



Programme Specification						
						Show Guidance
General Information						
Title	BEng in Computer Systems Engineering					
Awarding Institution	University of Bath					
Teaching Institution	University of Bath					
Programme Accredited by	IET 2013					
Collaborative Provision Type	Not Applicable					
Placement Available?	Yes					
Study Abroad Available?	No					
Subject Benchmark Statement(s) Click here to see 'QAA List'	Engineering: http://www.qaa.ac.uk/en/Publications/Documents/SBS-engineering-15.pdf					
Programme Approved by	Senate (1996)					
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>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 6 credits with particular relevance to computer systems engineering. Optional semester 1 topics cover many other aspects of electronics, communications and systems engineering. The core also includes material that is regarded as essential for the modern entrepreneurial engineer in the Group Design & Business Project.</p> <p>An individual project will be taken in the 2nd semester of the final year for which the selection of a topic in the area of computers, electronics and communications will be encouraged. This project contributes 24 credits to the programme.</p> <p>Academic Coherence</p> <p>The Computer System Engineering programme is intended for students who wish to specialize in the areas of computer systems, information networks and software design.</p> <p>The programme is reasonably broadly based in the first two years in order to lay the foundations of the common electronic, electrical and computer 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 computer systems. 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 & 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>					
Educational Aims of the Programme						

	<p>Aims</p> <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"> • To enable students to pursue professional careers in computer systems engineering at a level which requires the exercise of sound judgement, personal responsibility and initiative, and the ability to make engineering decisions. • To equip students with a detailed understanding of the principles of computer systems and electronic engineering science, some 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 an understanding of the components and operation of modern computer systems. • To enable students to work successfully in engineering teams. <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 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"> • use their knowledge and understanding of computer systems, electronics and communications to produce soundly based and original solutions to electronic and communication engineering problems, through the detailed evaluation of available evidence, arguments and assumptions; • apply theoretical and practical techniques in a creative way to the analysis and solution of problems; • use initiative, effective communication and interpersonal skills; • operate within the appropriate code of professional conduct, recognising obligations to society, the profession and the environment.
<p>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.</p>	
<p>Knowledge and Understanding</p>	<p>Students should be able to demonstrate:</p> <ul style="list-style-type: none"> • systematic, detailed and critical understanding of electronic, communications and computer science, ranging from the well-established principles to new techniques; • knowledge of a number of basic practical technologies currently used in computer, electronic and communication engineering; • critical understanding of the uncertainty, ambiguity and limits of their knowledge, and how this may affect analyses of, and solutions to, electronic and communication engineering problems; • an understanding of a range of modern computer software techniques and design paradigms; • an awareness of the commercial and financial constraints that engineers may have to work under. <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>Intellectual Skills</p>	<p>Students should be able to demonstrate:</p> <ul style="list-style-type: none"> • ability to apply the concepts and principles of electronic and communications and computer science to the solution of engineering systems in a number of commonly encountered engineering contexts; • 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 electronic, communication and computer engineering. <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>Professional Practice Skills</p>	<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 organization. <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>Transferable/Key Skills</p>	

	<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 forms; • independent learning ability required for continuing professional development; • how to plan and execute a small project. <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>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 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>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 AAB grade profile, or equivalent, at GCE A level will be required, including mathematics to 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: http://www.bath.ac.uk/study/ug/prospectus/subject/electrical-electronic-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*

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



BEng(Hons) Computer Systems Engineering - Being delivered 2017/2018	
UEEE-AFB13	
+	
NFAAR Version	UG <input type="checkbox"/>
Length	3 Years
Mode of Attendance	Full-time
Mode of Placement	None
Type of Placement	None
Intended Award	Bachelor of Engineering with Honours
Award Title	BACHELOR OF ENGINEERING IN COMPUTER SYSTEMS ENGINEERING
For UG Masters Type Programmes this is	
Exit Awards	UEEE-AFC13 Certificate of Higher Education UEEE-AFL13 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	32	
Stage 3	68	
Stage 4		
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)									
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				
Year of Study : 2 (10)									
Unit Status : Compulsory Unit (10)									
CM20254	Data structures and algorithms	6	Semester 1	2	2				
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				
EE20222	Electronic systems design and manufacture 2	6	Semester 1	2	2				
CM20252	Artificial intelligence	6	Semester 2	2	2				
EE20017	Communication principles	6	Semester 2	2	2				
EE20084	Structured programming	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				
Year of Study : 3 (11)									
Unit Status : Compulsory Unit (5)									
CM20219	Fundamentals of visual computing	6	Semester 1	3	3				
EE30029	Digital networks & protocols	6	Semester 1	3	3				
EE30175	Digital audio and signal processing	6	Semester 1	3	3				
EE30203	BEng group project	6	Semester 2	3	3				
EE30149	BEng individual project	24		3	3			Yes	

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
			Semester 2						
⚡ Unit Status : EE3015 Optional Units: Select 2 units from this list: (6)									
CM30225	Parallel computing	6	Semester 1	3	3				
EE30031	Digital communications	6	Semester 1	3	3				
EE30120	Radio & optical waves for communications	6	Semester 1	3	3				
EE30121	Microelectronic systems	6	Semester 1	3	3				
EE30124	High frequency electronics and design	6	Semester 1	3	3				
EE30141	Spacecraft systems engineering	6	Semester 1	3	3				

Business Support Systems - part of Computing Services



BEng(Hons) Computer Systems Engineering with Year long work placement - Being delivered 2017/2018
 UEEE-AKB13

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NFAAR Version	UG <input type="checkbox"/>
Length	4 Years
Mode of Attendance	Full-time
Mode of Placement	Thick Sandwich
Type of Placement	Year Long Work Placement
Intended Award	Bachelor of Engineering with Honours
Award Title	BACHELOR OF ENGINEERING IN COMPUTER SYSTEMS ENGINEERING
For UG Masters Type Programmes this is	
Exit Awards	UEEE-AKC13 Certificate of Higher Education UEEE-AKL13 Diploma of Higher Education
Exit Award Rules	
Designated Alternative Programmes	UEEE-AFB13 BEng (hons) Computer Systems Engineering

Assessment weightings and decision references		
Stage	Weighting within programme %	NFAAR decisions reference
Stage 1	<input type="text" value="0"/>	http://www.bath.ac.uk/registry/nfa/index.htm
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
Year of Study : 1 (10)									
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				
Year of Study : 2 (10)									
Unit Status : Compulsory Unit (10)									
CM20254	Data structures and algorithms	6	Semester 1	2	2				
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				
EE20222	Electronic systems design and manufacture 2	6	Semester 1	2	2				
CM20252	Artificial intelligence	6	Semester 2	2	2				
EE20017	Communication principles	6	Semester 2	2	2				
EE20084	Structured programming	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				
Year of Study : 3 (1)									
Unit Status : Compulsory Unit (1)									
EE20062	Industrial placement	60	All Year	2	3				
Year of Study : 4 (11)									
Unit Status : Compulsory Unit (5)									
CM20219	Fundamentals of visual computing	6	Semester 1	3	4				
EE30029	Digital networks & protocols	6		3	4				

Unit	Unit Title	Credits	Period	Part	Stage	DEU	SRU	TSC or DPC	Placement Status
			Semester 1						
EE30175	Digital audio and signal processing	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 : EE3015 Optional Units: Select 2 units from this list: (6)									
CM30225	Parallel computing	6	Semester 1	3	4				
EE30031	Digital communications	6	Semester 1	3	4				
EE30120	Radio & optical waves for communications	6	Semester 1	3	4				
EE30121	Microelectronic systems	6	Semester 1	3	4				
EE30124	High frequency electronics and design	6	Semester 1	3	4				
EE30141	Spacecraft systems engineering	6	Semester 1	3	4				

Business Support Systems - part of Computing Services