Programme Specification

BEng Electrical and Electronic Engineering (2019-20)

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided.

Awarding Institution	University of Southampton
Teaching Institution	University of Southampton
Mode of Study	Full-time
Duration in years	3
Accreditation details	Institution of Engineering and Technology (IET)
Final award	Bachelor of Engineering with Honours (BEng (Hons))
Name of award	Electrical and Electronic Engineering
Interim Exit awards	Bachelor of Engineering (BEng)
	Certificate of Higher Education (CertHE)
	Diploma of Higher Education (DipHE)
FHEQ level of final award	Level 6
UCAS code	H600
Programme code	5160
QAA Subject Benchmark or other external reference	QAA Framework for Higher Education Qualifications (FHEQ) 2008
Programme Lead	Paolo Rapisarda (pr3)

Programme Overview

Brief outline of the programme

Electrical and Electronic engineering drives the fundamental technologies of today's connected world. Every area of our lives, from energy supply and transmission, medicine and healthcare to industrial applications, global trade, transport, communications, entertainment and security, is dependent on electrical and electronic technology. As a result, electrical and electronic engineering is now one of the fastest growing job fields in the world and skilled electrical and electronic engineers are very much in demand.

At Southampton, we will ensure that you have a thorough grounding in a wide range of technologies. Our project

work will enable you to acquire valuable skills in teamwork, project planning, time-management and presentation, applying your learning to design and build problems, and working to a brief. All of these will stand you in good stead as you move into your career. We offer outstanding facilities in our labs and teaching is based on the latest research, ensuring that, at the end of your programme, your skills will be highly regarded by leading employers. All of our programmes have a wide range of courses and modules to choose from, enabling you to specialise in what really interests you and also to work in depth.

Your contact hours will vary depending on your module/option choices. Full information about contact hours is provided in individual module profiles.

Learning and teaching

A range of learning and teaching methods are used on this programme, including:

- Staff-led lectures, demonstrations, laboratories and seminars
- Directed reading
- Student-led seminars and presentations
- Specification, design, analysis, implementation and verification exercises
- Revision for written examinations
- Staff and post-graduate supervision of your research dissertation
- Industrial placements

Assessment

A range of assessment methods are used on this programme to enable students to demonstrate their achievement of the intended learning outcomes, including:

- Written examinations
- In-class tests
- Design exercises
- Programming exercises
- Oral presentations
- Written assessments, including technical reports, literature searches and surveys
- Assessed laboratories and logbook checks
- Group work exercises, presentations and reports

Feedback

A range of feedback methods are used on this programme to enable students to gauge their progress in meeting the intended learning outcomes, including:

- Feedback from personal tutor
- Written feedback for large courseworks
- Instant oral feedback on presentations, tutorials and practical laboratories
- Feedback on the overall class performance in particular modules
- Marked courseworks

Special Features of the programme

Transfer policy

Electronic Engineering (EL) and Electrical & Electronic Engineering (EEE) have higher entry requirements than Electrical Engineering (EE) and Electromechanical Engineering (EM). Likewise, MEng programmes have higher entry requirements than BEng programmes. Part 1 of the above-listed programmes are identical, with the exception that EL students take ELEC1204 Advanced Programming, while EE and EM students take ELEC1203 Mechanics and while EEE students have the choice of either ELEC1203 or ELEC1204. Parts 1 and 2 of BEng programmes are identical to those of the corresponding MEng programmes, but they diverge in part 3. These issues impose complications upon transfers between these programmes, which are resolved as follows.

Students who are thinking about transferring between EL, EEE, EE and EM are encouraged to discuss this with

their academic tutors at the earliest possible opportunity. Transfers between these programmes can be arranged at any time, at the discretion of the programme leader of the destination programme. Additionally, the programme leaders will guarantee transfers between BEng EL, EEE, EE and EM at the end of part 1, for students that have passed that part with an overall average (before referral marks are capped) of at least 58% (without rounding up). Likewise, the programme leaders will guarantee transfers between MEng EL, EEE, EE and EM at the end of part 1, for students that have met the same criterion. However, students seeking transfer to EM will also need to have taken ELEC1203, in order to meet this criterion. Students seeking transfer to EE will not need to have taken ELEC1203, in order to meet this criterion, although in this case they are advised to study the topics of ELEC1203 during the summer before beginning part 2. Likewise, students seeking transfer to EL will not need to have taken ELEC1204, in order to meet this criterion, although in this case they are advised to study the topics of ELEC1204 during the summer before beginning part 2.

Similarly, students who are thinking about transferring between BEng and MEng programmes are encouraged to discuss this with their academic tutors at the earliest possible opportunity. Transfers between BEng and MEng programmes can be arranged at any time, at the discretion of the programme leader of the destination programme. Additionally, the programme leaders will guarantee transfers between BEng and MEng programmes at the end of part 2, for students that have passed that part with an overall average (before referral marks are capped) of at least 58% (without rounding up).

Please note: As a research-led University, we undertake a continuous review of our programmes to ensure quality enhancement and to manage our resources. As a result, this programme may be revised during a student's period of registration; however, any revision will be balanced against the requirement that the student should receive the educational service expected. Please read our Disclaimer to see why, when and how changes may be made to a student's programme.

Programmes and major changes to programmes are approved through the University's programme validation process which is described in the University's Quality handbook.

Educational Aims of the Programme

The aims of the programme are to:

- Provide you with a sound foundation and to develop the skills, knowledge, and application required for a wide range of professional engineering careers as a high quality practitioner and leader in business, engineering, research and development, and industry,
- Provide coherent and well balanced coverage of theory, design and practical subjects based on mathematics, science and engineering, integrated with business and management,
- Have a flexible academic structure, which is relevant and attractive not only to you, but also to staff and industry and which is responsive to progress and development in technology and the needs of the industrial and academic communities,
- Be at the leading edge of scholarship in electrical and electronic engineering,
- Maximise the benefit of an environment in which staff are carrying out internationally competitive and leading research across all aspects of electronics and computer science,
- Provide an environment which contributes towards your personal and professional development and provides a foundation for a wide range of subsequent study and lifelong learning,
- Provide a well-found learning environment with sufficient laboratories containing appropriate equipment and facilities, up-to date CAD tools, and a first class web-site, motivating you towards the practice of engineering,
- Provide a supportive pastoral environment with opportunities for you to participate in social and recreational activities.

Programme Learning Outcomes

Knowledge and Understanding

On successful completion of this programme you will have knowledge and understanding of:

A1. Underpinning key mathematics and science skills appropriate to electrical and electronic engineering, both as a method for communicating results, concepts and ideas and as a tool for solving complex problems,

A2. Underpinning principles, methodologies and concepts applicable to electrical and electronic engineering, as well as their role in historical, current, and future developments and technologies,

A3. Practical, computational and programming skills relating to electrical and electronic engineering, and compatible with current industrial practice,

A4. Demonstrate specialised technical knowledge in chosen areas of engineering; if you are an MEng student you will exhibit an increased depth and range of specialist knowledge,

A5. Apply the knowledge and understanding outlined above to the development and evaluation of possible solutions to electrical and electronic engineering problems,

A6. Demonstrate awareness of major issues at the frontiers of engineering research and development, and their possible exploitation to enhance current practices,

A7. Demonstrate awareness of financial, economic, and social factors of significance to electrical and electronic engineering including the broader obligations of engineers to society.

Teaching and Learning Methods

Programmes are taught mainly through Lectures and Directed Reading. Learning is reinforced through tutorials (in the first two parts), design exercises (in the first two parts), coursework assignments, and project work (both individual and in groups). Outcome A1 is largely taught by self-paced methods (worksheets and in-class tests) in parts 1 and 2, and a satisfactory knowledge and understanding is implicit in your ability to complete the second and third part modules. Outcomes A2, A6-A7 are largely taught through lectured modules with understanding developed through coursework and Laboratories. A substantial body of coursework in part 2 develops outcome A3, and outcome A5 is developed through project supervisions in part 3.

Assessment Methods

Knowledge and understanding of each subject (outcomes A1-A3) are assessed mainly through written examinations. Additional forms of assessment include technical reports (outcomes A5-A7) and project reports (A5-A7).

Subject Specific Intellectual and Research Skills

On successful completion of this programme you will be able to:

B1. Integrate knowledge of mathematics, science, information technology, businesses context and electrical

and electronic engineering practice, to develop analytical and innovative solutions to engineering problems,

B2. Critically analyse and evaluate the extent to which designs and products meet the criteria defined for their current use and future developments, taking account of the impact of new and advancing technology to enhance current practice,

B3. Apply in an appropriate manner computer-aided tools in the design process so as to aid understanding of design trade-offs, and recognise capabilities and limitations of computer-based methods for engineering problem solving,

B4. Recognise the professional, moral and ethical issues involved in the exploitation of technology and science and be guided by the adoption of appropriate professional, ethical and legal practices,

B5. Assess technical and commercial risks, and take appropriate steps to manage those risks in the context of engineering design and solutions,

B6. Solve problems through systematic analysis and design methods and to tackle non-routine problems in creative and innovative ways,

B7. Exercise awareness of quality systems and management in engineering; (MEng only) requirements and responsibilities of leadership; business and management practices relevant to electronic engineering enterprises.

Teaching and Learning Methods

These intellectual skills are taught mainly through Course- and Project-work, and design exercises. Relevant material is also covered in Lectures, Guest Lectures and (for part four MEng students) Seminars. Skill B1 is developed through Group Project Work in part 2. Skill B2 is a consistent theme in the taught technical modules in part 3. Advanced CAD tools (skill B3) are used in laboratory and project work in every part of the degree. Skills B4, B5 and B7 are covered through Professional Issues within the laboratory programme in part 1 and developed further in part 3. Skill B6 is developed through the Individual and Group Project work in part 2-3.

Assessment Methods

In-class tests and Written Examinations (skill B1), Technical Reports (skills B2, B4 and B7), Design Exercises (skill B3), Logbook Checks (skill B4), Design Project Reports and Presentations (skills B4-B7).

Transferable and Generic Skills

On successful completion of this programme you will be able to:

C1. Use IT facilities including word processing, spreadsheets, browsers and search engines to find technical information,

C2. Effectively present to audiences (orally, electronically or in writing) rational and reasoned arguments that address a given engineering problem or opportunity, including assessment of the impact of new technologies,

C3. Work on a significant technical project both independently and as a member of a design team, managing both the overall task and your contribution to that task, particularly in the MEng programmes,

C4. Understand the need for continuing professional development in recognition of lifelong learning,

C5. Competently manage projects, people, resources and time.

Teaching and Learning Methods

General proficiency with IT (skill C1) pervades the degree, and is not specifically taught. Presentations and report-writing (skill C2) are covered in part 1 lectures and practiced throughout the programme. Independent, and group working, and organisational skills (skills C3 and C5) are taught for, and developed by, the Individual and Group Projects. Professional development (skill C4) is covered in lectures.

Assessment Methods

Design Exercises and Projects (both Individual and Group), Technical Reports, Project and Seminar Presentations.

Subject Specific Practical Skills

On successful completion of this programme you will be able to:

D1. Use CAD, simulation, design, and verification tools to aid in the design of systems, and to report and comment on results,

D1. Specify, design, and construct electronic circuits, systems and computer software, taking account of commercial and industrial constraints,

D3. Use test and measurement instrumentation appropriate to the discipline including awareness of measurements accuracy and coverage,

D4. Recognise any risks or safety aspects that may be involved in the operation of systems within a given context,

D5. Search for information related to a design solution and present it for discussion.

Teaching and Learning Methods

Skill D1 is taught and developed through Design Modules and Projects in parts 2-4. Advanced CAD tools (skill D2) are used in laboratory and project work in every part of the degree. Skills D3-D4 are covered in Lectures and Laboratory Sessions in parts 1 and 2. Skill D5 is taught through Lectures and Project Supervisions.

Assessment Methods

Design Exercises (skills D1,D2 and D5), Supervised Laboratories (skills D3-D4), Design Projects (skills

D4-D5), Technical Reports and Seminar Presentations (skill D5).

Programme Structure

The programme structure table is below:

Information about pre and co-requisites is included in individual module profiles.

Where optional modules have been specified, the following is an indicative list of available optional modules, which are subject to change each academic year. Please note in some instances modules have limited spaces available.

Part I

Typical course content

You will study 60 ECTS credits, in parts 1, 2 and 3, and, if an MEng student, 60 ECTS credits in part 4. These credits are at level 4 in the Framework for Higher Education Qualifications in part 1, mainly at level 5 in part 2, then at level 6 in part 3, and level 7 in part 4. If you complete a year in industry, as part of the "with Industrial Studies" variant, you will complete a study worth 30 ECTS credits at level 6. This will qualify you for the award of the enhanced degree. Students intending to graduate with MEng degrees are encouraged to spend 20 weeks in industry, usually as two 10-week summer placements.

The main areas addressed in the first two parts are mathematics, mechanics, electrical materials and fields, electronic circuits and systems, microprocessors, programming, software design, development and verification, control and systems engineering, power circuits and power electronics, CAD tools and practical laboratory work. Core material covers professional practice, with major individual and group projects, and taught components covering industrial practice and engineering management. You will also choose from a range of technical options. Many of these are in the specialist areas of Electrical Power Engineering, High Voltage Engineering, Computational Intelligence, Mobile & Secure Systems, Computer Systems, Nanotechnology, Optical Electronics, and Wireless Communications.

It should be noted that it may not be possible to run some optional modules if the number of students registered on the module is very small. It should also be noted that optional module choice can be restricted by the University Timetable, which varies from year to year: some optional modules may clash with other optional or compulsory modules. Please be aware that many modules are shared between different cohorts; the class size depends on cohort size, which varies from year to year.

Programme details
The programme comprises four parts.

Part I: 60 ECTS credits at FHEQ level 4
All modules are core and so are not eligible for compensation. Seven compulsory modules plus one option.

Part I Core

Code	Module Title	ECTS	Type
ELEC1202	Digital Systems and Microprocessors	7.5	Core
ELEC1206	Electrical Materials and Fields	7.5	Core
ELEC1200	Electronic Circuits	7.5	Core
ELEC1207	Electronic Systems	7.5	Core
MATH1055	Mathematics for Electronic and Electrical Engineering	7.5	Core
ELEC1201	Programming	7.5	Core
ELEC1205	Solid State Devices	7.5	Core

Part I Optional Core

Code	Module Title	ECTS	Type
ELEC1204	Advanced Programming	7.5	Optional/Core
ELEC1203	Mechanics	7.5	Optional/Core

Part II

Part II: 60 ECTS credits at FHEQ level 5 except as noted
Seven compulsory modules plus one option.

Part II Compulsory

Code	Module Title	ECTS	Type
ELEC2220	Control and Communications	7.5	Compulsory
ELEC2221	Digital Systems and Signal Processing	7.5	Compulsory
ELEC2217	Electrical and Electronic Engineering Design	7.5	Compulsory
ELEC2219	Electromagnetism for EEE	7.5	Compulsory

MATH2047	Mathematics for Electronics & Electrical Engineering Part II	7.5	Compulsory
ELEC2229	Power Circuits and Transmission	7.5	Compulsory
ELEC2208	Power Electronics and Drives	7.5	Compulsory

Part II Optional

Code	Module Title	ECTS	Type
ELEC2216	Advanced Electronic Systems	7.5	Optional
ELEC2204	Computer Engineering	7.5	Optional
ELEC2201	Devices	7.5	Optional
ELEC2213	Electrical Machines	7.5	Optional
ELEC2206	Materials	7.5	Optional
ELEC2228	Photonics I	7.5	Optional

Part III

Part III: 60 ECTS credits at FHEQ level 6 except as noted

All students must take the COMP3200 Individual Project (22.5 ECTS), which is core and is weighted 7.5 ECTS in Semester I and 15 ECTS in semester II. In addition, students must take certain specified modules, as given in the tables below.

Students should note that there are a number of prerequisites for the optional modules that are listed in the module specifications. It should also be noted that it may not be possible to run some modules if the number of students registered is very small.

Finally, students should select optional modules to make up the total to 60 ECTS. Besides COMP3200, COMP3219 and specialised modules, a maximum of 2 other “externally taught” modules (COMPxxxx, OPTOxxxx, ENTRxxxx, FRENxxxx, GERMxxxx, LANGxxxx, LAWSxxxx MANGxxxx, UOSMxxxx and MATHxxxx) may be chosen. Students must select a 60:60 credit balance between semesters. 15 ECTS can be backtracked from part II optional modules.

To ensure that a broad perspective on both the electrical and the electronics areas is provided during the course of study, it is stipulated that optional courses be chosen in a balanced way. Namely, you may only take at most four (60 CATS/30 ECTS) of your five optional modules from the modules among those in the union of the groups consisting of the "Optional Electrical and Electronic Modules” (Group 3 in the Programme Catalogue) and “Optional Electronic modules” (Group 1 in the programme catalogue) or among those in the union of the groups consisting of the "Optional Electrical and Electronic Modules” (Group 3) and “Optional Electrical modules” (Group 2 in the programme catalogue)."

Part III Core

Code	Module Title	ECTS	Type
COMP3200	Part III Individual Project	22.5	Core

Part III Optional

Part III Optional Electrical and Electronic Modules

You may select up to 45 CATS/22.5 ECTS of the modules that include Electronic and Electrical material.

Code	Module Title	ECTS	Type
ELEC3205	Control System Design	7.5	Optional
ELEC3206	Digital Control System Design	7.5	Optional
ELEC3201	Robotic Systems	7.5	Optional

Part III Optional Electrical Modules

You may select up to 45 CATS/22.5 ECTS of Electrical modules.

Code	Module Title	ECTS	Type
ELEC3211	High Voltage Engineering	7.5	Optional
ELEC3213	Power Systems Engineering	7.5	Optional
ELEC3214	Power Systems Technology	7.5	Optional

Part III Optional Electronic Modules

You may select up to 60 CATS/30 ECTS of Electronic modules.

Code	Module Title	ECTS	Type
ELEC3219	Advanced Computer Architecture	7.5	Optional
ELEC3208	Analogue and Mixed Signal Electronics	7.5	Optional
ELEC3203	Digital Coding and Transmission	7.5	Optional

ELEC3221	Digital IC and Systems Design	7.5	Optional
ELEC3227	Embedded Networked Systems	7.5	Optional
ELEC3202	Green Electronics	7.5	Optional
ELEC3223	Introduction to Bionanotechnology	7.5	Optional
ELEC3207	Nanoelectronic Devices	7.5	Optional
ELEC3217	Photonics II	7.5	Optional
ELEC3218	Signal and Image Processing	7.5	Optional
ELEC3204	Wireless and Optical Communications	7.5	Optional

Part III Optional Machine Learning Modules

Note that only one Machine Learning module (15 CATS/7.5 ECTS) can be taken.

Code	Module Title	ECTS	Type
COMP3223	Foundations of Machine Learning	7.5	Optional
COMP3222	Machine Learning Technologies	7.5	Optional

Part III Optional Other Modules

You may select up 30 CATS/15 ECTS from the following modules.

You may also select optional modules from:
- LANGxxxx: A language module scheduled in the Broadening Horizons slot. The appropriate stage will be selected after assessment by the language school
- UOSMxxxx: Any other module from the University's Broadening Horizons programme

Code	Module Title	ECTS	Type
MATH3083	Advanced Partial Differential Equations	7.5	Optional
COMP3212	Computational Biology	7.5	Optional
COMP3201	Cyber Security	7.5	Optional
COMP3219	Engineering Management and Law	7.5	Optional
MATH3084	Integral Transform Methods	7.5	Optional

MATH3081	Operational Research	7.5	Optional
MATH3082	Optimisation	7.5	Optional
COMP3215	Real-Time Computing and Embedded Systems	7.5	Optional
COMP3217	Security of Cyber Physical Systems	7.5	Optional

Part III Optional Part II Modules

You may select up to 15 credits from the following modules.

Code	Module Title	ECTS	Type
ELEC2216	Advanced Electronic Systems	7.5	Optional
ELEC2204	Computer Engineering	7.5	Optional
ELEC2201	Devices	7.5	Optional
ELEC2213	Electrical Machines	7.5	Optional
ELEC2206	Materials	7.5	Optional

Progression Requirements

The programme follows the University's regulations for ***Progression, Determination and Classification of Results : Undergraduate and Integrated Masters Programmes*** and ***Progression, Determination and Classification of Results: Postgraduate Master's Programmes*** as set out in the University Calendar: http://www.calendar.soton.ac.uk/sectionIV/sectIV-index.html

Support for student learning

There are facilities and services to support your learning some of which are accessible to students across the University and some of which will be geared more particularly to students in your particular Faculty or discipline area.

The University provides:

- library resources, including e-books, on-line journals and databases, which are comprehensive and up-to-date; together with assistance from Library staff to enable you to make the best use of these resources
- high speed access to online electronic learning resources on the Internet from dedicated PC Workstations onsite and from your own devices; laptops, smartphones and tablet PCs via the Eduroam wireless network. There is a wide range of application software available from the Student Public Workstations.
- computer accounts which will connect you to a number of learning technologies for example, the Blackboard virtual learning environment (which facilitates online learning and access to specific learning resources)
- standard ICT tools such as Email, secure filestore and calendars.
- access to key information through the MySouthampton Student Mobile Portal which delivers timetables, Module information, Locations, Tutor details, Library account, bus timetables etc. while you are on the move.
- IT support through a comprehensive website, telephone and online ticketed support and a dedicated helpdesk in the Hartley Library.

- Enabling Services offering support services and resources via a triage model to access crisis management, mental health support and counselling. Support includes daily Drop In at Highfield campus at 13.00 – 15.00 (Monday, Wednesday and Friday out of term-time) or via on-line chat on weekdays from 14.00 – 16.00. Arrangements can also be made for meetings via Skype.
- assessment and support (including specialist IT support) facilities if you have a disability, long term health problem or Specific Learning Difficulty (e.g. dyslexia).
- the Student Services Centre (SSC) to assist you with a range of general enquiries including financial matters, accommodation, exams, graduation, student visas, ID cards
- Career and Employability services, advising on job search, applications, interviews, paid work, volunteering and internship opportunities and getting the most out of your extra-curricular activities alongside your degree programme when writing your CV
- Other support that includes health services (GPs), chaplaincy (for all faiths) and 'out of hours' support for students in Halls and in the local community, (18.00-08.00)
- A Centre for Language Study, providing assistance in the development of English language and study skills for non-native speakers.

The Students' Union provides

- an academic student representation system, consisting of Course Representatives, Academic Presidents, Faculty Officers and the Vice-President Education; SUSU provides training and support for all these representatives, whose role is to represent students' views to the University.
- opportunities for extracurricular activities and volunteering
- an Advice Centre offering free and confidential advice including support if you need to make an academic appeal
- Support for student peer-to-peer groups, such as Nightline.

Associated with your programme you will be able to access:

· Induction – You will have an induction programme at the start of your programme. Besides covering the usual routine matters, it is especially important for you to be properly registered and to have your computer account set up, since the modules you study are supported by on-line systems. Assessment is also managed on-line, so any delay in registration could be detrimental to your studies. In addition, a diagnostic exercise helps us to assess your strengths and offer advice on how best to focus your efforts in the early stages of your studies.

· Personal tutoring – At the start of your studies, you are allocated a Personal Tutor who you will see regularly. Also there is Senior Tutoring team if your personal tutor is not available.

· Computer workstations, with a range of software, manuals and books, with early to late access through a card-lock mechanism.

· Traditional and wireless local area networks.

· Helpdesk for computer support and programming advice.

· Postgraduate demonstrators, who support programming intensive modules.

· A website with notes for every module.

· The Student Handbook.

Methods for evaluating the quality of teaching and learning

You will have the opportunity to have your say on the quality of the programme in the following ways:

· Completing student evaluation questionnaires for each module of the programme

· Acting as a student representative on various committees, e.g. Staff: Student Liaison Committees, Faculty Programmes Committee OR providing comments to your student representative to feed back on your behalf.

· Serving as a student representative on Faculty Scrutiny Groups for programme validation

· Taking part in programme validation meetings by joining a panel of students to meet with the Faculty Scrutiny Group

The ways in which the quality of your programme is checked, both inside and outside the University, are:

· Regular module and programme reports which are monitored by the Faculty

· Programme validation, normally every five years.

· External examiners, who produce an annual report

· Accreditation/inspection by the Institution of Engineering and Technology

· A national Research Excellence Framework (our research activity contributes directly to the quality of your learning experience)

- Higher Education Review by the Quality Assurance Agency

Your views matter to us. We have a high reputation for quality of delivery, and we aim to keep it that way. The most important form of feedback comes through direct, personal contact, and we encourage you to talk to us if anything becomes a concern at any stage. If you find it difficult to talk directly to the member of staff with whom you have immediate contact, you are encouraged to talk to someone else in the teaching team, the Senior Tutor, or the School's Student Services Office, but we do encourage you to talk about it immediately. In addition, there is always a formal evaluation of each module by questionnaire at the end of the semester. These questionnaires are analysed and peer reviewed, and must be responded to formally, both to you and to the University. We also hold Student-Staff Liaison Committee meetings at least twice a year. Anyone is welcome to these meetings, but depending on the circumstances, it may be more effective to elect programme representatives who will make your views known. This then enables you to have an element of anonymity should you be embarrassed in any way about the idea of speaking up.

Further details on the University's quality assurance processes are given in the *Quality Handbook.*

Career Opportunities

Major employers worldwide are keen to employ our graduates – in system developm technology and communications in the IT sector, and in the finance, service, communications and entertainment industries. We have strong relationships with employers, run our own Careers Hub website (www.ecs.soton.ac.uk/careers) and hold our own annual careers fair.

External Examiner(s) for the programme

Name: Professor Vincent Fusco - Queen's University Belfast

Name: Dr Danny O'Hare - Imperial College London

Students must not contact External Examiner(s) directly, and external examiners have been advised to refer any such communications back to the University. Students should raise any general queries about the assessment and examination process for the programme with their Course Representative, for consideration through Staff: Student Liaison Committee in the first instance, and Student representatives on Staff: Student Liaison Committees will have the opportunity to consider external examiners' reports as part of the University's quality assurance process.

External examiners do not have a direct role in determining results for individual students, and students wishing to discuss their own performance in assessment should contact their Personal Academic Tutor in the first instance.

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided. More detailed information can be found in the programme handbook.

Appendix 1:

Students are responsible for meeting the cost of essential textbooks, and of producing such essays, assignments, laboratory reports and dissertations as are required to fulfil the academic requirements for each programme of study. In addition to this, students registered for this programme also have to pay for:

Additional Costs

Type	Details
Stationery	You will be expected to provide your own day-to-day stationary items, e.g. pens, pencils, notebooks, etc). Any specialist stationery items will be specified under the Additional Costs tab of the relevant module profile.
Textbooks	Where a module specifies core texts these should generally be available on the reserve list in the library. However due to demand, students may prefer to buy their own copies. These can be purchased from any source. Some modules suggest reading texts as optional background reading. The library may hold copies of such texts, or alternatively you may wish to purchase your own copies. Although not essential reading, you may benefit from the additional reading materials for the module.
Approved Calculators	Candidates may use calculators in the examination room only as specified by the University and as permitted by the rubric of individual examination papers. The University approved models are Casio FX-570 and Casio FX-85GT Plus. These may be purchased from any source and no longer need to carry the University logo.
Printing and Photocopying Costs	In the majority of cases, coursework such as essays; projects; dissertations is likely to be submitted on line. However, there are some items where it is not possible to submit on line and students will be asked to provide a printed copy.

In some cases you'll be able to choose modules (which may have different costs associated with that module) which will change the overall cost of a programme to you. Details of such costs will be listed in the Module Profile. Please also ensure you read the section on additional costs in the University's Fees, Charges and Expenses Regulations in the University Calendar available at www.calendar.soton.ac.uk.