



**Swansea University
Prifysgol Abertawe**

**FACULTY OF SCIENCE AND
ENGINEERING**

**UNDERGRADUATE TAUGHT STUDENT
HANDBOOK**

YEAR 3 (FHEQ LEVEL 6)

**ELECTRONIC AND ELECTRICAL
ENGINEERING DEGREE
PROGRAMMES**

**SUBJECT SPECIFIC
PART TWO OF TWO
MODULE AND COURSE STRUCTURE
2024-25**

Welcome to the Faculty of Science and Engineering!

Whether you are a new or a returning student, we could not be happier to be on this journey with you.

At Swansea University and in the Faculty of Science and Engineering, we believe in working in partnership with students. We work hard to break down barriers and value the contribution of everyone.

Our goal is an inclusive community where everyone is respected, and everyone's contributions are valued. Always feel free to talk to academic, technical and administrative staff, administrators - I'm sure you will find many friendly helping hands ready to assist you. And make the most of living and working alongside your fellow students.

During your time with us, please learn, create, collaborate, and most of all – enjoy yourself!

Professor David Smith
Pro-Vice-Chancellor and Executive Dean
Faculty of Science and Engineering



Faculty of Science and Engineering	
Pro-Vice-Chancellor and Executive Dean	Professor David Smith
Head of Operations	Mrs Ruth Bunting
Associate Dean – Education	Dr Laura Roberts
School of Aerospace, Civil, Electrical and Mechanical Engineering	
Head of School	Professor Antonio Gil
School Education Lead	Professor Cris Arnold
Head of Electronic and Electrical Engineering	Professor Vincent Teng
Electronic and Electrical Engineering Programme Director	Dr Karin Ennser
Year Coordinator	Dr Zhongfu Zhou

DISCLAIMER

The Faculty of Science and Engineering has made all reasonable efforts to ensure that the information contained within this publication is accurate and up-to-date when published but can accept no responsibility for any errors or omissions.

The Faculty of Science and Engineering reserves the right to revise, alter or discontinue degree programmes or modules and to amend regulations and procedures at any time, but every effort will be made to notify interested parties.

It should be noted that not every module listed in this handbook may be available every year, and changes may be made to the details of the modules. You are advised to contact the Faculty of Science and Engineering directly if you require further information.

The 24-25 academic year begins on 23 September 2024

Full term dates can be found [here](#)

DATES OF 24-25 TERMS

23 September 2024 – 13 December 2024

06 January 2025 – 11 April 2025

06 May 2025 – 06 June 2025

SEMESTER 1

23 September 2024 – 27 January 2025

SEMESTER 2

27 January 2025 – 06 June 2025

SUMMER

09 June 2025 – 19 September 2025

IMPORTANT INFORMATION ON ACADEMIC INTEGRITY

Swansea University and the Faculty of Science of Engineering takes any form of **academic misconduct** very seriously. In order to maintain academic integrity and ensure that the quality of an Award from Swansea University is not diminished, it is important to ensure that all students are judged on their ability. No student should have an unfair advantage over another as a result of academic misconduct - whether this is in the form of **Plagiarism, Collusion** or **Commissioning**.

It is important that you are aware of the **guidelines** governing Academic Misconduct within the University/Faculty of Science and Engineering and the possible implications. The Faculty of Science and Engineering will not take intent into consideration and in relation to an allegation of academic misconduct - there can be no defence that the offence was committed unintentionally or accidentally.

Please ensure that you read the University webpages covering the topic – procedural guidance [here](#) and further information [here](#). You should also read the Faculty Part One handbook fully, in particular the pages that concern Academic Misconduct/Academic Integrity.

STUDENT SUPPORT

The **Student Experience and Information Team** are here to support you through your studies and to provide non-judgemental advice and guidance. If you have any questions relating to your academic or personal life you can contact the Team and chat through your support options.

The Team is available for in-person support meetings and can also be contacted via email (studentsupport-scienceengineering@swansea.ac.uk) or phone (**+44 (0) 1792 295514**). You can access their full contact details [here](#).

To visit the Team you can attend either of the following Receptions:

- Reception in the Foyer of Engineering Central, [Bay Campus](#)
- Reception on the first-floor landing of the Wallace Building, [Singleton Park Campus](#)

Standard Reception opening hours are Monday to Friday from 9am to 5pm however, this may vary outside of term time.

The current [FSE Student webpages](#) also contain useful information and links to additional resources:



READING LISTS

Reading lists for each module are available on the course Canvas page and are also accessible via <http://ifindreading.swan.ac.uk/>.

We do not expect you to purchase textbooks, unless it is a specified key text for the course.

THE DIFFERENCE BETWEEN COMPULSORY AND CORE MODULES

Compulsory modules must be **pursued** by a student.

Core modules must not only be **pursued**, but also **passed** before a student can proceed to the next level of study or qualify for an award. Failures in core modules must be redeemed.

Further information can be found under “Modular Terminology” on the following link - <https://myuni.swansea.ac.uk/academic-life/academic-regulations/taught-guidance/essential-info-taught-students/your-programme-explained/>

Supporting Your Studies

- [Centre for Academic Success](#)
- [Faculty of Science and Engineering- Student Support](#)

Supporting Your Professional Development

As a third-year student studying *Electronic and Electrical Engineering* at Swansea University you are continuing a journey which we hope will end with [Engineering Council](#) registration as either an [Incorporated Engineer \(IEng\)](#) or [Chartered Engineer \(CEng\)](#).

Each of the Bachelor of Engineering (BEng) programmes covered by this handbook has been accredited by the [Institution of Engineering and Technology \(IET\)](#) on behalf of the [Engineering Council](#) for the purpose of fully meeting the academic requirement for registration as an [Incorporated Engineer \(IEng\)](#) and partially meeting the academic requirement for registration as a [Chartered Engineer \(CEng\)](#).

Each of the Integrated Masters (MEng) programmes covered by this handbook has been accredited by the [Institution of Engineering and Technology \(IET\)](#) on behalf of the [Engineering Council](#) for the purpose of fully meeting the academic requirement for registration as a [Chartered Engineer \(CEng\)](#).

What this means for you is that the learning outcomes of each year of your programme of study has been carefully designed to align with Version 3 of the Engineering Council's [Accreditation of Higher Education Programmes \(AHEP\)](#) which forms the educational foundation for the [UK Standard for Professional Engineering Competence \(UK-SPEC\)](#).

The knowledge and skills you will have demonstrated by completing your programme of study are defined by achieving a set of learning outcomes distributed across the following key areas of competence:

- Science and mathematics
- Engineering analysis
- Design and innovation
- The engineer and society
- Engineering practice

To find out more about Professional Registration and what the AHEP competences are, please refer to the Engineering Council's [Student Guide to Professional Registration](#) and the [Accreditation of Higher Education Programmes collated learning outcomes](#)

The IET – Your Professional Home for Life

As a student at Swansea University, you are privileged to be associated with one of the small groups of universities that have been selected to be [Academic Partners of the IET](#). The most tangible benefit of this is that you can register as a student member of the IET at no cost to yourself for the duration of your study. And as a student member of the IET, you can take *full advantage* of the benefits that membership of the IET offers. These include an impressive range of services supporting *Networking, Professional*

Development, Learning Resources and Membership Benefits. A summary of these is shown on the [Get more from your partnership](#) page.

In addition, if you are taking part a Year in Industry next year, your experience can be converted into the [Engineering Technician \(EngTech\)](#) qualification. Please contact your IET Student Advisor for details.

If you are graduating this year, as an Academic Partner of the IET, the University can offer you access to the [IET's Graduate Advantage Scheme](#): that is, we will pay for your first year of full Membership of the IET, and you can use the post-nominals MIET straight after graduation for no cost. This will be especially useful as you start to gain and evidence the UK-SPEC competences you will need to complete your [IEng or CEng professional registration](#).

IET on Campus

[IET On Campus](#) is designed to support everyone in the Department of Electronic and Electrical Engineering with students at the heart of it. The IET gives you access to tailored practical, technical, and career-related resources and helps you to create links with industry and other universities, building a platform for you to demonstrate your skills and raise your profile. At Swansea, the local branch of IET on Campus is run by the [Electrical & Electronic Engineering Society \(EEESoc\)](#) and is supported by the [IET South Wales Local Network](#).

For more information, please join EEESoc and access their social media channels.

IET Student Advisor

Dr Chris Jobling (MIET, CEng) is the *IET Student Advisor* for Swansea University. Please get in touch with him if you want to find out more about the AHEP and UKSPEC, the IET, IET student membership, IET Scholarships, Graduate Advantage, IET Communities, or opportunities to get involved with Wales Southwest Local Network as an IET young professional volunteer. He will be happy to help.

Other members of staff associated with the IET at Swansea include:

- Dr Timothy Davies (MIET, CEng)
- Dr Augustine Egwebe (MIET)
- Dr Karin Ennser (MIET, CEng)
- Prof Lijie Li (FIET)
- Mr David Moody (MIET)

UK Electronics Skills Foundation

Swansea University is an academic partner from the [UK Electronics Skills Foundation](#). The partnership means that you can benefit from the UKESF scholarship scheme, competitions, awards, and internship programme, which connects the most capable Electronics undergraduates with leading companies in the sector.

UKESF offers opportunities for undergraduates to take advantage of an industry placement, develop their employability skills, generous financial support, and the opportunity to network with professionals in the Electronics sector. Dr Karin Ennser is the *UKESF Student Advisor* for Swansea University. Please contact her if you want to find out more.

Prizes

The following prizes are awarded at the end of the academic year:

- *Institution of Engineering and Technology Prize* – This prize is awarded annually by the IET. The prize will be awarded to the final year undergraduate student on an IET accredited course who, in the opinion of the Board of Examiners, has demonstrated outstanding merit. In the event of insufficient merit being shown the prize will not be awarded.
- *R. G. Isaacs Prize in Electronic and Electrical Engineering* – The prize will be awarded to the Part III student in Electrical and Electronic Engineering whose project is considered by the Board of Examiners to be of outstanding merit. In the event of no project of high quality the prize will not be awarded.
- *W. Renwick Prize* – is awarded annually to the Year 3 student whose project has a computing component and is considered by the Board of Examiners to be of outstanding merit. In the event of no project of high quality the prize will not be awarded.

Faculty prizes and progression awards

The Faculty of Science and Engineering awards graduation prizes to the best Electrical and Electronic Engineering student in each graduating year.

In addition, it awards prizes to the best student in each year and progression awards to students who achieve high averages in each year's programme of studies. These prizes are awarded at a special ceremony and dinner held each year.

Year 3 (FHEQ Level 6) 2024/25

Electronic and Electrical Engineering

BEng Electronic and Electrical Engineering[H602,H605]

BEng Electronic and Electrical Engineering with a Year Abroad[H603]

BEng Electronic and Electrical Engineering with a Year in Industry[H604]

MEng Electronic and Electrical Engineering[H606]

MEng Electronic and Electrical Engineering with a Year Abroad[H600]

MEng Electronic and Electrical Engineering with a Year in Industry[H601]

Compulsory Modules

Semester 1 Modules	Semester 2 Modules
EG-3082 Embedded Systems 10 Credits Dr A Ali CORE	EG-319 Integrated Circuit Design 10 Credits Prof K Kalna/Dr A Ali CORE
EG-342 Power Systems 10 Credits Dr M Fazeli CORE	EG-341 Microwave Circuits and Antennas 10 Credits Prof A Mehta CORE
EG-345 Power Electronics 10 Credits Dr Z Zhou CORE	
EGA333 Communications 10 Credits Prof A Mehta CORE	
EG-3080 Engineering Management (Aero, EEE, Mech) 10 Credits Prof JC Arnold/Dr HKJ Jahanger/Dr EH Jewell/Mr JK Mcfadzean/Dr B Morgan CORE	
EG-353 Individual Engineering Project 30 Credits Dr AC Tappenden/Dr M Fazeli/Prof PJ Holliman CORE	
Total 120 Credits	

Optional Modules

Choose exactly 10 credits

EG-355	Quantum Devices	Prof K Kalna	TB1	10 (CORE)
EGA366	Kinematics and Programming for Robot	Dr AA Fahmy Abdo	TB1	10 (CORE)

And

Choose exactly 10 credits

EG-351	Internet of Things: Principles and Practice	Dr JW Jones	TB1	10 (CORE)
EGA305	Nanoelectronics	Prof KS Teng	TB2	10 (CORE)