

Programme Specification

MSc Civil Engineering with Integrated Qualifying Year 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	2 year
Accreditation details	To be submitted for accreditation to JBM (Institution of Civil Engineers, Institution of Structural Engineers, Chartered Institution of Highways and Transportation, Institute of Highway Engineers) during 2018 Currently Year 2 of the programme, MSc in Civil Engineering is accredited by: Institution of Civil Engineers, Institution of Structural Engineers, Chartered Institution of Highways and Transportation, Institute of Highway Engineers
Final award	Master of Science
Name of award	Civil Engineering with Integrated Qualifying Year
Interim Exit awards	Postgraduate Certificate (Part II only) Postgraduate Diploma (Part II only)
FHEQ level of final award	7
UCAS code	N/A
QAA Subject Benchmark or other external reference	Engineering, Engineering Council UK-SPEC, Joint Board of Moderators
Programme Coordinator	Dr Mohammad Mehdi Kashani
Date specification was written	09/03/2018
Date programme was validated	July 2018
Date specification last updated	xxxxx

Programme Overview

Brief outline of the programme

The programme is a two-year integrated master for converting STEM graduates into Civil Engineering:

- 1st year: Qualifying year (120 credits), in which students take modules from the 2nd and 3rd year of the undergraduate degree (BEng and MEng) in Civil Engineering
- 2nd year – MSc in Civil Engineering (180 credits)

This 24 month MSc Civil Engineering with Integrated Qualifying Year programme is aimed at converting graduates in STEM subjects into Civil Engineering, so that they can further their careers. The first year of the programme covers some of the fundamental engineering science basis of the core civil engineering disciplines. Upon successful completion of the qualifying year a student will progress to the second year. The programme will be submitted for accreditation by: Institution of Civil Engineers, Institution of Structural Engineers, Chartered Institution of Highways and

Transportation, Institute of Highway Engineers. Currently (July 2018), the second year of the programme, the MSc in Civil Engineering, is accredited by the Institution of Civil Engineers and meets the further learning requirements to become a Chartered Civil Engineer.

Learning and teaching

Acquisition of core knowledge and understanding is through lectures, seminars, tutorials, field and laboratory classes, workshops, and independent study and research. You are encouraged from an early stage to supplement and consolidate your understanding and knowledge by independent study.

Assessment

Testing of the knowledge base is through a combination of unseen written examinations and assessed coursework in the form of problem solving exercises, laboratory reports, design exercises, essays and individual and group projects.

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 programme aims to:

- Provide you with a sound understanding of the fundamental principles, methods, analysis and synthesis in engineering design and applications appropriate to the Civil Engineering discipline.
- Provide you with a range of specialist modules integrated within the structured learning environment, reflecting the internationally-renowned research expertise within the Faculty, in order to broaden and deepen your educational experience.
- Enable your career pathway towards chartered engineer status.
- Offer you a degree structure that is relevant to industry and responsive to changes in technology and the needs of the community.
- Provide you with a supportive and intellectually stimulating environment that encourages an attitude of independent learning and enquiry, and fosters an ethos of lifetime learning and professional development.
- Offer you a choice of research projects which are supported by the research activities within the Faculty and stimulate individual innovation, self-assessment and teamwork skills required in engineering.
- Afford you the opportunity of applying theoretical knowledge gained on the programme through a substantial piece of research (dissertation).

Programme Learning Outcomes

The programme provides opportunities for you to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have been developed with reference to the Accrediting Institution guidelines and the UK-SPEC Degree Output Standards General and Specific Learning Outcomes.

Knowledge and Understanding

Having successfully completed this programme you will be able to demonstrate knowledge and understanding of:

- A1. Mathematics and science that are relevant to Civil Engineering.
- A2. The fundamental concepts, principles and theories of Civil Engineering.

- A3. Detailed knowledge and understanding of the essential facts, concepts and principles relevant to the practice of Civil Engineering.
- A4. The principles of engineering design and construction and their application to conceptual and detailed design.
- A5. Information and communication technology relevant to the practice of Civil Engineering.
- A6. Management practices and health and safety issues, risk assessment and regulatory frameworks
- A7. The role and professional responsibilities of engineers in society and the constraints within which their engineering judgement will be exercised.
- A8. Environmental issues and the importance of Civil Engineering to the quality of the environment.

Teaching and Learning Methods

Acquisition of core knowledge and understanding is through lectures, seminars, tutorials, field and laboratory classes, workshops, and independent study and research. You are encouraged from an early stage to supplement and consolidate your understanding and knowledge by independent study.

Assessment Methods

Testing of the knowledge base is through a combination of unseen written examinations and assessed coursework in the form of problem solving exercises, laboratory reports, design exercises, essays and individual and group projects.

Subject Specific Intellectual and Research Skills

Having successfully completed this programme you will be able to:

- B1. Plan, conduct and report on an individual research programme.
- B2. Analyse and solve engineering problems, using appropriate mathematical methods as necessary.
- B3. Be creative in the solution of problems and in design development.
- B4. Design engineering elements and systems to meet a need, evaluate critically and make improvements.
- B5. Integrate and evaluate information and data from a variety of sources.
- B6. Take a holistic approach to solving problems and designing systems, applying professional judgement to balance risks, cost, benefits, safety, reliability, aesthetics and environmental impact.

Teaching and Learning Methods

- Intellectual skills are developed through the teaching and learning activities.
- Analysis and problem solving skills are further developed through regular problem sheets issued by module lecturers and through small group teaching.
- Experimental, research and design skills are further developed through coursework exercises, laboratory, and design and research projects.
- Individual feedback is provided on all work submitted.

Assessment Methods

- Analysis and problem solving skills are assessed through unseen written examinations and problem based exercises.
- Experimental, research and design skills are assessed through laboratory reports, coursework exercises, project reports and oral presentations.

Transferable and Generic Skills

Having successfully completed this programme you will be able to:

- C1. Communicate effectively – in writing, verbally and through drawings.
- C2. Apply mathematical skills – algebra, geometry, modelling and analysis.

- C3. Learn independently in familiar and unfamiliar situations with open-mindedness and in a spirit of critical enquiry.
- C4. Work constructively as a member of a team.
- C5. Manage time and resources.
- C6. Use Information and Communications Technology.
- C7. Use the library, internet and other sources effectively.
- C8. Manage tasks and solve problems, transfer techniques and solutions from one area to another, apply critical analysis and judgement.
- C9. Learn effectively for the purpose of continuing professional development and in a wider context throughout their career.

Teaching and Learning Methods

The development of transferable skills is embedded in all modules of the programme. Typically, this takes the form of project based work and problem based learning.

Assessment Methods

Skills are formatively assessed through written reports and oral presentations, practical and laboratory reports. Summative assessment is through unseen examinations, extended essays and completion of a research project, including an interim progress report.

Subject Specific Practical Skills

Having successfully completed this programme you will be able to:

- D1. Carry out safely a series of planned experiments.
- D2. Use laboratory equipment to generate data.
- D3. Analyse experimental results and assess their validity.
- D4. Prepare technical drawings including the use of CAD and freehand sketching.
- D5. Prepare technical reports.
- D6. Give technical presentations using a variety of media.
- D7. Use computer packages in the context of civil engineering.
- D8. Make effective use of scientific literature from various sources.

Teaching and Learning Methods

Practical skills are developed in experimental laboratories, computer laboratories, design exercises and research based investigations.

Assessment Methods

Practical skills are assessed through laboratory experiment reports, coursework exercises, project reports and presentations.

Programme outcomes for different exit points

Level 7 (MSc)	Much of the study undertaken at Masters level reflects research at the forefront of Civil Engineering. You will have shown originality in the application of knowledge, and you will understand how the boundaries of knowledge are advanced through research. You will be able to deal with complex issues both systematically and creatively, and show originality in tackling and solving problems individually and as part of a team. You will have the qualities needed for employment in circumstances requiring sound judgement, personal responsibility and initiative, in complex and unpredictable professional environments.
PGDip (Part II only)	You will have attained knowledge of research being undertaken by academic staff at the forefront of Civil Engineering. You will have shown that you are capable of applying knowledge to solve problems, and you will understand how the boundaries of knowledge are advanced through research. You will be able to deal with complex issues both systematically and creatively, and be able to contribute to solving problems individually and as part of a team. You will have the qualities needed for employment in circumstances requiring sound judgement and personal responsibility under the guidance of others, in complex and unpredictable professional environments.

PGCert (Part II only)	You will have been exposed to research being undertaken by academic staff at the forefront of Civil Engineering. You will have gained experience in applying knowledge to solve problems, and you will understand how the boundaries of knowledge are advanced through research. You will be able to deal with complex issues by following existing procedures, and will be able to contribute to solving problems individually and as part of a team. You will have some of the qualities needed for employment in circumstances requiring sound judgement and personal responsibility under the guidance of others, in complex and unpredictable professional environments.
Part I (no exit award)	You will have developed an understanding of a complex body of knowledge relevant to Civil Engineering, some of it at the forefront of current developments. Through this, you will have developed analytical techniques and problem-solving skills that can be applied to a range of engineering problems, and learned to communicate these effectively. You should have the qualities needed for employment in situations requiring the exercise of personal responsibility, and decision-making in complex and unpredictable circumstances.

Programme Structure

The University uses the European Credit Transfer Scheme (ECTS) to indicate the approximate amount of time a typical student can expect to spend in order to complete successfully a given module or programme, where 1 ECTS indicates around 20 nominal hours of study. Previously, Credit Accumulation and Transfer Scheme (CATS) points were used for this purpose where 1 CATS credit was 10 nominal hours of study. The University credit accumulation and transfer scheme is detailed at <http://www.calendar.soton.ac.uk/sectionIV/cats.html>.

The teaching is structured on a semester pattern. You study modules comprising 60 ECTS (120 CATS) in part I (levels 5 and 6) and 90 ECTS (180 CATS) in part II (up to 30 CATS at level 6 and the remaining at level 7). The course is only available full-time.

Part I work shall be excluded from the final degree classification. A weighting of 0:1 shall be used to obtain the Final Average Mark for the two parts of the MSc in Civil Engineering with Integrated Qualifying Year. This is in addition to weighting by credit points.

In addition to the final award, there are the following exit points:

- Postgraduate Certificate of Higher education, following successful completion of 30 ECTS (60 CATS) in part II.
- Postgraduate Diploma of Higher education, following successful completion of 60 ECTS (120 CATS) in part II.

Each module is a self-contained part of the programme of study and carries a credit rating.

Progression through the programme and classification of degrees are regulated by the standard university progression and classification rules which may be found in section IV of the University Calendar (<http://www.calendar.soton.ac.uk/sectionIV/sectIV-index.html>) and in particular at <http://www.calendar.soton.ac.uk/sectionIV/credit-bearing-progs.html> and <http://www.calendar.soton.ac.uk/sectionIV/progression-regs-standalonemasters.html>. These regulations apply to both part I and part II of the programme.

Typical course content

The first part of the programme covers key technical aspects of civil engineering. In the second part, in addition to the research project you will select 8 taught modules from the MSc Civil Engineering programme.

The modules in part II fall into five categories: coastal engineering, environmental engineering, infrastructure engineering, engineering management and transport engineering. In part II, in total you must choose 7 modules (from at least 3 different areas) in addition to the research project and one compulsory module.

Special Features of the programme

There are a number of special features to the programme aimed at building a cohort identity, supporting students, particularly international, and improving the student experience and learning opportunity. These include, for Part I:

1. Induction week activities at the start of the first year, including a series of lectures, seminars or workshops introducing civil engineering and key concepts.
2. During the first weeks of each semester a series of seminars are organised providing a number of sessions on the development of study skills, language support, careers and employability, overview of dissertation topics. These seminars also provide opportunities to create a cohort identity and are shared with the MSc in Civil Engineering.
3. Skills development is important throughout the degree course. Students will have opportunities to develop a range of skills. For example, as part of the module CENV2008 Hydraulics, students use the pipe network software EPANET. As part of the module CENV3060 Highway and Traffic Engineering, students use junction design software, such as ARCADY and/or LINSIG.

For Part II:

1. Induction week activities, including a group outdoor activity aimed at promoting interaction between the students on the MSc in Civil Engineering with Integrated Qualifying Year and the students on the MSc in Civil Engineering.
2. During the first weeks of each semester a series of seminars are organised providing a number of sessions on the development of study skills, language support, careers and employability, overview of dissertation topics. These seminars also provide opportunities to create a cohort identity and are shared with the MSc in Civil Engineering.
3. There is a very wide range of optional modules available to students in their second year covering the range of advanced topics in the mainstream civil engineering disciplines of structural, geotechnical and hydraulic engineering, but also linking to the research interests of the department in water and environmental engineering, coastal engineering, transportation and energy.
4. Skills development is important throughout the degree course. Depending on their module choice, students will have different opportunities to develop different skills. For example, as part of the module CENV3056 Structural Engineering, students receive professional training in the industry standard finite element analysis software LUSAS, which they may then apply extensively in the design of structures in other modules. As part of the module CENV6122, students use specific finite element analysis software Plaxis, which they apply to the design of foundations.

Programme details

The programme follows university guidelines for inclusivity and flexibility and provides an array of teaching and learning approaches that will enable any student who meets the entry requirements to access the curriculum and demonstrate achievement of all the intended learning outcomes.

Refer to Appendix 1 for credit structure.

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. Costs that students registered for this programme typically also have to pay for are included in Appendix 2.

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, which are detailed in the individual Module Profile and can be found in Appendix 2.

Progression Requirements

The programme follows the University's regulations for Progression, Determination and Classification of Results: Standalone Masters Programmes as set out in the University Calendar (<http://www.calendar.soton.ac.uk/sectionIV/sectIV-index.html>) and in particular at <http://www.calendar.soton.ac.uk/sectionIV/progression-regs-standalonemasters.html> and

<http://www.calendar.soton.ac.uk/sectionIV/credit-bearing-progs.html>. These regulations apply to both part I and part II of the programme.

Faculty specific regulations for Standalone Masters can be found here
<http://www.calendar.soton.ac.uk/sectionVIII/fee-sam.html>

The Programme Structure is outlined in Appendix 1.

Intermediate exit points

You will be eligible for an interim exit award if you complete part of the programme in the second year (part II) but not all of it, as follows:

Qualification	Minimum overall credit in ECTS credit	Minimum ECTS credits required at level of award
Postgraduate Diploma	60	45
Postgraduate Certificate	30	20

Support for Student Learning

There are systems for the support of student learning in the Faculty as well as available from central University facilities.

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. Students can also access SVE (Southampton Virtual Environment), a virtual Windows University of Southampton desktop that can be accessed from personal devices such as PCs, Macs, tablets and smartphones from any location.
- 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.
- Central IT support through a comprehensive website, telephone and online ticketed support and a dedicated helpdesk in the Hartley Library foyer.
- Enabling Services offering assessment and support (including specialist IT support) facilities if you have a disability, dyslexia, mental health issue or specific learning difficulties.
- 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.
- A range of personal support services: mentoring, counselling, residence support service, chaplaincy, health service.
- 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.

In the Faculty and your Discipline you will be able to access:

- Coursebooks for each year of the programme.
- Introductory sessions for all years of the programme.
- Library information retrieval seminar.
- Workshop training.
- Small group tutorials in part of the programme.
- Engineering Development and Manufacturing Centre (EDMC) equipped with a range of workshop equipment, CAD/CAM.
- Engineering and specific software.
- Personal tutors to assist you with personal problems and to advise on academic issues (contact maintained during periods of studying abroad). A senior tutor is also available.
- Access to academic staff through an open door policy as well as timetabled tutor meetings, appointment system and e-mail.
- Research seminars and invited lectures.
- Faculty Student Office for the administration of your programme.

Methods for Evaluating the Quality of Teaching and Learning

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

- Anonymous evaluation questionnaires for each module of the programme.
- Acting as or represented by Student Representatives on the staff-student liaison committee. You are also represented on the Faculty Programmes Committee.
- Meetings, individually or as group, with programme external examiner.

It should be noted that meetings with personal tutor can also be used to comment on quality related issues.

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

- Evaluation for each module of the programme based on your feedback from evaluation questionnaires and carried out by lecturer(s) involved in the module and a colleague acting as advisor.
- Subject oriented Teaching Panels, convening at the end of each academic year, which consider the outcomes of each module's evaluation.
- Moderation of examination papers, coursework and projects, both internally and externally.
- Comments by external examiners, who produce an annual report.
- Peer observation of teaching for each member of staff contributing to learning and teaching, once per academic year.
- Annual examiners' meetings and examiners' boards.
- Annual programme and module reviews considering your feedback from all sources, feedback from teaching panels, external examiners and other bodies and student performance.
- Periodic meetings of the Faculty Industrial Advisory Board.
- Response to results from the National Student Survey
- Accreditation by professional institutions.
- Periodic Programme Review by the University.

Note that quality assurance of part of the programme taken abroad, where applicable, is subject to the quality procedures of the relevant institutions. These procedures are subject to periodic monitoring by members of staff of the Faculty of Engineering and Physical Sciences.

Career Opportunities

Student graduating from our MSc degrees obtain employment as graduate engineers with many leading employers in the civil engineering industry, both consultants and contractors and also regulatory authorities and local authorities. Support is available to develop their CVs and interview skills. In addition to careers in civil engineering, the transferrable skills that our students obtain make them attractive to a wide range of graduate recruiters, from financial services through to IT and management consultancy.

External Examiners(s) for the programme

Name Professor Marios Soutsos

Institution. Queen's University Belfast

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 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 at <http://www.southampton.ac.uk/studentservices/academic-life/faculty-handbooks.page> and at http://www.southampton.ac.uk/engineering/postgraduate/taught_courses/engineering/msc_civil_engineering.page

Revision History

January 2018 (M Fernandes de Pinho Lopes, creation of programme specification)

MSc Civil Engineering

Appendix 1

The information within this Appendix is liable to change in minor ways from year to year. It is accurate at the time of writing.

Part I – Integrated Qualifying Year

Modules at level 5 totalling 37.5 ECTS/75 CATS credits and modules at level 6 totalling 22.5 ECTS (45 CATS), with an overall total of 60 ECTS (120 CATS); all modules compulsory. The pre-requisites listed for the modules are waived.

Module Code	Module Name	Semester	ECTS/ CATS Credit Points	Type of module	Level
CENV2030	Structural Analysis	1	7.5/15	Compulsory	5
CENV2024	Structural Design and Materials	1	7.5/15	Compulsory	5
CENV2028	Design 2	1	7.5/15	Compulsory	5
CENV3060	Highway and Traffic Engineering	1	7.5/15	Compulsory	6
CENV2006	Soil Mechanics	2	7.5/15	Compulsory	5
CENV2008	Hydraulics	2	7.5/15	Compulsory	5
CENV3058	Water and Wastewater Engineering 1	2	7.5/15	Compulsory	6
CENV3065	Railway Engineering and Operations	2	7.5/15	Compulsory	6

Part II – MSc Civil Engineering

The taught component of Part II contains a compulsory module in Data Analysis & Experimental Methods for Civil and Environmental Engineering (FEEG6025) together with options across a wide range of civil engineering and related disciplines. A total of 60 ECTS/120 CATS across two semesters.

The research component of the MSc consists of a Core module (FEEG6012) of 30 ECTS/60 CATS which is a research dissertation.

Modules at level 6 and 7 totalling 180 credits. No more than 15 ECTS/30 CATS may be taken at level 6.

Students must select modules from at least three of the following subject areas: Coastal, Environmental, Infrastructure, Management or Transport.

The pre-requisites listed for the modules are waived; students are encouraged to discuss their background and their module choices with the programme coordinator and the module leads.

The split of modules between semesters should be even in terms of CATS.

Module Code	Module Name	Semester	ECTS/ CATS Credit Points	Type of module	Area	Level
FEEG 6025	Data Analysis & Experimental Methods for Civil and Environmental Engineering	1	7.5/15	Compulsory		7
FEEG 6012	Research Project for FEE Masters Programmes (core)	3	30/60	Core		7
	Plus 105 credits from:					
CENV	Geotechnical	1	7.5/15	Optional	Infrastructure	6

3020	Engineering					
CENV 3056	Structural Engineering	1	7.5/15	Optional	Infrastructure	6
CENV 3063	Applied Hydraulics	1	7.5/15	Optional	Coastal & Hydraulics	6
CENV 6084	Coastal & Maritime Engineering and Energy	1	7.5/15	Optional	Coastal & Hydraulics	7
CENV 6085	Waste Resource Management	2	7.5/15	Optional	Environment	7
CENV 6086	Advanced Structural Engineering	2	7.5/15	Optional	Infrastructure	7
CENV 6122	Advanced Foundation Engineering	2	7.5/15	Optional	Infrastructure	7
CENV 6123	Coastal Flood Defence	2	7.5/15	Optional	Coastal & Hydraulics	7
CENV 6134	Earthquake Engineering	1	7.5/15	Optional	Infrastructure	7
CENV 6148	Energy Performance Assessment of Buildings	2	7.5/15	Optional	Environment	7
CENV 6152	Project Economics and Management	1	7.5/15	Optional	Management	7
CENV 6153	Transport Modelling	1	7.5/15	Optional	Transport	7
CENV 6154	Groundwater Hydrology and Contamination	1	7.5/15	Optional	Environment	7
CENV 6158	Water and Wastewater Engineering 2	2	7.5/15	Optional	Environment	7
CENV 6164	River Engineering	2	7.5/15	Optional	Coastal & Hydraulics	7
CENV 6162	Water Resources Planning and Management	1	7.5/15	Optional	Environment	7
CENV 6168	Transport Management and Safety	2	7.5/15	Optional	Transport	7
FEEG 6010	Advanced Finite Element Analysis	2	7.5/15	Optional	Infrastructure	7

Part I

			Knowledge and Understanding								Subject Specific Intellectual Skills						Transferable/Key Skills									Subject specific practical skills								
Module Code	Module Title	Area	A 1	A 2	A 3	A 4	A 5	A 6	A 7	A 8	B 1	B 2	B 3	B 4	B 5	B 6	C 1	C 2	C 3	C 4	C 5	C 6	C 7	C 8	C 9	D 1	D 2	D 3	D 4	D 5	D 6	D 7	D 8	
CENV 2006	Soil Mechanics	Infrastructure	x	x	x	x						x	x		x		x	x	x	x	x		x	x	x	x	x	x	x		x			
CENV 2008	Hydraulics	Coastal & Hydraulics	x	x	x	x						x	x		x		x	x	x	x	x		x	x	x	x	x	x	x		x			
CENV 2024	Structural Design and Materials	Infrastructure	x	x	x	x				x		x	x	x	x			x	x		x	x	x		x									
CENV 2028	Design 2			x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				x	x	x	x	x
CENV 2030	Structural Analysis	Infrastructure	x	x	x	x						x		x	x		x	x	x		x	x	x	x	x	x	x	x	x	x		x	x	
CENV 3059	Water and Wastewater Engineering 1	Costal & Hydraulics	x	x	x	x		x	x	x		x		x	x	x		x						x						x				
CENV 3060	Highway and Traffic Engineering	Transport	x	x	x	x	x			x		x	x	x	x	x	x	x	x	x	x	x			x				x	x	x		x	
CENV 3065	Railway Engineering and Operations	Transport	x	x	x	x		x	x			x	x	x	x	x	x	x	x		x		x	x						x				x

Part II

			Knowledge and Understanding								Subject Specific Intellectual Skills						Transferable/Key Skills									Subject specific practical skills							
Module Code	Module Title	Area	A 1	A 2	A 3	A 4	A 5	A 6	A 7	A 8	B 1	B 2	B 3	B 4	B 5	B 6	C 1	C 2	C 3	C 4	C 5	C 6	C 7	C 8	C 9	D 1	D 2	D 3	D 4	D 5	D 6	D 7	D 8
FEEG 6025	Data Analysis & Experimental Methods for Civil and Environmental Engineering		x	x	x						x	x						x		x								x				x	
FEEG 6012	Research Project for FEE Masters Programmes		x	x	x						x	x	x		x		x	x	x		x		x	x	x			x		x	x		x
CENV 3063	Applied Hydraulics	Coastal & Hydraulics	x	x	x	x	x					x	x	x	x		x	x	x		x	x	x	x		x				x		x	x
CENV 6084	Coastal & Maritime Engineering and Energy	Coastal & Hydraulics	x	x	x	x				x		x	x	x	x	x	x	x	x		x		x	x					x		x		
CENV 6123	Coastal Flood Defence	Coastal & Hydraulics	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	x	x	x	x					x		x	x
CENV 6164	River Engineering	Coastal & Hydraulics	x	x	x	x		x		x		x	x	x	x		x	x	x	x	x		x	x	x	x	x	x	x			x	x
CENV 6085	Waste Resource Management	Environment	x	x	x	x	x	x		x		x			x	x		x						x				x		x			
CENV 6148	Energy Performance Assessment of Buildings	Environment	x	x	x	x			x	x		x	x	x		x	x	x	x					x				x		x		x	x
CENV 6154	Groundwater Hydrology and Contamination	Environment	x	x	x		x	x		x		x	x	x	x	x	x	x	x		x	x	x	x	x					x		x	x

CENV 6158	Water and Wastewater Engineering 2	Environme nt	x	x	x	x	x	x	x	x			x	x	x	x	x		x	x	x	x	x					x		x	x	
CENV 6162	Water Resources Planning and Management	Environme nt	x	x	x		x	x	x	x			x	x	x	x	x		x	x	x	x	x			x		x		x	x	
CENV 3020	Geotechnical Engineering	Infrastruct ure	x	x	x	x	x						x	x	x	x		x	x	x		x	x	x				x		x	x	
CENV 3056	Structural Engineering	Infrastruct ure	x	x	x	x	x			x			x	x	x	x		x	x	x		x	x	x	x					x		
CENV 6086	Advanced Structural Engineering	Infrastruct ure	x	x	x	x							x		x	x		x	x	x		x		x	x							
CENV 6122	Advanced Foundation Engineering	Infrastruct ure	x	x	x	x	x						x	x	x	x	x		x	x	x	x	x	x	x				x		x	x
CENV 6134	Earthquake Engineering	Infrastruct ure	x	x	x	x							x	x	x	x	x		x	x	x		x	x	x	x			x	x		
FEEG 6010	Advanced Finite Element Analysis	Infrastruct ure	x	x			x	x					x	x	x	x		x	x	x		x	x	x	x	x		x		x	x	
CENV 6152	Project Economics and Management	Manageme nt	x	x	x		x	x					x			x	x		x								x		x		x	
CENV 6153	Transport Modelling	Transport		x			x			x	x			x	x	x			x		x		x	x	x	x		x		x		
CENV 6168	Transport Management and Safety	Transport			x	x	x	x	x				x			x			x		x								x			x

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.

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.

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
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.
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		<p>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.</p> <p>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.</p>

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
		<p><u>CENV3020</u> Students may wish to purchase a copy of the Powrie textbook, cost circa £40. http://www.southampton.ac.uk/engineering/undergraduate/modules/cenv3020_geotechnical_engineering.page?</p>
Equipment and Materials	Design equipment and materials:	<p>Standard construction/modelling materials will be provided where appropriate, unless otherwise specified in a module profile.</p> <p>For customisation of designs/models calling for material other than standard construction/ modelling materials, students will bear the costs of such alternatives.</p> <p><u>FEEG6012</u> Reasonable expenses for travel and materials of up to £300 may be reclaimed through the Faculty Student Office. For project costs in excess of £300 students should discuss possible sources of funding with their supervisor and should not proceed with any expenditure until a further funding source has been agreed. http://www.southampton.ac.uk/engineering/undergraduate/modules/feeg6012_msc_research_project.page?</p>
	Field Equipment and Materials:	
Clothing	Lab Coats	
	Protective Clothing: Hard hat; safety boots; hi-viz vest/jackets;	
	Fieldcourse clothing:	You will need to wear suitable clothing when attending fieldcourses, e.g. waterproofs, walking boots. You can purchase these from any source.
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, which are detailed in the individual Module Profile.

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
		<p><u>FEEG6012</u></p> <p>Students are expected to cover the costs associated with the printing and binding of reports, including any drawings and graphic presentations. Two copies will need to be submitted. Depending on the quality of printing and binding chosen students can expect to pay approximately £25-30 per copy, totalling approximately £50-60 for both copies.</p> <p>http://www.southampton.ac.uk/engineering/undergraduate/modules/feeg6012_msc_research_project.page?</p>
Optional Visits (e.g. museums, galleries)		Some modules may include additional optional visits. You will normally be expected to cover the cost of travel and admission, unless otherwise specified in the module profile.