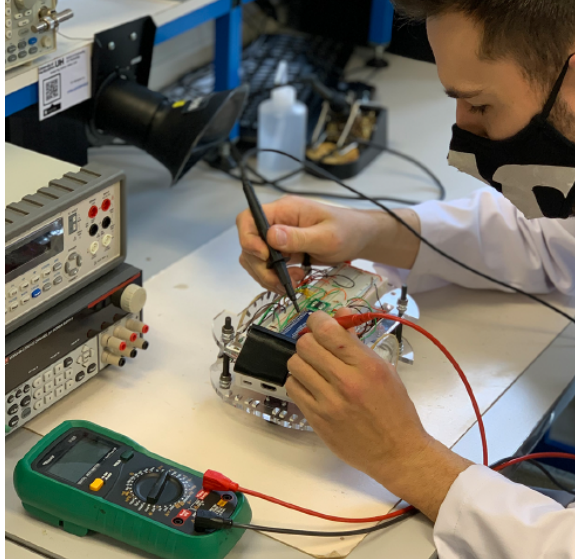
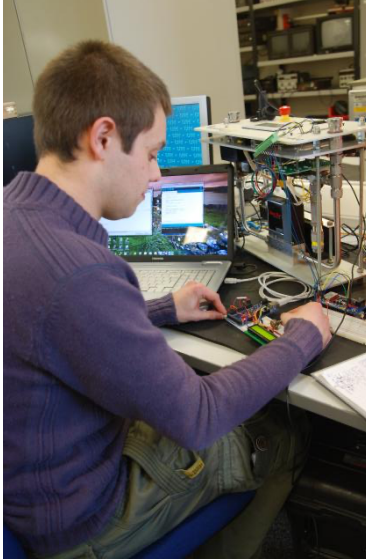


Hertfordshire College, Changzhou Institute of Technology



Programme Handbook

BEng (Hons) Electrical and Electronic Engineering

Academic Year 2025-2026

Effective September 2025

Version 3

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Welcome from the Dean of College

Dear student,

Hertfordshire College, Changzhou Institute of Technology is a Sino Foreign Joint Institute established by Changzhou Institute of Technology, China (CIT) and the University of Hertfordshire, UK (UH). It jointly delivers programmes leading to awards from both Changzhou Institute of Technology and the University of Hertfordshire. It is approved by the Ministry of Education in China.



Welcome to the Hertfordshire College, CIT and to the next stage of your studies towards a career in the engineering and technology sector. Engineering and technology transform lives, it enables the economic growth our society needs, and it influences what we do every day in many ways. I encourage you to look around you and observe the multitude of ways in which engineering influences everyone, from the clothes we wear (they were designed, manufactured, and transported) to the vehicles we drive, the phones and satellites we use for communication and the infrastructure we need for health, transport, commerce, and improving the lives of many around the world. At Hertfordshire College, we are proud of our engineering heritage, growing from the aerospace industry and over many decades, educating engineers, managers, and technologists with a mix of technical specialist knowledge and skills, as well as a practical understanding of engineering being applied in real-life scenarios.

Our academic, technical, and administrative staff are here to support and guide you through your studies, and you will also benefit from some excellent resources across CIT and in our engineering laboratories. Our facilities have benefited from substantial and sustained investment which enables us to equip them with modern equipment and instrumentation. I am sure you will see the new electronics test equipment, the variety of simulators, computer workstations and other practical experimental facilities in the coming weeks and months. I hope you enjoy using them. Our dedicated staff have a blend of academic, research and industrial experience and many will bring in speakers from industry to complement your academic lectures. In this way, we hope to provide you with a curriculum that is up-to-date and prepares you for future emerging technologies and challenges.

I would encourage you to participate in both extra- and co-curricular activities offered within the College and more widely in CIT. Some of you may find an interest in Robotics or UAVs, or in aspects of practical electronics and communications, but I would also encourage you to explore the other possibilities that CIT has to offer, perhaps language classes, participating in the student innovation and entrepreneurship projects, and in some of the cultural and sports societies. There is much more to university life than finite element analysis, circuit theory and second order differential equations - so please go out and explore!

I wish you every success in your studies and I look forward to meeting and chatting with some of you over the coming years.

Associate Professor Wendy WANG
Dean of Hertfordshire College, CIT

1. About this Programme Handbook

This handbook contains key information for all our students. Important updates will be made via the programme site on Studynet/Canvas https://herts.instructure.com/courses/sis_course_id:CB-0000486, so please bookmark it on your preferred browser and check it regularly.

If you have any queries and/or suggestion about this document, please reach out to the Programme Leader Lulu HE (Luna HE) (hell@czust.edu.cn; lh23abb@herts.ac.uk).

2. Student Charter

The University of Hertfordshire's Student Charter is designed to guide you through your time at the Hertfordshire College, CIT to ensure you make the most of your experience.

All students are encouraged to read the Charter so that they know what they can expect at the Hertfordshire College, CIT and what is expected of them: <https://www.herts.ac.uk/about-us/supporting-our-students/student-charter>.

Both the University and Student Union are dedicated to making our students' time here as enjoyable, fulfilling, and safe as possible. We wish you every success in your studies and hope that you have a great student experience here at the Hertfordshire College, CIT.

3. University Graduate Attributes

The University of Hertfordshire is committed to providing a culturally enriched and research-informed educational experience that will transform the lives of its students. Its aspiration for its graduates is that they will have developed the knowledge, skills, and attributes to equip them for life in a complex and rapidly changing world. We encourage students to be creative and enterprising, and to build their social and global awareness.

In addition to their subject expertise and proficiency, the University's graduates will have the following attributes:

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

You will learn more about the University of Hertfordshire's Graduate Attributes as you progress in your studies, and also by reading: <https://www.herts.ac.uk/about-us/supporting-our-students/student-charter/graduate-attributes>.

4. Statement of Ethical Principles for the Engineering Profession

Engineering and Technology professionals are expected to work to the highest ethical standards and our programme aims to ensure you will achieve these ideals in professional life. The Engineering Council and Royal Academy of Engineering have published a Statement of Ethical Principles for the Engineering Profession which incorporates four fundamental principles which are:

- Honesty and integrity
- Respect for life, law, the environment and the public good
- Accuracy and rigour
- Leadership and Communication

The Statement of Ethical Standards is to be found in all via the link and you should read this: <https://www.engc.org.uk/professional-ethics>.

Professionally registered engineers and technicians are required to carry out their work in a way that contributes to sustainable development. The six principles set out by the UK Engineering Council to support professional engineers and technicians when making decisions for clients, employers and society that affect sustainability are as follows:

- Contribute to building a sustainable society, present and future.
- Apply professional and responsible judgement and take a leadership role.
- Do more than just comply with legislation and codes be prepared to challenge the status quo.
- Use resources efficiently and effectively.
- Seek multiple views to solve sustainability challenges.
- Manage risk to minimise adverse impact and maximise benefit to people and the environment.

Further details can be found via this link and please read: <https://www.engc.org.uk/sustainability>.

5. Equality, Diversity and Inclusion (EDI)

The University of Hertfordshire is committed to advancing equality of opportunity, embracing, and celebrating the diversity of our community, and fostering a cohesive and inclusive culture. We believe that the inclusion of different voices and unique perspectives is what makes our community thrive. It enhances our research, enriches our teaching, and strengthens our ability to provide an exceptional education to all.

Please also see: https://www.herts.ac.uk/_data/assets/pdf_file/0007/231487/EQ03-Equality-and-Diversity-Policy.pdf and <https://www.herts.ac.uk/about-us/equality-diversity-and-inclusion>.

6. Student Code of Conduct

The Student Code of Conduct is intended to clarify the standard of behaviour that the University of Hertfordshire expects from students.

As a student, we expect you to:

- Commit to all elements of your programme of study, recognising that a full-time course requires a minimum of 40 hours per week of study time.
- Be punctual in your attendance; persistent, unexplained, late arrival at, or early departure from lectures, seminars, tutorials, and practicals is unacceptable.
- Be attentive in class; electronic devices other than those necessary for the session must be switched off; in particular, texting or sending recordings/images using your mobile telephone is unacceptable.
- Refrain from any other form of behaviour which could reasonably be regarded as disruptive or offensive.
- Ensure that you behave appropriately off campus, including online.
- Be responsible for the behaviour of any guests you invite to the University. Children and visitors are not permitted to attend timetabled sessions.
- Be respectful and polite to fellow students, staff and others visiting or working on campus.
- Recognise and respect the cultural diversity of the University and take no action that might undermine the principles of cultural tolerance within our community.
- Exercise respect and tolerance in the local community and do not behave on or off-campus in ways that may damage the good name and reputation of the University.
- Comply with the law at all times.
- Carry your University Identity Card on campus.

- Refrain from intentionally or negligently damaging, misusing or making unauthorised use of CIT premises, property or equipment.
- Comply with the University's Health and Safety policies and regulations to take reasonable care of your health and safety and not endanger the health or safety of others.

7. Student Representation

Student-staff partnership is central to our work, and student representation plays a key role in enhancing our programme and the support provided to our students.

Students share their experiences of their programme of study via:

- **Student representatives.** Student representatives proactively seek the views of students and communicate these to the College via formal committees (e.g., Programme Committee Meeting) and/or as soon as issues occur. Additionally, they feed back to students on the outcomes and updates of any issues that have been raised.
- **Direct representation.** Students can also contact their Programme Leader, Assistant Programme Leader(s), Personal Tutor(s) and/or Module Tutor(s) directly as and when needed. Indeed, we encourage our students to talk to the teaching team at any time about their learning on the module. You may also wish to contact the Academic Quality Office via Email: AQAHCCIT@oa.czu.cn.
- **Feedback during taught sessions.** In many cases, academic staff uses informal feedback tools during taught sessions (e.g., polls) to gather student feedback and progress.
- **Module feedback questionnaire.** At the end of each module, students are invited to complete an anonymous survey for each module they study. The survey provides both quantitative and qualitative data which informs improvements on the programme. The survey is electronic and made available to students via the CIT's Virtual Learning Environment.
- **Student forum:** Students could voluntarily sign up for lunch or afternoon tea with the Dean and talk to the Dean about their learning experience in the College. This activity will be held at least twice a semester.

8. XUESHITONG

XUESHITONG (Website <http://ehall.czu.cn/client/zhfw> or XUESHITONG App) is an easy way for students to ask questions, report problems, make complaints, provide feedback and give suggestions about all aspects of life in Changzhou Institute of Technology. All relevant departments shall give a reply within 24 hours.

9. Key Staff

There is a large team of staff working hard to ensure that our students succeed. Some of the key staff are listed below.

Name	Email	Role
Dr Lulu HE (Luna HE)	hell@czust.edu.cn ; lh23abp@herts.ac.uk	Programme Leader
Asso. Prof Wenqing YAO (Wayne YAO)	yaowq@czust.edu.cn ; w.yao3@herts.ac.uk	Associate Dean (AQA, Learning and Teaching)
Asso. Prof Zheng JIN (Kim JIN)	jinz@czust.edu.cn ; z.jinz4@herts.ac.uk	Associate Dean (Student Experience)
Mrs Rong LU	lur@czust.edu.cn ; r.lu3@herts.ac.uk	Academic Quality Officer

10. Aims and Learning Outcomes of the Programme

This programme has been devised in accordance with the University of Hertfordshire'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;
- provide studies which enable the student to attain a high level of expertise in a range of topics specific to their named award.

The learning outcomes of this programme can be referred in the Programme Specification. The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes. 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.

11. Programme Structure

At the Hertfordshire College, CIT, a BEng programme of study requires students to study several specific modules at various academic levels.

The academic levels are defined as levels 4, 5 and 6 (equating to the second, third and final years of the programme). The academic levels and years are shown below:

Year of study in CIT	Equivalent Academic Level at UH
1	Foundation Course
2	4
3	5
4	6

The programme offers BEng Honours final award in:

- BEng (Hons) Electrical and Electronic Engineering

For each award, there is a set of core modules that you must study. There are no optional modules.

Modules can either be 15-credit (representing around 150 hours of student effort), or 30-credit (representing around 300 hours of student effort). Each module has a 'DMD Code' for example 4FTCXXXX. The first digit indicates the academic level of the module, e.g. '4' indicates this is a level 4 (first year of the programme) module.

The details of your programme of study can be found in the programme specification, which is available on the programme's site on Studynet/Canvas. A programme specification is a collection of key information about a programme of study, identifies the aims and learning outcomes of the programme and lists the modules that make up each level. Additionally, it details the structure of the programme, its progression requirements, and any programme-specific regulations. These are important documents that you should read carefully and refer back to in the future.

12. Learning and Teaching

This is a very hands-on programme, and you will engage with a wide range of learning experiences including lectures, tutorials, practicals, laboratories, and teamwork. For information about your timetable, please go to: http://jwglx.czu.cn/jwglxt/xtgl/login_slogin.html.

Each module that you study will publish a module plan, which will list the learning activities for each week. The module plan can be found on Canvas under **Units > Module Specific Requirements**. Please note that the module plan may be subject to change during a module, so you should check it regularly.

Some modules have attendance requirements, and these are specified in the Definitive Module Document (DMD). DMDs can be found on Canvas under **Units > Module Information** for each module.

The list of modules you will be studying can be found in the programme specification, which is available on the programme's site on Studynet/Canvas.

12.1 Health and Safety

Given the technical nature of the work, Health and Safety regulations will apply to several of your sessions.

Health and Safety and PPE information can be found on the programme site. It is critical that you familiarise yourself with these.

12.2 How Staff Will Communicate with You

Staff will normally contact students via Announcements on StudyNet/Canvas and/or email. Please ensure that your StudyNet/Canvas notifications are set up for 'notify immediately'.

Additionally, please make sure that your email is kept up to date. For information about your student record, please visit: http://jwglx.czu.cn/jwglxt/xtgl/login_slogin.html and/or <https://ask.herts.ac.uk/your-student-record>.

12.3 Module Specific Queries

For module specific queries, please either:

- Email the relevant module leader or
- Attend a drop-in session.

This information can be found on the homepage (landing) page for each module. Staff aim to respond to emails within two (2) working days.

When you email staff, kindly remember that they may be teaching on more than one module. Thus, please make sure that your email contains:

- Full name and student number
- Module code and title
- Your query, and desirable outcome (if applicable). Please note that including your desirable outcome does not automatically mean that staff can action it, there are procedures and processes in place that all our learning community must follow.

12.4 Feedback

Feedback on your work will be returned to you no later than four (4) calendar weeks after the submission deadline; exceptions to this must be agreed by the Associate Dean (AQA, Learning and Teaching) and notified to students in advance of the expiration of the four-week period. You will receive feedback on your work throughout your studies and it is important to recognise that there are many ways in which staff provide this, so it will take a variety of forms which may include the following:

- Handwritten (or typed) personalised comments on a submission.
- Generic feedback sheet, a document summarising both good points and common mistakes and how to put them right.
- Live feedback in the classroom, either during a lecture or tutorial.
- Worked solutions.
- Videos and/or podcasts explaining common problems and how to overcome them.
- Feedback grid, normally a Word or Excel document with generic comments associated with the grading criteria or rubric.
- Peer feedback, where students are asked to assess each other against a set of criteria. Commonly used in group work but can be for individual work.
- Live demo/presentation/viva, where you may receive verbal personal feedback.

Equally, you may receive 'feed forward' where guidance is provided to help you prior to submitting an assignment. Examples of this include:

- Live guidance during a lecture or tutorial before submission.
- Frequently asked questions with answers on StudyNet/Canvas.
- Phased assessment, i.e. breaking a large assessment into stages so that students can get interim feedback before completing the next stage.
- Generic feedforward, i.e. making feedback from the equivalent previous year's assessment available as part of this year's briefing.

12.5 Co-Curricular Activities

In addition to learning and teaching activities associated with your core modules, there are opportunities to extend your knowledge and understanding of the discipline via co-curricular activities. These opportunities are shared on Canvas.

For an up-to-date list of co-curricular activities in Hertfordshire College, CIT, please visit: <https://hc.czu.cn/2023/0610/c8481a126853/page.htm>.

13. Assessment

Modules may be assessed by a combination of exam, coursework and practical. The weighting for each of these components can be found in the Definitive Module Document (DMD for short). DMDs can be found on Canvas under **Units > Module Information** for each module.

For each module you study, you will be awarded a grade between 0 and 100 upon completion.

At the start of each semester, please have a look at: <https://ask.herts.ac.uk/exam-and-assignment-success>. This will help you plan for your upcoming assessments.

13.1 Interpretation of Grades

A 100-point grading system is used as shown below. For modules at levels 4, 5 and 6, the pass grade is 40.

Grade awarded		Interpretation of Grade	
100-point Numeric Grade	Grade Point	Grade Descriptor	Indicative Classification Descriptor
90-100	4.50	Outstanding	1 st Class Honours
80-89		Excellent	
75-79	4.25	Very good	
70-74	4.00		
67-69	3.75	Good	Upper 2 nd Class Honours
64-66	3.50		
60-63	3.25		
57-59	3.00	Clear pass	Lower 2 nd Class Honours
54-56	2.75		
50-53	2.50		
47-49	2.25	Marginal pass	3 rd Class Honours
44-46	2.00		
40-43	1.75		
37-39	1.00	Marginal fail	Not applicable
34-36	0.75		
30-33	0.50	Clear fail	
20-29	0.25		
0-19	0.00	Little or nothing of merit	

13.2 Understanding your Grades

- P, you passed the module.
- P(REF), you passed the module at referral. Your numeric grade for the elements failed and re-attempted (during the referral/deferral period) will be capped to the minimum pass grade (40 at undergraduate level).

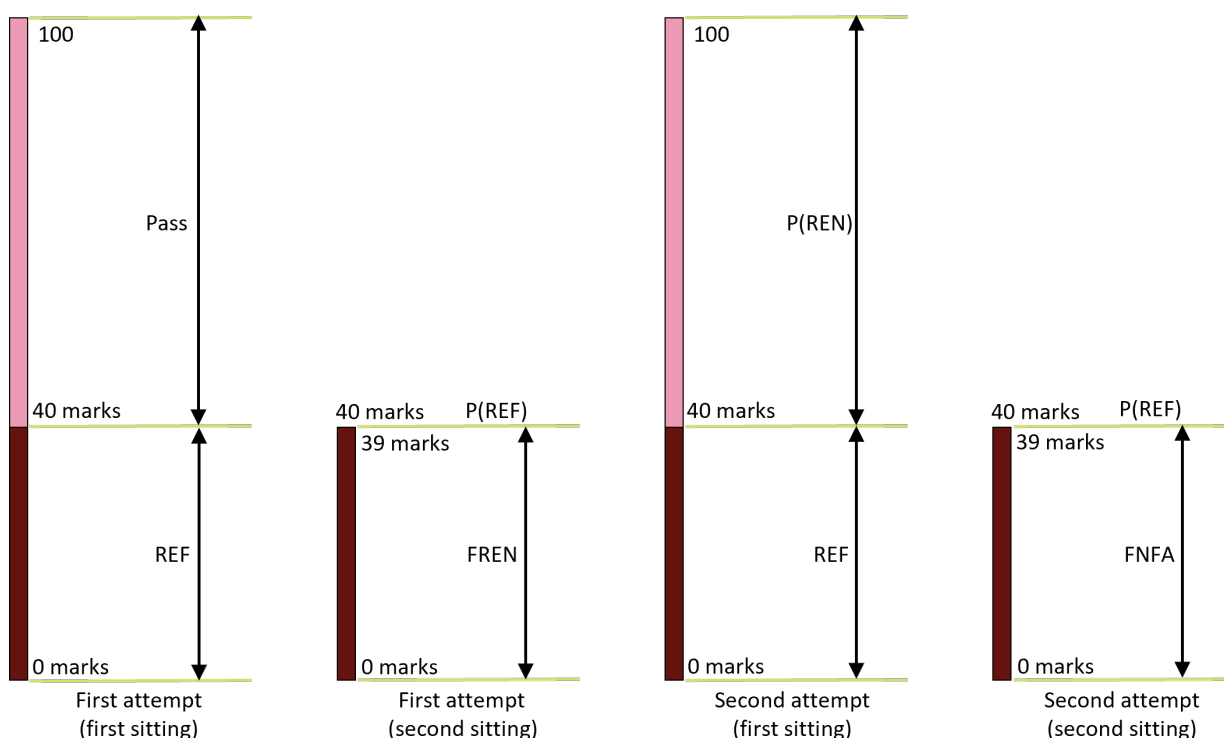
What does referred mean? If you fail to meet the minimum pass criteria for the module, the Board will allow you to be referred, that is, reassessed without re-enrolment.

- FREN, you failed to meet the minimum pass criteria for the module and must re-enrol.

What does re-enrol mean? Re-enrolment is defined as the opportunity for a student to repeat a module(s) which they have previously failed at first attempt and possibly at referral. The Board will permit re-enrolment, with reassessment in all elements. Re-enrolment is not available at any stage on repeating a module that has been passed.

- P(REN), you passed the module at re-enrolment.
- DEF, you have been granted Exceptional Circumstances and can take the assessment concerned during the referral/deferral period.
- FNFA, Fail, no further attempts.

Grade progression is shown below:



13.3 University of Hertfordshire's Text-Matching Policy

All undergraduate students will normally have all appropriate types of summative assessments run through the University's preferred text matching software as part of the marking process.

The University provides text matching software to students on taught programme as one of a number of aids to improving their academic writing skills and to promote the concept of self-regulation.

Staff use the same tool provided to students to assist in the identification of plagiarised work submitted for summative assessment.

Students can only access the University's preferred text matching software via StudyNet/Canvas.

13.4 Academic Integrity

When you join Hertfordshire College, CIT, you become part of a learning community of lecturers, researchers, and other staff committed to excellence in learning, teaching, and research. The University has a duty to maintain standards, and, in discharging this duty, it requires everyone to demonstrate integrity in all aspects of their academic careers. As a student, you should:

- Be responsible for your learning and understand the importance of academic integrity.
- Be honest about where your ideas come from and acknowledge sources appropriately.
- Be accurate when reporting research findings.
- Be ethical, abide by research policies, and use information appropriately, according to copyright and privacy laws.

A breach of Academic Integrity is known as Academic Misconduct. Academic Misconduct includes the following:

- Plagiarism
- Self-Plagiarism
- Collusion
- Contract Cheating
- False Declarations
- Unauthorised use of AI Tools
- Fake Referencing
- Impersonation
- Ethical Misconduct
- Misconduct in Examinations

Programme Leaders, Assistant Programme Leaders, Module Leaders, and Project Supervisors are also able to advise – so please do not hesitate to ask.

Please do spare 30 minutes or so at the start of each semester to read:

https://www.herts.ac.uk/_data/assets/pdf_file/0007/237625/AS14-Apx3-Academic-Misconduct-v17.0.pdf.

Some work may require you to seek ethics approval, an explanation of when ethics approval is required and the procedure for seeking ethics approval can be found here:

<https://ask.herts.ac.uk/ethics-approval>.

Please also read: <https://ask.herts.ac.uk/assessment-offences-and-academic-misconduct>.

Academic writing skills are embedded within modules, and you will also find the resources below useful:

- Resources within the programme site on StudyNet/Canvas, such as automated referencing using MS Word (see <https://herts.instructure.com/courses/69048/modules/items/1329539>).
- The Library SkillUp module: <https://herts.instructure.com/courses/61421>.
- Hertfordshire College's Academic Support Hub which includes academic English support, Maths support, computer programming support and technical writing support.

13.5 Coursework and Tests (classroom-based and online)

For the purposes of this programme of study and the University of Hertfordshire regulations, coursework will include, but is not limited to, all essays, assignments, tests, projects, dissertations, practical work, performance, placement or field trip reports, designs, theses, artefacts, presentations, candidate-led seminars, and exhibitions.

Some modules may include classroom-based and online tests as part of their assessment.

These are subject to the same rules and regulations as examinations, e.g., no colluding, no unauthorised materials, no use of mobiles, and so on.

13.6 Penalties for Late Submission

LATE SUBMISSION OF COURSEWORK

Unless there are accepted Exceptional Circumstances or an extension has been given, the penalties for late submission are:

- For each day or part thereof (or for hard copy submission only, working day or part thereof) for up to five days after the published deadline, coursework relating to modules at Levels 4, 5, and 6 submitted late (including deferred coursework, but with the exception of referred coursework), will have the numeric grade reduced by 10 grade points until or unless the numeric grade reaches or is 40. Where the numeric grade awarded for the assessment is less than 40, no lateness penalty will be applied.

- Pass/fail assessments submitted after the published deadline will be awarded a grade of zero (0).
- Referred coursework submitted after the published deadline will be awarded a grade of zero (0).
- Coursework (including deferred coursework) submitted later than five days (five working days in the case of hard copy submission) after the published deadline will be awarded a grade of zero (0).

If you have missed a test, you may be eligible for Exceptional Circumstances, please contact your programme leader for further information.

13.7 How to Find Out About the Submission Dates for Coursework and Tests?

Deadlines for coursework can be found on StudyNet/Canvas:

- Units > Module Specific Requirements and/or
- Assignments

13.8 How to Find Out About the Date of Exams?

If your module includes an exam, the date and location of your exam can be got from the email of your module teaching staff, also you can find your exam date and location on the Hertfordshire College, CIT website: <https://hc.czu.cn/8517/list.htm>.

Exam timetables are normally published one month before the exam period.

13.9 Short-term Coursework Extensions

The key difference between applying for Exceptional Circumstances and an application for a Short-term Extension is:

- Exceptional Circumstance = defers submission until either the next deferral period or the next run of the module.
- A Short-term Coursework Extension = can be up to a maximum of seven (7) working days beyond the submission deadline of an assessment.

An extension is permission to hand in a piece of assessed work after the published hand-in date without incurring a penalty. Acceptance is discretionary and can only be agreed upon by the Programme Leader of your programme. You do not have an automatic right to an extension.

Short-term extensions do not apply to exams or in-class tests where you are taking a timed exam, i.e., a 'time-limited test' in exam conditions on a set date. Such exams are difficult to organise, so all students must attend them unless there is a very serious reason. Make sure you flag this in advance.

13.10 Exceptional Circumstances

During the course of your degree programme, you might be faced with personal, medical or family issues that are outside your control. If such issues occur, you may wish to make the Hertfordshire College, CIT staff aware of your situation by submitting an exceptional circumstances request.

Please contact academic support (Module Leader/Assistant Programme Leader) to discuss your circumstances.

For more information, please go to: <https://ask.herts.ac.uk/exceptional-circumstances>.

Kindly note that exceptional circumstances requests are time sensitive, and therefore you must

contact the relevant member of staff as soon as possible, so that appropriate support and guidance can be provided.

13.11 Boards of Examiners

The Board of Examiners is the primary decision-making body for student progression, award, and classification decisions. They must abide by the University's Policies and Regulations. There are two main types of examining board: Module Boards and Programme Boards. Module Boards consider academic performance at the module level, and Programme Boards consider progression (e.g., from level 4 to 5) and final awards.

13.12 External Examiners

In the UK Higher Education system, Universities are responsible for the academic standards of the awards that they offer, and for the quality of the education they provide to enable students to meet those standards. The role of the External Examiner is an essential part of the University's quality assurance processes. They essentially externally 'audit' the programme that they are appointed to, in terms of the attainment of academic standards and the quality of the education.

Kindly note that contacting the external examiners regarding any aspect of your programme of study is prohibited.

For more information about External Examiners (e.g. External Examiners' reports and who they are), please go to: <https://ask.herts.ac.uk/external-examiners>.

13.13 University of Hertfordshire Regulations

University regulations can be found in: <https://www.herts.ac.uk/about-us/governance/university-policies-and-regulations-uprs>. Please find below some quick pointers:

- Regulations on progression rules and calculation of awards can be found in UPR AS14.
- Regulations on cheating, plagiarism and other academic misconduct can be found in UPR AS14 (Appendix III).
- Regulations on assessments, examinations and conferments (partner organisation-delivered provision) can be found in UPR AS13.
- Definition of grades (e.g. FREFC, DEFC, FNFA) can be found in UPR AS14.

Additionally, the following links contain useful information about complaints and review of assessment decisions:

- Complaints: <https://ask.herts.ac.uk/making-a-complaint>.
- Review of Assessment Decisions (Appeals): https://www.herts.ac.uk/_data/assets/pdf_file/0019/233533/AS13-apx1-Appeals-Procedure-Partner-Organisations.pdf.

In all cases, please discuss your concerns with the Programme Leader Dr Luna He (hell@czust.edu.cn; lh23aab@herts.ac.uk) in the first instance. If your concerns cannot be resolved by the Programme Leader, then please write to the Associate Dean (AQA, Learning and Teaching), Asso. Prof. Wayne Yao (yaowq@czust.edu.cn; w.yao3@herts.ac.uk).

14. Student Support

Hertfordshire College, CIT provides several facilities to support students. Student Support Hub includes full-time Personal Tutor(s) and Assistant Programme Leader(s) who will be an important point of contact. Your Assistant Programme Leader(s), Personal Tutor(s) and/or Programme Leader are a good starting point for these if you are uncertain how to access these services.

14.1 Assistant Programme Leader(s)

The programme enrolls the maximum of 80 students on to level 4 every year. Students are divided into two classes of 40 each. Each class is allocated an Assistant Programme Leader, who is a member of the academic staff in Hertfordshire College, CIT. They are the first point of contact with whom you can turn to for personal academic advice. On the new student registration day every year, he/she will meet with everyone. For contact details, please refer to your induction information or contact the Associate Dean (Student Experience).

The programme team strongly encourages students with any concerns to make contact by email to arrange an appointment, whether it be for advice on time management, revision methods or examination techniques, or a personal problem (e.g., financial, or emotional difficulties that are affecting your studies). In some cases, this is the first step to getting specialist help from one of the Hertfordshire College, CIT Student Support Hub.

14.2 Personal Tutor(s)

Hertfordshire College, CIT has full time Personal Tutor responsible for day-to-day students' affairs management and service, providing advice on non-academic issues such as finance and welfare, accommodation, careers, etc. They are the first point of contact with whom you can turn to for living guidance.

More support can be found at the Student Support Hub at the Hertfordshire College, CIT. No appointment is necessary just turn up and you will be seen on a first come first serve basis.

The programme team strongly encourages students with any concerns to make contact by email to arrange an appointment, whether it be for advice on time management, living in dormitory or a personal problem (e.g., financial, or emotional difficulties that are affecting your studies).

14.3 Induction Week

During the initial week of each semester, Programme Leaders and Module Leaders will present an overview of the modules that you will be studying in the upcoming semester. Additionally, Assistant Programme Leaders and/or Programme Leaders will engage with you if you are facing learning challenges and offer academic support and guidance.

- Programme Introduction: Delivered by Programme Leaders, this session aims to provide students with a comprehensive understanding of the academic programme they're about to embark upon.
- Module Introduction: Delivered by Module Leaders, this session aims to provide you with an overview of the modules that will be studied in the semester.

14.4 Academic Support Hub

The College is committed to supporting you in your academic success, offering a comprehensive array of dedicated assistance and resources when needed. Whether it is specialised support in English, Maths and Computer Programming or personalised advice on locating optimal resources and effectively managing workload and assignments, our approachable team of experts are here to help. You can make contact by email to schedule an appointment. The following support services are available.

- Academic English support
- Maths support
- Computer programming support
- Technical writing support
- Academic skills, wellbeing support, and enhancement activities

14.5 Student Forum

The purpose of Student Forum is to establish a recurring communication platform between you and the College management team, these meetings typically occur twice per semester. You can engage in direct, in-person communication, sharing both learning and life experiences. This occasion provides a platform for you to voice your opinions, ensuring that feedback is acknowledged and acted upon.

14.6 Support at CIT

CIT's student support and guidance are specifically structured to create a positive and inclusive university experience, promote students' well-being, instil confidence for success, assist in the integration into the student community, and offer customised support to meet individual needs.

Student Development Centre

CIT provides a centralised consultation and service facility for students, featuring teams such as Accommodation Services, Learning and Teaching Services, Student Union Services, Financial Services, Living Assistance, Study Abroad Services and Comprehensive Services. There is also a self-service system for students, offering services such as printing relevant certificates and processing campus card applications.

Medical Centre

CIT provides medical and healthcare services to the students.

Mental Health Advisory Support Centre

CIT hosts a centre for mental health advisory services, offering guidance and counselling for student concerns or challenges related to academic life, and interpersonal relationships. The aim is to assist students in identifying their own solutions to problems. The centre also provides support for students facing mental health issues such as insomnia, depression, and anxiety. Additionally, counselling services are available for academic advisors, parents, or guardians, advising them on how to support and guide students effectively.

Special-needs Support Office

CIT is committed to assisting students with various special needs, long-term medical conditions, and specific learning differences. Support services encompass individualised exam arrangements, assistive technology, one-on-one mentoring, library support, and more. Guidance and support are available from the application process through graduation.

Careers and Employment Centre

Explore Careers and Employment services, events, and online resources. CIT has dedicated a Careers and Employment Office to offer students internship and employment guidance services, encompassing lectures, seminars, assistance with resume writing, interview skills, business planning, and career planning.

Student Union and Clubs

Student clubs are an exciting and important part of the CIT experience, not only to serve the diverse needs and interests of the students, and connect everybody outside their classrooms, but also to provide leadership skills development and opportunities, as well as to empower students culturally, socially, and intellectually. Student Union has over 100 clubs in total, providing ideal opportunities to connect with like-minded friends or explore new hobbies.

Further information can be found on: <https://ytw.czu.cn/stjj/list.htm>.

14.7 Resting or Withdrawing

Please contact your programme leader for advice. Before you contact your programme leader, consider reading the information below:

- **Voluntary suspension from your studies**, please see: <https://ask.herts.ac.uk/request-for-voluntary-suspension-from-your-studies>.
- **Withdrawing from your programme of study**, please see: <https://ask.herts.ac.uk/withdrawing-from-university>.

14.8 Reference Letters and Transcripts

Often employers require verification of your previous study as part of their recruitment process. If you have already completed your course and require evidence of your previous study with us, you can contact the Hertfordshire College Academic Quality Office (AQAHCCIT@oa.czu.cn) which will be able to issue you with a letter stating the name of the award you have achieved, the start date and graduation date.

For requesting transcripts, please contact the Hertfordshire College Academic Quality Office (AQAHCCIT@oa.czu.cn) for help. Academic/teaching staff are unable to provide transcripts.

Your Personal Tutor(s) and/or Programme Leader can advise on how to request a reference letter in cases where more detailed information is required.

14.9 Your Student Records

It is vital that you keep your student records up to date. For information on how to update your student record, please visit the Hertfordshire College Academic Quality Office or send an email to AQAHCCIT@oa.czu.cn for help.

Title of Programme: BEng (Hons) Electrical and Electronic Engineering

Programme Code: PECICEEE

For Collaborative: Franchise at Hertfordshire College, Changzhou Institute of Technology, China

Programme Specification

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

Associate Dean of School (Academic Quality Assurance):
Mariana Lilley

Signature

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 (Hons) 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	Hertfordshire College, CIT
University/partner campuses	Hertfordshire College, CIT
Programme accredited by	Not applicable
Final Qualification	BEng (Hons)
All Final Award titles (Qualification and Subject)	Electrical and Electronic Engineering
FHEQ level of award	6

A. Programme Rationale

The BEng (Hons) in Electrical and Electronic Engineering programme, offered by the University of Hertfordshire through its franchise partner, Hertfordshire College, CIT enables students to develop knowledge and skills in a range of topics, such as digital signal processing, microelectronic and VLSI (very-large-scale integration) design practice, robotics and neural networks, power systems applications, and advanced power conversion and control application trends.

Furthermore, as China rapidly advances with its industrialisation initiatives, the presence of qualified professionals in Electrical and Electronic Engineering becomes crucial, making this programme a timely and valuable option for the China employment context.

Graduates can expect to gain employment within the industries directly associated with the fields of Electrical and Electronic Engineering. 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 a 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.

Knowledge and Understanding	Teaching and learning methods	Assessment strategy
A1- Demonstrate knowledge and understanding of analytical methods employed by Engineers. A2- Demonstrate knowledge and understanding of fundamental engineering sciences. A3- Demonstrate knowledge and understanding of design principles and design-to-build processes appropriate to electrical and electronic systems. A4- Demonstrate knowledge and understanding of basic principles and economic, social, legal, ethical and sustainability considerations of the business of engineering. A5- Demonstrate knowledge and understanding of professional engineering practice principles.	Acquisition of knowledge and understanding is through the following approaches: 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. Specialist aspects of A2 are further developed at level 6. Acquisition of A3, A4, and A5 is through a combination of lectures, projects and coursework throughout the programme. 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	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>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 through 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>Practical skills are developed through 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>Practical skills are assessed through laboratory reports, coursework assignments, design exercise submissions, case study reports, presentations, project reports and logbooks.</p>

C6- Plan and manage a project, considering economic, social, legal, ethical and sustainability constraints.	<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>	
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>D7- Learn effectively and independently, in all aspects of life.</p>	<p>Transferable skills are developed through 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>D3 is developed through project work planning and throughout the programme.</p> <p>D4 is developed through group project and assignment work.</p> <p>D5 and D6 are developed through lectures and tutorial work throughout the programme.</p> <p>D7 is developed and promoted throughout the programme.</p> <p>Throughout, the learner is encouraged to develop transferable skills by maintaining a record of evidence and completing a personal development plan.</p>	<p>D1, D2, D5 and D6 are assessed through coursework, individual major project and technical reports and oral presentations.</p> <p>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>

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

The programme is offered in full-time (3 years) mode and leads to the award of a BEng Degree with Honours in Electrical and Electronic Engineering. Other award outcomes are listed in Table 1b. Intake is normally in Semester A (September).

Professional and Statutory Regulatory Bodies

N/A

Work-Based Learning, including Sandwich Programmes

N/A

Student Exchange programme

Incoming Exchange

N/A

Study Abroad

N/A

Programme Structure

The programme structure and progression information below (Table 1a and 1b) are 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: Full-Time

Entry point: Semester A

Level 4

	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Compulsory Modules							
Module Title							
Engineering Mathematics	4FTC2136	15	0	60	40	0	A
Digital Electronic Circuits	4FTC2137	15	0	50	50	0	A
Circuit Theory and Analysis	4FTC2138	15	50	0	50	0	A
Project Planning and Design	4FTC2139	15	0	0	100	0	A
Professional Engineering	4FTC2140	15	0	0	100	0	B
Programming	4FTC2141	15	100	0	0	0	B
Analogue Circuits and Devices	4FTC2142	15	0	50	50	0	B
Electronic Product Development	4FTC2143	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	5FTC2176	15	0	60	40	0	A
Digital Design and Embedded Systems	5FTC2177	15	0	60	40	0	A
Electric Power and Energy Conversion	5FTC2178	15	0	60	40	0	A
Analogue and Mixed-Signal Design	5FTC2179	15	0	0	100	0	A
Real-time Systems and Programming	5FTC2180	15	0	0	100	0	B
Connected Systems and IoT	5FTC2181	15	0	0	100	0	B
Mechatronics	5FTC2182	15	0	50	50	0	B
Communication System Principles	5FTC2183	15	0	60	40	0	B

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

Level 6

Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Compulsory Modules							
Microelectronics and VLSI	6FTC2185	15	0	60	40	0	A
Intelligent Systems and Robotics	6FTC2186	15	50	0	50	0	A
Digital Communication Systems	6FTC2187	15	0	60	40	0	A
Digital Signal Processing	6FTC2188	15	0	60	40	0	B
Power Systems and Renewable Energy	6FTC2189	15	40	0	60	0	B
Wireless Networking	6FTC2190	15	50	0	50	0	B
BEng Individual Project (Electrical)	6FTC2191	30	0	0	80	20	AB

The award of an Honours degree in Electrical and Electronic Engineering requires 360 credit points including 240 at level 6/5 of which 120 must be at level 6.

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 Award	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	6	All programme learning outcomes (see Table 2)

Interim Award	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/secreg/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/secreg/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/secreg/upr/AS11.htm
BEng	Electrical and Electronic Engineering	300 credit points including 180 at level 6/5 of which 60 must be at level 6	6	A subset of programme learning outcomes (see Table 2), depending on modules passed

Programme-specific assessment regulations

The programme complies with the University's academic regulations (in particular, [UPR AS11](#), [UPR AS13](#) and [UPR AS14](#)) with the exception of those listed below, which have been approved by the University:

- BEng Individual Project (Electrical) 6FTC2191 cannot be compensated. Students who are offered a re-enrolment opportunity on the project module in line with University regulations will normally be allocated an entirely different project
- Students exiting with a BEng (Hons) award shall have their degree classification determined in accordance with [UPR AS14](#) and include the individual project in the calculation of degree.

Course Code	Course Instance	Award Title	Modules (child instance codes & title)	Must be included in classification algorithm?
PECICEEE	EEECIT3F	BEng (Hons) Electrical and Electronic Engineering	6FTC2191 – BEng Individual Project (Electrical)	yes

Professional Statutory Regulatory Bodies thresholds will apply for accredited awards as per the Engineering Council Compensation and Condonement notice November 2018.

BEng (Hons) accredited awards:

- To comply with professional body regulations students must achieve in all 15 credit point modules, after all available attempts under the University regulations, a minimum of 30% (in any allowable attempt) at levels 4, 5 and 6, before the board of examiners will be able to consider compensation for an accredited honours degree. A maximum of 30 credit points can be compensated across the programme, in line with University regulations and professional body accreditation requirements.

For non-honours awards, the standard University regulations on progression and compensation shall apply.

E. Management of Programme & Support for student learning.

Management

The programme is managed and administered through:

- Dean of Hertfordshire College, CIT;
- UH Executive Dean;
- UH SPECS International Franchise Manager;
- Associate Dean (AQA, Learning and Teaching) of Hertfordshire College, CIT;
- Associate Dean (Student Experience) of Hertfordshire College, CIT;
- The Programme Leader at Hertfordshire College, CIT who has overall responsibility for the effective operationalisation of the programme, ensuring that academic standards are maintained, and an effective student learning experience is provided. The Programme Leader is also responsible for chairing the programme committee;
- A Collaborative Partnership Leader, based at UH, to provide support and facilitate communication between UH and Hertfordshire College, CIT;
- Module Leaders at Hertfordshire College, CIT who are responsible for individual modules;
- A Programme committee that includes the above key stakeholders and student representatives;
- An Admissions Tutor at Hertfordshire College, CIT with specific responsibility for admissions and open days, who, where necessary, liaises with UH CPL and/or admissions tutor regarding special admissions cases;
- 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;
- A Programme Handbook which provides information about the programme, the support services available and the calendar of events for the year;
- A Student Development Centre that provides advice on issues such as finance, accommodation, University regulations and study abroad;
- A Student Support Hub which includes full-time Personal Tutor(s) and Assistant Programme Leader(s) who will be an important point of contact. Personal Tutor(s) can provide advice on non-academic issues, Assistant Programme Leader(s) can provide one-to-one guidance on academic issues;
- 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 environment in library;
- An Academic Support Hub which includes academic English support, Maths support, Computer Programming support and Technical Writing support;
- Technical support staff and access to computer and technical laboratories;
- Programme Leader who can advise on programme issues;
- Module teaching teams who provide academic support;
- A project supervisor;
- A Careers and Employment Centre that supports students looking for graduate employment;
- A Special Education Needs Support Office that assists students with various special needs;
- Medical Centre;
- Mental Health Advisory Support Centre;
- Changzhou Institute of Technology Student Union;
- Dedicated programme site.

F. Other sources of information

In addition to this Programme Specification, Hertfordshire College, CIT 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 Programme Handbook provides information on a wide range of resources and services available at the Hertfordshire College, CIT including academic support, accommodation, fees, funding, 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

Level 4 Entry:

- Applicants should have passed the minimum control line for undergraduates on the National College Entrance Examination (NCEE), which must include Mathematics and Physics.

Plus:

- Demonstrate a proficiency in English to IELTS 6.0 with minimum 5.5 in each band or an equivalent recognised qualification (including pass the Pre-Sessional English course).

Entry is only at level 4.

If you would like this information in an alternative format please contact:
cpuadmin@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	D1	D2	D3	D4	D5	D6	D7
Module Title		Module Code																						
Level 4	Engineering Mathematics	4FTC2136	X	X				X	X															
	Digital Electronic Circuits	4FTC2137	X	X		X		X	X	X			X	X	X			X		X				
	Circuit Theory and Analysis	4FTC2138	X	X				X	X	X			X	X	X					X				
	Project Planning and Design	4FTC2139			X	X	X				X	X					X	X	X	X	X	X	X	X
	Professional Engineering	4FTC2140				X	X											X	X	X	X	X		
	Programming	4FTC2141	X	X			X						X			X				X				
	Analogue Circuits and Devices	4FTC2142	X	X				X	X	X			X	X	X					X				
	Electronic Product Development	4FTC2143						X	X	X				X	X				X	X		X	X	X
Level 5	Signals and Systems	5FTC2176	X	X				X	X	X				X	X				X					
	Digital Design and Embedded Systems	5FTC2177					X	X	X	X			X	X	X				X					
	Electric Power and Energy Conversion	5FTC2178	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X					
	Analogue and Mixed-Signal Design	5FTC2179			X	X		X	X									X	X		X	X	X	X
	Real-time Systems and Programming	5FTC2180					X	X	X	X			X	X	X	X			X					
	Connected Systems and IoT	5FTC2181			X	X	X			X	X	X		X	X		X	X	X	X	X	X	X	X
	Mechatronics	5FTC2182	X	X	X	X		X	X	X	X	X	X	X	X		X	X		X				
	Communication System Principles	5FTC2183	X	X				X	X	X			X	X	X					X				
Level 6	Microelectronics and VLSI	6FTC2185						X	X	X			X	X					X					
	Intelligent Systems and Robotics	6FTC2186	X	X				X	X	X				X	X					X				
	Digital Communication Systems	6FTC2187	X	X				X	X	X			X	X	X					X				
	Digital Signal Processing	6FTC2188	X	X				X	X	X			X	X	X					X				
	Power Systems and Renewable Energy	6FTC2189				X		X	X	X				X	X			X	X	X		X		
	Wireless Networking	6FTC2190	X	X	X	X		X	X	X	X	X	X	X	X		X	X		X				
	BEng Individual Project (Electrical)	6FTC2191			X	X	X				X	X	X			X	X	X	X	X	X		X	X

KEY TO PROGRAMME LEARNING OUTCOMES

Knowledge and Understanding

- A1. - Demonstrate knowledge and understanding of analytical methods employed by engineers.
- A2. Demonstrate knowledge and understanding of fundamental engineering sciences.
- A3. Demonstrate knowledge and understanding of design principles and design-to-build processes appropriate to electrical and electronic systems.
- A4. Demonstrate knowledge and understanding of basic principles and economic, social, legal, ethical and sustainability considerations of the business of engineering.
- A5. Demonstrate knowledge and understanding of 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.
- B5. Design appropriate electrical and electronic systems, components, or processes.

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.

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.
- 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	4FTC2136	D			D		D
	Digital Electronic Circuits	4FTC2137	D		D	D		D
	Circuit Theory and Analysis	4FTC2138	D			D		D
	Project Planning and Design	4FTC2139	D			D	D	D
	Professional Engineering	4FTC2140	D	D	D	D	D	D
	Programming	4FTC2141	D			D		D
	Analogue Circuits and Devices	4FTC2142	D			D		D
	Electronic Product Development	4FTC2143	D			D	D	D
Level 5	Signals and Systems	5FTC2176	D			D		D
	Digital Design and Embedded Systems	5FTC2177	D			D		D
	Electric Power and Energy Conversion	5FTC2178	D		D	D		D
	Analogue and Mixed-Signal Design	5FTC2179	D			D	D	D
	Real-time Systems and Programming	5FTC2180	D			D		D
	Connected Systems and IoT	5FTC2181	D			D	D	D
	Mechatronics	5FTC2182	D			D		D
	Communication System Principles	5FTC2183	D			D		D
Level 6	Microelectronics and VLSI	6FTC2185	D			D		D
	Intelligent Systems and Robotics	6FTC2186	D			D		D
	Digital Communication Systems	6FTC2187	D			D		D
	Digital Signal Processing	6FTC2188	D			D		D
	Power Systems and Renewable Energy	6FTC2189	D		D	D	D	D
	Wireless Networking	6FTC2190	D			D		D
	BEng Individual Project (Electrical)	6FTC2191	D		D	D		D

Section 2

Programme Management

Relevant QAA subject benchmarking statements	Engineering
Type of programme	Undergraduate
Date of validation/last periodic review	April 24
Date of production/ last revision of PS	May 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
PECICEE	BEng (Hons) Electrical and Electronic Engineering	100163	N/A

电气工程及其自动化专业本科人才培养方案

(Electrical Engineering and Its Automation)

(2024 级)

一、培养目标

本专业引进合作学校英国赫特福德大学特色鲜明的教育传统和革新精神，引进电气与电子工程专业优质教育资源，面向电气与电子工程领域的国际前沿，合力培养具有扎实的电气工程及其自动化专业基础、具备工业电气与电子领域相关产品的设计开发、系统集成、运行维护和技术管理等方面的基本技能、具有持续发展潜力、创新素质、国际视野的复合应用型高级工程技术人才。

本专业预期学生在毕业后五年左右能达到的目标如下：

目标 1：具备社会主义核心价值观和良好的道德文化素养，在工作中自觉遵守职业道德和规范，具有国际视野和创新意识。

目标 2：能够综合应用基础理论、专业知识和交叉学科知识，分析和研究电气与电子工程领域的复杂工程问题。

目标 3：能够从事电气与电子相关产品的设计开发、系统集成、运行维护和技术管理等工作，并能针对工作中实际问题提出解决方案，并考虑法律、环境与可持续发展等因素影响。

目标 4：具有沟通、交流和团队合作能力，能在工作团队中发挥骨干作用。

目标 5：能够及时跟踪国内外技术发展动态，拥有自主学习和适应发展的能力。

二、毕业要求

A. 科学与数学：能够将数学、统计方法和专业知识用于工程实践，并能解决电气和电子领域的复杂工程问题。

B. 工程分析：能够采用分析方法和建模技术，识别、分类和描述系统和组件的性能，并通过定量和计算方法解决关键工程问题。

C. 设计：能够针对电气与电子领域的复杂工程问题设计解决方案，开发满足特定需求的电气系统或装置，并能够在设计环节中体现环境与可持续发展、道德健康、安全、保障和风险、知识产权、产业政策、法律法规。

D. 经济、法律、社会、道德和环境：能够理解和评价针对电气和电子领域工程实践对环境和社会可持续发展的影响，并理解应承担的责任，能够在工程实践中自觉遵守工程职业道德和规范，自觉履行

责任。

E. 工程实践：能够基于工程相关背景知识进行合理分析，掌握如何使用技术文献和其他信息、了解相关法律法规、合同规定、操作规范和行业标准，并能够承担个体、团队成员以及负责人的角色。

F. 适应性技能：能够选择、使用和开发恰当的软硬件平台、现代化电子仪器设备和信息技术工具，具有自主学习和终身学习的意识以及不断学习和适应发展的能力。

三、主干学科

电气工程、控制科学与工程

四、核心课程

电路理论与分析、数字电子电路、模拟电路与器件、编程语言、信号与系统、数字化设计与嵌入式系统、电能与能量转换、电机原理与拖动、机电一体化、实时系统与编程、通讯系统原理、自动控制原理、微电子与超大规模集成电路/机器学习、数字信号处理、智能系统与机器人、无线网络、数字通信系统、电子产品开发、模拟及混合信号设计、项目规划与设计、互联系统与物联网、毕业设计

五、主要实践性环节

电子产品开发、模拟及混合信号设计、项目规划与设计、互联系统与物联网、毕业设计

六、主要专业实验

电路理论与分析实验、数字电子电路实验、模拟电路与器件实验、编程语言实验、信号与系统实验、数字化设计与嵌入式系统实验、电机原理与拖动实验、机电一体化系统建模与控制实验、实时系统与编程实验、通讯系统原理实验、自动控制原理实验、微电子与超大规模集成电路实验/机器学习实验、数字信号处理实验、智能系统与机器人实验、电子系统集成实验、数字通信系统实验

七、学习年限

标准学制：4年

学习年限为4~8年

八、授予学位

常州工学院授予：工学学士学位（电气工程及其自动化专业）

赫特福德大学授予：BEng（Honours）in Electrical and Electronic Engineering

工学（荣誉）学士学位（电气与电子工程专业）

九、课程设置（理工类专业）

性质	类别	序号	课程代码	课程名称		学分	学时	讲授	实验	实践		开课学期	备注	
				中文	英文					课内	课外			
通识教育课程	必修	1	1001031	思想道德与法治	Ideological Morality and Rule of Law	3.0	48	42			6	1		
		2	1002031	中国近现代史纲要	Introduction to Chinese Modern and Contemporary History	3.0	48	42			6	2		
		3	1003031	马克思主义基本原理	Basic Principles of Marxism	3.0	48	42			6	3		
		4	1004031	△毛泽东思想和中国特色社会主义理论体系概论	Introduction to Mao Zedong Thought and Theoretical System of Socialism with Chinese Characteristics	3.0	48	42			6	4		
		5	1005031	△习近平新时代中国特色社会主义思想概论	Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	3.0	48	48				4		
		6	1006031	形势与政策 I(上)	Situation and Policy I	0.25	8	8					1	
		7	1006032	形势与政策 I(下)	Situation and Policy I	0.25	8	8					2	
		8	1006033	形势与政策 II(上)	Situation and Policy II	0.25	8	8					3	
		9	1006034	形势与政策 II(下)	Situation and Policy II	0.25	8	8					4	
		10	1006035	形势与政策 III(上)	Situation and Policy III	0.25	8	8					5	
		11	1006036	形势与政策 III(下)	Situation and Policy III	0.25	8	8					6	
		12	1006037	形势与政策 IV(上)	Situation and Policy IV	0.25	8	8					7	
		13	1006038	形势与政策 IV(下)	Situation and Policy IV	0.25	8	8					8	
		14	1101010	△体育I	Physical Education I	0.75	30	30					1	
		15	1101020	△体育II	Physical Education II	0.75	30	30					2	
		16	1102010	△体育III	Physical Education III	0.75	30	30					3	
		17	1102020	△体育IV	Physical Education IV	0.75	30	30					4	
		18	1103010	体育V	Physical Education V	0.5	18					18	5	
		19	1103020	体育VI	Physical Education VI	0.5	18					18	6	
		20	2600008	△综合英语	Comprehensive English	10	160	160					1	
		21	2600007	强化英语◇	Pre-sessional English	14	224	224					2	
		22	2604001	△高等数学 A(上)	Advanced Mathematics A(I)	5	80	80					1	
		23	2604002	△高等数学 A(下)	Advanced Mathematics A(II)	5	80	80					2	
		24	2604003	大学物理 B(上)	College Physics B(I)	2.5	40	40					2	
		25	2604004	大学物理 B(下)	College Physics B(II)	2.5	40	40					3	
		26	0000002	军事理论	Military Theory	2.0	32	32					1	
		27	0000012	大学生心理健康教育	Campus Mental Health	2.0	32	32						
		28	0000010	大学生安全教育	Campus Safety	0.5	8	8						
		29	0000011	实验室安全教育	laboratory Safety education	0.5	8	8						

	30	0000043	国家安全教育	National Security Education	1.0	16	16				2	
	必修小计				66	1180	1120			60		
	1		四史教育类	Education on the Four Histories	1.0	16	16				1-7	
	选修小计				1	16	16					
	通识教育课程合计				67	1196	1136			60		

课程设置 (续)

性质	类别	序号	课程代码	课程名称		学分	学时	讲授	实验	实践		开课学期
				中文	英文					课内	课外	
专业基础课程	必修	1	2604008	线性代数	Linear Algebra	2	32	32				3
		2	2604006	概率论与数理统计	Probability and Mathematical Statistics	3	48	48				4
		3	4FTC2136	△工程数学◇	Engineering Mathematics	3	48	48				3
		4	4FTC2137	△数字电子电路◇*	Digital Electronic Circuit	4	64	54	10			3
		5	4FTC2138	电路理论与分析◇*	Circuit Theory and Analysis	4	64	48	16			3
		6	4FTC2140	工程素养与职业发展◇	Professional Engineering	3	48	48				4
		7	4FTC2141	编程语言◇*	Programming	3.5	56	28	28			4
		8	4FTC2142	△模拟电路与器件◇*	Analogue Circuits and Devices	4	64	58	6			4
		9	5FTC2176	△信号与系统◇*	Signals and Systems	3.5	56	44	12			5
		必修小计						30	480	408	72	
专业基础课程合计						30	480	408	72			
专业课程	必修	1	5FTC2177	△数字化设计与嵌入式系统◇*	Digital Design & Embedded Systems	3.5	56	34	22			5
		2	5FTC2178	△电能与能量转换◇*	Electric Power and Energy Conversion	3.5	56	46	10			5
		3	2601001	电机原理与拖动 A *	Principle of Electrical Machinery & Towage A	3.5	56	48	8			5
		4	2601003	△电气控制与 PLC*	Electrical Control and PLC	3	48	40	8			5
		5	5FTC2180	实时系统与编程*	Real-time System & Programming	3.5	56	34	22			6
		6	5FTC2182	△机电一体化◇*	Mechatronics	3.5	56	42	14			6
		7	5FTC2183	△通讯系统原理◇*	Communication System Principles	3.5	56	40	16			6
		8	2601002	自动控制原理 B *	Principle of Automatic Control B	3	48	44	4			6
		9	2601004	△电力工程*	Power Engineering	3	48	42	6			6
		10	6FTC2186	智能系统与机器人◇*	Intelligent Systems and Robotics	4	64	44	20			7
		11	6FTC2187	△数字通信系统◇*	Digital Communication Systems	4	64	36	28			7
		12	6FTC2188	△数字信号处理◇*	Digital Signal Processing	3.5	56	34	22			8
		13	6FTC2190	无线网络◇*	Wireless Networking	3.5	56	48	8			8
必修小计						45	720	532	188			

选修	1	6FTC2185	△微电子与超大规模集成电路◇*	Microelectronics & VLSI	3.5	56	30	26			7
	2	6FTC2189	电力系统与可再生能源◇*	Power Systems and Renewable Energy	3.5	56	46	10			8
	3	6FTC2178	机器学习◇*	Machine Learning	3.5	56	30	26			7
	4	6FTC2179	视觉与语音接口◇*	Visual and Spoken Interfaces	3.5	56	46	10			8
	选修小计					7	112	76	36		
专业课程合计					52	832	608	224			

十、集中实践性环节

性质	类别	序号	课程代码	课程名称		学分	周数	开课学期
				中文	英文			
集中实践性环节	实践实习	1	0000001	军训	Military Training	2.0	2	一
		2	1005032	思想政治理论课实践	Practice Teaching Political and Ideological Theory	2.0		4
		3	0000044	创新创业教育实践		2.0		8
		4	0000031	“第二课堂”实践		2.0		8
		5	0000045	劳动教育实践		1.0		8
		小计					9	
	课程设计	1	4FTC2139	项目规划与设计◇	Project Planning and Design	4.0	4	3
		2	4FTC2143	电子产品开发◇*	Electronic Product Development	4.0	4	4
		3	5FTC2179	模拟及混合信号设计◇*	Analogue and Mixed-Signal Design	4.0	4	5
		4	5FTC2181	互联系统与物联网◇*	Connected System and IoT	4.0	4	6
		小计					16	
	其他	1	6FTC2191	毕业设计（论文）◇*	BEng Individual Project	8.0		7-8
		小计					8	
	合计					33		

十一、各模块学分、学时分配

表 1 课程体系结构、学分比例分布情况

课程性质及类别		学分数	占总学分百分比 (%)	理论教学总学时	实践教学总学时
通识教育课程模块	必修	66	36.3	1136	60
	选修	1	0.5	16	0
专业基础课程模块	必修	30	16.5	408	72
	选修	0	0	0	0
专业课程模块	必修	45	24.7	532	188
	选修	7	3.8	76	36
集中实践性环节模块	必修	33	18.1	0	1056
合计		182	100	2168	1412
实践教学总学时占总学时数的百分比=39.4%					

十二、有关说明

1. 本专业的毕业要求总学分为 182。其中 67 学分为通识教育课程，30 学分为专业基础课程，52 学分为专业课程，33 学分为集中实践性环节。

2. 课程名称前有符号“△”的为考试课程，课程名称后有符号“◇”的为外方引进课程，课程名称后有符号“*”的为专业核心课程。

3. 根据毕业要求，学生须完成 2 学分的创新创业教育实践，2 学分的“第二课堂”实践和 1 学分的劳动教育实践方可毕业。创新创业教育实践、“第二课堂”实践和劳动教育实践的学分均可通过选修创新创业类通识选修课程、参加各类学科竞赛、创新创业活动、学校组织的各项学生类活动等方式获得。

十三、附件

- 1.各学期教学安排
- 2.毕业要求实现矩阵

专业系主任： 何璐璐
二级学院院长： 王文琴
教务处审核： 潘雪涛
学校审批： 苍玉权

2024 年 8 月 27 日

附件 1：各学期教学安排（参考模板）

电气工程及其自动化专业各学期教学计划安排表

第一学期						
序号	课程类别	课程代码	课程名称	学分	周学时	起讫周次
1	通识必修	1001031	思想道德与法治	3	3	4-19
2	通识必修	1101010	体育I	0.75	2	4-18
3	通识必修	2600008	综合英语	10	10	4-19
4	通识必修	2604001	高等数学 A(上)	5	6	4-16
5	通识必修	0000002	军事理论	2	2	4-19
小计				20.75	23	
第二学期						
序号	课程类别	课程代码	课程名称	学分	周学时	起讫周次
1	通识必修	1002031	中国近现代史纲要	3	3	1-16
2	通识必修	1101020	体育 II	0.75	2	1-15
3	通识必修	2600007	强化英语	14	14	1-16
4	通识必修	2604002	高等数学 A(下)	5	5	1-16
5	通识必修	2604003	大学物理 B(上)	2.5	3	1-13
小计				25.25	27	
第三学期						
序号	课程类别	课程代码	课程名称	学分	周学时	起讫周次
1	通识必修	1102010	体育 III	0.75	2	1-12,16-18
2	通识必修	1003031	马克思主义基本原理	3	3	1-12,16-19
3	通识必修	2604004	大学物理 B(下)	2.5	3	1-12,17
4	专业基础	2604008	线性代数	2	2	1-12,16-19
5	专业基础	4FTC2136	工程数学	3	4	1-12
6	专业基础	4FTC2137	数字电子电路	4	6	1-11
7	专业基础	4FTC2138	电路理论与分析	4	6	1-11
8	课程设计	4FTC2139	项目规划与设计	4		13-16
小计				23.25	26	
第四学期						
序号	课程类别	课程代码	课程名称	学分	周学时	起讫周次
1	通识必修	1001024	毛泽东思想和中国特色社会主义理论体系概论	3	3	1-12,16-19
2	通识必修	1005031	习近平新时代中国特色社会主义思想	3	3	1-12,16-19

			会主义思想概论			
3	通识必修	1102020	体育IV	0.75	2	1-12,16-18
4	专业基础	2604006	概率论与数理统计	3	4	1-12
5	专业基础	4FTC2140	工程素养与职业发展	3	4	1-12
6	专业基础	4FTC2141	编程语言	3.5	4	1-12,16-17
7	专业基础	4FTC2142	模拟电路与器件	4	6	1-11
8	实践实习	4FTC2143	电子产品开发	4		13-16
小计				24.25	26	
第五学期						
序号	课程类别	课程代码	课程名称	学分	周学时	起讫周次
1	通识必修	1103010	体育V	0.5	2	1-9
2	专业基础	5FTC2176	信号与系统	3.5	4	1-12,16-17
3	专业必修	5FTC2177	数字化设计与嵌入式系统	3.5	4	1-12,16-17
4	专业必修	5FTC2178	电能与能量转换	3.5	4	1-12,16-17
5	专业必修	2601001	电机原理与拖动 A	3.5	4	1-12,16-17
6	专业必修	2601003	电气控制与 PLC	3	4	1-12
7	实践实习	5FTC2179	模拟及混合信号设计	4		13-16
小计				21.5	22	
第六学期						
序号	课程类别	课程代码	课程名称	学分	周学时	起讫周次
1	通识必修	1103020	体育VI	0.5	2	1-9
2	专业必修	5FTC2180	实时系统与编程	3.5	4	1-12,16-17
3	专业必修	5FTC2182	机电一体化	3.5	4	1-12,16-17
4	专业必修	5FTC2183	通讯系统原理	3.5	4	1-12,16-17
5	专业必修	2601004	电力工程	3	4	1-12
6	专业必修	2601002	自动控制原理 B	3	4	1-12
7	课程设计	5FTC2181	互联系统与物联网	4		13-16
小计				21	22	
第七学期						
序号	课程类别	课程代码	课程名称	学分	周学时	起讫周次
1	专业必修	6FTC2186	智能系统与机器人	4	4	1-12,16-19
2	专业必修	6FTC2187	数字通信系统	4	4	1-12,16-19
3	专业选修		专业选修课 1	3.5	4	1-12,16-17
4	其他	6FTC2191	毕业设计	4		12-19

小计				15.5	12	
第八学期						
序号	课程类别	课程代码	课程名称	学分	周学时	起讫周次
1	专业必修	6FTC2188	数字信号处理	3.5	4	1-12,16-17
2	专业必修	6FTC2190	无线网络	3.5	4	1-12,16-17
3	专业选修		专业选修课 2	3.5	4	1-12,16-17
4	其他	6FTC2191	毕业设计	4		12-19
小计				14.5	12	

附件 2：毕业要求实现矩阵

电气工程及其自动化专业毕业要求观测点

毕业要求	观测点
A.科学与数学：能够将数学、统计方法和专业知识用于工程实践，并能解决电气和电子领域的复杂工程问题。	观测点 A1：了解并理解电气和电子的科学原理和方法，了解科学和工程应用的背景、了解过去、当前以及未来技术的发展趋势。
	观测点 A2：了解并理解数学和统计方法在电气和电子的运用，并能够应用数学和统计方法、工具和符号分析和解决工程问题。
	观测点 A3：能够运用和整合相关工程学科的知识，并应用于电气和电子的研究。
B.工程分析：能够采用分析方法和建模技术，识别、分类和描述系统和组件的性能，并通过定量和计算方法解决关键工程问题。	观测点 B1：理解工程原理，并能运用工程原理分析关键工程问题。
	观测点 B2：能够运用分析方法和建模技能，识别、分类和描述系统和组件的性能。
	观测点 B3：能够运用定量和计算方法解决工程问题并应用于工程实践。
	观测点 B4：理解并能够运用综合或系统方法来解决工程问题。
C.设计：能够针对电气和电子领域的复杂工程问题设计解决方案，开发满足特定需求的电气系统或装置，并能够在设计环节中体现环境与可持续发展、道德健康、安全、保障和风险、知识产权、产业政策、法律法规。	观测点 C1：理解和评估商业、客户和用户需求，包括工程背景、公众认知和审美等。
	观测点 C2：能够调查和确定问题，能够识别环境和可持续性制约等任何约束因素，以及道德健康、安全、保障和风险、知识产权、实施规程和标准等因素。
	观测点 C3：能够处理不完整或不确定的信息，并确定其对设计的影响。
	观测点 C4：能够运用先进的技术能力、技术知识和理解，建立适用于生产、操作、维护和处置等各个方面的严格的、创造性的方案。
	观测点 C5：规划并管理设计流程，包括成本动因和评估结果。
	观测点 C6：能够与技术和非技术客户沟通工作。
D. 经济、法律、社会、道德和环境：能够理解和评价针对电气和电子领域工程实践对环境、社会可持续发展的影响，并理解应承担的责任，能够在工程实践中自觉遵守工	观测点 D1：理解在工程领域所需要的高水平专业知识、职业道德和专业行为准则。
	观测点 D2：了解并理解工程工艺的商业、经济、社会背景。
	观测点 D3：了解并理解管理技巧，包括可用于实现工程目标的项目管理技术手段。
	观测点 D4：理解促进可持续发展的工程实践要求，能够因地制宜地运用量化技术手段。

毕业要求	观测点
程职业道德和规范, 自觉履行责任。	观测点 D5: 了解适用于工程项目的相关法律法规, 包括人员、健康和安 全、合同、知识产权、产品安全和责任等。
	观测点 D6: 了解并理解工程风险, 包括健康和安 全、环境和商业风险, 掌握风险评估和风险管理技术。
E.工程实践: 能够基于工程相关背景知识进行合理分析, 掌握如何使用技术文献和其他信息、了解相关法律法规、合同规定、操作规范和行业标准, 并能够承担个体、团队成员以及负责人的角色。	观测点 E1: 了解工程知识的应用背景(例如, 运营和管理, 技术的应用和发展等)。
	观测点 E2: 了解特定的材料、设备、工艺或产品的特性。
	观测点 E3: 具备使用相关实践和实验室技能的能力。
	观测点 E4: 了解如何使用技术文献和信息资源。
	观测点 E5: 了解相关法律法规和合同规定。
	观测点 E6: 了解操作规范和行业标准。
	观测点 E7: 了解质量问题并持续改进。
	观测点 E8: 具有处理技术不确定性的能力。
F.适应性技能: 能够选择、使用和开发恰当的软硬件平台、现代化电子仪器设备和信息技术工具, 具有自主学习和终身学习的意识以及不断学习和适应发展的能力。	观测点 F1: 能够发挥解决问题、沟通、信息检索和与人合作的能力, 能够有效使用通用的信息设备。
	观测点 F2: 作为终生学习/持续专业发展的基础, 能够制定自学计划, 提升个人能力。
	观测点 F3: 根据工程需要, 制定并调整个人工作计划。
	观测点 F4: 作为团队成员或领导, 积极发挥主观能动性和个人责任感。

电气工程及其自动化专业毕业要求实现矩阵

课程 体系	课程名称	毕业要求 A			毕业要求 B				毕业要求 C						毕业要求 D						毕业要求 E									毕业要求 F			
		A1	A2	A3	B1	B2	B3	B4	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6	E1	E2	E3	E4	E5	E6	E7	E8	E9	F1	F2	F3	F4
Level4 - Level6	工程数学		×				×				×	×	×														×	×					
	电路理论与分析	×										×																	×				
	工程素养与职业发展								×				×		×	×	×	×	×		×			×	×	×			×	×			
	数字电子电路				×	×						×	×				×					×											
	项目规划与设计								×	×			×				×		×		×								×		×	×	
	模拟电路与器件	×		×	×		×																										
	编程语言						×															×							×				
	信号与系统		×	×		×	×					×															×	×					
	数字化设计与嵌入式系统					×		×														×	×	×									
	电能与能量转换			×	×			×			×											×	×	×									
	机电一体化		×	×		×		×			×	×										×											
	实时系统与编程									×				×										×	×								
	通讯系统原理			×		×					×			×															×	×			
	数字信号处理	×			×			×			×	×												×									
智能系统与机器人			×	×		×		×		×				×							×		×										

课程体系	毕业要求	毕业要求 A			毕业要求 B				毕业要求 C						毕业要求 D						毕业要求 E									毕业要求 F						
	课程名称	A1	A2	A3	B1	B2	B3	B4	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6	E1	E2	E3	E4	E5	E6	E7	E8	E9	F1	F2	F3	F4			
Level4 - Level6	无线网络			×				×				×										×		×												
	数字通信系统	×		×	×			×				×										×		×												
	微电子与超大规模集成电路	×		×	×					×		×				×						×	×	×						×						
	电力系统与可再生能源			×				×		×		×	×					×																		
	电子产品开发								×				×	×					×	×			×	×		×	×	×	×	×	×	×	×	×	×	×
	模拟及混合信号设计								×				×	×	×	×	×	×	×	×		×	×	×	×		×	×	×	×	×	×	×	×	×	×
	互联系统与物联网								×	×			×	×		×	×			×	×		×	×	×				×	×		×	×	×	×	×
	毕业设计			×				×	×	×		×	×	×				×	×	×				×	×				×			×	×	×	×	×