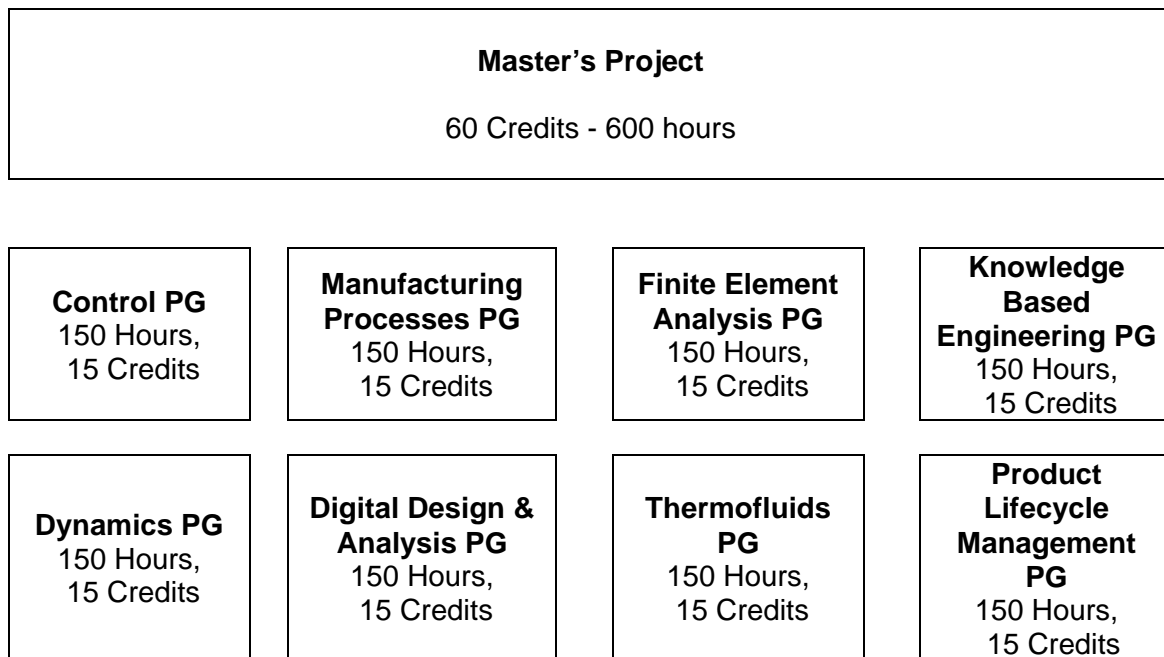
The MSc programme is normally studied over one year full-time or two years part-time. Students may, if they wish move between full and part-time modes of attendance. The academic year is divided into semesters of approximately 15 weeks each, which run from September to January and January to June. The course is divided into 9 distinct study units; eight modules, (15 credits) and a Master's project (60 credits).

Students who complete any 60 credits are awarded the Postgraduate Certificate, any 120 credits a Postgraduate Diploma and only on completion of the Master's Project are awarded the Master's degree.

Each credit represents 10 hours of student learning and assessment.

The structure of the course, the module, levels and credit ratings and the awards that can be gained are shown below. Personal Development Planning is an integral part of the learning process of each element of the course.

MSc Mechanical Engineering



12 Support for Learning

Students are encouraged to identify and, with guidance, to reflect on their own learning needs and are offered the following support as appropriate to those needs:

A student handbook containing information relating to the University, Faculty and the modules of study.

A virtual learning environment to support students remotely via collaborative tools and technologies.

An induction programme dealing with orientation and the dissemination of essential information.

A dedicated Learning Centre with open access learning materials, resources and full-time staff specialising in a variety of support areas.

Access to teaching, support and management staff.

Access to the services of the Learning Centre and IT support staff.

Postgraduate website accessed through the Faculty intranet.

Access to faculty and BCU resources seven days per week e.g. Library, eLearning materials – outside normal class times.

Access to student services, including Students Union.

13 Criteria for admission

Candidates must satisfy the general admissions requirements of the programme, which are as follows:

Prospective students who hold at least a 2(ii) Honours degree from a UK university or equivalent in a relevant design, technology, or engineering discipline will be considered for the course.

Students with other qualifications (including overseas) will be considered by the course team in line with admission criteria identified within the Postgraduate Programme Handbook.

Professional qualifications, work experience and non-standard work based qualifications may be considered by the course team for admission to the course.

14 Evaluation and improvement of quality and standards

Committees:	Mechanisms for review and evaluation:
Course Committee Board of Studies Examination Board Learning and Teaching Committee Academic Standards and Quality Enhancement Committee Faculty Board Student Experience Committee	Review and validation events Annual Monitoring Student feedback questionnaires Annual staff appraisal External Examiners' Reports Course team meetings and Away Days

15 Regulation of assessment

Details of the mechanisms and criteria for assessment in individual modules, and the means of determining final awards, are published widely. Students are able to access the University's Standard Postgraduate Assessment Regulations on the Intranet and individual and collective guidance is given by academic staff on their operation at appropriate times throughout the course. Any exemptions to the Standard Postgraduate Assessment Regulations are detailed in the Student Course Handbook.

External Examiners are appointed. Their work includes:

- reviewing coursework assignments and assessment criteria
- approving examination papers
- monitoring standards through moderation of completed assessments
- attending Examination Boards
- participating in the course development processes.