

Programme Specification						
						Show Guidance
<b>General Information</b>						
<b>Title</b>	BEng in Electrical Power Engineering					
<b>Awarding Institution</b>	University of Bath					
<b>Teaching Institution</b>	University of Bath					
<b>Programme Accredited by</b>	IET (2013)					
<b>Collaborative Provision Type</b>	Not Applicable					
<b>Placement Available?</b>	Yes					
<b>Study Abroad Available?</b>	No					
<b>Subject Benchmark Statement(s)</b> <a href="#">Click here to see 'QAA List'</a>	Engineering: <a href="http://www.qaa.ac.uk/en/Publications/Documents/SBS-engineering-15.pdf">http://www.qaa.ac.uk/en/Publications/Documents/SBS-engineering-15.pdf</a>					
<b>Programme Approved by</b>	Senate (1996)					
Aims	Learning Outcomes	Assessment	Placement/Prof Acc	Admissions/Support	Show All	Close
<b>Aims; "What is the purpose of this programme of study? What is the programme intended to achieve?"</b>						
<b>Synopsis and Coherence</b>	<p>The first two years provide a core foundation curriculum with the 120 credits taken coming from units in the following subject areas: mathematics; electromagnetics and physics; digital electronics; analogue electronics and devices; signal processing and communications; computer programming; electronic design and manufacturing; electrical systems, control and power electronics. The remaining credits cover transferable skills and professional engineering practice.</p> <p>The third year may be spent on a period of supervised industrial training.</p> <p>The final year includes as core 24 credits with particular relevance to electrical power and electronics. A further 6 credits is available in Semester 1 to choose from a range of other 3rd Year units. The core also includes material that is regarded as essential for the modern entrepreneurial engineer in the Group Design &amp; Business Project.</p> <p>An individual project will be taken in the final year for which the selection of a topic in the area of electrical power engineering will be encouraged. This project contributes 24 credits to the programme.</p> <p><b>Academic Coherence</b></p> <p>The combined study of electrical engineering and applied electronics technologies with a power bias is intended to produce a programme for students who see careers in the design and manufacture of devices which include light-current and power electronics and/or control systems. Further career opportunities are present in the areas of electrical power generation, transmission and distribution and its utilisation in industrial drives and traction systems.</p> <p>The programme is reasonably broadly based in the first two years in order to lay the foundations of the common electronic/electrical principles and to give students a view of other important areas of electronic and electrical engineering. This latter point is important because it is generally recognised that students' interests change and develop whilst at university and they may wish to move to another field at a later date.</p> <p>The final year provides sufficient scope for students to study topics that are of particular interest to them in the general area of power electrical engineering and electronics. Group and individual project work provides opportunities to apply the lecture material to the solution of practical problems and to introduce the elements of management of an engineering enterprise. Both the managerial and business aspects of the engineer's role are developed in the Group Business &amp; Design Project.</p> <p>This BEng is accredited by the IET as meeting the initial part of the educational requirements for Chartered Engineer status.</p>					
<b>Educational Aims of the Programme</b>						

	<p>The BEng programme aims to cater for a range of student aspirations. It is expected that some of the graduates will continue via bridging routes to full registration as Chartered Engineers while others, qualifying as Incorporated Engineers, will be satisfied with a broad grounding of the programme to pursue careers in technical support roles with less emphasis on design and certification of design.</p> <ul style="list-style-type: none"> <li>• To enable students to pursue professional careers in electrical power engineering at a level which requires the exercise of sound judgement, personal responsibility and initiative, and the ability to make engineering decisions.</li> <li>• To equip students with a detailed understanding of the principles of electrical and power engineering science, some aspects of which will be at, or informed by, the current boundaries of the discipline</li> <li>• To provide students with an understanding of the essential scientific and technical background for the conceptualisation, design and operation of power electrical and electronic systems.</li> <li>• To encourage students with an interest in electrical power and electronics to pursue those interests at university and at the same time to gain a grounding in the engineering of advanced technologies.</li> <li>• To enable students to pursue careers across the breadth of the electrical power and electronics industries.</li> <li>• To enable students to work successfully in engineering teams.</li> </ul> <p><b>Objectives</b></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 Bachelors (Honours) Degrees accredited as partially meeting the educational requirement for CEng and will have experienced a wide range of delivery and assessment strategies. To this end the objectives of the programme will be to prepare graduates to:</p> <ul style="list-style-type: none"> <li>• use their knowledge and understanding of electrical power and electronics to produce soundly based and original solutions to electrical and power engineering problems, through the detailed evaluation of available evidence, arguments and assumptions;</li> <li>• apply theoretical and practical techniques to produce creative analysis of, and solutions to, problems in both familiar, and complex and unpredictable professional environments;</li> <li>• provide a high level of technical leadership;</li> <li>• use initiative, effective communication and interpersonal skills;</li> <li>• operate within the appropriate code of professional conduct, recognising obligations to society, the profession and the environment.</li> </ul>
<p><b>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 SECCguidance.</b></p>	
<p><b>Knowledge and Understanding</b></p>	<p>Students should be able to demonstrate:</p> <ul style="list-style-type: none"> <li>• systematic, detailed and critical understanding of power electrical and electronic science, ranging from the well-established principles to new techniques, some of which are informed by the current boundaries of the discipline;</li> <li>• knowledge of a number of the practical technologies currently used in power electrical and electronic engineering</li> <li>• critical understanding of the uncertainty, ambiguity and limits of their knowledge, and how these may affect analyses of, and solutions to, power engineering problems;</li> <li>• an awareness of the commercial and financial constraints that engineers may have to work under.</li> </ul> <p>Teaching and learning is through lectures, tutorials, students' own reading, practical exercises and laboratory work.</p> <p>Assessment is by a combination of written examination, written course work and oral presentation.</p>
<p><b>Intellectual Skills</b></p>	<p>Students should be able to demonstrate:</p> <ul style="list-style-type: none"> <li>• ability to apply the concepts and principles of power electrical and electronic engineering science to the solution of engineering problems;</li> <li>• 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 solutions to problems in electrical and electronic engineering.</li> </ul> <p>Teaching and learning is through lectures, tutorials, students' own reading, practical exercises and laboratory work.</p> <p>Assessment is by a combination of written examination, written course work and oral presentation.</p>
<p><b>Professional Practice Skills</b></p>	<p>Students should be able to:</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• 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;</li> <li>• 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 organization.</li> </ul> <p>Teaching and learning is through lectures, tutorials, students' own reading, practical exercises and laboratory work.</p> <p>Assessment is by a combination of written examination, written course work and oral presentation.</p>
<p><b>Transferable/Key Skills</b></p>	

	<p>Students should be able to demonstrate:</p> <ul style="list-style-type: none"> <li>• ability to use IT to collect, analyse and present technical information;</li> <li>• ability to use appropriate professional simulation and design tools;</li> <li>• the exercise of initiative and personal responsibility;</li> <li>• ability to effectively present technical information in both written and spoken forms;</li> <li>• independent learning ability required for continuing professional development;</li> <li>• how to plan and execute a small project;</li> </ul> <p>Teaching and learning is through lectures, tutorials, students' own reading, practical exercises and laboratory work.</p> <p>Assessment is by a combination of written examination, written course work and oral presentation.</p>
<p><b>Assessment Methods</b></p>	
<p><b>Summary of Assessment Regulations</b></p>	<p>NFA - fully compliant <input checked="" type="checkbox"/></p>
<p><b>Progression Regulations and Awards</b></p> <p><i>For programmes fully compliant with NFA refer to the relevant appendices of the relevant NFAAR document (<a href="#">UG</a>, <a href="#">PGT</a>, <a href="#">FD</a>, <a href="#">HY</a>, or <a href="#">CPD</a>)</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 <a href="#">NFA</a>.</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 <a href="http://www.bath.ac.uk/registry/nfa/nfaar-ug.pdf">http://www.bath.ac.uk/registry/nfa/nfaar-ug.pdf</a></p>
<p><i>Students leaving an undergraduate programme prematurely may be eligible for a <a href="#">Certificate of Higher Education</a> or a <a href="#">Diploma of Higher Education</a>.</i></p>	
<p><a href="#">Click here to see 'Indicators of Quality &amp; Standards'</a></p>	
<p><b>Placement and Professional Accreditation</b></p>	
<p><b>Details of Work Placements Requirements / Work Based Learning / Industrial Training Requirements</b></p>	<p>Students on the sandwich programme will undertake a placement of at least thirty weeks during the third year which would be assessed on a pass/fail basis and be accredited 60 credits. Assessment will be via a 3000-4000 word report on the Placement.</p>
<p><b>Details of Study Abroad Requirements</b></p>	
<p><b>Details of Professional Accreditation</b></p>	
<p><b>Admissions and Support</b></p>	
<p><b>Admissions Criteria including APL/APEL arrangements</b></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 AAB grade profile, or equivalent, at GCE A level will be required, including mathematics to Grade A GCE A level standard, a further scientific/numeric subject to GCE A level, and a third GCE A level with at least a grade B. A GCE A level pass in Physics is preferred, although other appropriate subjects, for example electronics, are also acceptable.</p> <p>Admissions criteria can be found by following the link below:  <a href="http://www.bath.ac.uk/study/ug/prospectus/subject/electrical-electronic-engineering/entry-requirements/">http://www.bath.ac.uk/study/ug/prospectus/subject/electrical-electronic-engineering/entry-requirements/</a></p>
<p><b>Details of Support Available to Students</b></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*

Additional information about Electronic and Electrical Engineering is available at the Department's  
webpage: <http://www.bath.ac.uk/elec-eng/>

**Business Support Systems** - part of Computing Services



<b>BEng(Hons) Electrical Power Engineering - Being delivered 2017/2018</b>
UEEE-AFB12

+

<b>NFAAR Version</b>	UG <input type="checkbox"/>
<b>Length</b>	3 Years
<b>Mode of Attendance</b>	Full-time
<b>Mode of Placement</b>	None
<b>Type of Placement</b>	None
<b>Intended Award</b>	Bachelor of Engineering with Honours
<b>Award Title</b>	BACHELOR OF ENGINEERING IN ELECTRICAL POWER ENGINEERING
<b>For UG Masters Type Programmes this is</b>	
<b>Exit Awards</b>	UEEE-AFC12 Certificate of Higher Education UEEE-AFL12 Diploma of Higher Education
<b>Exit Award Rules</b>	
<b>Designated Alternative Programmes</b>	

Assessment weightings and decision references		
Stage	Weighting within programme %	NFAAR decisions reference <a href="http://www.bath.ac.uk/registry/nfa/index.htm">http://www.bath.ac.uk/registry/nfa/index.htm</a>
Stage 1	0	
Stage 2	32	
Stage 3	68	
Stage 4		
Stage 5		
Stage 6		

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
<b>Year of Study : 1 (10)</b>									
Unit Status : Compulsory Unit (10)									
EE10134	Introduction to programming in MATLAB	6	Semester 1	1	1				
EE10142	Electronic laboratory techniques & professional engineering practice I	6	Semester 1	1	1				
EE10168	Circuit theory	6	Semester 1	1	1				
EE10171	Engineering physics	6	Semester 1	1	1				
EE10213	Mathematics 1	6	Semester 1	1	1				
EE10135	Signals, systems and communications	6	Semester 2	1	1				
EE10140	Microprocessors and interfacing	6	Semester 2	1	1				
EE10169	Digital electronics	6	Semester 2	1	1				
EE10214	Mathematics 2	6	Semester 2	1	1				
EE10218	Electronic systems design and manufacture 1	6	Semester 2	1	1				
<b>Year of Study : 2 (10)</b>									
Unit Status : Compulsory Unit (10)									
EE20004	Electronic devices & circuits	6	Semester 1	2	2				
EE20021	Digital systems design	6	Semester 1	2	2				
EE20083	Signal processing	6	Semester 1	2	2				
EE20085	Electromagnetics	6	Semester 1	2	2				
EE20222	Electronic systems design and manufacture 2	6	Semester 1	2	2				
EE20017	Communication principles	6	Semester 2	2	2				
EE20084	Structured programming	6	Semester 2	2	2				
EE20099	Electrical systems & power electronics	6	Semester 2	2	2				
EE20194	Group design and professional engineering practice II	6	Semester 2	2	2				
EE20195	Control systems	6	Semester 2	2	2				
<b>Year of Study : 3 (10)</b>									
Unit Status : Compulsory Unit (6)									
EE30041	Control engineering	6	Semester 1	3	3				
EE30123	Power electronics & drives	6	Semester 1	3	3				
EE30196	Power system plant	6	Semester 1	3	3				
EE30215	Power system fundamentals	6	Semester 1	3	3				
EE30203	BEng group project	6		3	3				

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
EE30149	BEng individual project	24	Semester 2	3	3	Yes			
↕Unit Status : EE3013 Optional Units: Select 1 unit from this list: (4)									
EE30031	Digital communications	6	Semester 1	3	3				
EE30141	Spacecraft systems engineering	6	Semester 1	3	3				
EE30175	Digital audio and signal processing	6	Semester 1	3	3				
EE30197	Power markets and economics	6	Semester 1	3	3				

**Business Support Systems** - part of Computing Services



<b>BEng(Hons) Electrical Power Engineering with Year long work placement - Being delivered 2017/2018</b>
UEEE-AKB12

+

<b>NFAAR Version</b>	UG <input type="checkbox"/>
<b>Length</b>	4 Years
<b>Mode of Attendance</b>	Full-time
<b>Mode of Placement</b>	Thick Sandwich
<b>Type of Placement</b>	Year Long Work Placement
<b>Intended Award</b>	Bachelor of Engineering with Honours
<b>Award Title</b>	BACHELOR OF ENGINEERING IN ELECTRICAL POWER ENGINEERING
<b>For UG Masters Type Programmes this is</b>	
<b>Exit Awards</b>	UEEE-AKC12 Certificate of Higher Education UEEE-AKL12 Diploma of Higher Education
<b>Exit Award Rules</b>	
<b>Designated Alternative Programmes</b>	UEEE-AFB12 BEng (hons) Electrical Power Engineering

Assessment weightings and decision references		
Stage	Weighting within programme %	NFAAR decisions reference
Stage 1	<input type="text" value="0"/>	<a href="http://www.bath.ac.uk/registry/nfa/index.htm">http://www.bath.ac.uk/registry/nfa/index.htm</a>
Stage 2	<input type="text" value="32"/>	
Stage 3	<input type="text" value="0"/>	
Stage 4	<input type="text" value="68"/>	
Stage 5	<input type="text"/>	
Stage 6	<input type="text"/>	



Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
<b>Year of Study : 1 (10)</b>									
Unit Status : Compulsory Unit (10)									
EE10134	Introduction to programming in MATLAB	6	Semester 1	1	1				
EE10142	Electronic laboratory techniques & professional engineering practice I	6	Semester 1	1	1				
EE10168	Circuit theory	6	Semester 1	1	1				
EE10171	Engineering physics	6	Semester 1	1	1				
EE10213	Mathematics 1	6	Semester 1	1	1				
EE10135	Signals, systems and communications	6	Semester 2	1	1				
EE10140	Microprocessors and interfacing	6	Semester 2	1	1				
EE10169	Digital electronics	6	Semester 2	1	1				
EE10214	Mathematics 2	6	Semester 2	1	1				
EE10218	Electronic systems design and manufacture 1	6	Semester 2	1	1				
<b>Year of Study : 2 (10)</b>									
Unit Status : Compulsory Unit (10)									
EE20004	Electronic devices & circuits	6	Semester 1	2	2				
EE20021	Digital systems design	6	Semester 1	2	2				
EE20083	Signal processing	6	Semester 1	2	2				
EE20085	Electromagnetics	6	Semester 1	2	2				
EE20222	Electronic systems design and manufacture 2	6	Semester 1	2	2				
EE20017	Communication principles	6	Semester 2	2	2				
EE20084	Structured programming	6	Semester 2	2	2				
EE20099	Electrical systems & power electronics	6	Semester 2	2	2				
EE20194	Group design and professional engineering practice II	6	Semester 2	2	2				
EE20195	Control systems	6	Semester 2	2	2				
<b>Year of Study : 3 (1)</b>									
Unit Status : Compulsory Unit (1)									
EE20062	Industrial placement	60	All Year	2	3				
<b>Year of Study : 4 (10)</b>									
Unit Status : Compulsory Unit (6)									
EE30041	Control engineering	6	Semester 1	3	4				
EE30123	Power electronics & drives	6		3	4				

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
			Semester 1						
EE30196	Power system plant	6	Semester 1	3	4				
EE30215	Power system fundamentals	6	Semester 1	3	4				
EE30203	BEng group project	6	Semester 2	3	4				
EE30149	BEng individual project	24	Semester 2	3	4	Yes			
Unit Status : EE3013 Optional Units: Select 1 unit from this list: (4)									
EE30031	Digital communications	6	Semester 1	3	4				
EE30141	Spacecraft systems engineering	6	Semester 1	3	4				
EE30175	Digital audio and signal processing	6	Semester 1	3	4				
EE30197	Power markets and economics	6	Semester 1	3	4				

**Business Support Systems** - part of Computing Services