

Title of Programme: BEng Honours in Electrical and Electronic Engineering

Programme Code: EIEE

Programme Specification

This programme specification is relevant to students entering:
01 September 2024

Associate Dean of School (Academic Quality Assurance):
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A programme specification is a collection of key information about a programme of study (or course). It identifies the aims and learning outcomes of the programme, lists the modules that make up each stage (or year) of the programme, and the teaching, learning and assessment methods used by teaching staff. It also describes the structure of the programme, its progression requirements and any programme-specific regulations. This information is therefore useful to potential students to help them choose the right programme of study, to current students on the programme, and to staff teaching and administering the programme.

Summary of amendments to the programme:

Section	Amendment

If you have any queries regarding the changes please email AQO@herts.ac.uk

Programme Specification BEng Honours in Electrical and Electronic Engineering

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).

Section 1

Awarding Institution/Body	University of Hertfordshire
Teaching Institution	University of Hertfordshire
University/partner campuses	College Lane
Programme accredited by	IET
Final Qualification	BEng Honours
All Final Award titles	BEng Honours Electrical and Electronic Engineering
(Qualification and Subject)	BEng Honours Electrical and Electronic Engineering (Sandwich) BEng Honours Electrical and Electronic Engineering with Year Abroad BEng Honours Electrical and Electronic Engineering with Study Abroad
FHEQ level of award	6

A. Programme Rationale

This programme specification covers BEng degrees under the general category of Electrical and Electronic Engineering. The programme has been developed to (i) satisfy the QAA Engineering Benchmark requirements (ii) to fulfil the initial partial academic requirements of UK-SPEC for CEng status and (iii) meet the professional employment needs of industry.

The School has close contacts with a wide range of engineering companies and students are encouraged to take the sandwich option spending at least 30 weeks full-time on industrial placement between levels 5 and 6. Alternatively, they may consider Study Abroad options.

Graduates can expect to gain employment across a wide range of industries that require the skills of an electrical and electronic engineer. These industries include communications, computing, manufacture, defence, aerospace and automotive. Alternatively, graduates may continue their education to a post-graduate level and the University of Hertfordshire has a range of taught MSc or research awards that graduates may consider.

B. Educational Aims of the Programme

Diversity and Inclusion

Our programmes are purposefully designed to enable all students to engage meaningfully with the curriculum by being accessible and representative. We will support students to shape their learning experience, removing barriers and enabling them to succeed. The curriculum explicitly includes multiple and representative perspectives, valuing collective identities and individual diversity. Learning, teaching and

assessment activities help students to understand how they can enhance outcomes both for themselves and for others. All students belong to a learning community, and during their studies we really want to hear their voices, encourage them to listen to others, and express themselves.

The programme has been devised in accordance with the University's graduate attributes of programmes of study as set out in [UPR TL03](#).

Additionally this programme aims to:

- provide high quality education in electrical and electronic engineering;
- provide an education for the individual which enhances their prospects of professional employment in engineering and business both in national and international industries;
- provide studies which develop an awareness of, and underpinning knowledge and understanding of a broad range of Electrical and Electronic Engineering areas of expertise.

Graduate Attributes

Our graduates will be capable and professional, creative and enterprising, and will build their social and global awareness throughout. In addition to their subject expertise and proficiency, as a University of Hertfordshire graduate, they will be:

- Professionally focused
- Globally minded
- Sustainability driven
- Digitally capable and confident
- Inclusive and collaborative
- Evidence based and ethical

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 QAA benchmark statements for Engineering and the Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (2014) and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education (2021) have been used as a guiding framework for curriculum design.

The programme is designed to meet the latest version (AHEP-4) of the Engineering Council's learning outcomes.

Knowledge and Understanding	Teaching and learning methods	Assessment strategy
<p>A1. Demonstrate knowledge and understanding of the analytical methods employed by Engineers.</p>	<p>Acquisition of A1 and A2 is through a combination of lectures, small group tutorials, coursework and laboratory work at levels 4 and 5 of the programme.</p>	<p>Knowledge and understanding are assessed through a combination of unseen examinations (A1, A2, A3 and A5) and in-course assessments (A1-A5) in the form of laboratory reports, essays and phase tests. Some aspects of A3 and A4 are assessed by design exercises and project reports and presentations. At level 6 some aspects of A5 are assessed by case study reports.</p>
<p>A2. Demonstrate knowledge and understanding of the fundamental engineering sciences.</p>	<p>Specialist aspects of A2 are further developed at level 6.</p>	
<p>A3. Demonstrate knowledge and understanding of the design principles and design-to-build processes appropriate to electrical and electronic systems.</p>	<p>Acquisition of A3, A4, and A5 is through a combination of lectures, projects and coursework throughout the programme.</p>	

<p>A4. Demonstrate knowledge and understanding of the basic principles and economic, social, legal, ethical and sustainability considerations of the business of engineering.</p> <p>A5. Demonstrate knowledge and understanding of professional engineering practice principles.</p>	<p>Staff deploy a range of teaching and learning strategies in the most appropriate way for each individual module. A more didactic approach will tend to be adopted at lower levels, in particular for A1 and A2. An increasingly self-directed and interactive approach will be adopted at higher levels, particularly for A3, A4 and A5.</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>	
Intellectual skills	Teaching and learning methods	Assessment strategy
<p>B1. Analyse and solve electrical and electronic engineering problems using appropriate techniques.</p> <p>B2. Model and analyse engineering systems.</p> <p>B3. Select appropriate computer based methods for engineering and communication.</p> <p>B4. Evaluate external influences on the design process.</p> <p>B5. Design electrical and electronic systems, components or processes.</p>	<p>Intellectual skills are developed throughout the programme by the methods and strategies outlined for section A of the intended learning outcomes above, again moving from a more didactic approach to an increasingly self-directed and interactive approach at higher levels, particularly for B3, B4 and B5.</p> <p>Analysis, problem solving and modelling skills (B1 and B2) are further developed through tutorial work, laboratory work, in-course exercises and project work.</p> <p>Design and IT skills (B3-B5) are further developed through project work, design exercises and some case study work at level 6.</p> <p>Feedback is given to all students on all coursework produced.</p> <p>Throughout, the learner is encouraged to develop intellectual skills further by independent study.</p>	<p>Intellectual skills B1, B2 and B5 are assessed through unseen examination papers, laboratory reports and coursework related to in-course exercises.</p> <p>Intellectual skills B3 and B4 are assessed through project reports and presentations.</p>
Practical skills	Teaching and learning methods	Assessment strategy

<p>C1. Apply analytical and modelling techniques to solve engineering problems.</p> <p>C2. Perform experimental work in electrical and electronic engineering and draw conclusions.</p> <p>C3. Use computer-based engineering tools.</p> <p>C4. Prepare and evaluate technical documentation.</p> <p>C5. Evaluate the design of electrical and electronic systems, components or processes.</p> <p>C6. Plan and manage a project, considering economic, social, legal, ethical and sustainability constraints.</p> <p>Sandwich award only: C7. Develop practical, technical and communication skills within an industrial environment.</p>	<p>Practical skills are developed throughout the programme by the methods and strategies outlined in sections A and B of the intended learning outcomes above, again moving from a more didactic approach to an increasingly self-directed and interactive approach at higher levels, particularly for C4, C5 and C6.</p> <p>C1 is developed through laboratory work, coursework assignments and tutorial work.</p> <p>C2 is developed through laboratory work.</p> <p>C3 is developed through the use of software simulation tools at all levels.</p> <p>C4 is developed through project work, lab exercises and software documentation, particularly at level 4.</p> <p>C5 is developed through laboratory work at levels 5 and 6.</p> <p>C6 is developed through lectures and project work.</p> <p>C7 is developed through the industrial placement.</p>	<p>Practical skills are assessed through laboratory reports, coursework assignments, design exercise submissions, case study reports, presentations, project reports and logbooks.</p>
Transferable skills	Teaching and learning methods	Assessment strategy
<p>D1. Communicate effectively, both orally and in writing.</p> <p>D2. Use commonly available IT tools.</p> <p>D3. Manage time and resources effectively.</p> <p>D4. Work effectively within a team as a member.</p> <p>D5. Manipulate, sort and present data.</p> <p>D6. Solve problems in a logical manner.</p>	<p>Transferable skills are developed throughout the programme by the methods and strategies outlined in sections A, B and C of the intended learning outcomes above.</p> <p>D1 is developed through feedback on coursework reports, oral presentations and project reports.</p> <p>D2 is developed through their use in preparing project reports, laboratory reports, case studies, design work, etc.</p>	<p>D1, D2, D5 and D6 are assessed through coursework, individual major project and technical reports and oral presentations. D4 is assessed by review of group project work.</p> <p>D3 and D7 are specifically assessed by review of an individual's progress during individual major project work.</p>

D7. Learn effectively and independently, in all aspects of life.

D3 is developed through project work planning and throughout the programme.

D4 is developed through group project and assignment work.

D5 and D6 are developed through lectures and tutorial work throughout the programme.

D7 is developed and promoted throughout the programme.

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

The programme is offered in full-time (3 years), sandwich (4 years) or part-time (6 years) modes, and leads to the award of a BEng Degree with Honours in Electrical and Electronic Engineering. Intake is normally semester A (September).

Entry is normally at level 4 (with A-Level, or equivalent qualifications) but is possible at level 5 with suitable qualifications (e.g. an Edexcel HND in Engineering with appropriate subjects studied). Direct entry into level 6 is also possible, for example following successful completion of two years of a similar BEng or MEng degree programme at another HE institution. In this case, the final award will not be accredited (i.e. Electrical and Electronic Technology award).

Professional and Statutory Regulatory Bodies

All awards on the programme have been accredited by the Institution of Engineering and Technology (IET) for cohort intakes from 2012 up to and including 2024.

Work-Based Learning, including Sandwich Programmes

A designated sandwich programme leads to a University award in the sandwich mode and the word "Sandwich" appears on the award certificate. A sandwich award requires the successful completion of at least 30 weeks full-time equivalent placement activity from a maximum of two separate approved placements, neither of which will be normally less than 12 weeks in duration, as defined in UPR AS11.

The work experience will normally be completed within the United Kingdom but with approval may be completed within other countries. Progress of the student's training is monitored by visits from University academic staff. Students will be required to document this period of work in accordance with the guidelines produced by the School. Students on industrial placement will be registered on the Placement Year Module (6AAD0015).

Students who have not achieved the minimum progression requirements at the end of level 5 may be prevented from undertaking a sandwich placement. The policy relating to progression onto the placement year from level 5 is given in the Department's Guidelines on Industrial Placements. Additionally, students on industrial placement but who have level 4 or 5 modules to repeat, will not normally be allowed to re-enrol on these modules until they return from industrial placement. This is to avoid a conflict between UH attendance requirements and the student's commitment to their employer.

Student Exchange programme Incoming Exchange

The programme accepts exchange students, with applications being considered on an individual basis.

Study Abroad

Students may also opt to take additional studies through the Year Abroad or Semester Abroad options at a partner institution in place of all or part of the sandwich placement year, i.e. between Levels 5 and 6. To be eligible for these options students will be expected to have passed 120 credits at level 4 and 120 credits at level 5 with an average of at least 60%. In order to maintain registration with UH, students studying abroad for a full year will be registered on 6ENT0001 whilst students studying abroad for a single semester will be enrolled on 6ENT1051. In recognition of the extra study, provided a full transcript of their achievement in the host academic institution is submitted to the Board of Examiners, this will lead to an award of a BEng Degree with Honours in Electrical and Electronic Engineering “with Year Abroad” or “with Study Abroad” on the award.

Further Features

In order to recognise the significant programme-related co-curricular commitment and experience which can be gained by students who participate in Formula Student, the BMFA Heavy/Electric Lift Challenge, IMechE UAS Challenge or other similar competitions, there are two zero-credit-rated elective modules which students may take. These are:

- Formula Student (6ENT1043)
- UAV Projects (6ENT1042)

They are assessed on a Pass/Fail basis. If taken, they do not contribute to degree classification, but will appear on a student’s results transcript.

Note: From time to time, a zero-credit-rated elective module may become unavailable if there are fewer than 10 students opting to take it or because of circumstances beyond the control of the School, such as key staff becoming unavailable.

Programme Structure

The programme structure and progression information below (Table 1a and 1b) is provided for the Honours award. Any interim awards are identified in Table 1b. The Programme Learning Outcomes detailed above are developed and assessed through the constituent modules. Table 2 identifies where each learning outcome is assessed.

Table 1a Outline Programme Structure

Mode of study

BEng Full Time: 3 years; Sandwich: 4 years and Part-time: 6 years

Entry point Semester A

Level 4

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Engineering Mathematics	4ENT2043	15	0	60	40	0	A
Digital Electronic Circuits	4ENT2045	15	0	50	50	0	A
Circuit Theory and Analysis	4ENT2047	15	50	0	50	0	A
Project Planning and Design	4ENT2049	15	0	0	100	0	A

Professional Engineering	4ENT2051	15	0	0	100	0	B
Programming	4ENT2053	15	100	0	0	0	B
Analogue Circuits and Devices	4ENT2055	15	0	50	50	0	B
Electronic Product Development	4ENT2057	15	0	0	100	0	B

Level 4 HIC Students Only

	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Compulsory Modules							
Module Title							
Engineering Mathematics (HIC)	4ENT2044	15	0	60	40	0	A
Digital Electronic Circuits (HIC)	4ENT2046	15	0	50	50	0	A
Circuit Theory and Analysis (HIC)	4ENT2048	15	50	0	50	0	A
Project Planning and Design (HIC)	4ENT2050	15	0	0	100	0	A
Professional Engineering (HIC)	4ENT2052	15	0	0	100	0	B
Programming (HIC)	4ENT2054	15	0	0	100	0	B
Analogue Circuits and Devices (HIC)	4ENT2056	15	0	50	50	0	B
Electronic Product Development (HIC)	4ENT2058	15	0	0	100	0	B

Progression to level 5 requires a minimum of 90 credits.

Level 5

	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Compulsory Modules							
Module Title							
Signals and Systems	5ENT2046	15	0	60	40	0	A
Digital Design and Embedded Systems	5ENT2047	15	0	60	40	0	A
Electric Power and Energy Conversion	5ENT2048	15	0	60	40	0	A
Analogue and Mixed-Signal Design	5ENT2049	15	0	0	100	0	A
Real-time Systems and Programming	5ENT2050	15	0	0	100	0	B
Connected Systems and IoT	5ENT2051	15	0	0	100	0	B
Mechatronics	5ENT2052	15	0	50	50	0	B
Communication System Principles	5ENT2053	15	0	60	40	0	B

Progression to level 6 requires a minimum of 210 credit points and above at levels 4 and 5, with a minimum of 90 credits at level 5.

Please note that the modules Industrial Placement 6AAD0015, Year Abroad 6ENT0001 and Semester Abroad 6ENT1051 run between levels 5 and 6.

**BEng Electrical and Electronic Engineering (Sandwich) Pathway
Year 3**

	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Compulsory Modules							
Module Titles							
Industrial Placement	6AAD0015	0	0	0	P/F	0	AB

**BEng Electrical and Electronic Engineering with Year Abroad Pathway
Year 3**

	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Compulsory Modules							
Module Titles							
Year Abroad	6ENT0001	0	0	0	P/F	0	AB

**BEng Electrical and Electronic Engineering with Study Abroad Pathway
Year 3**

	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Compulsory Modules							
Module Titles							
Semester Abroad	6ENT1051	0	0	0	P/F	0	A or B

Final Year for all Pathways

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Microelectronics and VLSI	6ENT2038	15	0	60	40	0	A
Intelligent Systems and Robotics	6ENT2039	15	50	0	50	0	A
Digital Communication Systems	6ENT2040	15	0	60	40	0	A
Digital Signal Processing	6ENT2041	15	0	60	40	0	B
Power Systems and Renewable Energy	6ENT2042	15	40	0	60	0	B
Wireless Networking	6ENT2043	15	50	0	50	0	B
BEng Individual Project (Electrical)	6ENT2044	30	0	0	80	20	AB

The award of BEng Honours in Electrical and Electronic Engineering requires 360 credit points including 240 at level 6/5 of which 120 must be at level 6, including the final year project.

Mode of study: BEng Part-time: 6 years

Entry point: Semester A

Year 1

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Engineering Mathematics	4ENT2043	15	0	60	40	0	A
Circuit Theory and Analysis	4ENT2047	15	50	0	50	0	A
Professional Engineering	4ENT2051	15	0	0	100	0	B
Analogue Circuits and Devices	4ENT2055	15	0	50	50	0	B

Year 2

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Digital Electronic Circuits	4ENT2045	15	0	50	50	0	A
Project Planning and Design	4ENT2049	15	0	0	100	0	A
Programming	4ENT2053	15	100	0	0	0	B
Electronic Product Development	4ENT2057	15	0	0	100	0	B

Progression to level 5 modules requires a minimum of 90 credits.

Year 3

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Signals and Systems	5ENT2046	15	0	60	40	0	A
Digital Design and Embedded Systems	5ENT2047	15	0	60	40	0	A
Mechatronics	5ENT2052	15	0	50	50	0	B
Communication System Principles	5ENT2053	15	0	60	40	0	B

Year 4

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Electric Power and Energy Conversion	5ENT2048	15	0	60	40	0	A
Analogue and Mixed-Signal Design	5ENT2049	15	0	0	100	0	A
Real-time Systems and Programming	5ENT2050	15	0	0	100	0	B
Connected Systems and IoT	5ENT2051	15	0	0	100	0	B

Progression to level 6 requires a minimum of 210 credit points and above at levels 4 and 5, with a minimum of 90 credits at level 5.

Year 5

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Microelectronics and VLSI	6ENT2038	15	0	60	40	0	A
Digital Communication Systems	6ENT2040	15	0	60	40	0	A
Digital Signal Processing	6ENT2041	15	0	60	40	0	B
Wireless Networking	6ENT2043	15	50	0	50	0	B

Year 6

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Intelligent Systems and Robotics	6ENT2039	15	50	0	50	0	A
Power Systems and Renewable Energy	6ENT2042	15	40	0	60	0	B
BEng Individual Project (Electrical)	6ENT2044	30	0	0	80	20	AB

The award of BEng Honours in Electrical and Electronic Engineering requires 360 credit points including 240 at level 6/5 of which 120 must be at level 6, including BEng Individual Project (Electrical) 6ENT2044.

Honours classification

The University has approved structure and assessment regulations common to all programmes. Full details are provided in [UPR AS14](#), Section D. However, this programme has specific regulations relating to the determination of Honours classification given under the Programme Specific Regulations at the end of Section D.

Table 1b Final and interim awards available

The programme provides the following final and interim awards:

Final Awards	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
BEng (Hons)	Electrical and Electronic Engineering	360 credit points including 240 at level 6/5 of which 120 must be at level 6. Compliance with IET compensation requirements.	6	All programme learning outcomes, excluding C7 (see Table 2)
BEng (Hons)	Electrical and Electronic Engineering (Sandwich)	360 credit points including 240 at level 6/5 of which 120 must be at level 6. Compliance with IET compensation requirements. Additionally, students must satisfactorily complete the Placement Year module.	6	All programme learning outcomes (see Table 2)

BEng (Hons)	Electrical and Electronic Engineering with Study Abroad	360 credit points including 240 at level 6/5 of which 120 must be at level 6. Compliance with IET compensation requirements. Additionally, students must satisfactorily complete Semester Abroad module.	6	All programme learning outcomes, excluding C7 (see Table 2)
BEng (Hons)	Electrical and Electronic Engineering with Year Abroad	360 credit points including 240 at level 6/5 of which 120 must be at level 6. Compliance with IET compensation requirements. Additionally, students must satisfactorily complete the Year Abroad module.	6	All programme learning outcomes, excluding C7 (see Table 2)

Interim Awards	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
University Certificate		45 credit points at level 4	4	See UPR AS11, section 13: http://sitem.herts.ac.uk/segreg/upr/AS11.htm
Certificate of Higher Education		120 credit points at level 4	4, 5	See UPR AS11, section 13: http://sitem.herts.ac.uk/segreg/upr/AS11.htm
Diploma of Higher Education		240 credit points including at least 120 at level 5	5, 6	See UPR AS11, section 13: http://sitem.herts.ac.uk/segreg/upr/AS11.htm
BEng in the named award	Electrical and Electronic Engineering; Electrical and Electronic Technology**	300 credit points including 180 at level 6/5 of which 60 must be at level 6.	6	A subset of the programme learning outcomes (see Table 2) depending on the student's individual modules passed.
BEng in the named	Electrical and Electronic	300 credit points including 180	6	A subset of the programme learning outcomes (see Table 2) depending on the student's individual modules passed.

award	Engineering (Sandwich); Electrical and Electronic Technology (Sandwich) **	at level 6/5 of which 60 must be at level 6. Additionally, students must satisfactorily complete the Placement Year.		
BEng in the named award	Electrical and Electronic Engineering with Study Abroad; Electrical and Electronic Technology with Study Abroad **	300 credit points including 180 at level 6/5 of which 60 must be at level 6. Additionally, students must satisfactorily complete the Semester Abroad module.	6	A subset of the programme learning outcomes (see Table 2) depending on the student's individual modules passed.
BEng in the named award	Electrical and Electronic Engineering with Year Abroad; Electrical and Electronic Technology with Year Abroad **	300 credit points including 180 at level 6/5 of which 60 must be at level 6. Additionally, students must satisfactorily complete the Year Abroad module.	6	A subset of the programme learning outcomes (see Table 2) depending on the student's individual modules passed.
BEng (Hons)	Electrical and Electronic Technology **	360 credit points including 240 at level 6/5 of which 120 must be at level. 6 (Minimum IET compensation requirements have not been achieved).	6	All programme learning outcomes, excluding C7 (see Table 2).
BEng (Hons)	Electrical and Electronic Technology (Sandwich) **	360 credit points including 240 at level 6/5 of which 120 must be at	6	All programme learning outcomes (see Table 2)

		<p>level 6 (Minimum IET compensation requirements have not been achieved). Additionally, students must satisfactorily complete the individual project and the Placement Year module.</p>		
BEng (Hons)	Electrical and Electronic Technology with Study Abroad **	<p>360 credit points including 240 at level 6/5 of which 120 must be at level 6 (Minimum IET compensation requirements have not been achieved). Additionally, students must satisfactorily complete the individual project and the Semester Abroad module.</p>	6	All programme learning outcomes, excluding C7 (see Table 2).
BEng (Hons)	Electrical and Electronic Technology with Year Abroad **	<p>360 credit points including 240 at level 6/5 of which 120 must be at level 6 (minimum IET compensation requirements have not been achieved). Additionally, students must satisfactorily complete the individual project and</p>	6	All programme learning outcomes, excluding C7 (see Table 2).

the Year
Abroad
module.

Notes:

(**) this Interim award is not accredited by the professional bodies.

Programme-specific assessment regulations

The programme complies with the University's academic regulations (in particular, [UPR AS11](#), [UPR AS12](#) and [UPR AS14](#)) with the exception of those listed below, which have been approved by the University:

- A compensated pass cannot be awarded for 6ENT2044 BEng Individual Project (Electrical).
- 6ENT2044 BEng Individual Project (Electrical) must be included in the calculation of degree classification for Honours.

Further programme-specific regulations to comply with IET accreditation regulations are given below:

- A minimum overall mark of at least 30% must be achieved (in any allowable attempt) at levels 4, 5 and 6 before the board of examiners will be able to consider compensation of a module for an accredited honours degree.
- A maximum of 30 credit points can be compensated across the programme.

For non-accredited awards, the standard University regulations on progression and compensation shall apply, and the Programme Board of Examiners shall have discretion to transfer a student onto a non-accredited award where it is to the advantage of the student to do so (for example, where the criteria for progression on an accredited award have not been met).

Course Code	Course Instance	Award Title	Modules (child instance codes & title)	Must be included in classification algorithm?
EIEEN	EEE3F EEE4S EEE6P	BEng (Hons) Electrical and Electronic Engineering	6ENT2044-0906 BEng Individual Project (Electrical)	Yes

E. Management of Programme & Support for student learning.

Management

The programme is managed and administered through:

- The Programme Leader, who is responsible for advising students on the programme as a whole and chairing the programme committee
- Student representatives on programme committees
- Module Leaders
- A designated administrative team to deal with day-to-day administration associated with the modules within the programme.

Support

Students are supported by:

- An induction week at the beginning of each new academic session.
- Overseas Orientation
- A named member of staff who will be an important point of contact, able to help you gain a good understanding of the School and programme you are studying.
- A School-based Academic Support Hub (SASH) who provide academic support.
- A substantial Student Centre that provides advice on issues such as finance, University regulations, legal matters, accommodation, international student support, etc
- Office of Dean of Students, Student Wellbeing (incorporating Counselling, Mental Health and Disability Support), Chaplaincy, and Day Nursery
- A versatile on-line inter-active intranet and learning environment
- Guided student-centred learning on Canvas module sites
- Access to extensive digital and print collections of information resources
- Attractive modern study environments in 2 Learning Resources Centres
- Student Success Hubs, which include a Mathematics Drop-in Centre
- Medical Centre
- University Disability Advisors
- Careers and Employment
- Hertfordshire Student's Union
- Dedicated programme site

F. Other sources of information

In addition to this Programme Specification, the University publishes guidance to registered students on the programme and its constituent modules:

- A dedicated programme site
- A Definitive Module Document (DMD) for each constituent module;

The [Ask Herts](#) website provides information on a wide range of resources and services available at the University of Hertfordshire including academic support, accommodation, fees, funding, visas, wellbeing services and student societies.

As a condition of registration, all students of the University of Hertfordshire are required to comply with the University's rules, regulations and procedures. These are published in a series of documents called 'University Policies and Regulations' (UPRs). The University requires that all students consult these documents which are available on-line, on the UPR web site, at: <http://www.herts.ac.uk/secreg/upr/>. In particular, [UPR SA07](#) 'Regulations and Advice for Students' Particular Attention - Index' provides information on the UPRs that contain the academic regulations of particular relevance for undergraduate and taught postgraduate students.

In accordance with section 4(5) of the Higher Education and Research Act 2017 (HERA), the UK Office for Students (OfS) has registered the University of Hertfordshire in the register of English higher education

providers. The Register can be viewed at: <https://www.officeforstudents.org.uk/advice-and-guidance/the-register/the-ofs-register/>.

G. Entry requirements

The normal entry requirements for the programme are:

For current entry tariff point requirements, please refer to the relevant page for the Course on the University website or on the online prospectus.

The programme is subject to the University's Principles, Policies and Regulations for the Admission of Students to Undergraduate and Taught Postgraduate Programmes (in [UPR SA03](#)), along with associated procedures. These will take account of University policy and guidelines for assessing accredited prior certificated learning (APCL) and accredited prior experiential learning (APEL).

If you would like this information in an alternative format please contact:

Hutton Hub Student Administration Service

Email: hhaq@herts.ac.uk

If you wish to receive a copy of the latest External Examiner's Report for the programme, please email a request to aqo@herts.ac.uk

BEng (Hons) Electrical and Electronic Engineering

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

This map identifies where the programme learning outcomes are delivered and 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.

		Programme Learning Outcomes (as identified in section 1 and the following page)																								
		Knowledge & Understanding					Intellectual Skills					Practical Skills							Transferable Skills							
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	D5	D6	D7	
Level	Module Title	Module Code																								
Level 4	Engineering Mathematics	4ENT2043	X	X				X	X																	
	Digital Electronic Circuits	4ENT2045	X	X		X		X	X	X			X	X	X			X			X					
	Circuit Theory and Analysis	4ENT2047	X	X				X	X	X			X	X	X						X					
	Project Planning and Design	4ENT2049			X	X	X				X	X					X	X		X	X	X	X	X	X	
	Professional Engineering	4ENT2051				X	X										X		X	X	X	X				
	Programming	4ENT2053	X	X			X						X			X					X					
	Analogue Circuits and Devices	4ENT2055	X	X				X	X	X			X	X	X						X					
	Electronic Product Development	4ENT2057						X	X	X				X	X					X	X		X	X	X	
Level 5	Signals and Systems	5ENT2046	X	X				X	X	X				X	X						X					
	Digital Design and Embedded Systems	5ENT2047					X	X	X	X				X	X	X					X					
	Electric Power and Energy Conversion	5ENT2048	X	X		X	X	X	X	X	X	X	X	X	X	X	X				X					
	Analogue and Mixed-Signal Design	5ENT2049			X	X		X	X											X	X		X	X	X	
	Real-time Systems and Programming	5ENT2050					X	X	X	X			X	X	X	X					X					
	Connected Systems and IoT	5ENT2051			X	X	X			X	X	X		X	X		X	X		X	X	X	X	X	X	
	Mechatronics	5ENT2052	X	X	X	X		X	X	X	X	X	X	X	X		X	X			X					
	Communication System Principles	5ENT2053	X	X				X	X	X			X	X	X						X					
Level 6	Industrial Placement	6AAD0015								X									X	X	X	X	X	X		
Level 6	Microelectronics and VLSI	6ENT2038						X	X	X				X	X						X					
	Intelligent Systems and Robotics	6ENT2039	X	X				X	X	X				X	X						X					
	Digital Communication Systems	6ENT2040	X	X				X	X	X			X	X	X						X					

Digital Signal Processing	6ENT2041	X	X				X	X	X			X	X	X					X						
Power Systems and Renewable Energy	6ENT2042				X		X	X	X				X	X			X		X	X		X			
Wireless Networking	6ENT2043	X	X	X	X		X	X	X	X	X	X	X	X		X	X			X					
BEng Individual Project (Electrical)	6ENT2044			X	X	X				X	X	X			X	X	X		X	X	X		X	X	X

KEY TO PROGRAMME LEARNING OUTCOMES

Knowledge and Understanding

- A1. The analytical methods employed by engineers.
- A2. The fundamental engineering sciences.
- A3. The design principles and design-to-build processes appropriate to electrical and electronic systems.
- A4. The basic principles and economic, social, legal, ethical and sustainability considerations of the business of engineering.
- A5. Professional engineering practice.

Intellectual Skills

- B1. Analyse and solve Electrical and Electronic Engineering problems using appropriate techniques.
- B2. Model and analyse engineering systems.
- B3. Select appropriate computer based methods for engineering and communication.
- B4. Evaluate external influences on the design process.

Practical Skills

- C1. Apply analytical and modelling techniques to solve engineering problems.
- C2. Perform experimental work in Electrical and Electronic Engineering and draw conclusions.
- C3. Use computer-based engineering tools.
- C4. Prepare technical documentation.
- C5. Evaluate the design of electrical and electronic systems, components or processes.
- C6. Plan and manage a project, taking into account economic, social, legal, ethical and sustainability constraints.
- C7 - Develop practical, technical and communication skills within an industrial environment.

Transferable Skills

- D1. Communicate effectively, both orally and in writing.
- D2. Use commonly available IT tools.
- D3. Manage time and resources effectively.
- D4. Work effectively within a team as a member.

B5. Design appropriate electrical and electronic systems, components or processes.

D5. Manipulate, sort and present data.

D6. Solve problems in a logical manner.

D7. Learn effectively and independently, in all aspects of life.

Table 3: Development of Graduate Attributes in the Constituent Modules

This map identifies where the Graduate Attributes are delivered in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the development of the Graduate Attributes (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own personal and professional development as the programme progresses. [Note that there is no requirement for the Graduate Attributes to be assessed through these modules]

D = Delivered

	Module Title	Module Code	Professionally Focused	Globally Minded	Sustainability Driven	Digitally capable & confident	Inclusive and collaborative	Evidenced based and Ethical
Level 4	Engineering Mathematics	4ENT2043	D			D		D
	Digital Electronic Circuits	4ENT2045	D		D	D		D
	Circuit Theory and Analysis	4ENT2047	D			D		D
	Project Planning and Design	4ENT2049	D			D	D	D
	Professional Engineering	4ENT2051	D	D	D	D	D	D
	Programming	4ENT2053	D			D		D
	Analogue Circuits and Devices	4ENT2055	D			D		D
	Electronic Product Development	4ENT2057	D			D	D	D
Level 5	Signals and Systems	5ENT2046	D			D		D
	Digital Design and Embedded Systems	5ENT2047	D			D		D
	Electric Power and Energy Conversion	5ENT2048	D		D	D		D
	Analogue and Mixed-Signal Design	5ENT2049	D			D	D	D
	Real-time Systems and Programming	5ENT2050	D			D		D
	Connected Systems and IoT	5ENT2051	D			D	D	D
	Mechatronics	5ENT2052	D			D		D
	Communication System Principles	5ENT2053	D			D		D
	Placement Year	6AAD0015	D			D		D
	Year Abroad	6ENT0001		D				
	Semester Abroad	6ENT1051		D				
6	Microelectronics and VLSI	6ENT2038	D			D		D

Intelligent Systems and Robotics	6ENT2039	D			D		D
Digital Communication Systems	6ENT2040	D			D		D
Digital Signal Processing	6ENT2041	D			D		D
Power Systems and Renewable Energy	6ENT2042	D		D	D	D	D
Wireless Networking	6ENT2043	D			D		D
BEng Individual Project (Electrical)	6ENT2044	D		D	D		D

Section 2

Programme management

Relevant QAA subject benchmarking statements	Engineering
Type of programme	Undergraduate
Date of validation/last periodic review	August 22
Date of production/ last revision of PS	March 2024
Relevant to level/cohort	Level 4 entering September 2024
Administrative School	School of Physics, Engineering & Computer Science
Language of Delivery	English

Table 4 Course structure

Course details			
Course Code	Course Description	HECOS	UCAS
EIEEN	BEng (Hons) Electrical and Electronic Engineering	100163	H600