



## **Programme Specification**

# **Electronics and Telecommunication Engineering {Foundation} [GCET]**

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## Section 1: Key Programme Details

### Part A: Programme Information

**Programme title:** Electronics and Telecommunication Engineering {Foundation}  
[GCET]

**Highest award:** DipHE Electronics and Telecommunication Engineering

**Interim award:** CertHE Electronics and Telecommunication Engineering

**Awarding institution:** UWE Bristol

**Affiliated institutions:** Global College of Engineering and Technology (GCET)

**Teaching institutions:** Global College of Engineering and Technology (GCET)

**Study abroad:** No

**Year abroad:** No

**Sandwich year:** No

**Credit recognition:** Yes

**Department responsible for the programme:** FET Dept of Engineering Design & Mathematics, Faculty of Environment & Technology

**Contributing departments:** Not applicable

**Professional, statutory or regulatory bodies:** Not applicable

**Apprenticeship:** Not applicable

**Mode of delivery:** Full-time

**Entry requirements:** For the current entry requirements see the UWE public website.

**For implementation from:** 01 October 2023

**Programme code:** H64A00

## Section 2: Programme Overview, Aims and Learning Outcomes

### Part A: Programme Overview, Aims and Learning Outcomes

**Overview:** The programme is designed to provide the balance of theoretical and practical understanding needed to meet the demands of the electronic engineering industry for engineering practitioners. To produce HE Diploma graduates with a broad understanding of the discipline and to meet the requirements set by Ministry of Higher Education, Research and Innovation (MoHERI) in Oman.

The Electronics and Telecommunication Engineering programme produces HE Diploma graduates with a wide range of expertise relevant to the electronics industry. The programme covers a broad range of disciplines such as digital and analogue circuit design, power electronics, control, signal processing and project management. A number of developments have occurred in electronic engineering in recent times, although signals are analogue in nature, many electrical or electronic designs involve conversion to digital format as soon as possible and processing by microprocessor or digital integrated circuit. In recognition of this, this programme allows students to develop expertise particularly in system design, microprocessor hardware/software design, telecommunication engineering and simulation and modelling techniques.

The programme has been designed to cater for students with both industrial and/or academic backgrounds, to develop problem solving skills and be able to demonstrate leadership in a number of engineering situations.

**Educational Aims:** The general aims of the programme are:

Gain a sound knowledge and understanding of the fundamental principles governing the behaviour of electronic, communication and digital systems and of the related mathematics;

Be capable of analysis of the behaviour of complex electronic, communication and

digital electronic or electrical systems;

Demonstrate a capacity for innovative and creative design and be able to draw on knowledge of fundamental principles and proven systems to further develop existing systems and to generate new systems which meet required specifications.

Have a broad knowledge and understanding of engineering theory, practices and applications and be able to use advanced techniques of analysis, synthesis and simulation, and implementation in the field of electronic engineering or electrical engineering,

Have developed the ability, interest and motivation to conduct independent study and keep abreast of future changes in technology and engineering practices.

Be able to work in a largely unsupervised way to undertake an individual research project and present the findings in a professional manner,

Be able to communicate clearly, concisely and persuasively with individuals and groups, using a professional standard of English, both orally and in writing.

Have the requisite academic knowledge, skills and preparation to the final year of an appropriate Bachelor level degree.

### **Programme Learning Outcomes:**

On successful completion of this programme graduates will achieve the following learning outcomes.

### **Programme Learning Outcomes**

- PO1. Apply established Electronics and telecommunication concepts to solve engineering problems involving design, operations and development that arise across electronics engineering applications and technologies.
- PO2. Model appropriate quantitative methods and apply computer software tools for the evaluation, analysis and solution of electronics and telecommunication engineering systems.

- PO3. Design and analyse system-on chip methodologies and their application in the top-down design of electronic systems.
- PO4. Gain proficiency in operating and programming an electronic system using supplied system software.
- PO5. Communicate, manage and operate effectively either as individuals or as members of a team.
- PO6. Make considered judgements and decisions on relevant engineering issues in which not all facts and consequences are accurately known.
- PO7. Work effectively within the commercial, ethical and regulatory context of engineering processes, including sustainable development, risk management, health and safety and environmental legislation.

## Part B: Programme Structure

### Year 1

The student must take 120 credits from the modules in Year 1.

### Year 1 Compulsory Modules

The student must take 120 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFEG-30-0	Engineering Experimentation 2023-24	30
UFMFBG-30-0	Foundation Mathematics: Algebra and Calculus 2023-24	30
UF CFGK-30-0	Professional and Academic Skills 2023-24	30
UFCEXX-30-0	Program Design and Implementation 2023-24	30

### Year 2

The student must take 120 credits from the modules in Year 2.

### Year 2 Compulsory Modules

The student must take 120 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
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UFMFN7-15-1	C Programming 2024-25	15
UFMFF8-30-1	Digital Principles 2024-25	30
UFMFP8-15-1	Electrical and Electronic Principles A 2024-25	15
UFMFVA-15-1	Electrical and Electronic Principles B 2024-25	15
UFMFJ9-30-1	Engineering Mathematics 2024-25	30
UFMFCA-15-1	Practical Electronics 2024-25	15

**Year 3**

The student must take 120 credits from the modules in Year 3.

**Year 3 Compulsory Modules**

The student must take 90 credits from the modules in Compulsory modules.

<b>Module Code</b>	<b>Module Title</b>	<b>Credit</b>
UFMFR7-15-2	Communications, Signals and Filters 2025-26	15
UFMFV7-15-2	Control 2025-26	15
UFMFL9-15-2	Mathematics for Signals and Control 2025-26	15
UFMFKA-30-2	Microcontrollers Applications Group Lab 2025-26	30
UFMFHA-15-2	Project Management 2025-26	15

**Year 3 Optional Modules**

The student must take 30 credits from the modules in Optional Modules.

<b>Module Code</b>	<b>Module Title</b>	<b>Credit</b>
UFMFE8-30-2	Digital Design 2025-26	30

UFMFJ8-15-2	Drives and Motion 2025-26	15
UFMFQ8-30-2	Electrical Technology 2025-26	30
UFMFRJ-15-2	Power Systems Fundamentals 2025-26	15
UFMFMA-15-2	Signal Processing and Circuits 2025-26	15

### **Part C: Higher Education Achievement Record (HEAR) Synopsis**

Designed in conjunction with key national and multi-national employers, on successful completion this programme provides individuals with the mix of skills and capabilities required by Omani industry for the specification, design and delivery of electronic and communication systems and solutions, including control systems, as required by the manufacturing industries, transport, heavy electrical machines, plants, and other industries.

This programme is delivered in a way that develops technically competent individuals who think and communicate effectively and who can solve problems, undertake critical analysis and deliver effective electronic, control and communication systems solutions in a constantly changing Omani business context.

It provides a solid foundation for lifelong learning, emphasising the development of knowledge, skills and professional values essential to the practice of systems development.

### **Part D: External Reference Points and Benchmarks**

The following reference points and benchmarks have been used in the design of the programme:

QAA UK Quality Code for HE

National qualification framework

Subject benchmark statements QAA subject benchmark statements:

All modules in the programme have been written to conform to the learning

outcomes required by the Engineering Council UK. This is mandatory for accredited engineering programmes. The specific outcomes are derived from the requirements for electronic and digital engineering described in the IET Handbook of Learning Outcomes for degree programmes.

The modules have been designed to ensure adequate and appropriate coverage of these outcomes across the levels of study.

SEEC level descriptors have informed the design of the assessment of the learning outcomes.

College strategies and policies:

This programme addresses the College strategies through the following:

To produce “Able and Ready to Work Graduates”

To develop Distinctive Curriculum.

To establish assessment and feedback processes that enhance and deepen learning.

To promote research-informed education and evidence-based practice that supports an increasingly diverse student body.

To sustain and extend approaches to learning that further enhance the employability of GECT graduates and the career destinations they are able to reach.

To use technology and the campus environment to further enhance the student learning experience and teaching effectiveness within the context of a larger and more diverse student population

Staff research projects:

Research and industrial collaborations are key to several modules including UFMFHA-15-2, and UFMFKA-30-2.

Employer interaction and feedback:



The College works with a number of industrial partners through the Industrial Consultative Committee. Feedback from employers through their sponsored students also helped in the design of this programme. The programme provides part-time and flexible options which ensure an ongoing interaction with regional employers.

The methods that have been used to inform the development of this programme for delivery in Oman:

Consultation with the Ministry of Higher Education in the Sultanate of Oman.

Consultation with the Ministry of Manpower in the Sultanate of Oman and, in particular, the Engineering human resources needs.

Consultation with the University of Sultan Qaboos, the only public University in the Sultanate of Oman.

Consultation with the Directorate of Technical Vocation Education.

Feedback from students sponsored by different industries.

Consideration of the statistics from the National Center for Statistics and Information in the Sultanate of Oman.

Consideration of Oman's Ninth Five-Year Development Plan (2016-2020) where manufacturing has been identified as the top sector for development.

## **Part E: Regulations**

Approved to University Regulations and Procedures.