

Programme Specification

Programme Title: BEng (Hons) in Mechanical Engineering

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|---|---|-----------------------|---------------------|
| Awarding Institution: | The University of Bolton | | |
| Teaching Institution: | University of Bolton | | |
| Division and/or Faculty/Institute: | Faculty of Advanced Engineering & Sciences | | |
| Professional accreditation | Professional body | Professional body URL | Status of graduates |
| | | | |
| Final award(s): | BEng(Honours) | | |
| Interim award(s) | | | |
| Exit or Fallback award(s) | Diploma of Higher Education in Mechanical Engineering Certificate of Higher Education in Mechanical Engineering | | |
| Programme title(s) | Mechanical Engineering | | |
| UCAS Code | H300 | | |
| JACS Code | H300 | | |
| University Course Code(s) | Full time - ENG0004 Part-time – ENG5005 | | |
| QAA Benchmark Statement(s) | Engineering (2010) UK Standards for Professional Engineering Competences (UK-SPEC): The Accreditation of Higher Education Programmes (2010). | | |
| Other internal and external reference points | QAA Academic Infrastructure, including the Framework for Higher Education Qualifications and the Code of Practice. UK Quality Code for Higher Education University of Bolton awards framework | | |

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| Language of study | English |
| Mode of study and normal period of study | Full Time – 3 years Part Time – 4.5 years (with possible exemptions for prior learning at HE4) |
| <p>Admissions criteria</p> <p>You should have a minimum of two GCE A2-level passes (or equivalent), including Maths and a Science; and five GCSEs at grade C or above (or equivalent), including English Language.</p> <p>If English is not your first language you will need to complete a Secure English Language Test at IELTS 6.0 or equivalent.</p> | |
| <p>Additional admissions matters</p> <p>Non-standard and mature student entry to Part-Time or Full-Time:</p> <ul style="list-style-type: none"> - Certificate (HND/C) will be considered for direct entry to HE5 Level given good results in Level 4 Mathematics and Science. - Engineering related work experience and interview (essential for those applying with non-standard entry routes qualifications). - Foundation Degree may be considered for entry to HE5 <p>Interviews or informal discussions may be used for Part Time entry students to assess suitability or entry point onto the programme.</p> <p>The first two years of the programme are common to both the BEng (Hons) and MEng routes; hence, given exceptional academic performance at HE4 and into HE5, students may have the opportunity to be counselled for transfer from the BEng (Hons) to the MEng route.</p> | |
| <p>Fitness to practise declaration</p> <p>Not applicable</p> | |
| <p>Aims of the programme</p> <p>This BEng (Hons) in Mechanical Engineering (PT/FT) route is one of four engineering routes within an integrated Masters/BEng (Hons) programme of study. The broad aims of this programme are to:</p> <ul style="list-style-type: none"> • Educate and develop prospective mechanical engineers to the academic requirements (UK Standards for Professional Engineering Competences (UK-SPEC)) leading towards Chartered Engineer status with the Institute of Mechanical Engineers (IMechE). | |

- Prepare prospective engineers for meaningful professional employment in the Mechanical Engineering sector of industry.
- Prepare prospective engineers for a fruitful and responsible life in society and their community.
- Complete a programme of professional development and training (PDP).
- Provide an integrated programme to achieve delivery efficiency and integration of subject matter. Hence, this Mechanical route integrates with the Automobile routes and BEng(Hons).

The principal aims of the programme are that it will produce graduates that are:

- motivated to practise engineering
- enthusiastic, articulate, questioning and open-minded
- recognised nationally and internationally as highly competent engineering graduates
- aware of the financial, moral, legal, economic, environmental and cultural constraints in which they operate
- aware of current management practice
- committed to and prepared for lifelong learning

In doing so, the programme aims to:

- establish the relevance of engineering to real world problems
- use design as an integrative element in the whole of the degree
- incorporate health and safety, environmental issues and sustainability
- ensure content matches the needs and developments in modern industry and society
- encourage reflection on learning experiences
- develop modelling and analytical skills and the application of those skills
- involve breadth and depth of coverage to meet the needs of industry and society in technical, management and business topics
- encourage and develop a process of Personal Development Planning (PDP)

Distinctive features of the programme

- A purpose-designed route ready for accreditation with IMechE for routes towards satisfying CEng registration that is internationally recognised.
- The entire first year cohort joins the IMechE as Affiliate members.
- The Project is recognised and supported through grants by Royal Academy of Engineering as following the Engineering Gateway programme endorsed by the Engineering Council.
- Project-based learning (PBL) at every stage, either in groups or as individuals, linked to ePDP.
- 'Hands-on' Project type modules at all levels of the programme for assimilation and integration of topics and material.
- Industrial visits.
- Open access and skills development in quality CAD, Analysis, Optimisation, CAM and CAE software.

- The IMechE Design Challenge for Undergraduate Engineers
- The British Model Flying Association's University Challenge
- Opportunity to participate in the IMechE/SAE "Formula Student" challenge
- Individual and group Industrial 'live' projects.

Programme learning outcomes

UK-SPEC General Learning Outcomes:

On completion of this programme you will:

Understanding & Knowledge

- demonstrate knowledge and understanding of facts, concepts and theories and underpinning mathematics and science. (K1)
- have an appreciation of the wider multidisciplinary engineering context and its underlying principles (K2)
- appreciate the social, environmental, ethical, economic and commercial considerations affecting the exercise of their engineering judgement (K3)

Intellectual Ability

- apply quantitative science and engineering tools to analyse problems (C1)
- be able to demonstrate creative and innovative ability in the synthesis of solutions and in formulating design (C2)
- be able to comprehend the broad picture and thus work with an appropriate level of detail (C3)

Practical Skills

- possess practical engineering skills acquired through, for example, work carried out in laboratories and workshops, in industry through supervised work experience, in individual and group project work, in design work and in the development and use of computer software in design, analysis and control (P1)
- demonstrate group working and participation skills in a major project (P2)

General Transferable Skills

- have developed transferable skills including problem solving, communication and working with others, as well as the effective use of general IT facilities and information retrieval skills that will be of value in a wide range of situations (T1)
- apply the QCA Higher Level Key Skills and include problem solving, communication, and working with others, as well as the effective use of general IT facilities and information retrieval skills (T2)
- develop PDP and self learning skills. (T3)

(See General Outcomes mapping matrix below)

UK-SPEC Specific Learning Outcomes:

(UKSpec coding in brackets)

Underpinning Science & Mathematics and Associate Disciplines

- have a comprehensive understanding of the scientific principles of mechanical and related engineering disciplines. (US1m)
- have a comprehensive knowledge and understanding of mathematical and computer models relevant to the mechanical and related engineering disciplines, and an appreciation of their limitations. (US2m)
- have an understanding of concepts from a range of areas including some outside engineering, and the ability to apply them effectively in engineering projects. (US3m)
- have an awareness of developing technologies related to mechanical engineering. (US4m)

Engineering Analysis

- have the ability to use fundamental knowledge to investigate new and emerging technologies. (E1m)
- have the ability to extract data pertinent to an unfamiliar problem, and apply its solution using computer based engineering tools when appropriate. (E2m)
- have the ability to apply mathematical and computer-based models for solving problems in engineering, and the ability to assess the limitations of particular cases. (E3m)
- have an understanding of and ability to apply a systems approach to engineering problems. (E40)

Design

- have a wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations. (D1m)
- understand customer and user needs and the importance of considerations such as aesthetics. (D2)
- identify and manage cost drivers. (D3)
- have the ability to generate innovative designs for products, systems, components or processes to fulfil new needs. (D4m)
- ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal. (D5)
- manage the design process and evaluate outcomes. (D6)

Economic, social and environmental context

- have the ability to make general evaluations of commercial risks through some understanding of the basis of such risks. (S1m)
- have extensive knowledge and understanding of management and business practices, and their limitations, and how these may be applied appropriately to strategic and tactical issues. (S2m)
- have an Understanding of the requirement for engineering activities to promote sustainable development. (S3)

- have an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues. (S4)
- have an understanding of the need for a high level of professional and ethical conduct in engineering. (S5)

Engineering Practice

- have a thorough understanding of current practice and its limitations and some appreciation of likely new developments. (P1m)
- have an extensive knowledge and understanding of a wide range of engineering materials and components. (P2m)
- have an understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, technology, development, etc). (P3)
- understand the use of technical literature and other information sources. (P4)
- have an awareness of nature of intellectual property and contractual issues. (P5)
- have an understanding of appropriate codes of practice and industry standards. (P6)
- have an awareness of quality issues. (P7)
- have the ability to apply engineering techniques taking account of a range of commercial and industrial constraints. (P8m)

(See Specific Learning Outcomes mapping matrix below)

Programme structure

This 3 year full time/4.5 year part time route requires 360 credits to be achieved for the award BEng (Hons) in Mechanical Engineering; 120 credits at HE4, 120 credits at HE5 and 120 credits at HE6.

Part time students study up to 80 credits-worth of modules/year, thus, taking a minimum of four and a half years to complete the route.

All modules are Core modules and are 20 credit value apart from the 40 credit Project-type modules (one at each level) required for assimilation and integration of topics and material.

| Module Code | Module title | Core/ Option/ Elective (C/O/E) | Credits | Length (1, 2 or 3 periods) |
|-------------|--|---|---------|----------------------------|
| AME4051 | Engineering Environment | C | 20 | 1 |
| AME4052 | Engineering Principles 1 | C | 20 | 1 |
| AME4053 | Engineering Principles 2 | C | 20 | 1 |
| AME4054 | Projects & Systems | C | 40 | 2 |
| AME4055 | Graphical Communication & Computer Modelling | C | 20 | 1 |

| | | | | |
|---------|---|---|----|---|
| AME5001 | Engineering Applications | C | 40 | 2 |
| AME5002 | Mechanics of Materials & Machines | C | 20 | 1 |
| AME5003 | Thermofluids & Control Systems | C | 20 | 1 |
| AME5004 | Engineering Modelling & Analysis | C | 20 | 1 |
| AME5005 | Automobile/Mechanical Design | C | 20 | 1 |
| AME6001 | BEng(Hons) Design & Individual Project | C | 40 | 2 |
| AME6002 | Advanced Materials & Structures | C | 20 | 1 |
| AME6003 | Management & Enterprise in Engineering | C | 20 | 1 |
| AME6005 | Advanced Thermofluids & Control Systems | C | 20 | 1 |
| AME6006 | Finite Element & Difference Solutions | C | 20 | 1 |

Learning and teaching strategies

The diverse nature of this engineering programme necessitates the use of a variety of teaching and learning methods in order to ensure the acquisition and development of appropriate concepts, knowledge and skills. Many of these methods will be experienced during formal timetabled classes. Other methods, which are also demanded by professional body accreditation requirements, will be experienced through opportunities to develop creativity and innovative skills. This is predominantly achieved through open-ended project and design, make and test activity, where application, assimilation and integration of course material are realised. As projects, design activity and assimilation is extremely important and time dependent, all project modules are 40 credit value and run over two semesters. Also, as you progress through the programme, your studies will become less structured and more open-ended in nature.

Learning activities (KIS entry)

| | Course Year | | | | | | |
|--|-------------|----|----|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Scheduled learning and teaching activities | 34 | 31 | 24 | | | | |
| Guided independent study | 66 | 69 | 76 | | | | |
| Placement/study abroad | | | | | | | |

Assessment strategy

The assessment strategy for the programme is designed to ensure that the overall aims and

learning outcomes of the programme are assessed and achieved. To accomplish this, a range of assessment methods are used and applied, depending upon the learning outcome in question and the type of module content being assessed. Assessment and feedback may be Formative or Summative.

In line with the University of Bolton Curriculum Framework, Summative Assessment (that leading to assignment/project mark, module grade and hence to overall performance classification) constitutes a maximum of two pieces of assessed work per 20 credit module. The aggregate pass module mark is 40%. You must achieve a pass in all elements of assessment for each module. Summative Assessment may consist of:

- Project, Assignment and/or Design reports
- Written Examinations
- Module Portfolios
- Presentations
- Viva Examination

Assessment methods (KIS entry)

| | Course Year | | | | | | |
|-----------------|-------------|-----|-----|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Written exams | 33% | 36% | 35% | | | | |
| Coursework | 63% | 60% | 51% | | | | |
| Practical exams | 4% | 4% | 14% | | | | |

Assessment regulations

- Assessment Regulations for Undergraduate Modular Programmes

The mark awarded will be made up, where specified, of the weighted average of the examination and coursework assessment marks. You must achieve a mark of 40% or above in all assessments to show that you have achieved the Learning Outcomes for each module and achieved an overall average of 40 percent to pass a module.

For the full and current version of the Assessment Regulations, refer to the document "*Assessment Regulations for Undergraduate Modular Programmes (Main Document)*" at the following university intranet site:

Grade bands and classifications

| Grade Description | Mark % | Honours Degree Classification |
|------------------------------|----------|-------------------------------|
| Work of exceptional quality | 70+ | i |
| Work of very good quality | 60-69 | ii.i |
| Work of good quality | 50-59 | ii.ii |
| Work of satisfactory quality | 40-49 | iii |
| Borderline fail | 35-39 | |
| Fail | Below 35 | |

Honours classification

You will normally be awarded the honours classification resulting from the application of either Rule ACM20 or Rule ACM6.

Rule ACM20

A weighted average of the marks from modules worth a total of 200 credits at Levels HE5 and HE6 combined, including the marks from modules worth no more than 80 credits at least at Level HE5 (weighted 30 percent) and marks from modules worth at least 120 credits at Level HE6 (weighted 70 percent), which represent the best marks achieved by you at those Levels.

Where the average falls unequivocally into one of the following bands: 48.00 - 49.99, 58.00 - 59.99, 68.00 - 69.99; and you have achieved marks clearly in an honours classification category higher than their average for modules worth at least 110 credits, then you will be awarded an honours degree in the classification category one higher than that indicated by your average.

Rule ACM6 (an alternative if you do not have sufficient marks at Levels HE5 and 6 to apply ACM20)

A simple average of the equally weighted marks from modules worth 120 credits at Level HE6 which represent the best marks achieved by you at that Level.

Where the average falls unequivocally into one of the following bands: 48.00 – 49.99, 58.00 – 59.99, 68.00 – 69.99; and you have achieved marks clearly in an honours classification category higher than their average for modules worth at least 70 credits, then you will be awarded an honours degree in the classification category one higher than that indicated by

your average.

Where you have marks available for fewer than 120 credits at Level HE6, honours classification shall normally be based **solely** on a simple average of the available marks for modules at Level HE6, subject to there being marks for a **minimum of 60 credits awarded by the University. Upgrading of the honours classification will not normally be available where there are marks available for fewer than 120 credits at Level HE6**, unless this is explicitly approved.

Role of external examiners

External examiners are appointed for all programmes of study. They oversee the assessment process and their duties include: approving assessment tasks, reviewing assessment marks, attending assessment boards and reporting to the University on the assessment process.

Support for student learning

- The programme is managed by a programme leader
- Induction programme introduces the student to the University and their programme
- Each student has a personal tutor, responsible for support and guidance
- Personal Development Planning (PDP) integrated into all programmes
- Feedback on formative and summative assessments
- A Student Centre providing a one-stop shop for information and advice
- University support services include housing, counselling, financial advice, careers and a disability
- A Chaplaincy
- Library and IT services
- Student Liaison Officers attached to each Faculty
- The Students' Union advice services
- Faculty and Programme Handbooks which provide information about the programme and University regulations
- The opportunity to develop skills for employment
- English language support for International students
- Specialist teaching facilities/resources
- Support from professional bodies by student membership of IMechE

Methods for evaluating and enhancing the quality of learning opportunities

- Programme committees with student representation
- Module evaluations by students
- Students surveys, e.g. National Student Survey (NSS)
- Annual quality monitoring and action planning through Programme Quality

Enhancement Plans (PQEPs), Data Analysis Report (DARs) Subject Annual Self Evaluation Report (SASERs), Faculty Quality Enhancement Plans (FQEPs), University Quality Enhancement Plan (UQEP)

- Peer review/observation of teaching
- Professional development programme for staff
- External examiner reports

Other sources of information

Student portal: www.bolton.ac.uk/Students/Home.aspx

Students Union www.ubsu.org.uk/

Faculty or similar Handbook: <http://www.bolton.ac.uk/Students>

Programme Handbook (add link)

Student Entitlement Statement

<http://www.bolton.ac.uk/Students/AdviceAndSupport/HomeOLD.aspx>

Module database: <http://modules.bolton.ac.uk>

Moodle (for the programme?) <http://elearning.bolton.ac.uk/>

External examiners reports:

www.bolton.ac.uk/Quality/QAECContents/ExternalExaminersReports/Home.aspx

Document control

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|--------------------------|---|
| Author(s) | Peter J Atkinson |
| Approved by: | Sarah Riches Chair University Validation Panel |
| Date approved: | 25 June 2012 |
| Effective from: | 2012/13 |
| Document History: | |

UKSpec General Learning Outcomes Map – BEng(Hons) in Mechanical Engineering

| Module title | Mod Code | Status C/O/E | K1 | K2 | K3 | C1 | C2 | C3 | P1 | P2 | T1 | T2 | T3 |
|---|----------|--------------|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Level 4 | | | | | | | | | | | | | |
| Engineering Environment | AME4051 | C | | tda | tda | | | d | | d | tda | d | tda |
| Engineering Principles 1 | AME4052 | C | tda | | | tda | | | | | d | d | |
| Engineering Principles 2 | AME4053 | C | tda | | | tda | | | | | d | d | |
| Projects & Systems | AME4054 | C | d | td | | d | da | d | tda | td | td | td | td |
| Graphical Comms & Computer Modelling | AME4055 | C | | d | | | | | td | | td | d | |
| Level 5 | | | | | | | | | | | | | |
| Engineering Applications | AME5001 | C | d | td | | d | da | da | tda | tda | td | tda | tda |
| Mechanics of Materials & Machines | AME5002 | C | tda | | | tda | | | | | | | |
| Thermofluids & Control Systems | AME5003 | C | tda | | | tda | | | | | | | |
| Engineering Modelling & Analysis | AME5004 | C | tda | | | tda | | | | | | | |
| Auto/Mech Design | AME5005 | C | d | td | d | da | tda | da | da | d | d | da | td |
| Level 6 | | | | | | | | | | | | | |
| BEng Design & Individual Project | AME6001 | C | d | tda | da | da | tda | da | td | tda | td | da | tda |
| Advanced Materials & Structures | AME6002 | C | tda | | | tda | | | | | | d | |
| Management & Enterprise in Engineering | AME6003 | C | | td | | | | da | | | d | | |
| Advanced Thermofluids & Control Systems | AME6005 | C | tda | | | tda | | | | | | d | |
| Finite Element & Difference Solutions | AME6006 | C | tda | | | tda | | | tda | | | d | |

UKSpec Learning Outcomes Map – BEng (Hons) in Mechanical Engineering

d – developed; a – assessed; t - taught

| BEng in Mechanical Engineering Modules | | Engineering Environment | Engineering Principles 1 | Engineering Principles 2 | Projects & Systems | Graph'l Comms & Computer Modelling | Engineering Applications | Mechanics of Material & Machines | Thermofluids & Control Systems | Engineering Modelling & Analysis | Auto/Mechanical Design | BEng Design & Individual Project | Advanced Materials & Structures | Management & Enterprise in Engineering | Advanced Thermofluids & Control | Finite Element & Difference Solutions |
|---|-------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------------------|--------------------------|----------------------------------|--------------------------------|----------------------------------|------------------------|----------------------------------|---------------------------------|--|---------------------------------|---------------------------------------|
| Learning Outcome | UKSpec Code | AME4051 | AME4052 | AME4053 | AME4054 | AME4055 | AME5001 | AME5002 | AME5003 | AME5004 | AME5005 | AME6001 | AME6002 | AME6003 | AME6005 | AME6006 |
| Underpinning Science & Mathematics and Associate Disciplines | | | | | | | | | | | | | | | | |
| A comprehensive understanding of the scientific principles of mechanical and related engineering disciplines | US1m | | dta | dta | | | | dta | | dta | | d | dta | | | d |
| A comprehensive knowledge and understanding of mathematical and computer models relevant to the mechanical and related engineering disciplines, and an appreciation of their limitations. | US2m | | d | dta | | | d | dta | | dta | | d | | | | dta |
| An understanding of concepts from a range of areas including some outside engineering, and the ability to apply them effectively in engineering projects. | US3m | d | | | dta | | da | | | | d | da | | d | | |
| An awareness of developing technologies related to mechanical engineering. | US4m | d | | | dt | | d | | d | | d | d | da | d | d | dta |
| Engineering Analysis | | | | | | | | | | | | | | | | |
| Ability to use fundamental knowledge to investigate new and emerging technologies. | E1m | d | dta | dta | dt | | | | dat | | | da | | d | dat | |
| Ability to extract data pertinent to an unfamiliar problem, and apply its solution using computer based engineering tools when appropriate | E2m | d | dta | dta | d | | dt | dta | dt | dta | dt | td | | d | dat | |
| Ability to apply mathematical and computer-based models for solving problems in engineering, and the ability to assess the limitations of particular cases. | E3m | | | d | d | | dt | dta | dt | dta | dt | td | dta | | dat | dta |
| Understanding of and ability to apply a systems approach to engineering problems | E4 | d | | | dta | | dta | | d | | d | tda | | d | dt | |
| Design | | | | | | | | | | | | | | | | |
| Wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations | D1m | | | | dta | d | da | | | | dta | tda | | | | d |
| Understand customer and user needs and the importance of considerations such as aesthetics | D2 | | | | da | d | da | | | | d | tda | | | | |

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Date: Feb 2012

| | | AME4051 | AME4052 | AME4053 | AME4054 | AME4055 | AME5001 | AME5002 | AME5003 | AME5004 | AME5005 | AME6001 | AME6002 | AME6003 | AME6005 | AME6006 |
|--|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Identify and manage cost drivers | D3 | | | | d | dta | d | | | | t | d | | | | |
| Ability to generate an innovative design for products, systems, components or processes to fulfil new needs. | D4m | | | | da | | da | | | | d | dta | | | | |
| Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal | D5 | | | | | d | | | d | | dta | d | | | d | dta |
| Manage the design process and evaluate outcomes | D6 | | | | dt | | dta | | | | dta | dta | | | | |
| Economic, social and environmental context | | | | | | | | | | | | | | | | |
| The ability to make general evaluations of commercial risks through some understanding of the basis of such risks | S1m | dta | | | | | | | | | | | | | dt | |
| Extensive knowledge and understanding of management and business practices, and their limitations, and how these may be applied appropriately to strategic and tactical issues. | S2m | dt | | | | | | | | | | | | | dta | |
| Understanding of the requirement for engineering activities to promote sustainable development | S3 | dta | | | | | dt | | dt | | d | d | | dt | dta | |
| Awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues. | S4 | dta | | | | | | | dt | | d | d | | dt | dta | |
| Understanding of the need for a high level of professional and ethical conduct in engineering | S5 | dt | | | | | | | | | | d | | dta | | |
| Engineering Practice | | | | | | | | | | | | | | | | |
| A thorough understanding of current practice and its limitations and some appreciation of likely new developments | P1m | dt | | d | | | d | | | | | | | | dta | |
| Extensive knowledge and understanding of a wide range of engineering materials and components | P2m | dt | | dt | dta | d | dta | dt | | | dta | dta | dta | dt | | tda |
| Understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, technology, development, etc) | P3 | dt | d | d | | dta | dta | | d | | | d | | dt | dt | d |
| Understanding use of technical literature and other information sources | P4 | dt | | | | dt | | | | | dt | dta | | dt | | dt |
| Awareness of nature of intellectual property and contractual issues | P5 | dt | | | | | | | | | | d | | dta | | |
| Understanding of appropriate codes of practice and industry standards | P6 | dt | | | | dta | | dt | | | tda | d | | dta | | d |
| Awareness of quality issues | P7 | dt | | | | dta | | d | | | | d | | dt | | |
| Ability to apply engineering techniques taking account of a range of commercial and industrial constraints | P8m | dt | | | | | | | | | | | | dt | | |

d – developed; a – assessed; t - taught

Module listing BEng(Hons) in Mechanical Engineering

| Module title | Mod Code | New? ✓ | Level | Credits | Type | Core/Option/E lective C/O/E | Pre-requisite module | Assessment 1 | | | Assessment 2 | | | Assessment 3 | | | Assessment 4 | | |
|--|----------|-----------|-------|---------|------|--------------------------------|-------------------------------|--------------------|--------------|------------------------|--------------------|--------------|------------------------|--------------------|--------------|------------------------|--------------------|--------------|------------------------|
| | | | | | | | | Assessment type | Assessment % | Add Y if final item | Assessment type | Assessment % | Add Y if final item | Assessment type | Assessment % | Add Y if final item | Assessment type | Assessment % | Add Y if final item |
| Engineering Environment | AME4051 | | HE4 | 20 | S | C | | CW | 50 | | CW | 50 | Y | | | | | | |
| Engineering Principles 1 | AME4052 | ✓ | HE4 | 20 | S | C | | CW | 40 | | EX | 60 | Y | | | | | | |
| Engineering Principles 2 | AME4053 | ✓ | HE4 | 20 | S | C | | CW | 40 | | EX | 60 | Y | | | | | | |
| Projects & Systems | AME4054 | | HE4 | 40 | P | C | | CW | 30 | | PRA | 20 | | CW | 50 | Y | | | |
| Graphical Communication & Computer Modelling | AME4055 | | HE4 | 20 | S | C | | EX | 45 | | CW | 55 | Y | | | | | | |
| Engineering Applications | AME5001 | | HE5 | 40 | P | C | | CW | 30 | | PRA | 20 | | CW | 50 | Y | | | |
| Mechanics of Materials & Machines | AME5002 | | HE5 | 20 | S | C | AME4052 AME4053 | CW | 40 | | EX | 60 | Y | | | | | | |
| Thermofluids & Control Systems | AME5003 | | HE5 | 20 | S | C | | CW | 40 | | EX | 60 | Y | | | | | | |
| Engineering Modelling & Analysis | AME5004 | | HE5 | 20 | S | C | AME4052 AME4053 | CW | 40 | | EX | 60 | Y | | | | | | |
| Automobile/Mechanical Design | AME5005 | | HE5 | 20 | S | C | AME4052 AME4053 AME4055 | CW | 50 | | CW | 50 | Y | | | | | | |
| BEng(Hons) Design & Individual Project | AME6001 | | HE6 | 40 | P | C | AME5002 AME5005 | CW | 35 | | CW | 45 | Y | PRA | 10 | | PRA | 10 | |
| Advanced Materials & Structures | AME6002 | | HE6 | 20 | S | C | | cw | 25 | | EX | 75 | Y | | | | | | |
| Management & Enterprise in Engineering | AME6003 | | HE6 | 20 | S | C | | cw | 50 | | PRA | 50 | Y | | | | | | |
| Advanced Thermofluids & Control Systems | AME6005 | | HE6 | 20 | S | C | AME5003 | cw | 40 | | EX | 60 | Y | | | | | | |
| Finite Element & Difference Solutions | AME6006 | | HE6 | 20 | S | C | AME5002 AME5004 | cw | 60 | | EX | 40 | Y | | | | | | |

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Bolton Values Map – BEng(Hons) in Mechanical Engineering

| BEng in Mechanical Engineering Modules | Engineering Environment | Engineering Principles 1 | Engineering Principles 2 | Projects & Systems | Graph'l Comms & Computer Modelling | Engineering Applications | Mechanics of Material & Machines | Thermofluids & Control Systems | Engineering Modelling & Analysis | Auto/Mechanical Design | MEng Design & Individual Project | BEng Design & Individual Project | Advanced Materials & Structures | Management & Enterprise in Engineering | Life-Cycle Management | Advanced Thermofluids & Control | Finite Element & Difference Solutions | |
|---|-------------------------|--------------------------|--------------------------|--------------------|------------------------------------|--------------------------|----------------------------------|--------------------------------|----------------------------------|------------------------|----------------------------------|----------------------------------|---------------------------------|--|-----------------------|---------------------------------|---------------------------------------|--|
| Value | AME4051 | AME4052 | AME4053 | AME4054 | AME4055 | AME5001 | AME5002 | AME5003 | AME5004 | AME5005 | AME6000 | AME6001 | AME6002 | AME6003 | AME6004 | AME6005 | AME6006 | |
| Employability | | | | | | | | | | | | | | | | | | |
| Communication | dta | d | d | da | tda | da | d | td | d | td | tda | tda | tda | dt | td | | | |
| Team Work | d | | | da | | da | | | | td | | | | dt | | | | |
| Organisation & Planning | d | | | dt | | d | | | | | tda | tda | | dta | | | | |
| Numerical Interpretation | | dta | dta | da | d | da | dta | tda | dta | tda | tda | tda | tda | | tda | tda | tda | |
| Problem Solving | | dta | dta | da | | da | dta | tda | dta | tda | tda | tda | tda | | tda | tda | tda | |
| Flexibility & Adaptability | d | | | | | | | | | | d | d | | dt | | | | |
| Action Planning | d | | | dt | | d | | | | | tda | tda | | dt | | | | |
| Self Awareness | dta | | | | | | | | | | d | d | | dt | | | | |
| Initiative | d | | | d | | d | | | | | d | d | | dt | | | | |
| Personal Impact & Confidence | d | | | | | | | | | | d | d | | dt | | | | |
| Internationalisation | | | | | | | | | | | | | | | | | | |
| International content or international comparative approach | d | | | | | | | | | | | | | dt | | | | |
| Preparation for international profession | d | d | d | | | | | d | | d | d | d | td | dt | d | d | d | |
| Foreign language or cross-cultural communication | | | | | | | | | | | | | | | | | | |
| Preparation for internationally recognised qualification | d | d | d | dt | | dt | | d | | t | d | d | d | dt | d | d | d | |
| Environmental Sustainability & Awareness | | | | | | | | | | | | | | | | | | |
| Globalisation & the global context | d | | | | | | | d | | | | | | dta | d | | | |
| Consumer culture and the free market | d | | | | | | | | | | d | | | dt | | | | |
| Carbon reduction | | d | d | | | | | d | | | d | | d | | dt | tda | d | |
| Systems, control mechanisms and environments | d | | | da | | da | | dt | | | | | | dt | dta | tda | d | |
| Energy, consumption, waste and technology | d | dt | dt | d | | | | dt | | d | d | d | d | dt | dta | tda | d | |
| Business impact and business practices on the environment | d | | | | | | | | | td | | | | dt | | | | |
| Instrumentation and stewardship | | | | | | | | | | | | | | | | | | |
| Social, Public & Ethical Responsibility | | | | | | | | | | | | | | | | | | |
| Professional standards and practice | d | dt | dt | d | td | | dt | | dt | d | d | | | dt | | | | |
| Ethics | d | | | | | | | | | | d | | | dt | | | | |
| Political or social judgement | d | | | | | | | | | | d | | | dt | | | | |
| Cultural or moral issues | d | | | | | | | | | | d | | | dt | | | | |

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