Foundation Year Specification

Engineering/Physics/Geophysics/Mathematics Foundation Year (Language Pathways A and B) 2019/20

This description provides a concise summary of the main features of the Foundation Year 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	1 year
Accreditation details	Leading to accredited degree programmes
Final award	Successful completion of the Foundation Year guarantees progression to any degree programme within the disciplines specified in this document.
UCAS code	Please see following webpage for list of UCAS codes: https://www.southampton.ac.uk/courses/foundation-years/engineering-physics-maths-geophysics.page#programme_overview
Credit Points	120 credit points (60 ECTS points)
Foundation Year Director	Professor Anna Barney
Date specification was written	September 2014
Date Programme was validated	May 2015*
Date specification last updated	April 2019

Foundation Year Overview

Brief outline of the Foundation Year

The Foundation Year exists to prepare students without the traditional entry qualifications of A levels in mathematics and physics for entry to our engineering, physics, geophysics and mathematics degree courses.

Language Pathway A is for students who do not meet the University's normal English language requirement for entry to a degree and who wish to progress to a degree programme within the disciplines of Acoustical Engineering, Aeronautics & Astronautics, Civil Engineering, Geophysics, Mechanical Engineering, Maritime Engineering, Physics & Astronomy or Mathematics.

Language Pathway B is for students who do not meet the University's normal English language requirement for entry to a degree and who wish to progress to a degree programme within the disciplines of Electrical Engineering, Electronic Engineering, Electrical and Electronic Engineeringor Computer Science.

Learning and teaching

Learning is accomplished through a variety of methods including attendance at lectures, laboratory practicals and workshops, private study and small group support sessions. The teaching environment is supportive and focusses on developing the skills required for independent learning.

Assessment

We use a wide variety of assessment processes to encourage and test for learning. The final assessments are accomplished through coursework assignments and formal examinations. During the year there are plenty of opportunities for you to check your progress and improve your performance through oral feedback on your work at workshops and through in-class tests.

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 Foundation Year

The aims of the Foundation Year are to:

develop your knowledge and understanding of the mathematics that underpins engineering, physics and geophysics;

develop your knowledge and understanding of the scientific principles on which engineering, physics and geophysics are based;

develop your ability to apply mathematics to solve engineering physics, and geophysics problems;

prepare you for study in English on an engineering, physics or geophysics degree course.

Learning Outcomes

Knowledge and Understanding

Having successfully completed the Foundation Year you will be able to demonstrate knowledge and understanding of:

A 1. mathematical methods of algebra, trigonometry, vectors, differential and integral calculus and differential equations;

A 2. the scientific principles relevant to mechanics;

A 3. the scientific principles relevant to the exchange and transport of energy;

A 4. the English language vocabulary and writing style required for academic study in a scientific or technical discipline;

Teaching and Learning Methods

You will acquire knowledge and understanding through a mixture of small group teaching, supported problem solving, tutorials, laboratory work, private study and (non-assessed) coursework on which you will receive formative feedback.

Assessment methods

You will be assessed through unseen written exams, short tests, assessed coursework in the form of laboratory log books & reports, problems and other set assignments

Subject Specific Intellectual and Research Skills

Having successfully completed the Foundation Year you will be able to:

      B 1. select and apply appropriate mathematical models to solve abstract and real-world problems;

      B 2. use scientific principles in the development of solutions to simple real-world problems;

      B 3. select and use appropriate computer based methods to analyse and present data, reports and other information;

      B 4. read and listen to scientific and technical concepts expressed in specialist English language;

      B 5. talk and write about scientific and technical concepts using specialist English language;

      B 6. develop your cultural competency through English.

Teaching and Learning Methods

Intellectual skills are developed through the learning and teaching methods outlined above. Each module will help you to develop problem solving skills and the ability to apply your knowledge through discussion, example and practice. Students will be given individual feedback and advice on their progress in these areas throughout their studies.

Assessment methods

The assessment methods described above place emphasis on your ability to demonstrate the intellectual skills listed here through the production of coherent answers to problems, suitable choices of methods and assumptions. Computing skills are assessed through computing assignments set throughout the year.

Transferable and Generic Skills

Having successfully completed the Foundation Year you will be able to:

C 1. manage your own learning;

C 2. solve problems;

C 3. communicate effectively in English;

C 4. record, analyse and evaluate data;

C 5. apply mathematics;

C 6. use a range of tools to aid online learning and enhance your digital literacy.

Teaching and Learning Methods

These skills are developed in classes and workshops through discussion and interaction as well as individual work. Managing own learning is learnt, rather than taught, through the requirement to organise your private study and to meet the deadlines for submission of work; problem solving is a theme you will find running throughout the course as is application of mathematics. Data recording, analysis and evaluation is developed through practical laboratory and computing sessions.

Assessment methods

Assessment of these skills is generally integrated into the coursework. Effective communication, and data recording, analysis and evaluation are important in presenting the outcomes of laboratory work; application of mathematics and problem solving are generally assessed through unseen written examinations and coursework assignments. Managing own learning is not formally assessed.

Subject Specific Practical Skills

Having successfully completed the Foundation Year you will be able to:

      D 1.   manipulate mathematics;

      D 2.   communicate effectively through graphical means;

      D 3.   use and understand mathematical, scientific and technical language;

      D 4.   find and correct errors in your work;

      D 5.   use SI units;

      D 6.   make realistic estimates of the answers to problems;

      D 7.   plan and undertake experimental work, explain results and identify potential errors and their likely effect;

      D 8.   use common IT tools.

Teaching and Learning Methods

These skills are developed as part of the teaching and learning and are integrated into the courses, tutorials and individual work. Individual feedback on progress in developing these skills may be given during personal tutorials and problem solving classes.

Assessment methods

The assessment of these skills is integrated into the coursework and examinations you will be required to complete.

Foundation Year Structure

Typical content

The Foundation Year is taught full time over 2 semesters.

All modules in this list are compulsory to both Language Pathway A (LPA) and to Language Pathway B (LPB).

You will study:

- Coursework (including Computer Applications) (Semesters 1 & 2) (LPA & LPB)
- English for Engineers and Scientists (Semesters 1 & 2) (LPA & LPB)
- Mathematics A (Semester 1 only) (LPA & LPB)
- Mathematics B (Semester 2 only) (LPA & LPB)
- Mechanical Science (Semesters 1 & 2) (LPA & LPB)
- Routes to Success (Semesters 1 & 2) (LPA & LPB)

In Language Pathway A the following module is also compulsory:
- Engineering Principles (Semesters 1 & 2) (LPA)

In Language Pathway B (only) the following module is also compulsory:
- Electricity and Electronics (Semesters 1 & 2) (LPB)

Additional Costs

For all Foundation Year students we provide access to all the essential textbooks, however students are responsible for the costs of producing essays, assignments, laboratory reports and dissertations as required to fulfil the academic requirements for each programme of study. Costs that students registered for this programme typically also have to pay for are included in Appendix 2.

Progression Requirements

The regulations for progression from the Foundation Year to the next Part of your degree course are given below and in the University Calendar: https://www.southampton.ac.uk/calendar/sectionvi/feps.page

In Semesters 1 & 2 formal assessment is through coursework and written examination. Written Examinations are held in January (Semester 1) and May/June (Semester 2). The formal assessment requirements are as follows:

There is an overall aggregate pass mark for all modules and a pass mark for each module, excepting Mathematics A. The overall aggregate is calculated from the sum of the marks obtained for each module, weighted by the number of credit points for that module and divided by the total credit points for the year. For Mathematics A and Mathematics B a specified overall average over the two modules is also required.

To progress, you will be required to pass on the overall aggregate, to achieve the pass mark in each individual module and to achieve the average for the two mathematics modules.

Students achieving the pass mark in the individual modules, the average in the two mathematics modules and the required overall aggregate will be entitled to progress to the next Part of their degree course.

Pass marks and Aggregates		Credit points ECTS (CATS)
Mathematics A and B	55% average	7.5 (15)
Mathematics B	60%	7.5 (15)
Mechanical Science	45%	7.5 (15)
English for Engineers and Scientists	45%	7.5 (15)
Engineering Principles (LPA) /or Electricity and Electronics (LPB)	45%	7.5 (15)
Coursework	60%	15 (30)
Routes to Success	60%	7.5 (15)
Overall Aggregate	**60%**	**60 (120)**

If you do not achieve the pass mark in up to two modules, but you maintain an overall aggregate of 50% or above, you will be required to retake the assessment for the failed papers. This is known as "referral".

If you fail to achieve the pass mark in more than two modules, or achieve an overall average of less than 50% you will be required to retake the assessment for all the modules (including any modules where you achieved the pass mark or above). This is known as a "resit". You will only be allowed one attempt to resit the Foundation Year.

For the purpose of determining referral and repeat rights, failure to achieve the mathematics aggregate will be treated as equivalent to failure in one module.

If you are asked to refer in English for Engineers and Scientists your referral may take the form of the pre-sessional language course of length most appropriate to your language abilities as determined by the Board of Examiners. Students choosing to refer through the pre-sessional course will be charged the full course fee.

If you are asked to refer and you do not achieve the pass mark for any individual paper in the referral examination, you have the right to resit.

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.
- IT support through a comprehensive website, telephone and online ticketed support and a dedicated helpdesk in the University Library, Highfield Campus
- Enabling Services offering support services and resources via a triage model to access crisis management, mental health support, and counselling.
- 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 Destinations, 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 (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 the Foundation Year you will be able to access:

- The individual module lecturers
- The Foundation Year Deputy Director
- A Liaison Tutor within your target academic School
- The Foundation Year Director
- Study skills and academic subject support through personal and group tutorials

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Methods for evaluating the quality of teaching and learning

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

- Completing student evaluation questionnaires for each module
- Acting as a student representative on the Staff-Student Liaison Committee, or providing comments to your student representative to feedback 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 the Foundation Year is checked, both inside and outside the University, are:

- Regular module and course reports which are monitored by the Faculty
- A major review of the Foundation Year, normally every five years with an External Advisor.
- A Principal Examiner, who checks academic standards and produces an annual report
- Professional body accreditation/inspection
- Institutional Review by the Quality Assurance Agency

Principal Examiner for the Foundation Year

Name: Dr Dmitry Bavykin

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

The Principal Examiner does not have a direct role in determining results for individual students, and students wishing to discuss their own performance in assessment should contact the Foundation Year Deputy Director in the first instance.

Please note: This description provides a concise summary of the main features of the Foundation Year (Language pathways A and B) 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 on the Foundation Year Blackboard Site.

Programmes which require ATAS clearance

UCAS code	Title	ATAS
F301	BSc Physics with Foundation Year	N
F662	BSc Geophysics with Foundation Year	N
H340	BEng Acoustical Engineering with Foundation Year	N
H016	MEng Acoustical Engineering with Foundation Year	Y
H420	BEng Aeronautics and Astronautics with Foundation Year	N
H410	MEng Aeronautics and Astronautics with Foundation Year	Y
H209	MEng Civil and Environmental Engineering with Foundation Year	N
H220	BEng Civil Engineering with Foundation Year	N
H413	MEng Civil Engineering with Foundation Year	N
H421	BEng Mechanical Engineering with Foundation Year	N
J512	MEng Mechanical Engineering with Foundation Year	Y
H518	BEng Ship Science with Foundation Year	N
H510	MEng Ship Science with Foundation Year	N
I100	BSc Computer Science with Foundation Year	N
I101	MEng Computer Science with Foundation Year	N
H360	BEng Mechatronic Engineering with Foundation Year	N
H631	MEng Mechatronic Engineering with Foundation Year	Y
H612	BEng Electronic Engineering with Foundation Year	N
H613	MEng Electronic Engineering with Foundation Year	N
F305	MPhys Physics with Foundation Year	Y
I300	BEng Software Engineering with Foundation Year	N
I303	MEng Software Engineering with Foundation Year	N
H621	BEng Electrical Engineering with Foundation Year	N
H622	MEng Electrical Engineering with Foundation Year	N
H604	BEng Electrical and Electronic Engineering with Foundation Year	N
H605	MEng Electrical and Electronic Engineering with Foundation Year	N
DG1R	BSc Maths with Foundation Year	N
BG1M	MMath Maths with Foundation Year	N
H2K1	MEng Civil Engineering with Architecture with Foundation Year	N
H46H	BEng Aerospace Electronic Engineering	N
HH40	MEng Aerospace Electronic Engineering	Y
H1H6	BEng Biomedical Electronic Engineering	N
HH16	MEng Biomedical Electronic Engineering	N

Appendix 2

Additional Costs

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 typically also have to pay for the items listed in the table below.

Main Item	PROGRAMME SPECIFIC COST
Stationery	You will be expected to provide your own day-to-day stationery 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	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.
Equipment and Materials	Students may wish to purchase additional laboratory notebooks. Cost varies depending on personal choice. (GENG0015)
Printing and Photocopying Costs	In some cases, coursework and/or projects may be submitted electronically. Where it is not possible to submit electronically students will be liable for printing costs.
I.T	Computers suitable for completing all assessed tasks for this course are provided in the University computing suites, but students may wish to purchase their own laptop to enable them to study more effectively away from the campus.

*Validation is the process by which the University approves its programmes of study. Any taught undergraduate and postgraduate programme leading to a University of Southampton award, including research degrees with a taught component (for example the Engineering Doctorate), are required to go through programme validation, and, after a number of years, to undergo revalidation. The full validation process can be found in the University's Quality Handbook at
https://www.southampton.ac.uk/quality/programmes_and_modules/programmevalidation2.page