

Faculty: Science, Technology and Creative Arts

Title of Programme: Extended Engineering Degree Programmes (Initial Year)


Programme Code: EIEF

Programme Specification

Start Date: September 2011

Date of Approval: 19 August 2011

Associate Dean (Academic Quality): Petros Khoudian

A handwritten signature in black ink that reads "Petros Khoudian". The signature is written in a cursive style with a large, stylized initial 'P'.

Signature

Programme Specification Extended Engineering Degree Programme (Initial Year)

This programme specification (PS) is designed for prospective students, enrolled students, academic staff and potential employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content for each module can be found in Definitive Module Documents (DMDs) and Module Guides.

Section 1

Awarding Institution/Body	University of Hertfordshire
Teaching Institution	University of Hertfordshire
University/partner campuses	University of Hertfordshire / Oaklands College / Hertford Regional College / Barnet College
Programme accredited by	IMechE, RAeS, IET
Final Award	Not applicable
All Final Award titles	Not applicable
FHEQ level of award	Level 0
UCAS code(s)	BEng Degrees: Mechanical Engineering (Extended) H308 Automotive Engineering (Extended) H348 Automotive Engineering with Motorsport (Extended) H334 Aerospace Engineering (Extended) H408 Aerospace Systems Engineering (Extended) H438 Aerospace Systems Engineering with Pilot Studies H943 Electrical and Electronic Engineering (Extended) H606 Digital Communications and Electronics (Extended) H645 Digital Systems and Computer Engineering (Extended) H653 BSc Degrees: Aerospace Technology with Management (Extended) H4N2 Aerospace Technology with Pilot Studies (Extended) H494 Automotive Technology with Management (Extended) H3N2 Motorsport Technology (Extended) H337 Multimedia Technology (Extended) P304 Computers & Network Technology (Extended) G490 Internet Technology for e-commerce (Extended) G452 Games and Graphics Hardware Technology (Extended) HG6P

A. Programme Rationale

The Extended Engineering Degree (Initial Year) (EIF0) aims to prepare students, who would not normally be considered qualified, to an appropriate standard for entry into the first year of BEng (Honours) Engineering or BSc (Honours) Technology Degree programmes. Examples might include students with 'A' Levels or equivalent, Scottish or Irish Highers but with an insufficient background in Mathematics, Physics or other Technology-related subjects; students with overseas qualifications and mature students without the formal qualifications for entry to a University degree programme.

The degree programmes onto which the Initial Year provides entry have been developed to satisfy the QAA Engineering Benchmarks as well as the stringent requirements of a number of Professional Engineering Institutions. Thus the Initial year has been developed taking these benchmark statements into account.

The programme aims to develop in students, knowledge and understanding of and competence in, mathematics, science and the application of information technology, suitable to support their progression into the first year of an Engineering or Technology degree programme. Mathematics is a fundamental and important element of Engineering, allowing a description and analysis of physical systems and their behaviour. The programme requires a student to become competent in the fundamental mathematics common and essential to further study of all the various engineering disciplines. Mathematics is studied throughout the Initial Year in the Mathematics 1 and Mathematics 2 modules.

Students need to develop their knowledge of the Sciences relevant to Engineering. This is achieved through three modules on the programme. The Engineering Science module studied in Semester A provides a basis for all the Engineering disciplines. It covers the chemistry, properties and behaviour of engineering materials and their selection to serve particular purposes, introductory mechanics and fundamentals of electricity and magnetism. The latter subjects are developed further in the Mechanical Science and Electrical Science & Electronics modules in Semester B.

The computer is essential to the work of an engineer, whether it be design and analysis, or reporting and documenting their work. The Computers and Engineering Applications module provides an opportunity for students to acquire competence in using appropriate computer software to, for example, solve problems, prepare reports and presentations and gather, analyse and present experimental data.

In the Initial Year Project module, students, working in small teams, undertake an extended study of a specialist nature, researching and reporting on an engineering/technological problem.

Students are not always sure of their intended discipline, or aware of the variety and range of engineering opportunities potentially available to them. The Engineering Studies and Skills module provides students with an exposure to various engineering disciplines through guided laboratory experiments in the Faculty of Science, Technology and Engineering at the University. This is reinforced by presentations by guest speakers and/or industrial visits. The module also aims to enable effective learning and so includes instruction on study skills, such as taking notes, writing and presenting reports, revising and taking examinations.

B. Educational Aims of the Programme

The programme has been devised in accordance with the University's general educational aims of programmes of study as set out in UPR TL01.

Additionally this programme aims to:

- prepare students, who would not normally be considered qualified, to an appropriate standard for entry into the first year of BEng (Honours) Engineering or BSc (Honours) Technology Degree Programme;
- develop in students knowledge and understanding of and competence in, mathematics, science and the application of information technology, suitable to support their progression into the first year of an Engineering or Technology degree programme;
- develop in students an appreciation of the engineering industry and its place and purpose in society, in order that they may make an informed choice of Engineering or Technology discipline.

C. Intended Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas. The programme outcomes are referenced to the Framework for Higher Education Qualifications in England, Wales and Northern Ireland (2008) and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education 2003 have been used as a guiding framework for curriculum design.

Knowledge and Understanding of:	Teaching/learning methods & strategies	Assessment
<p>A1 - The mathematics required by students entering Undergraduate Engineering and Technology programmes.</p> <p>A2 - The fundamental engineering sciences required by students entering Undergraduate Engineering and Technology programmes.</p> <p>A3 - Principles of IT and Communications relevant to Engineering and Technology disciplines.</p>	<p>Acquisition of knowledge and understanding is through a combination of lectures, (A1-A3) small group tutorials, (A1-A3) coursework (A1-A3) and laboratory work. (A1-A3) Additional support is provided the Maths Drop-In Centre.</p> <p>Feedback is given to all students on all summative coursework produced.</p> <p>Throughout, the learner is encouraged to undertake independent study both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.</p>	<p>Knowledge and understanding are assessed through a combination of unseen examinations (A1, A2), assignment reports (A1-A3), laboratory reports (A2), phase tests (A1, A2) and project reports/presentations (A3).</p>
Intellectual skills - able to:	Teaching/learning methods & strategies	Assessment
<p>B1 - Analyse engineering problems using appropriate mathematical techniques.</p> <p>B2 - Analyse engineering systems using appropriate scientific principles.</p>	<p>Intellectual skills are developed through a combination of lectures, (B1, B2) small group tutorials, (B1, B2) individual assignments (B1, B2) and laboratory work. (B2)</p> <p>Feedback is given to all students on all summative coursework produced.</p> <p>Throughout, the learner is encouraged to develop intellectual skills further by independent study.</p>	<p>Intellectual skills are assessed through unseen examination papers, (B1, B2) phase tests, (B1, B2) laboratory reports (B2) and assignment reports. (B1, B2)</p>
Practical skills - able to:	Teaching/learning methods & strategies	Assessment
<p>C1 - Perform experimental work and draw conclusions.</p> <p>C2 - Use computer-based engineering tools.</p>	<p>Practical skills are developed through a combination of lectures, (C1-C3) laboratory work, (C1-C3) assignments (C2, C3) and projects. (C2, C3)</p>	<p>Practical skills are assessed through laboratory reports, (C1, C3) assignment reports, (C2, C3) presentations (C2) and project reports. (C2, C3)</p>

C3 - Prepare technical documentation.	Feedback is given to students on all summative coursework produced.	
Transferable skills - able to:	Teaching/learning methods & strategies	Assessment
D1 - Communicate effectively, both orally and in writing.	Transferable skills are developed through a combination of lectures, (D1-D4) tutorials, (D2-D4) individual and group assignments. (D1-D4) Throughout, the learner is encouraged to develop transferable skills by maintaining a record of evidence and completing a personal development plan.	Transferable skills are assessed through assignment reports, (D1–D3) oral presentations, (D1-D2) project reports (D1-D4) and examinations. (D4)
D2 - Use commonly available IT tools.		
D3 - Manipulate, sort and present data.		
D4 - Solve problems in a logical manner.		

D. Programme Structures, Features, Levels, Modules, and Credits

The programme is offered as full-time only. Two of the modules, Engineering Studies and Skills and Engineering Initial Year Project are University based, the remaining six modules are College based with module codes dependent on which college the student opts to study at. Successful students progress onto the degree programme of their choice, depending on their performance in the specific modules according to the grade 'tariffs' given Table 1b. Intake is normally in semester A only.

Professional and Statutory Regulatory Bodies

The Institution of Mechanical Engineers (IMechE), Royal Aeronautical Society (RAeS) and the Institution of Engineering and Technology (IET) have accredited the EIF0, so that students entering Level 1 of an IMechE, RAeS or IET accredited degree are considered as Category A students as defined by the Engineering Council.

Programme Structure

The programme structure and progression information are given below in Tables 1a and 1b respectively. The Programme Learning Outcomes detailed above are developed and assessed through the constituent modules. Table 2 (in section 2) identifies where each learning outcome is assessed.

Table 1a. Outline Programme Structure

Compulsory Modules Module Titles	Module Code	Credit Points	% examination	% coursework	Semester
Engineering Studies and Skills	0AAD0001	15	0	100	A
Mathematics 1	0FEN0099 (Barnet) 0FEN0105 (Herts Reg) 0FEN0111 (Oaklands)	15	60	40	A
Engineering Science	0FEN0103 (Barnet) 0FEN0109 (Herts Reg) 0FEN0115 (Oaklands)	15	60	40	A
Computers and Applications to Engineering	0FEN0104 (Barnet) 0FEN0110 (Herts Reg) 0FEN0116 (Oaklands)	15	0	100	A
Mathematics 2	0FEN0100 (Barnet) 0FEN0106 (Herts Reg) 0FEN0112 (Oaklands)	15	60	40	B
Mechanical Science	0FEN0101 (Barnet) 0FEN0107 (Herts Reg) 0FEN0113 (Oaklands)	15	60	40	B
Electrical Science and Electronics	0FEN0102 (Barnet) 0FEN0108 (Herts Reg) 0FEN0114 (Oaklands)	15	60	40	B
Engineering Project	0AAD0003	15	0	100	B

Progression to level 4 requires 120 credits and attainment of certain tariff grades, dependent on the programme onto which a student wishes to progress (see Table 1b). The module grading system is defined in UPR AS14 section D1.1. There is no direct progression possible to level 4 of MEng programmes offered within the Faculty. Passes in all modules, but failure to achieve the tariff, or referrals and subsequent attainment of minimum pass grades, may preclude students from certain of the degree programmes, in which case an alternative degree may be offered. Fail grades in more than 2 Semester A modules will normally preclude students from continuing on Engineering Initial Year programme. Similar failures in Semester B may make it impossible to offer any degree programme to the unsuccessful student. A compensated pass shall not be awarded for the Project module.

Table 1b Module Grade Tariffs

Programme	Initial Year Module and Tariff Grade								
	Maths 1	Engineering Science	Computers & Engineering Applications	Engineering Studies & Skills	Maths 2	Mechanical Science	Electrical Science & Electronics	Project	Overall average grade
BEng Aerospace Engineering	50	50			50	50			55
BEng Aerospace Systems Engineering	50	50			50	50			55
BEng Aerospace Systems Engineering with Pilot Studies	50	50			50	50			55
BEng Mechanical Engineering	50	50			50	50			55
BEng Automotive Engineering	50	50			50	50			55
BEng Automotive Engineering with Motorsport	50	50			50	50			55
BEng Electrical & Electronic Engineering	50	50			50		50		55
BEng Digital Communications & Electronics	50	50			50		50		55
BEng Digital Systems & Computer Engineering	50	50			50		50		55
BEng Audio Video and Digital Broadcast Engineering	50	50			50		50		55
BSc Aerospace Technology with Management									45
BSc Aerospace Technology with Pilot Studies									45
BSc Automotive Technology with Management									45
BSc Motorsport Technology									45
BSc Multimedia Technology									45
BSc Computers & Network Technology									45
BSc Internet Technology for e-commerce									45
BSc Games and Graphics Hardware Technology									45

E. Support for students and their learning

Students are supported at both the University and their College by:

- guided student-centred learning through the use of StudyNet;
- an induction week at the beginning of each new academic session;
- a University Link Tutor to help students understand the course/programme structure;
- a College Tutor to help students understand the course/programme structure;
- College personal tutors to provide academic and pastoral support;
- Student representatives on programme committee;
- a designated programme administrator;
- a UH Mathematics Drop-in Centre;
- UH and College Technical laboratories;
- UH and College Technical support staff;
- UH and College Printing, photocopying, laminating and document binding facilities;
- UH and College Learning Resources Centres, incorporating libraries and computer centres;
- UH and College Student Services Centres that provides advice on issues such as finance, University and College regulations, legal matters etc;
- Office of Dean of Students, incorporating Chaplaincy, Counselling and nursery;
- Nightline – a confidential student listening and information service in the evening when other services are not available;
- UH and College Medical Centres;
- a UH Disabled Student Tutor and College Support for disabled students;
- a UH Equal Opportunities officer;
- College accommodation offices;
- The UH Students' Union;
- UH International Students Centre;
- Overseas Orientation week.

F. Entry requirements

The normal entry requirements for the programme are:

- UCAS tariff points: 80 points from one GCE/VCE A Level or one VCE Double Award in any subject;

OR

- BTEC ND/NC in any subject.

Plus

- GCSE Mathematics, Science and English Language at grade C or above.

Applications are welcomed from those holding other qualifications including Scottish Higher or Irish Higher Certificates, Access Certificate, International Baccalaureate or other equivalent international qualifications.

Applications are also welcomed from mature applicants who are considered on the basis of employment experience in addition to formal qualifications.

Overseas students would be expected to have attained a minimum IELTS of 6.0 or equivalent before commencement of their studies. Students without IELTS of 6.0 or equivalent, depending on the Country of Origin, may be expected to complete a suitable programme of study prior to the commencement of the programme, such as pre-sessional English Classes, Foundation Certificate English for Academic Purposes (FCEAP), International Bridging Programme or any other suitable programme deemed appropriate by the University.

The programme is subject to the University's Principles, Policies, Regulations and Procedures for the Admission of Students to Undergraduate and Taught Postgraduate Programmes and will take account of University policy and guidelines for assessing accredited prior certificated learning (APCL) and accredited prior experiential learning (APEL).

Section 2

Programme management

JACS code(s)	H3, H4, H6
Modes of study	F/T
Intakes	Semester A
Relevant QAA subject benchmarking group	Engineering
Date of validation/last periodic review	Dec 2008
Date of production/ last revision of PS	January 2009, October 2010, August 2011
Relevant cohorts	Sept 2011
Faculty	Science, Technology and Creative Arts
Administrative School(s)/Departments	School of Engineering and Technology

Course (i.e. pathway) details

Course (i.e. Pathway Point) Titles	Course (i.e. Pathway Point) Codes
Engineering Initial Year (Barnet)	EFBA1
Engineering Initial Year (Herts Regional)	EFHR1
Engineering Initial Year (Oaklands)	EFOA1

The programme is managed by:

- Associate Head of School who has delegated responsibility for the Extended Engineering Initial Year programme;
- a Curriculum Manager/Director in each College;
- a University Link Tutor and Programme Coordinator for each College who are responsible for the day to day management of the programme;
- an Admissions Tutor, with specific responsibility for open days and selection supported by Programme Coordinators from each college;
- a designated Administrator to deal with day to day administration associated with the programme;
- Module Leaders who are responsible for individual modules;
- a programme committee, the membership of which includes the staff listed above plus student representatives.

Programme-specific assessment regulations

The programme is compliant with the University's generic assessment regulations (Structure and Assessment Regulations for Academic Programmes, UPR AS14) with the exception of those listed below, which have been specifically approved by the University:

- None

Further points of clarification and interpretation relevant to this specific programme are given below:

- Progression to level 4 of an Engineering or Technology degree depends on meeting the pre-requisite requirements of specific chosen modules. These are defined in Section 1 Part D - Table 1b.
- The Programme operates the university-wide policy for treatment of extenuating circumstances.
- Fail grades in more than 2 Semester A modules will normally preclude students from continuing on Engineering Initial Year programme.

- Attendance at both College and University based classes is mandatory. Attendance will be monitored and students that have a prolonged absence (more than one week) without valid extenuating circumstance, as defined in UPR SA06, will be warned that if they continue to have periods of prolonged absent they will be withdrawn from the programme.

Other sources of information

- Definitive Module Documents.
- Module Guides.
- Student Handbook.
- Programme Specification website:
(StudyNet → Staff → Department Lists → Academic Quality Office → Programme Management → Programme Specifications).
- University of Hertfordshire Course website: <http://www.herts.ac.uk/courses/> .
- Barnet College Website – <http://www.barnet.ac.uk> .
- Hertford Regional College Website – <http://www.hertreg.ac.uk> .
- Oaklands College Website – <http://www.oaklands.ac.uk> .
- QAA Benchmark Statement website:
<http://www.qaa.ac.uk/academicinfrastructure/benchmark/default.asp> .
- The Framework for Higher Education Qualifications in England, Wales and Northern Ireland, 2001:
<http://www.qaa.ac.uk/academicinfrastructure/FHEQ/EWNI/default.asp> .
- SEEC Credit Level Descriptors for Further and Higher Education 2003: <http://www.seec-office.org.uk/creditlevel descriptors2003.pdf> .
- External Quality Review report website:
http://www.qaa.ac.uk/revreps/inst_reports.asp?instID=H-0060 .
- Professional Body Accreditation (IMechE) URL: <http://www.imeche.org> .
- Professional Body Accreditation (RAES) URL: <http://www.raes.org.uk/> .
- Professional Body Accreditation (IET) URL: <http://www.theiet.org/> .
- UNISTATS website:
<http://www.unistats.com/> .
- University of Hertfordshire Academic Quality Office website:
(StudyNet → Staff → Department Lists → Academic Quality Office)
- Structure & Assessment Regulations - Undergraduate & Taught Postgraduate Programmes, UPR AS14:
<http://www.herts.ac.uk/secreg/upr/AS-C-5.htm> .
- Learning and Teaching Policy and General Educational Aims, UPR TL01:
<http://www.herts.ac.uk/secreg/upr/AS-C-3.htm> .
- Admissions - Undergraduate & Taught Postgraduate Students, UPR SA03:
<http://www.herts.ac.uk/secreg/upr/AS-C-4.htm> .
- Academic Quality, UPR AS17:
<http://www.herts.ac.uk/secreg/upr/AS-C-1.htm> .
- Index of UPRs for students:
http://www.herts.ac.uk/secreg/upr/upr_azlist_student_info.htm .
- The Civil Aviation Authority - <http://www.caa.co.uk/> .

Other information relevant to the programme

Students are expected to attend the University for one day per week when they will study Engineering Studies and Skills and the Engineering Project modules. The remainder of the week students will be based at Associate or Franchised Colleges who will deliver the remaining six modules.

University policies relevant to the Programme

The University undertakes to use all reasonable endeavours to deliver, assess and administer this programme in accordance with this Programme Specification. At the same time it is recognised that it is in the nature of academic developments that changes, for example to the structure, curriculum, and assessment of a programme may be necessary in order to ensure that the programme remains up to date, in response to issues raised as a result of on-going monitoring and evaluation, and/or in order to conform to new regulatory requirements imposed by this institution, by professional or statutory bodies, or by national or governmental bodies.

The programme operates within the guidelines and policies relating to equal opportunities and environmental issues which may be agreed from time to time by the Board of Governors and/or the Academic Board of the University.

Where the programme is offered in collaboration with another institution these policies and guidelines will normally be those of the partner institution.

The programme operates in accordance with the University's Regulations Governing Studies Involving the Use of Human Subjects (UPR RE01) agreed from time to time by the Academic Board of the University. However, where the programme is offered in collaboration with another institution (for example through a franchise arrangement for all or part of the programme) then specific approval must be obtained from the University for the operation of the programme within ethical guidelines prepared by the partner institution. The partner institution will be responsible for all insurance liability in connection with the observance of ethical guidelines.



Signed
Chair of Faculty Academic Quality Enhancement Committee

Date 19 August 2011

If you would like this information in an alternative format please contact the Senior Faculty Administrator.

Extended Engineering (Initial Year)

Table 2: Development of Programme Learning Outcomes in the Constituent Modules

This map identifies where the programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own learning, personal and professional development as the programme progresses.

Module Title		Module Code	A1	A2	A3	B1	B2	C1	C2	C3	D1	D2	D3	D4
Level 0	Mathematics 1	0FEN0099; 0FEN0105; 0FEN0111	■											
	Engineering Science	0FEN0103; 0FEN0109; 0FEN0115		■		■	■	■	■	■	■			
	Computers and Engineering Applications	0FEN0104; 0FEN0110; 0FEN0116			■									
	Engineering Studies and Skills	0AAD0001						■	■	■	■	■		
	Mathematics 2	0FEN0100; 0FEN0106; 0FEN0112	■											■
	Mechanical Science	0FEN0101; 0FEN0107; 0FEN0113		■		■	■	■						
	Electrical Science and Electronics	0FEN0102; 0FEN0108; 0FEN0114		■		■	■			■				
	Engineering Project	0AAD0003		■	■						■	■		

Key: Learning Outcome which is assessed as part of the module

Key to Programme Learning Outcomes

Knowledge and Understanding

- A1. The mathematics required by students entering Undergraduate Engineering and Technology programmes.
- A2. The fundamental engineering sciences required by students entering Undergraduate Engineering and Technology programmes.
- A3. Principles of IT and Communications relevant to Engineering and Technology disciplines.

Intellectual Skills

- B1. Analyse engineering problems using appropriate mathematical techniques.
- B2. Analyse engineering systems using appropriate scientific principles.

Practical Skills

- C1. Perform experimental work and draw conclusions.
- C2. Use computer-based engineering tools.
- C3. Prepare technical documentation.

Transferable Skills

- D1. Communicate effectively, both orally and in writing.
- D2. Use commonly available IT tools
- D3. Manipulate, sort and present data.
- D4. Solve problems in a logical manner.