

# Programme Specification

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## MSc Civil Engineering with Industrial Placement 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	20 months
Accreditation details	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 Industrial Placement
Interim Exit awards	Postgraduate Certificate Postgraduate Diploma
FHEQ level of final award	Level 7
UCAS code	N/A
QAA Subject Benchmark or other external reference	QAA Subject Benchmark – Engineering 2015; Accreditation of Higher Education Programmes, Edition 3, Engineering Accreditation Board Characteristic Statement: Master’s Degree, QAA 2015
Director of Programmes	Dr. Margarida Fernandes de Pinho Lopes
Programme Coordinator	Dr Mehdi Kashani
Date specification was written	31 <sup>st</sup> March 2013
Date Programme was validated	March 2019
Date specification last updated	June 2019

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## Programme Overview

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### ***Brief outline of the programme***

Our MSc Civil Engineering with an Industrial Placement provides you with the opportunity to study at Masters level, whilst gaining valuable work experience and a small income to help cover your costs. The 20 month programme includes two semesters of taught classes and project work followed by an 11-month industrial placement. The programme is accredited by the Institution of Civil Engineers and meets the further learning requirements to become a Chartered Civil Engineer.

### ***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:

1. Induction week activities, including a group outdoor activity aimed at promoting interaction between 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 wide range of optional modules available to students 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 training in industry standard finite element analysis software, 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.

### ***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 and development of skills 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 projects.

**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.

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## **Educational Aims of the Programme**

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The aims of the programme are 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 Department, 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.
- Afford you the opportunity of applying theoretical knowledge gained on the programme through a substantial piece of research (dissertation).
- Offer you an opportunity to apply the knowledge you have developed during the taught component of your programme and gain experience of working within an engineering based organisation while developing your dissertation.

## **Programme Learning Outcomes**

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The programme provides opportunities for you to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the areas detailed below. The programme learning outcomes have been developed with reference to the Subject Benchmark Statement for engineering (<https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-engineering-15.pdf>) and the Characteristics Statement for Master's Degrees ([https://www.qaa.ac.uk/docs/qaa/quality-code/master's-degree-characteristics-statement.pdf?sfvrsn=6ca2f981\\_10](https://www.qaa.ac.uk/docs/qaa/quality-code/master's-degree-characteristics-statement.pdf?sfvrsn=6ca2f981_10)). The former of these is aligned with the Engineering Council publication Accreditation of Higher Education Programmes (AHEP): UK Standard for Professional Engineering Competence (third edition) ([https://www.engc.org.uk/engcdocuments/internet/Website/Accreditation%20of%20Higher%20Education%20Programmes%20third%20edition%20\(1\).pdf](https://www.engc.org.uk/engcdocuments/internet/Website/Accreditation%20of%20Higher%20Education%20Programmes%20third%20edition%20(1).pdf)) Learning outcomes listed (except IP codes) are AHEP 3 Learning Outcomes: Technical and 'Non-Technical' MSc programmes which provide further learning (FL) to partly meet the educational requirement for CEng.

## Knowledge and Understanding

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Having successfully completed this programme you will be able to demonstrate:

- comprehensive understanding of the relevant scientific principles of civil engineering SM1
- **Knowledge and understanding of mathematical and statistical methods necessary to underpin your education in civil engineering and to enable you to apply a range of mathematical and statistical methods, tools and notations proficiently and critically in the analysis and solution of engineering problems** SM2
- critical awareness of current problems and/or new insights most of which is at, or informed by, the forefront of civil engineering SM4
- understanding of concepts relevant to civil engineering, some from outside engineering, and the ability to evaluate them critically and to apply them effectively, including in engineering projects SM6
- awareness of the need for a high level of professional and ethical conduct in engineering EL1
- awareness that engineers need to take account of the commercial and social contexts in which they operate EL2
- knowledge and understanding of management and business practices, their limitations, and how these may be applied in the context of civil engineering EL3
- awareness that engineering activities should promote sustainable development and ability to apply quantitative techniques where appropriate EL4
- awareness of relevant regulatory requirements governing engineering activities in the context of civil engineering EL5
- awareness of and ability to make general evaluations of risk issues in the context of civil engineering, including health & safety, environmental and commercial risk EL6
- advanced level knowledge and understanding of a wide range of engineering materials and components P2
- **understanding of the use of technical literature and other information sources** P4
- a thorough understanding of current civil engineering practice and its limitations, and some appreciation of likely new developments P9
- understanding of different roles within an engineering team and the ability to exercise initiative and personal responsibility, which may be as a team member or leader P11
- **understanding of current and developing technical practice within the engineering industry and the business practice of your host organisation** IP1

### **Teaching and Learning Methods**

Acquisition of core knowledge and understanding is through lectures, seminars, tutorials, field and laboratory classes, computer 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

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Having successfully completed this programme you will be able to:

- ability both to apply appropriate engineering analysis methods for solving complex problems in engineering and to assess their limitations EA3
- ability to use fundamental knowledge to investigate new and emerging technologies EA5
- ability to collect and analyse research data and to use appropriate engineering analysis tools in tackling unfamiliar problems, such as those with uncertain or incomplete data or specifications, by the appropriate innovation, use or adaptation of engineering analytical methods EA6
- analyse, evaluate and interpret information from projects and, apply your theoretical knowledge in unfamiliar situations to solve problems, exercise professional judgement in a working context and evaluate and review your performance in the context of an engineering workplace IP2

### *Teaching and Learning Methods*

Intellectual and research 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. Feedback is provided on all work submitted.

### *Assessment methods*

Analysis and problem solving skills are assessed through unseen written examinations and problem based exercises. Research skills are assessed through laboratory reports, coursework exercises, project reports and oral presentations. Summative assessment is through unseen examinations, extended essays, written reports and oral presentations, and completion of a research project.

## Transferable and Generic Skills

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Having successfully completed this programme you will be able to:

- apply your skills in problem solving, communication, working with others, information retrieval, and the effective use of general IT facilities G1
- plan self-learning and improve your performance, as the foundation for lifelong learning/CPD G2
- monitor and adjust a personal programme of work on an on-going basis G3
- exercise initiative and personal responsibility, as a team member or leader G4
- identify areas for personal and career development and how these can be addressed, understand the different roles within a team and have the ability to exercise leadership and demonstrate effective understanding of time and project management skills IP3

### *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*

Transferable skills are formatively assessed through written reports and oral presentations, practical and laboratory reports.

## Subject Specific Practical Skills

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Having successfully completed this programme you will be able to:

- work with technical uncertainty P8
- apply engineering techniques taking account of a range of commercial and industrial constraints P10
- apply your knowledge and skills taking account of commercial and industrial constraints, understand the importance of health and safety in an engineering workplace and evidence continuous professional development by the use of a personal learning log IP4

### *Teaching and Learning Methods*

Experimental, research and design skills are developed through coursework exercises, laboratory, and design and research projects.

### *Assessment methods*

Experimental, research and design skills are assessed through laboratory reports, coursework exercises, project reports and oral presentations.

## Discipline Specific Learning Outcomes

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Having successfully completed this programme you will be able to:

- demonstrate knowledge, understanding and skills to work with information that may be incomplete or uncertain, quantify the effect of this on the design and, where appropriate, use theory or experimental research to mitigate deficiencies D3
- communicate your design work to technical and non-technical audiences D6
- demonstrate knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations D7
- ability to generate an innovative design for products, systems, components or processes to fulfil new needs D8
- appreciate the relationship between design and construction in civil and environmental engineering IP5

### *Teaching and Learning Methods*

Design skills are developed through the programme by a range of design activities involving both individual and group project work, and problem based learning.

### *Assessment methods*

Design skills are assessed through coursework exercises, project deliverables including reports and artefacts and through oral presentations.

## Programme Structure

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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 in the University Calendar (<https://www.southampton.ac.uk/calendar/sectioniv/index.page>).

The teaching is structured on a semester pattern. You study modules comprising 90 ECTS (180 CATS). The course is only available full-time.

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).
- Postgraduate Diploma of Higher education, following successful completion of 60 ECTS (120 CATS).

Each module is a self-contained part of the programme of study and carries a credit rating. The syllabus and assessment related to each module is detailed in the associated module profile.

The Programme Structure is outlined in Appendix 1. Appendix 2 maps modules to programme learning outcomes.

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

### ***Typical course content***

In addition to the research project you will select 8 taught modules from the MSc Civil Engineering programme.

The modules fall into five categories: coastal engineering, environmental engineering, infrastructure engineering, engineering management and transport engineering. In total you must choose 8 modules in addition to either the research project or industrial placement.

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.

### ***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 3.

### ***Progression Requirements***

The programme follows the University's regulations for [\*\*\*Progression, Determination and Classification of Results: Postgraduate Master's Programmes\*\*\*](https://www.southampton.ac.uk/calendar/sectioniv/index.page) as set out in the University Calendar <https://www.southampton.ac.uk/calendar/sectioniv/index.page>

Faculty specific regulations for Standalone Masters can be found here: <https://www.southampton.ac.uk/calendar/sectionvi/feps.page>

### **Intermediate exit points (where available)**

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

<b>Qualification</b>	<b>Minimum overall credit in ECTS/CATS credits</b>	<b>Minimum ECTS/CATS credits required at level of award</b>
<b>Postgraduate Diploma</b>	<b>at least 60/120</b>	<b>45/90</b>
<b>Postgraduate Certificate</b>	<b>at least 30/60</b>	<b>20/40</b>

## **Programme outcomes for different exit points**

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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	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	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.

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## **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. There is a wide range of online training and workshops available to support writing, study skills, IT and maths. The Academic skills hub holds several workshops every week day to support students.

- 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.
- 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 School of Engineering and your Discipline you will be able to access:

- Student handbook for Civil Engineering students.
- Introductory sessions for all years of the programme.
- Library information retrieval seminar.
- Workshop training.
- Small group tutorials in part I of the programme.
- Engineering Development and Manufacturing Centre (EDMC) equipped with a range of workshop equipment, CAD/CAM.
- Engineering specific software.
- Personal academic 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 should you need additional support.
- 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.
- School Student Office for the administration of your programme.

## **Methods for evaluating the quality of teaching and learning**

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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 School Programmes Committee and Faculty Education Committee.
- Meetings, individually or as group, with programme external examiner.

It should be noted that meetings with personal academic 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.
- A discipline specific Education Board which convenes several times a year to consider the quality of delivery of each module of your programme.
- Moderation of examination papers, coursework and projects, both internally and externally.
- Comments by external examiners, who produce an annual report.
- Annual examiners' meetings and Boards of Examiners.
- Annual programme and module reviews considering your feedback from all sources, feedback from Education Boards, external examiners and other bodies and student performance in assessment.
- Periodic meetings of the Civil Engineering Industrial Advisory Board.
- Response to results from the National Student Survey.
- Accreditation by professional institutions.
- Programme Revalidation by the University at least every 5 years.

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

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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 Examiner(s) for the programme

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<b>Name</b>	Professor Marios Soutsos
<b>Institution</b>	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.

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**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/undergraduate/courses/civil\\_engineering/h201\\_meng\\_civil\\_engineering.page?](http://www.southampton.ac.uk/engineering/undergraduate/courses/civil_engineering/h201_meng_civil_engineering.page?)

#### Revision History

1. March 2013 (A Bloodworth/M P Byfield)
2. September 2013 (A Bloodworth, for new Calendar regulations and revised options)
3. February 2014 (A Bloodworth/ J A Smethurst, revised options)
4. June 2014 (A Bloodworth, codes revised for Faculty modules, additional sections added, for programme validation)
5. February 2015 (L Myers/J A Smethurst, revised options)
6. CQA addition of disclaimer - AUG 2015
7. Update to Programme Overview (CMA changes) – September 2015
8. Textual updates, one module change - CQA - August 2016
9. Textual updates, provision changes - CQA - May 2017
10. Updated to reflect 201819 version and removal of Admissions Criteria - CQA March 2018
11. Updated Faculty name to Faculty of Engineering and Physical Sciences July 2018
12. February 2018 (M Fernandes de Pinho Lopes, for programme validation; AHEP LOs and programme LOs)

## MSc Civil Engineering with Industrial Placement

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

The taught component of the programme 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. **Modules at level 6 and 7 totalling 120 credits. No more than 15 ECTS/30 CATS may be taken at level 6. CENV6129 Industrial Based Learning is Core.**

**The research component of the MSc consists of a Core module (CENV6129) of 30 ECTS/60 CATS which includes a research dissertation.**

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
CENV 6129	Industrial Based Learning <b>(core)</b>	Non- standard	30/60	Core		7
	<b>Plus 105 credits from:</b>					
CENV 3020	Geotechnical Engineering	1	7.5/15	Optional	Infrastructure	6
CENV 3056	Structural Engineering	1	7.5/15	Optional	Infrastructure	6
CENV 3063	Applied Hydraulics	1	7.5/15	Optional	Coastal & Hydraulics	6
CENV 3065	Railway Engineering and Operations	2	7.5/15	Optional	Transport	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 6154	Groundwater Hydrology and Contamination	1	7.5/15	Optional	Environment	7
CENV 6158	Advanced Wastewater Engineering	2	7.5/15	Optional	Environment	7
CENV 6162	Water Resources Planning and Management	1	7.5/15	Optional	Environment	7
CENV 6164	River Engineering	2	7.5/15	Optional	Coastal & Hydraulics	7
CENV 6168	Transport Management and Safety	2	7.5/15	Optional	Transport	7
CENV 6171	Highway and Traffic Engineering	1	7.5/15	Optional	Transport	7
FEEG 6010	Advanced Finite Element Analysis	2	7.5/15	Optional	Infrastructure	7

### Modules contributing to meeting the different programme learning outcomes

Core modules indicated in bold. Compulsory modules are underlined. Programme learning outcomes in red refer to the **Industrial Placement**.

Codes in the left hand column below indicate the related Engineering Accreditation Board learning outcome (except IP codes).

#### *Knowledge and Understanding*

Learning Outcome	Module
SM1	CENV3020; CENV3056; CENV3063; CENV3065  CENV6084; CENV6085; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6162; CENV6164; CENV6171; CENV6168; FEEG6010; <b>CENV6129</b>
SM2	<u>CENV3063</u> ; <u>CENV3065</u>  <u>CENV6085</u> ; <u>CENV6158</u> ; <u>CENV6164</u> ; <u>CENV6171</u> ; <u>FEEG6025</u> ; <b>CENV6129</b>
SM4	CENV3063; CENV3065  CENV6084; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6162; CENV6164; CENV6171; CENV6168; FEEG6010; <u>FEEG6025</u> ; <b>CENV6129</b>
SM6	CENV3065  CENV6084; CENV6123; CENV6148; CENV6152; CENV6154; CENV6158; CENV6162; CENV6164; CENV6171; CENV6168; <u>FEEG6025</u> ; <b>CENV6129</b>
EL1	CENV3056  CENV6085; CENV6148; CENV6154; CENV6164; CENV6168; <u>FEEG6025</u> ; <b>CENV6129</b>
EL2	CENV3056; CENV3065  CENV6085; CENV6148; CENV6152; CENV6154; CENV6171; CENV6168; <u>FEEG6025</u> ; <b>CENV6129</b>
EL3	  CENV6085; CENV6152; CENV6168; <u>FEEG6025</u> ; <b>CENV6129</b>
EL4	CENV3065  CENV6084; CENV6085; CENV6123; CENV6148; CENV6152; CENV6154; CENV6162; CENV6164; CENV6171; CENV6168; <u>FEEG6025</u> ; <b>CENV6129</b>
EL5	CENV3056; CENV3065;  CENV6085; CENV6123; CENV6148; CENV6152; CENV6154; CENV6168; <u>FEEG6025</u> ; <b>CENV6129</b>
EL6	CENV3020; CENV3056  CENV6084; CENV6085; CENV6086; CENV6123; CENV6134; CENV6152; CENV6154; CENV6164; CENV6168; <u>FEEG6025</u> ; <b>CENV6129</b>
P2	CENV3020; CENV3056; CENV3065  CENV6084; CENV6085; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6162; FEEG6010; <u>FEEG6025</u> ; <b>CENV6129</b>

P4	CENV3020; CENV3056; CENV3063; CENV3065  CENV6084; CENV6085; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6154; CENV6158; CENV6162; CENV6164; CENV6171; FEEG6010; <u>FEEG6025</u> ; CENV6129
P9	CENV3056; CENV3063  CENV6085; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6171; <u>FEEG6025</u>
P11	CENV6171; <u>FEEG6025</u> ; CENV6129
IP1	CENV6129

### ***Subject Specific Intellectual and Research Skills***

<b>Learning Outcome</b>	<b>Module</b>
EA3	CENV3020; CENV3056; CENV3063; CENV3065  CENV6084; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6162; CENV6164; CENV6171; FEEG6010; <u>FEEG6025</u> ; CENV6129
EA5	CENV3063  CENV6084; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6171; CENV6168; <u>FEEG6025</u> ; CENV6129
EA6	CENV3020; CENV3056  CENV6084; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6162; CENV6164; CENV6171; CENV6168; <u>FEEG6025</u> ; CENV6129
IP2	CENV6129

### ***Transferable and Generic Skills***

<b>Learning Outcome</b>	<b>Module</b>
G1	CENV3020; CENV3056; CENV3063; CENV3065  CENV6084; CENV6085; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6162; CENV6164; CENV6171; CENV6168; FEEG6010; <u>FEEG6025</u> ; CENV6129
G2	CENV3020; CENV3056; CENV3063; CENV3065  CENV6084; CENV6085; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6162; CENV6164; CENV6171; CENV6168; FEEG6010; <u>FEEG6025</u> ; CENV6129
G3	CENV3020; CENV3056; CENV3063; CENV3065  CENV6084; CENV6085; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6162; CENV6164; CENV6171; CENV6168; FEEG6010; <u>FEEG6025</u> ; CENV6129
G4	CENV3020; CENV3056; CENV3063; CENV3065

	CENV6084; CENV6085; CENV6086; CENV6122; CENV6123; CENV6134; CENV6148; CENV6152; CENV6154; CENV6158; CENV6162; CENV6164; CENV6171; CENV6168; FEEG6010; <u>FEEG6025</u> ; <b>CENV6129</b>
<b>IP3</b>	<b>CENV6129</b>

***Subject Specific Practical Skills***

<b>Learning Outcome</b>	<b>Module</b>
P8	CENV3056; CENV3063  CENV6122; CENV6123; CENV6134; CENV6148; CENV6154; CENV6158; CENV6164; FEEG6010; <b>CENV6129</b>
P10	CENV3056  CENV6086; CENV6122; CENV6123; CENV6134; CENV6154; <u>FEEG6025</u> ; <b>CENV6129</b>
<b>IP4</b>	<b>CENV6129</b>

***Discipline Specific Learning Outcomes***

<b>Learning Outcome</b>	<b>Module</b>
D3	CENV6084; CENV6122; CENV6123; CENV6134; CENV6148; CENV6154; CENV6162; CENV6164; CENV6171; CENV6168; <u>FEEG6025</u> ; <b>CENV6129</b>
D6	CENV3065  CENV6171; CENV6168; <b>CENV6129</b>
D7	CENV6085; CENV6171; CENV6168; <u>FEEG6025</u> ; <b>CENV6129</b>
D8	CENV6123; CENV6134; CENV6154; CENV6168; <u>FEEG6025</u> ; <b>CENV6129</b>
<b>IP5</b>	<b>CENV6129</b>

### 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](http://www.calendar.soton.ac.uk).

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
<b>Approved Calculators</b>		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 specifies permissible models from time to time and these may be purchased from any source. At the time of writing the approved calculators are: CASIO FX85GTX (GT and PLUS), CASIO FX83GT (and PLUS), CASIO FX83ES or CASIO FX570 (ALL MODELS and PLUS).
<b>Stationery</b>		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.
<b>Textbooks</b>		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 <b>optional</b> 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.
<b>Equipment and Materials</b>	Design equipment and materials:	We provide a wide range of resources to support project based modules and activities and these will allow you to complete your assessed exercises to the highest standard. However, you may wish to customise your project by purchasing additional resource e.g. alternative manufacturing materials, electronic components, etc. You may also incur additional costs for printing e.g. large format drawings.
	Field Equipment and Materials:	For field trips, students will need to wear suitable clothing e.g. waterproofs and stout shoes. You can purchase these from any source.
<b>Clothing</b>	Fieldcourse clothing:	You will need to wear suitable clothing when attending fieldcourses, e.g. waterproofs, walking boots. You can purchase these from any source.
<b>Printing and Photocopying Costs</b>		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.  The MSc Research project module FEEG6012 requires you to print an A1 portrait poster on paper. The typical cost for this is in the range £5 to £20.
<b>Optional Visits (e.g.</b>		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.

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
museums, galleries)		
Travel and Subsistence		For additional costs related to travel and subsistence for the Industrial Based Learning, please refer to the module profile for CENV6129.