



Programme Specification						
<input type="button" value="Save"/>		<input type="button" value="Show Guidance"/>				
General Information						
Title	MEng Integrated Mechanical and Electrical Engineering					
Awarding Institution	University of Bath					
Teaching Institution	University of Bath					
Programme Accredited by	Institution of Engineering Technology (IET) and the Institution of Mechanical Engineers (IMechE) 2013					
Collaborative Provision Type	Not Applicable <input type="button" value="v"/>					
Placement Available?	Yes <input type="button" value="v"/>					
Study Abroad Available?	No <input type="button" value="v"/>					
Subject Benchmark Statement(s) Click here to see 'QAA List'	Engineering: http://www.qaa.ac.uk/en/Publications/Documents/Subject-benchmark-statement-Engineering-.pdf					
Programme Approved by	Senate minute 12505, 6 December 2006					
Aims	Learning Outcomes	Assessment	Placement/Prof Acc	Admissions/Support	Show All	Close
Aims; "What is the purpose of this programme of study? What is the programme intended to achieve?"						
Synopsis and Coherence						

	<p>Synopsis</p> <p>The first two years provide a core foundation curriculum with 48 credits in Mechanical Engineering Science, 42 credits in Electrical Engineering Science, 24 credits in Mathematics and Computing topics and 6 credits in Integrating studies. All units are compulsory in years one and two.</p> <p>The third academic year will normally include, as core material, 18 credits of engineering topics, and 12 credits of options, including a 6 credit business unit, selected from a total of 8 optional units. Full-time Group Business and Design Projects take place in the second semester. The third year may be spent on a period of supervised industrial training.</p> <p>The fourth year will normally comprise two core units (of 6 credits each) and a further 18 credits that may be chosen from a selection of optional units available from both the Department of Mechanical Engineering and the Department of Electronic and Electrical Engineering. An individual full-time project will be taken in the second semester of the final year, which will contribute 30 credits to the programme.</p> <p>Academic Coherence</p> <p>Traditional engineering education is discipline specific but industrial workplaces and research laboratories today require graduates to join multi-functional teams engaged in the development of complex projects. Graduates trained to work across the engineering disciplines are best suited to this environment.</p> <p>The Integrated Mechanical and Electrical Engineering (IMEE) degree programme achieves this without sacrificing the intellectual rigour of a single discipline programme. In the first two years it combines the core engineering sciences of mechanics, materials, electrical/electronic systems and circuits integrated by interspersed project and laboratory work. In years three and four further core subjects and a choice of optional subjects are studied in depth and culminate in major group and individual projects. The project and design work will be especially focused to engender technical and managerial team working skills across the Mechanical and Electrical Engineering boundaries. A unique feature of the programme will be the study of applications beyond the traditional mechanical/electrical engineering boundaries. This programme structure is consonant with the current programme structures in the contributing Departments. Teaching and learning is through lectures, tutorials, students' own reading, practical exercises, laboratory work and design exercises. Assessment is by a combination of written examination, written course work and oral presentation.</p> <p>The curriculum has been designed to provide for those students who want to develop interdisciplinary skills covering Mechanical and Electrical Engineering and thus equip themselves to meet the demand for graduates to work in this cross disciplinary area.</p> <p>The first two years of the programme lay the foundations of the common mechanical and electrical principles. The final two years provide sufficient scope for students to study topics that are of particular interest to them. Full-time group and individual project work provide opportunities to apply the lecture material in an integrated manner to the solution of practical problems and to introduce the elements of the management of an engineering enterprise.</p> <p>This MEng degree is accredited by the IMechE and the IET as satisfying fully the educational requirements for Chartered Engineer Status.</p>
<p>Educational Aims of the Programme</p>	

	<p>Aims</p> <ul style="list-style-type: none"> • The aim of this degree programme is to satisfy the needs of both the industrial and research communities for graduates who can integrate the principles and applications of mechanical, electrical and electronic engineering and uniquely, apply them in the design and development of products and systems across both engineering and non-engineering sectors • To enable students to pursue professional careers in engineering at a level which requires the exercise of sound judgement, personal responsibility and initiative, and the ability to make engineering decisions in complex and unpredictable professional environments. • To equip students with a detailed understanding of the principles of mechanical and electrical engineering science, many aspects of which will be at, or informed by, the current boundaries of the discipline. • To equip students with skills to systematically employ engineering principles to produce original analyses of, and solutions to, engineering problems. • To provide a broadly based education in Mechanical and Electrical Engineering allowing scope for entry into a wide range of disciplines within engineering. • To allow students the opportunity through selected option groupings to focus onto a broad range of specialist fields within Mechanical and Electrical Engineering. <p>Objectives</p> <p>It is expected that graduates of this programme will meet the educational requirements for the award of a BEng degree. It is intended that all graduates will satisfy the AHEP (third edition) Learning Outcomes for Integrated Masters (MEng) Degrees and will have experienced a wide range of delivery and assessment strategies. As such they will have exposure to developing technologies, and key drivers for business success. The students would be able to demonstrate their ability to apply fundamental knowledge to generate innovative and commercially viable product designs. To this end the objectives of the programme will be to prepare graduates to:</p> <ul style="list-style-type: none"> • use their knowledge and understanding of mechanical and electrical engineering science to produce soundly based and original solutions to engineering problems, through the detailed evaluation of available evidence, arguments and assumptions, some aspects of which are informed by research in the area; • apply theoretical and practical techniques to produce creative analyses of, and solutions to, engineering problems in both familiar, and complex and unpredictable professional environments; • provide a high level of technical leadership; • use initiative, effective communication and interpersonal skills; • operate within the appropriate code of professional conduct, recognising obligations to society, the profession and the environment.
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Learning Outcomes; including teaching, learning and assessment methods, specifying those applicable for interim awards where appropriate. Indicate what successful students should be able to do, how well they should be able to do it and the context or conditions in which they should be able to do it. See also FHEQ and SEEC guidance.

Knowledge and Understanding	<p>Students should be able to demonstrate:</p> <ul style="list-style-type: none"> • systematic, detailed and critical understanding of mechanical and electrical science and their integration, ranging from the well-established principles to new techniques, many of which are informed by the current boundaries of the disciplines; • detailed knowledge of a number of the practical technologies currently used in mechanical and electrical engineering; • critical understanding of the uncertainty, ambiguity and limits of their knowledge, and how these may affect analyses of, and solutions to, engineering problems; • awareness of the commercial and financial constraints that engineers may have to work under.
Intellectual Skills	<p>Students should be able to demonstrate:</p> <ul style="list-style-type: none"> • ability to apply the concepts and principles of mechanical and electrical engineering science to the integrated solution of engineering problems in both familiar and in complex and unpredictable professional environments; • ability to critically evaluate information in the form of arguments, assumptions and/or technical data (that may or may not be complete) in order to be able to produce integrated solutions to problems in mechanical and electrical engineering that may be either of a routine nature or require the development of new and original techniques. • Ability to operate effectively in an interdisciplinary engineering environment
Professional Practice Skills	<p>Students should be able to:</p> <ul style="list-style-type: none"> • employ a range of established and new techniques to review and critically analyse information concerning engineering problems, and to propose and implement solutions in a professional manner; • deal with complex engineering issues, both systematically and creatively, make sound judgements in the absence of complete data, and communicate their conclusions clearly to both specialist and non-specialist audiences; • undertake further continuing professional development and the development of new and advanced skills that will enable them to assume a high level of responsibility within an engineering organisation.
Transferable/Key Skills	

	<p>Students should be able to demonstrate:</p> <ul style="list-style-type: none"> • ability to use IT to collect, analyse and present technical information; • ability to use appropriate professional simulation and design tools; • the exercise of initiative and personal responsibility; • ability to effectively present technical information in both written and spoken form; • independent learning ability required for continuing professional development; • how to plan and execute a project.
<p>Assessment Methods</p>	
<p>Summary of Assessment Regulations</p>	<p>NFA - fully compliant <input checked="" type="checkbox"/></p>
<p>Progression Regulations and Awards</p> <p><i>For programmes fully compliant with NFA refer to the relevant appendices of the relevant NFAAR document (UG, PGT, FD, HY, or CPD)</i></p> <p><i>Note any significant features relevant to the "Assessment in the programme context" sections of the relevant NFAAR document.</i></p> <p><i>Set out any approved exemptions from NFA.</i></p> <p><i>Set out progression and assessment regulations where these do not comply with NFA.</i></p>	<p>The rules for progression from one stage to another and grading of assessed work and examinations conform to the University's framework for assessment and assessment regulations (NFAAR), see http://www.bath.ac.uk/registry/nfa/nfaar-ug.pdf</p>
<p><i>Students leaving an undergraduate programme prematurely may be eligible for a Certificate of Higher Education or a Diploma of Higher Education.</i></p>	
<p>Click here to see 'Indicators of Quality & Standards'</p>	
<p>Placement and Professional Accreditation</p>	
<p>Details of Work Placements Requirements / Work Based Learning / Industrial Training Requirements</p>	<p>Students on the sandwich programme will undertake a placement of at least thirty weeks during the third year. This will be assessed on a pass/fail basis and be eligible for the award of 60 credits. Assessment will be by a 3000-4000 word report on the placement. The placements will be managed in accordance with QA6.</p>
<p>Details of Study Abroad Requirements</p>	
<p>Details of Professional Accreditation</p>	
<p>Admissions and Support</p>	
<p>Admissions Criteria including APL/APEL arrangements</p> <p><i>Only refer to APL, APEL or direct entry with advanced standing if regular use is likely to be made or is not possible.</i></p>	<p>Normally an AAA grade profile, or equivalent, at GCE A level will be required, including mathematics to GCE A level standard grade A, physics at GCE A level standard grade A and a third GCE A level standard B.</p> <p>International Baccalaureate: Overall 38 with 6 in Higher Level Mathematics and Physics and 5 in English at Standard Level (or equivalent).</p> <p>Language requirements:</p> <p>IELTS 6.5 with no mark less than 6.0 in any of the elements.</p> <p>Information about the admissions requirements for the programme can be found at: http://www.bath.ac.uk/study/ug/prospectus/subject/integrated-mechanical-electrical-engineering/entry-requirements/</p>
<p>Details of Support Available to Students</p> <p>[link to Ac Reg quality page]</p>	

**Department and Programme
Specific Support Information**

*e.g. induction programmes, any
peer mentoring schemes, regular
department events*

Information about the programme and its admission requirements is available at:

<http://www.bath.ac.uk/study/imee>

Additional information about the Department of Electronic and Electrical Engineering is available at:

<http://www.bath.ac.uk/elec-eng/>

Additional information about the Department of Mechanical Engineering is available

at: <http://www.bath.ac.uk/mech-eng/>

Business Support Systems - part of Computing Services



MEng(Hons) Integrated Mechanical and Electrical Engineering - Being delivered 2017/2018
 UEXX-AFM02

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NFAAR Version	UG <input type="checkbox"/>
Length	4 Years
Mode of Attendance	Full-time
Mode of Placement	None
Type of Placement	None
Intended Award	Master of Engineering with Honours
Award Title	MASTER OF ENGINEERING IN INTEGRATED MECHANICAL AND ELECTRICAL
For UG Masters Type Programmes this is	
Exit Awards	UEXX-AFC02 Certificate of Higher Education UEXX-AFL02 Diploma of Higher Education
Exit Award Rules	
Designated Alternative Programmes	

Assessment weightings and decision references		
Stage	Weighting within programme %	NFAAR decisions reference http://www.bath.ac.uk/registry/nfa/index.htm
Stage 1	0	
Stage 2	20	
Stage 3	40	Additional information for Year 3: NB. Students may be permitted to take ME40315 (External integrated project worth 30 credits) instead of the project options available in Semester 2 of this year.
Stage 4	40	
Stage 5		
Stage 6		

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
Year of Study : 1 (10)									
Unit Status : Compulsory Unit (10)									
EE10168	Circuit theory	6	Semester 1	1	1				
EE10213	Mathematics 1	6	Semester 1	1	1				
ME10003	Thermodynamics	6	Semester 1	1	1				
ME10004	Solid mechanics 1	6	Semester 1	1	1				
ME10006	Design materials & manufacturing 1	6	Semester 1	1	1				
EE10169	Digital electronics	6	Semester 2	1	1				
EE10170	Robotics & mechatronic systems	6	Semester 2	1	1				
EE10214	Mathematics 2	6	Semester 2	1	1				
ME10010	Solid mechanics 2	6	Semester 2	1	1				
ME10012	Design materials & manufacturing 2	6	Semester 2	1	1				
Year of Study : 2 (10)									
Unit Status : Compulsory Unit (10)									
EE20004	Electronic devices & circuits	6	Semester 1	2	2				
EE20021	Digital systems design	6	Semester 1	2	2				
EE20085	Electromagnetics	6	Semester 1	2	2				
EE20223	Design and manufacture of electromechanical systems	6	Semester 1	2	2				
ME20014	Modelling techniques 1	6	Semester 1	2	2				
EE10135	Signals, systems and communications	6	Semester 2	2	2				
EE20099	Electrical systems & power electronics	6	Semester 2	2	2				
EE20100	Integrated control system design	6	Semester 2	2	2				
ME10009	Fluid mechanics	6	Semester 2	2	2				
ME20021	Modelling techniques 2	6	Semester 2	2	2				
Year of Study : 3 (16)									
Unit Status : Compulsory Unit (3)									
EE30041	Control engineering	6	Semester 1	2	3				
EE30123	Power electronics & drives	6	Semester 1	2	3				
EE30186	Integrated engineering	6	Semester 1	2	3				
Unit Status : XX3030 Optional Units: Select a minimum of 1 and a maximum of 2 units from this list: (4)									
ME30033	Mechanical vibrations & noise	6	Semester 1	2	3				

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
ME30067	Vehicle dynamics	6	Semester 1	2	3				
ME30197	Business processes	6	Semester 1	2	3				
ME30264	Materials selection in engineering design	6	Semester 1	2	3				
♣Unit Status : XX3032 Optional Units: Select a minimum of 0 and a maximum of 1 units from this list: (3)									
EE20083	Signal processing	6	Semester 1	2	3				
EE30121	Microelectronic systems	6	Semester 1	2	3				
EE30215	Power system fundamentals	6	Semester 1	2	3				
♣Unit Status : XX3035 Optional Units: Select 30 credits from this list: OR... (2)									
EE30147	Group design and business project I	12	Semester 2	2	3				
EE40148	Group design and business project II	18	Semester 2	2	3				
♣Unit Status : XX3036 Select 30 credits from this list: OR... (2)									
ME30068	Group business & design project - I	12	Semester 2	2	3				
ME40228	Group business & design project - II	18	Semester 2	2	3				
♣Unit Status : XX3037 Select 30 credits from this list: (2)									
ME30313	Aerospace group business & design project - I	12	Semester 2	2	3				
ME40314	Aerospace group business & design project - II	18	Semester 2	2	3				
♣Year of Study : 4 (13)									
♣Unit Status : Compulsory Unit (2)									
ME40331	Robotics engineering	6	Semester 1	3	4				
XX40197	Integrated engineering final year project	30	Semester 2	3	4			Yes	
♣Unit Status : XX4015 Optional Units: Select a minimum of 1 and a maximum of 2 units from this list: (4)									
EE40054	Digital image processing	6	Semester 1	3	4				
EE40066	Energy management systems	6	Semester 1	3	4				
EE40098	Computational intelligence	6	Semester 1	3	4				
EE40137	Power electronics and machines	6	Semester 1	3	4				
♣Unit Status : XX4016 Optional Units: Select a minimum of 0 and a maximum of 1 units from this list: (3)									
ME40049	Innovation and advanced design	6	Semester 1	3	4				
ME40051	Advanced control	6	Semester 1	3	4				
ME40055	Energy & the environment	6	Semester 1	3	4				
♣Unit Status : XX4017 Optional Units: Select a minimum of 0 and a maximum of 2 units from this list: (3)									
ME40046	Modelling and analysis of manufacturing systems	6	Semester 1	3	4				
ME40058	Fluid power	6	Semester 1	3	4				
ME40212	Biomimetics	6	Semester 1	3	4				

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
#Unit Status : XX4018 Optional Units: Select a minimum of 0 and a maximum of 1 units from this list: (1)									
ME40064	System modelling & simulation	6	Semester 1	3	4				

Business Support Systems - part of Computing Services



MEng(Hons) Integrated Mechanical and Electrical Engineering with Year long work placement - Being delivered 2017/2018
 UEXX-AKM02

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NFAAR Version	UG <input type="checkbox"/>
Length	5 Years
Mode of Attendance	Full-time
Mode of Placement	Thick Sandwich
Type of Placement	Year Long Work Placement
Intended Award	Master of Engineering with Honours
Award Title	MASTER OF ENGINEERING IN INTEGRATED MECHANICAL AND ELECTRICAL
For UG Masters Type Programmes this is	
Exit Awards	UEXX-AKC02 Certificate of Higher Education UEXX-AKL02 Diploma of Higher Education
Exit Award Rules	
Designated Alternative Programmes	UEXX-AFM02 MEng (hons) Integrated Mechanical and Electrical Engineering

Assessment weightings and decision references		
Stage	Weighting within programme %	NFAAR decisions reference
Stage 1	0	http://www.bath.ac.uk/registry/nfa/index.htm
Stage 2	20	
Stage 3	0	
Stage 4	40	Additional information for Year 4: NB. Students may be permitted to take ME40315 (External integrated project - 30 credits) instead of the project options available in Semester 2 of this
Stage 5	40	
Stage 6		

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
Year of Study : 1 (10)									
Unit Status : Compulsory Unit (10)									
EE10168	Circuit theory	6	Semester 1	1	1				
EE10213	Mathematics 1	6	Semester 1	1	1				
ME10003	Thermodynamics	6	Semester 1	1	1				
ME10004	Solid mechanics 1	6	Semester 1	1	1				
ME10006	Design materials & manufacturing 1	6	Semester 1	1	1				
EE10169	Digital electronics	6	Semester 2	1	1				
EE10170	Robotics & mechatronic systems	6	Semester 2	1	1				
EE10214	Mathematics 2	6	Semester 2	1	1				
ME10010	Solid mechanics 2	6	Semester 2	1	1				
ME10012	Design materials & manufacturing 2	6	Semester 2	1	1				
Year of Study : 2 (10)									
Unit Status : Compulsory Unit (10)									
EE20004	Electronic devices & circuits	6	Semester 1	2	2				
EE20021	Digital systems design	6	Semester 1	2	2				
EE20085	Electromagnetics	6	Semester 1	2	2				
EE20223	Design and manufacture of electromechanical systems	6	Semester 1	2	2				
ME20014	Modelling techniques 1	6	Semester 1	2	2				
EE10135	Signals, systems and communications	6	Semester 2	2	2				
EE20099	Electrical systems & power electronics	6	Semester 2	2	2				
EE20100	Integrated control system design	6	Semester 2	2	2				
ME10009	Fluid mechanics	6	Semester 2	2	2				
ME20021	Modelling techniques 2	6	Semester 2	2	2				
Year of Study : 3 (1)									
Unit Status : Compulsory Unit (1)									
EE20062	Industrial placement	60	All Year	2	3				
Year of Study : 4 (16)									
Unit Status : Compulsory Unit (3)									
EE30041	Control engineering	6	Semester 1	2	4				
EE30123	Power electronics & drives	6		2	4				

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
			Semester 1						
EE30186	Integrated engineering	6	Semester 1	2	4				
<p>Unit Status : XX3030 Optional Units: Select a minimum of 1 and a maximum of 2 units from this list: (4)</p>									
ME30033	Mechanical vibrations & noise	6	Semester 1	2	4				
ME30067	Vehicle dynamics	6	Semester 1	2	4				
ME30197	Business processes	6	Semester 1	2	4				
ME30264	Materials selection in engineering design	6	Semester 1	2	4				
<p>Unit Status : XX3032 Optional Units: Select a minimum of 0 and a maximum of 1 units from this list: (3)</p>									
EE20083	Signal processing	6	Semester 1	2	4				
EE30121	Microelectronic systems	6	Semester 1	2	4				
EE30215	Power system fundamentals	6	Semester 1	2	4				
<p>Unit Status : XX3035 Optional Units: Select 30 credits from this list: OR... (2)</p>									
EE30147	Group design and business project I	12	Semester 2	2	4				
EE40148	Group design and business project II	18	Semester 2	2	4				
<p>Unit Status : XX3036 Select 30 credits from this list: OR... (2)</p>									
ME30068	Group business & design project - I	12	Semester 2	2	4				
ME40228	Group business & design project - II	18	Semester 2	2	4				
<p>Unit Status : XX3037 Select 30 credits from this list: (2)</p>									
ME30313	Aerospace group business & design project - I	12	Semester 2	2	4				
ME40314	Aerospace group business & design project - II	18	Semester 2	2	4				
<p>Year of Study : 5 (13)</p>									
<p>Unit Status : Compulsory Unit (2)</p>									
ME40331	Robotics engineering	6	Semester 1	3	5				
XX40197	Integrated engineering final year project	30	Semester 2	3	5	Yes			
<p>Unit Status : XX4015 Optional Units: Select a minimum of 1 and a maximum of 2 units from this list: (4)</p>									
EE40054	Digital image processing	6	Semester 1	3	5				
EE40066	Energy management systems	6	Semester 1	3	5				
EE40098	Computational intelligence	6	Semester 1	3	5				
EE40137	Power electronics and machines	6	Semester 1	3	5				
<p>Unit Status : XX4016 Optional Units: Select a minimum of 0 and a maximum of 1 units from this list: (3)</p>									
ME40049	Innovation and advanced design	6	Semester 1	3	5				
ME40051	Advanced control	6	Semester 1	3	5				
ME40055	Energy & the environment	6	Semester 1	3	5				

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
✦Unit Status : XX4017 Optional Units: Select a minimum of 0 and a maximum of 2 units from this list: (3)									
ME40046	Modelling and analysis of manufacturing systems	6	Semester 1	3	5				
ME40058	Fluid power	6	Semester 1	3	5				
ME40212	Biomimetics	6	Semester 1	3	5				
✦Unit Status : XX4018 Optional Units: Select a minimum of 0 and a maximum of 1 units from this list: (1)									
ME40064	System modelling & simulation	6	Semester 1	3	5				

Business Support Systems - part of Computing Services