GLASGOW CALEDONIAN UNIVERSITY

Programme Specification Pro-forma (PSP)

1. GENERAL INFORMATION

1.	**Programme Title:**	**BEng(Hons)/MEng** Electrical and Electronic Engineering Electrical and Electronic Engineering (Sandwich)
2.	**Final Award:**	BEng (Hons) Electrical and Electronic Engineering BEng (Hons) Electrical and Electronic Engineering (Sandwich) MEng Electrical and Electronic Engineering MEng Electrical and Electronic Engineering (Sandwich)
3.	**Exit Awards:**	CertHE & DipHE Electronic Technologies BEng Electrical and Electronic Engineering BEng Electrical and Electronic Engineering (Sandwich)
4.	**Awarding Body:**	Glasgow Caledonian University
5.	**Period of Approval:**	Sept 2021 - Aug 2026
6.	**School:**	School of Computing, Engineering and Built Environment
7.	**Host Department:**	Department of Electrical and Electronic Engineering
8.	**UCAS Code:**	H610 (BEng) H611 (MEng) H701 (GCU Pathways)
9.	**PSB Involvement:**	The Institution of Engineering and Technology (IET)
10.	**Place of Delivery:**	GCU
11.	**Subject Benchmark Statement:**	QAA Engineering (Oct 2019) and EC^{UK} UK_SPEC
12.	**Dates of PSP Preparation/Revision:**	December 2020

2. EDUCATIONAL AIMS OF THE PROGRAMME

2.1 Programme Background and Philosophy

The aim of the BEng and MEng Electrical and Electronic Engineering programme is to develop well rounded graduate engineering professionals with:

- Defining (technical) skills grounded in the design and development of electronic products and systems.
- Strong enabling (soft and business related) skills.
- A keen sense of personal, professional, social and environmental responsibility.

The BEng programme outcomes correspond with the engineer as technical specialist (supporting the need for technology “innovators”) with technical expertise enhanced in selected niche areas.

A BEng(Hons) exit award from an institution accredited by the IET (Institution of Engineering and Technology) provides partial fulfillment of the competence and commitment required for the registration of Chartered Engineers (CEng). The MEng exit award fully provides the educational requirements for CEng registration. There is an expectation that MEng students will be fully equipped to exercise leadership, initiative, personal responsibility and decision making in complex and unpredictable situations.

The programme is designed to encourage student creative thinking, to develop design visualization skills, expand knowledge, confidence and professional values, so that students can move into a successful career in innovative product design where electronics is the key.

2.2 General ims of the rogramme

The programme aims to:

- provide a broad education by an integrated study of vocational and academic disciplines.
- provide students the benefits of a common first year. A first year provides opportunities to explore specialist options within the general theme of Electrical and Electronic Engineering as well as those that are core to their understanding of an engineering discipline.
- provide experience of, and the opportunity to transfer to a range of specialist areas.
- create in the student an ability to think clearly, rationally, logically, and in a pragmatic manner and to be able to exercise responsibility.
- equip the student with a range of analytical methods for use in engineering applications and product design within the electronic engineering specialism.
- provide such principles and practice as will allow the student to acquire an understanding of engineering practices to cope adequately with current and emerging technologies within the electronic engineering specialism
- develop the students' ability to contribute to the specification, design, testing, commissioning, modification, manufacture, maintenance and de-commissioning of engineering systems, products and processes.
- develop fully the student's abilities in the use of computer technologies, computer aided engineering tools and relevant aspects of information technology.
- to extend, enhance and improve the judgement of the student in decision making by extension of analytical, creative and intellectual skills.
- equip the student with problem solving strategies to enable the application of knowledge in a flexible manner.
- provide significant exposure to team based projects and problem based learning, and opportunities to develop the students' interpersonal and key soft skills.
- make the student aware of the social impact of engineering including ethical and environmental consequences and considerations.
- integrate the expertise of staff gained from research, consultancy and scholarly activity into the programme delivery as appropriate.
- sustain existing, and seek further industrial partnerships that provide access to design-oriented case studies and projects, work experience and real world problems.
- emphasise market and business realities.

MEng Graduates will have in addition to the BEng:

- the ability to integrate their knowledge and understanding of mathematics, science, computer-based methods, design, the economic, social and environmental context, and engineering practice to solve a substantial range of engineering problems, some of a complex nature.
- acquired much of this ability through involvement in individual and group projects, and
- greater degree of industrial involvement than those in Bachelor's degree programmes.

4. PROGRAMME STRUCTURES AND REQUIREMENTS, LEVELS, MODULES, CREDITS AND AWARDS

EEE Year 1 / SCQF Level 7

Module Code	*Module Title*	*Trimester*	*Credits*
M1H326673	Mathematics 1	A/B	20
M1H326689	Engineering Science	A	20
M1H626685	IoT Systems 1	A/B	20
M1H626678	Engineering for Society	A	20
M1H326677	Mechanical Principles	B	20
M1H626680	Electrical Principles	B	20
Exit Award –	***Certificate of Higher Education (CertHE) in Electronic Technologies***		**120**

EEE Year 2 / SCQF Level 8

Module Code	*Module Title*	*Trimester*	*Credits*
M2H326684	Mathematics 2	A/B	20
M2G620493	Software Development for Engineers	A	20
M2H623525	Analogue and Digital Electronics	A	20
M2H623625	Integrated Engineering Studies 2	A	10
M2H624585	Electrical Distribution Systems	B	10
M2H623629	Digital and Programmable Systems 1	B	20
Optional modules[3] (choose 1 from):			
M2H622325	Control and Instrumentation Systems or	B	20
M2H020497	Signals and Electronic Systems	B	20
Exit Award –	***Diploma of Higher Education (DipHE) in Electronic Technologies***		**240**

EEE Year 3 / SCQF Level 9

Module Code	*Module Title*	*Trimester*	*Credits*
M3H623544	Digital and Programmable Systems 2	A	20
M3H623517	Communications Engineering	A	20
M3H623554	Integrated Engineering Studies 3	B	20
M3H723623	Engineering Operations and Management	B	20
Optional modules - Trimester A[3] (choose 1 from):			
M3H620587	Signals and Electronic Systems Design	A	20
M3H606414	Control Engineering 3	A	20
Optional modules - Trimester B[3] (choose 1 from):			
M3H623538	Modelling and Data Analysis	B	20
M2H721926	Engineering Design and Analysis 2	B	20

M3H323616	European Exchange Placement[1] (optional)	B	60
Exit Award – BEng Electrical and Electronic Engineering			**360**

Optional year in industry **EEE BEng Year 3 / SCQF Level 9**			
Module Code	***Module Title***	***Trimester***	***Credits***
M3H721925	Industrial Practice[2]	A/B	60
Exit Award – BEng Electrical and Electronic Engineering			**420**

EEE Year 4 / SCQF Level 10			
Module Code	***Module Title***	***Trimester***	***Credits***
MHH623549	Honours Project Engineering	A/B	40
MHH623541	Digital Signal Processing	A	20
Optional modules - Trimester A[3] (choose 1 from):			
MHH623542	Digital Design and Computer Architecture	A	20
MHH113285	Computer Aided Engineering	A	20
Optional modules - Trimester B[3] (choose 2 from):			
MHH623546	Intelligent Robotics and Mechatronics	B	20
MMH623520	Wireless Communications	B	20
MHH123523	Computer Aided Design 2	B	20
MHH622747	Control Engineering 4	B	20
Exit Award – BEng (Hons) Electrical and Electronic Engineering			**480**

EEE Year 5 / SCQF Level 11 (MEng)			
Module Code	**Module Title**	***Trimester***	***Credits***
MMH723842	MEng Team Project	A/B	45
MMN223676	Strategy and Innovation	A	15
Optional modules - Trimester A[3] (choose 1 from):			
MMH626242	Advanced Telecommunications	A	15
MMH120620	Control Systems	A	15
Optional modules - Trimester B[3] (choose 3 from):			
MMH623545	Image Processing and Machine Vision	B	15
MMI123176	Real Time DSP	B	15
MMH623670	Condition Monitoring	B	15
MMH624198	Distributed Instrumentation	B	15
Exit Award – MEng Electrical and Electronic Engineering			**600**

	Notes:
1.	***Student Exchange (Optional).*** After successful completion of Level 3 Trimester 1 students may be eligible to undertake an optional study exchange during Trimester 2 at an appropriate host Institution outwith the UK, provided the agreed programme of activity is equivalent to the curriculum and intended student experience normally undertaken in Level 3 Trimester 2. Successful completion of the study exchange is credit bearing to 60 credits.

2.	***Industrial Placement Year (Optional) Exit Award.*** Students opting to undertake placement do so in the academic session after Level 3 studies. Assessment is via the additional 60 SCOTCAT level 3 credit module, M3H721925 Industrial Practice. Successful completion of that module gives (Sandwich) in the final exit award obtained by the student.
3.	***Optional modules.*** Only specific combinations of optional modules are possible (due to pre-requisites). The availability of a particular module depends on the number of students taking the module.

8. ASSESSMENT REGULATIONS

Students should expect to complete their programme of study under the Regulations that were in place at the commencement of their studies on that programme, unless proposed changes to University Regulations are advantageous to students.

The Glasgow Caledonian University Assessment Regulations which apply to this programme, dependent on the year of entry and with the approved exceptions can be found at:
GCU Assessment Regulations

- With effect from September 2022, Exceptions Case no. 215 will apply to this programme: A maximum of 30 credits in a Bachelors degree programme can be compensated.

- Classification of Honours Award as described in Section 19.7.1 does not apply to this programme.

  The following classification scheme will be applied:

  The award of Honours will normally be made on the basis of an overall amalgamated aggregate of a student's performance in the modules studied at Level 3 and Level 4 of their programme irrespective of the actual level of any particular module studied at these levels. This final overall amalgamated aggregate will be determined from:

  i) a 25% weighting obtained from an aggregate of the marks for the modules studied at Level 3 of their programme.
  and
  ii) a 75% weighting obtained from an aggregate of the marks for the modules studied at Level 4 of their programme.

  In the case of the amalgamated aggregate falling within the profiling boundaries defined in Section 19.8 the profiling will be based on a calculation set of the Level 4 results only and will follow the model criteria for profiling as defined in Section 19.8.3.

- Progression to Final Year of Integrated Masters (MEng)
  The Integrated Masters award is directly tied to the full satisfaction of the Academic Requirements of the relevant professional body associated with the programme. Entry to the final year of the Integrated Masters will require an average mark in year 4 results only of 50% or greater with module pass marks applied where modules are not passed at first attempt or compensated. If this criterion is not met, the student will be eligible to exit with a BEng. If they have met the university assessment regulations for a BEng Honours award. All modules must be passed before progression to Integrated Masters.