Programme Specification

MEng Mechatronic 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	4
Accreditation details	Institution of Engineering and Technology (IET)
Final award	Master of Engineering (MEng)
Name of award	Mechatronic Engineering
Interim Exit awards	Bachelor of Engineering with Honours (BEng (Hons))
	Bachelor of Engineering (BEng)
	Certificate of Higher Education (CertHE)
	Diploma of Higher Education (DipHE)
FHEQ level of final award	Level 7
UCAS code	HHH6
Programme code	7018
QAA Subject Benchmark or other external reference	Engineering (Meng) 2010
Programme Lead	Paolo Rapisarda (pr3)

Programme Overview

Brief outline of the programme

Electrical and Mechatronic/Electromechanical engineering study the theories of electricity, electronics, and electromagnetism and apply them in the operation of electrical and mechatronic/electromechanical devices. At Southampton, we see educating the next generation of engineers as a key role and will ensure that you have a thorough grounding in a wide range of technologies.

All programmes have a number of compulsory modules to ensure the students are exposed to key topics in electrical engineering and mechatronic/electromechanical engineering but have been designed to maximise

students' choice by allowing the students to tailor the structure to suit their own interests. The students can choose areas that reflect their personal interests and work on an individual research oriented project. 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. We are proud of the depth of analytical treatment and the specialised optional subjects we offer within our degree programmes.

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

These intellectual skills are taught mainly through coursework and individual and group project work. 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

All subject specific skills are assessed through a combination of unseen written examinations and problem solving exercises. Experimental, research and design skills (2-4, 6) are tested through laboratory reports, laboratory logbooks, design exercises, essays and individual and group projects.

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 coursework

Special Features of the programme

Transfer policy

In addition to Electrical and Mechatronic/Electromechanical Engineering programmes, we have other programmes such as Electronic Engineering (EL) and Electrical & Electronic Engineering (EEE). The entry requirements are different. Likewise, MEng programmes have higher entry requirements than BEng programmes. Part 1 of the above-listed programmes are identical, with the exception that EE and EM students take ELEC1203 Mechanics, while EL students take ELEC1204 Advanced Programming 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 this programme are to:

- Provide you with a solid foundation that will develop the skills needed for a wide range of professional engineering careers as a high quality practitioner and leader in business, technology, or research.
- Provide you with a balance of theoretical, design and practical subjects which will allow you to exploit your individual talents.
- Provide a flexible academic structure which is relevant and attractive to you, your colleagues and industry and which is responsive to advances in technology and the needs of the industrial and academic community.
- To be at the leading edge of scholarship in Electrical and Mechatronic/Electromechanical Engineering.
- To introduce you to the particular requirements of High Voltage Engineering and Power Systems, in generation, transmission and utilisation.
- Provide you with an environment which develops independent learning and an ethos of lifelong professional development.
- Provide you with a well-found learning environment with sufficient laboratories containing appropriate up- to date equipment and experimental facilities.
- Provide you with a supportive pastoral environment with opportunities for social and recreational activities.

Programme Learning Outcomes

Knowledge and Understanding

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

A1. Demonstrate knowledge and understanding of underpinning key mathematics and science skills appropriate to Electrical or Mechatronic/Electromechanical Engineering,

A2. Demonstrate knowledge and understanding of underpinning principles and concepts applicable to Electrical or Mechatronic/ Electromechanical Engineering,

A3. Demonstrate specialised technical knowledge in chosen specialist applications of engineering,

A4. Demonstrate knowledge of practical, computational and programming skills relating to engineering, and compatible with current industrial practice,

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

A6. Demonstrate awareness of major issues in Electrical or Mechatronic/ Electromechanical engineering research and development, and their possible exploitation to enhance current practices,

A7. Demonstrate awareness of financial, economic, social and environmental factors of significance to engineering.

Teaching and Learning Methods

Courses are taught mainly through Lectures and Directed Reading that are reinforced through Tutorials and Supervisions (in the first two years), Design exercises (in the first two years), Coursework Assignments, and Project Work (both individual and in groups in years two, three and four).

Assessment Methods

Testing of the knowledge acquired is through a combination of unseen written examinations (A1-3,A5-7) and assessed coursework in the form of problem solving exercises (A1-5), laboratory reports (A2-4), design exercises (A3-5), essays (A6,7) and individual and group projects (A1-5, A7). Depending on the coursework students undertake a laboratory experiment, open ended investigation or the development of computer code.

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 engineering practice, to develop analytical and innovate 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 development, 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. Present effectively 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,

B5. 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,

B6. Assess technical and commercial risks, and take appropriate steps to manage those risks in the context of engineering design and solutions.

Teaching and Learning Methods

These intellectual skills are taught mainly through coursework and individual and group project work. Relevant material will be covered in lectures and (for fourth year MEng students) seminars. The School uses Guest Lecturers across a number of courses to bring current industrial and academic thinking into courses.

Assessment Methods

All subject specific skills are assessed through a combination of unseen written examinations and problem solving exercises. Experimental, research and design skills (B2-4, B6) are tested through laboratory reports, laboratory logbooks, design exercises, essays and individual and group projects.

Transferable and Generic Skills

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

C1. Make effective use of IT tools including word processing, spreadsheets, CAD drawing packages and CAD modelling and analysis packages. In addition you will be familiar with a programming language, currently C,

C2. Ability to consider given information, extract that which is pertinent to a routine problem and use it in the solution to the problem,

C3. Make effective presentations of technical and related information,

C4. Work independently on a significant technical task,

C5. Ability to work as part of a team, managing both your contribution and the overall tasks,

C6. Effectively present technical material and arguments clearly and correctly in writing and orally,

C7. Work and communicate with others at all levels,

C8. Apply competence in the management of projects, people, resources and time.

Teaching and Learning Methods

Numeracy, general proficiency with IT, and time management pervade the degree; they are not specifically taught. Information retrieval and organisational skills are taught as part of the individual and group projects. Professional development is covered in lectures.

Assessment Methods

Transferable skills are assessed throughout the course as follow:

Skill C1 is assessed through out the course, the computing skills are largely taught at levels C and I, though addition skills might be involved in level H and M projects.
Skills C2 and C6 are assessed through project and extended essays.
Skills C3 and C7 are assessed through oral and written project work at C, H and M level.
Skills C4, C5, C7 and C8 are assessed through project work, largely at level H for individual skills and at Level M for group skills.

Subject Specific Practical Skills

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

D1. Ability to specify, design, and construct Electrical or Mechatronic/Electromechanical systems, taking account of commercial and industrial constraints,

D2. Ability to evaluate designs in terms of general quality attributes and possible trade-offs presented within the given problem,

D3. Ability to use CAD and simulation tools to aid in the design of Electrical or Mechatronic/ Electromechanical systems, report and comment on results,

D4. Ability to use test and measurement instrumentation appropriate to the discipline including awareness of measurements accuracy,

D5. Ability to recognise any risks or safety aspects that may be involved in the operation of equipment within a given context,

D6. Can search for information related to a design solution and present it for discussion,

D7. Can develop a project plan, identifying the resource requirements and the timescales involved, including presentation skills both written and oral.

Teaching and Learning Methods

These skills are taught mainly through course and extended project work. Relevant material is also covered in Lectures, Laboratory Sessions and Guest Lectures.

Assessment Methods

Subject Specific Practical Skills are assessed throughout the course as follow:

Skills D1 and D2 are assessed at level H in specific design orientated exercises linked to industrial case studies. Skill D3 is assessed through specific course work.
Skills D4 and D5 are assessed through laboratory-based coursework at levels C and I. In addition specific shills particularly in High Voltage Engineering are taught as required to project students at level H
Skills D6 and D7 are assessed through project work at level H and M.

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

You will study 60 credits under the European Credit Transfer and Accumulation System (ECTS), in years 1, 2, 3 and 4. These credits are at level 4 (Certificate) in year 1, level 5 (Intermediate) in year 2, and level 6 (Honours) in year 3, and level 7 (Masters) in year 4.

In year 4 you are required to take all your 60 credits in level 7 subjects.

A number of exit points are defined:
Students who pass level 4 may exit with a Certificate in Higher Education
Students who pass level 5 may exit with a Diploma in Higher Education Students who pass 30 ECTS in level 6 may exit with an Ordinary Degree

The main areas covered in the first two years are the core electrical and mechanical topics required by Electrical and Mechatronic/ Electromechanical Engineers. In years three and four, the core material covers professional practice, with major individual and group projects, and taught modules covering industrial practice and engineering management. There is also a range of optional modules available. Options such as Robotic Systems give an overview of a specific topic, while others such as High Voltage Insulation Systems and Power Systems Analysis provide students with detailed technical insight to an industrial problem.

Students intending to graduate with MEng degrees are encouraged to spend 20 weeks in industry, usually as two 10-week summer placements. Alternatively, any students may suspend their studies after two years to take a year out in industry or abroad.

Programme details

Course Structure

The information below is liable to change in minor ways from year to year. It is accurate at the time of writing. For the latest information see the ECS Student Handbook, either in the courses office, or on-line at https://secure.ecs.soton.ac.uk/ug/handbook/. Some of these modules are subject to pre-requisites and exclusions that, for brevity, are not given here.

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.

The module requirements for each programme (identified by UCAS code) are shown for each Part below; modules are either core (must be taken and passed), compulsory (must be taken) or optional (may be taken).

The modules in Part I, Part II, Part III and Part IV are each worth 7.5 ECTS or the multiples of 7.5 ECTS.

Part 1

In your first year, you will take 60 ECTS at NQF Level 4, 30 ECTS in each semester as shown below. Note that all Part I modules are core, and must be passed in order to progress.

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
ELEC1203	Mechanics	7.5	Core
ELEC1201	Programming	7.5	Core
ELEC1205	Solid State Devices	7.5	Core

Part II

In your second year, you will take 60 ECTS at NQF Level 5, 30 ECTS in each semester.

Part II Compulsory

Code	Module Title	ECTS	Type
ELEC2214	Circuits and Systems	7.5	Compulsory
ELEC2220	Control and Communications	7.5	Compulsory
ELEC2213	Electrical Machines	7.5	Compulsory
ELEC2211	Electromechanical Energy Conversion	7.5	Compulsory
ELEC2209	Engineering Design	7.5	Compulsory
ELEC2206	Materials	7.5	Compulsory
MATH2047	Mathematics for Electronics & Electrical Engineering Part II	7.5	Compulsory
ELEC2208	Power Electronics and Drives	7.5	Compulsory

Part III

In your third year, you will take 60 ECTS at NQF Level 6, 30 ECTS in each semester. A major element is the Individual Project, which runs all year. In semester 1, students intending to graduate with a MEng degree must take COMP3219 Engineering Management and Law. Finally, students should select optional modules to make up the total to 60 ECTS. Besides COMP3200 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.

Part III Compulsory

Code	Module Title	ECTS	Type
COMP3219	Engineering Management and Law	7.5	Compulsory
ELEC3215	Fluids and Mechanical Materials	7.5	Compulsory
ELEC3216	Mechanical Power Transmission and Vibration	7.5	Compulsory
ELEC3214	Power Systems Technology	7.5	Compulsory

Part III Core

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

Part III Optional

Code	Module Title	ECTS	Type
MATH3083	Advanced Partial Differential Equations	7.5	Optional
SESM3031	Automobile Systems	7.5	Optional
ELEC3205	Control System Design	7.5	Optional
ELEC3206	Digital Control System Design	7.5	Optional
ELEC3223	Introduction to Bionanotechnology	7.5	Optional
SESG3024	Manufacturing and Materials	7.5	Optional
MATH3081	Operational Research	7.5	Optional
ELEC3201	Robotic Systems	7.5	Optional
ELEC3225	Space Systems Engineering	7.5	Optional

Part IV

In your fourth year, you will take 60 ECTS at NQF Level 7, 30 ECTS in each semester. A major element is the Group Design Project, which runs all year. Students should select optional modules to make up the total to 60 ECTS. Besides COMP6228 and specialised modules, a maximum of 2 other “externally taught” modules (COMPxxxx, OPTOxxxx, ENTRxxxx, FRENxxxx, GERMxxxx, LANGxxxx, LAWSxxxx MANGxxxx and MATHxxxx) may be chosen. Students must select a 30:30 ECTS balance between semesters.

Alternatively, semester II of Part IV may be taken at a partner institution overseas, which has been approved by the Erasmus coordinator. In this case, ELEC6247 Group Design Project (Overseas Placement) should be taken instead of ELEC6200 Group Design Project during semester I. In this case, ELEC6247 is core and carries 15 ECTS credits. The modules selected at the overseas institution must be approved by the programme leader. The module selection must include at least 30 ECTS (or equivalent) at masters level, that is relevant to the degree title. In 'with X' programmes, the requirement to take 15 ECTS credits specific to the specialisation must be met across the two semesters. The marks awarded by the overseas institution will be converted to equivalent UK marks by the Erasmus coordinator.

Part IV Core

Code	Module Title	ECTS	Type
ELEC6200	Group Design Project	22.5	Core

Part IV Optional

Code	Module Title	ECTS	Type
ELEC6228	Applied Control Systems	7.5	Optional
ELEC6208	Bio/Micro/Nano Systems	7.5	Optional
ELEC6212	Biologically Inspired Robotics	7.5	Optional
ELEC6225	High Voltage Insulation Systems	7.5	Optional
COMP6228	Individual Research Project	7.5	Optional
ELEC6227	Medical Electrical and Electronic Technologies	7.5	Optional
ELEC6204	Microfluidics and Lab-on-a-Chip	7.5	Optional
ELEC6203	Microsensor Technologies	7.5	Optional
MATH6149	Modelling with Differential Equations	7.5	Optional
MATH6141	Numerical Methods	7.5	Optional
ELEC6222	Power and Distribution	7.5	Optional
ELEC6226	Power Electronics for DC Transmission	7.5	Optional
ELEC6221	Power Generation: Technology and Impact on Society	7.5	Optional
ELEC6220	Power System Economics	7.5	Optional
ELEC6245	Wireless Networks	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:

- Course books for each year of the programme.
- Library information retrieval seminar.
- Laboratory facilities for experimental work
- Limited mechanical and electrical workshop facilities for project work.
- Small group tutorials in Year 1,
- Supervision classes in Years 1 and 2 of the programmes.
- Faculty computer workstations and helpdesk
- Personal tutors to assist you with personal problems and to advise on academic issues.
- High developed web site for dissemination of course information and other teaching material
- Access to all academic staff through an open door policy as well as timetabled tutor meetings, appointment system and e-mail.
- Access to one of the largest High Voltage facilities in Europe for projects.

- Research Seminars and invited lectures.
- Information about the membership of the Institution of Engineering Technology.

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
- Professional body accreditation/inspection
- A national Research Assessment Exercise (our research activity contributes directly to the quality of your learning experience)
- Institutional 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 Faculty's Student 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 electrical power, electronics industries, in health services and in the finance. 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 Jan Maciejowski - University of Cambridge

Name: Professor Joseph Spencer - University of Liverpool

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.