

10.3 HND Electronic & Computer Engineering

10.3.1 HND Program Specification

1. Qualification HND	2. Programme Title Electronic & Computer Engineering	3. UCAS Code H611	4. Programme Type Modular HND Full Time and Part Time
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5. Main Purposes and Distinctive Features of the Programme

Main Purposes

The programme aims to develop in students:

- An understanding Electronic and Computer Engineering methods and their application in problem solving.
- The ability to evaluate computer systems and structures.
- The ability to design and evaluate systems given a clear specification
- Oral and written communication skills
- An appreciation of the economic, social and legislative framework for industry
- The personal skills necessary for effectiveness in employment.

Distinctive Features

- An emphasis on computer engineering and related electronic engineering subjects.
- Extensive practical activities supported by substantial laboratory and CAD facilities.
- Extensive use of e-learning material provided within a virtual learning environment

6. What a diplomate should know and be able to do on completion of the programme

Diplomates will have demonstrated knowledge and skills in the following :-

Knowledge and understanding in the context of the subjects

1. Mathematics and scientific principles that are relevant to engineering.
2. Fundamental concepts, principles and theories of Electronic & Computer Engineering
3. Business and management techniques that are relevant to engineering and engineers
4. The role of the engineers in society and the constraints within which their engineering judgement will be exercised.
5. The professional and ethical responsibilities of engineers.

Cognitive skills in the context of the subjects

1. Identify and solve problems
2. Implement an electronic or computer system, component or process to meet a given specification.
3. Analyse, interpret and extrapolate data
4. Evaluate solutions to electronic and computer engineering problems.
5. Apply professional judgements balancing costs, benefits, risks, safety, quality, reliability, appearance and environmental impact.

Subject-specific practical/professional skills

1. Construct and test electronic circuits, using appropriate tools, techniques and equipment.
2. Use CAD techniques appropriate to Electronic & Computer Engineering
3. Analyse an Electronic & Computer Engineering problem.
4. Write and evaluate computer programs.
5. Project Planning and Management

Other skills (e.g. key/transferable) developed in subject or other contexts

1. Capacity to learn and investigate.
2. Communicate effectively orally and in writing.
3. Use a range of IT facilities effectively.
4. Awareness of the wider context of engineering.
5. Undertake lifelong learning and professional development.

7. Qualities, Skills & Capabilities Profile

The educational and training goals of the programme seek to develop and demonstrate the following qualities, skills, capabilities and values in its diplomates

A Cognitive	B Practical	C Personal & Social	D Other
Applied problem solving;	Electronic and Computer hardware and software specification and configuration;	Organisation and time management;	Presentation;
Analysis of Information;	Project management	Self motivation;	Investigation;
Flexibility of thought;	CAD skills for implementation, test, evaluation and manufacture	Professional and ethical responsibilities	Information gathering;
		Teamwork	

8. Duration and Structure of Programme/Modes of Study/Credit Volume of Study Units

2 years full time; 3-4 years part time organised on a 2 semesters per year basis and comprising 240 credits of study

160 credits at level 1

80 credits at level 2

Higher National Diploma - 240 credits

	Optional Modules	Core Modules	Project
Level 2		Management & Enterprise 1 Applications case studies	

Certificate of Higher Education – 120 credits

Level 1		Core Skills	Engineering Applications 1
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9. Learning, Teaching and Assessment Strategy

Learning and Teaching Methods

Active learning is promoted by lectures, seminars, demonstrations, videos and guided student centred activities. In particular, extensive use will be made of online study techniques. Practical skills will be acquired through laboratory sessions, demonstrations, assignments and projects.

10. Other Information

Date programme first offered

September 2005

Admissions Criteria

Standard Requirements

One GCE A2 level pass with 80 points
or

Advanced Vocational Certificate of Education (AVCE) six unit award with 80 points
or

Edexcel/BTEC National 6 unit Award

Assessment Methods

Assessment tasks are linked to the learning outcomes of each module and are normally completed by the end of each module. Types of assessment include :-

Written examinations (unseen or open-book), essays, assignments, projects, case study analyses, in-class tests (practical, written or online), demonstrations and interviews.

Non Standard Entry

Other equivalent qualifications, such as Scottish Higher passes, the Irish Leaving Certificate International Baccalaureate.

or

Pass in a Kitemarked Access to Higher Education course.

or

Applicants under 21 will normally also require five GCSE passes at grade C or above including Mathematics and English or equivalent. Mature applicants over 21 years, without the above qualifications, but with relevant life/work experience will be considered for admission following an interview with a member of the course team.

Indicators of Quality and Standards

- i. Validated by panel with external subject specialists
- ii. External examiner validates level 1 and level 2 assignments and examinations
- iii. Validated by Edexcel Foundation

10.3.2 HND Programme Modules

Level 1

Module Number	Module Title	Credits
MEC1003	Engineering science 1	20
ECE1016	The engineering environment	20
ECE1011	Introduction to programming & programmable devices	20
ECE1012	Engineering applications 1	40
ECE1013	Applied analytical & computational methods	20
ECE1014	Fundamental Concepts for Electronic & Computer Engineering	20
ECE1015	Product Realisation	20

Level 2

Module Number	Module Title	Credits
ECE2042	Microelectronic Technologies	20
ECE2043	Management & Enterprise 1	20
ECE2046	Applications Case Studies	20
ECE2047	Embedded Systems	20