UNIVERSITY OF Southampton

Programme Specification

MEng (Hons) Civil Engineering and Architecture, MEng (Hons) Civil Engineering and Architecture with Industrial Placement Year 2020/21

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	5 years (MEng with Industrial Placement Year), 4 years (MEng)
Accreditation details	Institution of Civil Engineers, Institution of Structural Engineers, Chartered Institution of Highways and Transportation, Institute of Highway Engineers
Final award	Master of Engineering.
Name of award	MEng Civil Engineering and Architecture MEng Civil Engineering and Architecture with Industrial Placement Year
Interim Exit awards	Certificate of Higher Education Diploma of Higher Education Bachelor of Science (Ordinary) Bachelor of Engineering (with Honours)
FHEQ level of final award	Level 7 (MEng)
UCAS code	HK21 MEng Civil Engineering and Architecture K21K MEng Civil Engineering and Architecture with Industrial Placement Year
QAA Subject Benchmark or other external reference	QAA Subject Benchmark – Engineering 2015 - Architecture 2010; Accreditation of Higher Education Programmes, Edition 3, Engineering Accreditation Board.
Director of Programmes	Prof William Powrie
Programme Lead	Alastair McDonald
Date specification was written	1st May 2014 (Prof D J Richards)
Date Programme was validated	March 2019
Date specification last updated	June 2019

Programme Overview

Brief outline of the programme

The MEng Civil Engineering and Architecture degree programme provides a cross over between civil engineering and architecture and prepares you for a career in those fields. These MEng programmes are accredited as fully satisfying the educational base for a Chartered Engineer (CEng) by the major civil engineering related professional institutions (including ICE and IStructE). The first two years of this programme are shared with the Civil Engineering programmes. The third and fourth years are primarily project based and include module(s) on design/ design processes specific to engineering/ architecture, which are taught by professional/ practicing engineers and architects. Specialist Option Modules (Building Acoustics, Energy Performance of Buildings, Urban Design and Advanced Structural Engineering, etc.) augment the design module content in the final two years.

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 and group projects.

Special Features of the programme
There are a number of special features to the programme aimed at building a cohort identity and improving the student experience and learning opportunity:

1. A full week of induction week activities at the start of the first year, including an outdoor team building activity and a design workshop where students work in small groups to conceive a creative solution to a problem and then communicate it by means of sketches, drawings and models.
2. A design course within the module CENV1026 Design and Computing for Civil Engineers, in which students develop the skills introduced in induction week to explore the creative process and design a structure to meet a brief, learning skills of sketching, model making, 2D and 3D CAD using programmes such as AutoCAD and Autodesk Investor. Skills in CAD continue to be developed in the design curriculum in subsequent years.
3. At the end of Part I, the one-week Constructionarium field course takes place, in which students work in groups of about 15-20 to plan and carry out the construction of reduced scale versions of famous structures. The timing of the Constructionarium towards the end of Part I means that it serves as a team building activity that reinforces the cohort identity (facilitating more effective group working in subsequent years) and also provides skills and experience in planning, management and practical construction that increases student employability during summer vacations from Part I onwards.
4. The Constructionarium is not just a one-off activity that concludes in Part I. It also forms an important foundation for Part II CENV2027 Construction Management by providing a practical introduction to planning, financial control and Health and Safety. These topics and others are developed further in CENV2027 with the students having an understanding of how they are applied to real construction projects. In this module, all students are required to visit a construction site to find out first-hand - how the management theory taught in lectures is implemented on real construction projects. They are encouraged to obtain a Construction Skills Certification Scheme (CSCS) card in the trainee Managers and Professionals category to maximise their skills and employability.
5. Skills development continues to be important throughout the degree course. In the third year, as part of the module CENV3056 Structural Engineering, students receive training in industry standard finite element analysis software, which they may then have the opportunity to apply in the design of structures and foundations in Part III Architecture 3 and Part IV group/ individual design projects. As part of the module CENV6122 (optional in part IV), students use specific finite element analysis software PLAXIS, which they apply to the design of foundations.
6. Delivery of the modules on architecture to students on the programme is by individual tutorials and small group teaching, making use of a dedicated Architecture Design Studio facility.
7. The final major module of the programme is the Architectural Engineering Project, which is a flagship activity in which students work on an integrated design, architecture and structural engineering project.

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

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

Educational Aims of the Programme

The aims of the programme are to:

- Provide you with a sound 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 School, in order to broaden and deepen your educational experience.
- Train you to enable you to become a professional civil engineer that meets the requirements of the Engineering Council (i.e. UK-SPEC), and to have a broad range of knowledge and skills (including IT and communication) capable of meeting the present and future demands of industry and commerce.
- 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 individual and group projects and assignments which are supported by the research activities within the School and stimulate individual innovation, self-assessment and teamwork skills required in engineering.
- (MEng with Industrial Placement Year) Offer you an opportunity to apply the knowledge you have developed during your studies in Parts I and II and gain experience of working within an engineering based organisation.

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 of learning: science and mathematics; engineering analysis; design; economic, legal, social, ethical and environmental context; engineering practice; and additional general skills. 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) which is aligned with the Engineering Council publication Accreditation of Higher Education Programmes: 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)

The learning outcomes below are colour coded to distinguish between those applicable to MEng and to MEng with Industrial Placement Year:

Black = MEng; red = Industrial Placement Year for BEng and MEng.

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

Knowledge and Understanding

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

• comprehensive knowledge and understanding of scientific principles and methodology necessary to underpin your education in Civil Engineering and Architecture and an understanding and know-how of the scientific principles of related disciplines, to enable appreciation of the scientific and engineering context, and to support your understanding of relevant historical, current and future developments and technologies	SM1
• knowledge and understanding of the mathematical and statistical methods necessary to underpin your education in Civil Engineering and Architecture 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 Civil Engineering and Architecture problems	SM2
• awareness of developing technologies related to Civil Engineering and Architecture	SM4

• comprehensive knowledge and understanding of mathematical and computational models relevant to Civil Engineering and Architecture, and an appreciation of their limitations	SM5
• understanding of concepts from a range of areas including some outside engineering, and the ability to evaluate them critically and to apply them effectively in engineering and architectural projects	SM6
• understanding of engineering principles and the ability to apply them to undertake critical analysis of key engineering and architectural processes	EA1
• understanding of, and the ability to apply, an integrated or systems approach to solving complex engineering and architectural problems	EA2
• understanding of and ability to evaluate business, customer and user needs in civil engineering and architectural design including considerations such as the wider engineering context, public perception and aesthetics	D1
• understanding of the need for a high level of professional and ethical conduct in engineering and architecture including a knowledge of professional codes of conduct and how ethical dilemmas can arise	EL1
• knowledge and understanding of the commercial, economic and social context of engineering and architectural processes	EL2
• knowledge and understanding of management techniques, including project and change management that may be used to achieve engineering objectives, their limitations and how they may be applied appropriately	EL3
• understanding of the requirement for engineering and architecture activities to promote sustainable development and ability to apply quantitative techniques where appropriate	EL4
• awareness of relevant legal requirements governing engineering activities, including personnel, health & safety, contracts, intellectual property rights, product safety and liability issues, and an awareness that these may differ internationally	EL5
• knowledge and understanding of risk issues, including health & safety, environmental and commercial risk, risk assessment and risk management techniques and an ability to evaluate commercial risk	EL6
• understanding of the key drivers for business success, including innovation, calculated commercial risks and customer satisfaction	EL7
• understanding of the various contexts in which engineering knowledge can be applied (e.g. operations and management, application and development of technology, etc)	P1
• knowledge of characteristics of particular materials equipment, processes, or products relevant to Civil Engineering and Architecture, with extensive 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
• knowledge of relevant legal and contractual issues	P5
• understanding of appropriate codes of practice and industry standards	P6
• awareness of quality issues and their application to continuous improvement	P7
• a thorough understanding of current Civil Engineering and Architecture 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	*IPY1*

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

Having successfully completed this programme you will be able to:

- apply and integrate knowledge and understanding of other engineering disciplines to support study of Civil Engineering and Architecture, evaluate them critically and apply them effectively — SM3
- identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques — EA2
- apply quantitative and computational methods, using alternative approaches and understanding their limitations, in order to solve engineering and architectural problems and to implement appropriate action — EA3
- use fundamental knowledge to investigate new and emerging technologies — EA5
- extract and evaluate pertinent data and to apply engineering analysis techniques in the solution of unfamiliar problems — 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 — *IPY2*

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

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 — *IPY3*

Teaching and Learning Methods
The development of transferable skills is embedded in all years of the programme starting with induction activities in week 1 of part I through to an extensive design project in part IV. Typically, this takes the form of both individual and group project 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

Having successfully completed this programme you will be able to:

- apply relevant practical and laboratory skills — P3
- work with technical uncertainty — P8
- apply engineering and architectural 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 — *IPY4*

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

Having successfully completed this programme you will be able to:

- investigate and define design problems, identify any constraints including environmental and sustainability limitations; ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards — D2
- 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
- apply advanced problem-solving skills, technical knowledge and understanding to establish rigorous and creative design solutions that are fit for purpose for all aspects of a problem including production, operation, maintenance and disposal — D4

- plan and manage the design process, including cost drivers, and evaluate outcomes D5
- communicate your design work to technical and non-technical audiences D6
- demonstrate wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations D7
- demonstrate the 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 Engineering and Architecture *IPY5*

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

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 https://www.southampton.ac.uk/calendar/sectioniv/index.page.

In order to allow students to settle in to a University learning style, Part I is not structured in semesters and the majority of assessment occurs towards the end of the academic year. The teaching in Parts II to IV is generally structured as two semesters with an assessment session at the end of each. You study modules comprising 60 ECTS (120 CATS) in each of Parts I (level 4), II (level 5), III (level 6) and IV (level 7). There are several degree possibilities in the programme of study:

- Four years full-time, leading to a Master of Engineering (MEng).
- Five years full-time, leading to a Master of Engineering with Industrial Placement Year (MEng)

In addition there are the following exit points:

- Certificate of Higher education, following successful completion of Part I.
- Diploma of Higher education, following successful completion of Part II.
- Ordinary Degree of BSc of Engineering (Ordinary), following successful completion of at least 150 ECTS (300 CATS), including 30 ECTS (60 CATS) at level 6.
- Bachelor of Engineering (BEng) with Honours, following successful completion of Part III.

The syllabus and assessment related to each module is detailed in the associated module profile.

Part I is assessed through an integrated set of assessments under the regulations at https://www.southampton.ac.uk/calendar/sectionvi/feps.page. In Parts II to IV, 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 (https://www.southampton.ac.uk/calendar/sectioniv/index.page).

Students studying on MEng Civil Engineering and Architecture with Industrial Placement Year will have their industrial placement only between Parts II and III. Placements are assessed by a written report and presentation on return to the University. It is the responsibility of individual students to find a placement, with full assistance from the Faculty.

The Programme Structure is outlined in Appendix 1. Appendix 2 maps modules to programme learning outcomes. Appendix 3 summarises the summative assessment schedule for part I.

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
The first three Parts of these programmes cover technical aspects of civil engineering and architecture that relate most strongly to the design of buildings and other structures, and also provide modules and design projects that introduce the theory and practice of architecture. Part IV focuses on design, management and teamwork - key skills that are highly valued by employers. It also provides the chance to gain in-depth technical and architectural understanding and knowledge in subjects with an emphasis on the built environment.

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 4.

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

Additional regulations applying to the assessment of Part I of your programme, the Industrial Placement Year and our other MEng regulations may be found here: http://www.calendar.soton.ac.uk/sectionVIII/sectVIII-index.html

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:

Qualification	Minimum overall credit in ECTS credits	Minimum ECTS Credits required at level of award
Certificate of Higher Education	at least 60	45
Diploma of Higher Education	at least 120	45
Bachelor of Science (Ordinary)	at least 150	30
BEng (Honours)	At least 180	45

Programme outcomes for different exit points

Level 4 (Part I)	You will have a sound knowledge of the basic concepts in Civil Engineering, and will have learned how to take different approaches to solving problems. You will be able to communicate accurately, and will have the qualities needed for employment requiring the exercise of some personal responsibility.
Level 5 (Part II)	You will have developed a sound understanding of the principles involved in a range of core Civil Engineering subjects, and will have learned to apply those principles more widely. Through this, you will have learned to evaluate the appropriateness of different approaches to solving problems. You will have the qualities necessary for employment in situations requiring the exercise of personal responsibility and decision-making.
Level 6 (Part III)	You will have developed an understanding of a complex body of knowledge relevant to Civil Engineering and Architecture, 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. As an Honours graduate you will be able to evaluate evidence, arguments and assumptions, and to reach sound judgements. You should have the qualities needed for employment in situations requiring the exercise of personal responsibility, and decision-making in complex and unpredictable circumstances.
Level 7 (Part IV)	Much of the study undertaken at Masters level reflects research at the forefront of Civil Engineering and Architecture. 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.

Support for student learning

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

The University provides:

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

- IT support through a comprehensive website, telephone and online ticketed support and a dedicated helpdesk in the Hartley Library.
- Enabling Services offering support services and resources via a triage model to access crisis management, mental health support and counselling.
- 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
- Careers and Employability Services, advising on job search, applications, interviews, paid work, volunteering and internship opportunities and getting the most out of your extra-curricular activities alongside your degree programme when writing your CV
- other support that includes health services (GPs), chaplaincy (for all faiths) and 'out of hours' support for students in Halls (18.00-08.00)a Centre for Language Study, providing assistance in the development of English language and study skills for non-native speakers.
- 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

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

- completing student evaluation questionnaires for each module of the programme
- acting as a student representative on various committees, e.g. Staff: Student Liaison Committees, Faculty Programmes Committee OR providing comments to your student representative to feed back on your behalf.
- serving as a student representative on Scrutiny Groups for programme validation
- taking part in programme validation meetings by joining a panel of students to meet with the Scrutiny Group

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

- regular module and programme reports which are monitored by the Faculty
- programme validation, normally every five years.
- external examiners, who produce an annual report
- professional body accreditation/inspection

- the national Research Excellence Framework (our research activity contributes directly to the quality of your learning experience)
- institutional Review by the Quality Assurance Agency

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

- discipline, and School boards, 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.
- 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 School Industrial Advisory Board
- response to results from the National Student Survey
- revalidation by the University at least every five 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

Student graduating from our MEng 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 students from the first year onwards to develop their CVs and interview skills, and the SUCCESS Scholarship scheme links selected first and second year students with sponsoring companies who provide vacation work experience. Students on the MEng Civil Engineering and Architecture with Industrial Placement Year obtain a year's placement with the support of the University, which significantly increases their graduate employability. In addition to careers in civil engineering and architecture, 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

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/undergraduate/courses/civil_engineering/h201_meng_civil_engineering.page?

Revision History
1st May 2009 (A Anwar) February 2012 (A Barney/A Bloodworth) March 2013 (A Bloodworth) September 2013 (A Bloodworth) February 2014 (A Bloodworth, options amended) June 2014 (A Bloodworth, codes revised for Faculty modules, additional sections added, for programme validation)_CQA_15072014 October 2014/15 FINAL version February 2015 (L Myers, part II revised) Update to Programme Overview (CMA changes) – September 2015 Addition of Industrial Placement year, and textual changes – CQA August 2016 Module changes part 1, Addition of information for summative assessment of part I – CQA August 2017 Updated to reflect 201819 version and removal of Admissions Criteria – CQA March 2018 Update to Appendix – CQA June 2018 Updated Faculty name to Faculty of Engineering and Physical Sciences July 2018 February 2018 (M Fernandes de Pinho Lopes, for programme validation; changes to part IV – 120 CATS; AHEP LOs and programme LOs)

MEng (Hons) Civil Engineering and Architecture, MEng (Hons) Civil Engineering and Architecture with Industrial Placement Year

The information within this Appendix is liable to change in minor ways from year to year. It is accurate at the time of writing. Where optional modules have been specified, the following is an indicative list of available optional modules, which are subject to change each academic year. Please note in some instances modules have limited spaces available.

Part I

All modules below are at level 4 and all required assessments are core, i.e. must be taken and passed at the required pass mark. They total 60 ECTS (120 CATS). No option modules will be undertaken in Part I. All modules in Part I are taught over two semesters with any formal examinations held at the end of semester 2. Feedback on progress is provided throughout the year in many ways including via laboratory work, example sheets, tests and coursework.

For information on summative assessment of Part I please see Appendix 3.

Over both semesters	ECTS/CATS Credit Points
CENV1026 Design and Computing for Civil Engineers **(core)**	15/30
CENV1027 Civil Engineering Fundamentals **(core)**	15/30
FEEG1003 Thermofluids **(core)**	7.5/15
FEEG1002 Mechanics, Structures and Materials **(core)**	15/30
MATH1054 Mathematics for Engineering and the Environment **(core)**	7.5/15

Part II

Modules at level 5 totalling 60 ECTS/120 CATS credits; all modules compulsory. CENV2006 Soil Mechanics and CENV2031 Structural Analysis are Core.

Module Code	Module Name	Semester	ECTS/CATS Credit Points
CENV2006	Soil Mechanics **(core)**	2	7.5/15
CENV2008	Hydraulics	2	7.5/15
CENV2024	Structural Design and Materials	1	7.5/15
CENV2031	Structural Analysis **(core)**	1	7.5/15
CENV2026	Numerical Methods	2	7.5/15
CENV2027	Construction Management	2	7.5/15
CENV2028	Design 2	1	7.5/15
MATH2048	Mathematics for Engineering and the Environment II	1	7.5/15

Students taking the MEng Civil Engineering and Architecture with an Industrial Placement Year will take the placement module FEEG3009 between Parts II and III. They may not start their Placement until Part II has been passed. Should the placement not be passed students can transfer back to the substantive programme. **FEEG3009 is a core module of the MEng Civil Engineering and Architecture with Industrial Placement Year.**

Part III

Modules at level 6 totalling 60 ECTS (120 CATS); all modules compulsory. FEEG3003 Individual Project and CENV3062 Architecture 3 are Core.

Module Code	Module Name	Semester	ECTS/CATS Credit Points
FEEG3003	Individual Project **(core)**	1&2	15/30
CENV3020	Geotechnical Engineering	1	7.5/15
CENV3056	Structural Engineering	1	7.5/15
CENV3057	Urban Design	2	7.5/15
CENV3062	Architecture 3 **(core)**	1&2	22.5 (45)

Part IV

Modules at level 7 totalling 60 ECTS (120 CATS). CENV6173 Architectural Group Design and CENV6160 Architectural Engineering Project are Core.

Module Code	Module Name	Semester	ECTS (CATS)
CENV6152	Project Economics and Management (compulsory)	1	7.5 (15)
CENV6173	Architectural Group Design **(core)**	1	15 (30)
CENV6160	Architectural Engineering Project **(core)**	2	22.5 (45)
With remaining credits chosen from:			
CENV6085	Waste Resource Management	2	7.5 (15)
CENV6086	Advanced Structural Engineering	2	7.5 (15)
CENV6090	Energy Resources and Engineering	2	7.5 (15)
CENV6112	Transport, Energy and the Environment	2	7.5 (15)
CENV6122	Advanced Foundation Engineering	2	7.5 (15)
CENV6134	Earthquake Engineering	1	7.5 (15)
CENV6148	Energy Performance Assessment of Buildings	2	7.5 (15)
CENV6168	Transport Management and Safety	2	7.5 (15)
FEEG6010	Advanced Finite Element Analysis	2	7.5 (15)
FEEG6011	Architectural and Building Acoustics	2	7.5 (15)
SESG6039	Composites Engineering Design and Mechanics	1	7.5 (15)

Modules contributing to meeting the different programme learning outcomes

The learning outcomes below are colour coded to distinguish between those applicable to MEng and to MEng with Industrial Placement Year:

Black = MEng; red = Industrial Placement Year for BEng and MEng.

Core modules indicated in bold.

Knowledge and Understanding

Learning Outcome	Module
SM1	**CENV1026**; **CENV1027**; **FEEG1002**; **FEEG1003** **CENV2006**; CENV2008; CENV2024; CENV2028; **CENV2031** CENV3015; CENV3020; CENV3056; CENV3057; **FEEG3003** (**FEEG3009**) CENV6085; CENV6086; CENV6090; CENV6112; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6159**; **CENV6160**; CENV6168; FEEG6010; FEEG6011; SESG6039
SM2	**MATH1054** MATH2048; CENV2008; CENV2026; CENV2028 CENV3065; CENV3062 (**FEEG3009**) CENV6085; CENV6152; CENV6158; FEEG6010
SM4	CENV3057; CENV3062; **FEEG3003** (**FEEG3009**) CENV6090; CENV6112; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6160**; CENV6168; FEEG6010; SESG6039
SM5	CENV2026 CENV3015; CENV3020; CENV3056 CENV6085; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6160**; FEEG6010
SM6	CENV3057; **FEEG3003** (**FEEG3009**) CENV6090; CENV6112; CENV6148; CENV6152; CENV6168
EA1	**CENV1026**; **CENV1027**; **FEEG1002**; **FEEG1003** **CENV2006**; CENV2008; CENV2024; CENV2026; CENV2028; **CENV2031** CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** CENV6085; CENV6086; CENV6090; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168; FEEG6010; FEEG6011; SESG6039
EA4	**CENV1026**; **FEEG1003** CENV2026; CENV2028; **CENV2031** CENV3015; CENV3020; CENV3056; CENV3062 CENV6085; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168

D1	**CENV1026**; **CENV1027** CENV2028 CENV3015; CENV3056; CENV3057; CENV3062 CENV6152; CENV6168; **CENV6160**
EL1	**CENV1027** CENV2027; CENV2028 CENV3056; CENV3062; **FEEG3003** (FEEG3009) CENV6085; CENV6148; CENV6152; **CENV6159**; CENV6168
EL2	**CENV1026**; **CENV1027** CENV2027; CENV2028 CENV3015; CENV3057; CENV3062 (FEEG3009) CENV6085; CENV6090; CENV6112; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168
EL3	**CENV1027** CENV2027; CENV2028 CENV3015; CENV3062; **FEEG3003** (FEEG3009) CENV6085; CENV6112; CENV6152; CENV6168
EL4	**CENV1026** CENV2028 CENV3015; CENV3062 CENV6085; CENV6090; CENV6112; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168
EL5	**CENV1027** CENV2027 CENV3056; CENV3062; **FEEG3003** (FEEG3009) CENV6085; CENV6112; **CENV6173**; CENV6168
EL6	**CENV1027** CENV2027; CENV2028 CENV3015; CENV3020; CENV3056; **FEEG3003** (FEEG3009) CENV6085; CENV6086; CENV6112; CENV6134; CENV6152; **CENV6173**; CENV6168
EL7	CENV2027 (FEEG3009) CENV6085; CENV6152
P1	**CENV1026; CENV1027; FEEG1002; FEEG1003** **CENV2006;** CENV2008; CENV2024; CENV2026; CENV2027; CENV2028; **CENV2031**

	CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** (FEEG3009) CENV6085; CENV6086; CENV6090; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; FEEG6010; FEEG6011; SESG6039
P2	C**ENV1026; CENV1027; FEEG1002; FEEG1003** **CENV2006**; CENV2024; CENV2026; CENV2027; CENV2028; **CENV2031** CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** (FEEG3009) CENV6085; CENV6086; CENV6090; CENV6112; CENV6122; CENV6134; CENV6148; **CENV6173**; **CENV6160**; FEEG6010; FEEG6011; SESG6039
P4	**CENV1026; CENV1027; FEEG1002; FEEG1003** **CENV2006;** CENV2008; CENV2024; CENV2026; CENV2027; CENV2028; **CENV2031** CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** CENV6085; CENV6086; CENV6090; CENV6122; CENV6134; CENV6148; **CENV6173**; **CENV6160**; FEEG6010; FEEG6011; SESG6039
P5	**CENV1027** CENV2027 CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** (FEEG3009) CENV6085; CENV6086; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; FEEG6011
P6	**CENV1026; CENV1027** CENV2027; CENV2028 CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** (FEEG3009) CENV6085; CENV6086; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168; FEEG6011
P7	**CENV1026; CENV1027** CENV2028; **CENV2031** CENV3015; CENV3056; CENV3057; CENV3062 (FEEG3009) CENV6085; CENV6152; **CENV6173**; **CENV6160**; CENV6168
P9	**CENV1026; CENV1027** CENV3015; CENV3056; CENV3057; CENV3062 CENV6085; CENV6086; CENV6112; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; FEEG6011
P11	**CENV1027** CENV2028 CENV3015; CENV3062 (FEEG3009) CENV6152; **CENV6159**
IPY1	FEEG3009

Subject Specific Intellectual and Research Skills

Learning Outcome	Module
SM3	**CENV1026**; **CENV1027**; **FEEG1002**; **FEEG1003** CENV2024; CENV2026; CENV2028; **CENV2031** CENV3056; CENV3062 **(FEEG3009)** CENV6085; CENV6086; CENV6090; CENV6134; CENV6148; CENV6152; **CENV6160**; CENV6168; FEEG6011; SESG6039
EA2	**CENV1026**; **FEEG1002**; **FEEG1003** **CENV2006**; CENV2008; CENV2024; CENV2026; CENV2028; **CENV2031** CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** CENV6085; CENV6086; CENV6090; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; FEEG6010; FEEG6011; SESG6039
EA3	**CENV1026**; **CENV1027**; **FEEG1002**; **FEEG1003**; **CENV2006**; CENV2008; CENV2024; CENV2026; CENV2027; CENV2028; **CENV2031** CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** CENV6086; CENV6090; CENV6112; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; FEEG6010; FEEG6011; SESG6039
EA5	CENV3062; **FEEG3003** CENV6086; CENV6090; CENV6112; CENV6122; CENV6134; CENV6148; **CENV6173**; CENV6168; FEEG6011
EA6	CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** **(FEEG3009)** CENV6086; CENV6090; CENV6112; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168; FEEG6011; SESG6039
IPY2	**FEEG3009**

Transferable and Generic Skills

Learning Outcome	Module
G1	**CENV1026; CENV1027; FEEG1002; FEEG1003; MATH1054** **CENV2006**; CENV2008; CENV2024; CENV2026; CENV2027; CENV2028; **CENV2031**; MATH2048 CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** **(FEEG3009)** CENV6085; CENV6086; CENV6090; CENV6112; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168; FEEG6010; FEEG6011; SESG6039
G2	**CENV1026; CENV1027; FEEG1002; FEEG1003; MATH1054** **CENV2006**; CENV2008; CENV2024; CENV2026; CENV2027; CENV2028; **CENV2031**; MATH2048 CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** **(FEEG3009)**

	CENV6085; CENV6086; CENV6090; CENV6112; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168; FEEG6010; FEEG6011; SESG6039
G3	**CENV1026; CENV1027; FEEG1002; FEEG1003; MATH1054** **CENV2006**; CENV2008; CENV2024; CENV2026; CENV2027; CENV2028; **CENV2031**; MATH2048 CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** (FEEG3009) CENV6085; CENV6086; CENV6090; CENV6112; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168; FEEG6010; FEEG6011; SESG6039
G4	**CENV1026; CENV1027; FEEG1002; FEEG1003; MATH1054** **CENV2006;** CENV2008; CENV2024; CENV2026; CENV2027; CENV2028; **CENV2031**; MATH2048 CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003** (FEEG3009) CENV6085; CENV6086; CENV6090; CENV6112; CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168; FEEG6010; FEEG6011; SESG6039
IPY3	**FEEG3009**

Subject Specific Practical Skills

Learning Outcome	Module
P3	**CENV1026; CENV1027; FEEG1002; FEEG1003** CENV2006; CENV2008; CENV2024; CENV2028; **CENV2031** CENV3015; CENV3057; CENV3062; **FEEG3003** (FEEG3009) SESG6039
P8	**CENV1026; CENV1027** CENV2028 CENV3015; CENV3056; CENV3062 CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; FEEG6010
P10	CENV3015; CENV3056; CENV3062 (FEEG3009) CENV6086; CENV6122; CENV6134
IPY4	**FEEG3009**

Discipline Specific Learning Outcomes

Learning Outcome	Module
D2	**CENV1026**; **CENV1027** CENV2024; CENV2028 CENV3015; CENV3020; CENV3056; CENV3057; CENV3062; **FEEG3003**

	CENV6085; CENV6086; CENV6090; CENV6122; CENV6134; CENV6148; **CENV6173**; **CENV6160**; CENV6168
D3	**CENV1026**; **CENV1027** CENV2028 CENV3015; CENV3057; CENV3062 CENV6122; CENV6134; CENV6148; CENV6152; **CENV6173**; **CENV6160**; CENV6168
D4	**CENV1026**; **CENV1027** CENV2008; CENV2028 CENV3015; CENV3056; CENV3057; CENV3062 CENV6085; CENV6086; CENV6122; CENV6134; CENV6152; **CENV6173**; **CENV6160**; CENV6168
D5	**CENV1026**; **CENV1027** CENV2028 CENV3015; CENV3057; CENV3062 CENV6085; CENV6152; **CENV6173**; **CENV6160**; CENV6168
D6	**CENV1026**; **CENV1027** CENV2028 CENV3015; CENV3057; CENV3062; **FEEG3003** CENV6090; **CENV6173**; **CENV6160**; CENV6168
D7	CENV2028 CENV3015; CENV3057; CENV3062 CENV6085; CENV6152; **CENV6173**; **CENV6160**; CENV6168
D8	CENV2028 CENV3015; CENV3057; CENV3062 **CENV6173**; **CENV6160**; CENV6168
IPY5	**FEEG3009**

Appendix 3

Part I Summative Assessment Schedule

The table below shows the summative assessment structure for Part I:

Schedule A			
	Approximate Timing	**Pass Mark**	**Repeat Assessment mode**
Multiple Choice Exam: Engineering Fundamentals	Semester 2 exam period. 2 hours	60%	Internal & External
Long Answer Exam: Engineering Problem Solving	Semester 2 exam period. 2 hours	40%	Internal & External
Discipline Specific Assessment	Semester 1 and 2	40%	Internal & External
Mathematics Exam	Semester 2 exam period. 2 hours	40%	Internal & External
Schedule B			
	Timing	**Pass Mark**	**Repeat Assessment mode**
Assessment in Design	End of Semester 2	40%	Internal only
Laboratory Report	End of Semester 2	40%	Internal only
Technical Essay	End of Semester 2	40%	Internal & External

In order to pass Part I and progress to Part II you will need to pass all of the following summative assessments:

- A **technical essay**
- A **lab report** based on one of the lab classes you take as part of your modules.
- A **Summative Design Assessment** that you will undertake as part of your Design module.
- A **Mathematics Exam** on the material you study in MATH1054.
- A **Discipline-Specific Assessment** of the content of you discipline-specific module. This will be set towards the end of semester 2 and may take the form of an exam or a piece of coursework.
- A **Multiple Choice Exam** to test your knowledge of engineering fundamentals from FEEG1002 Mechanics Structures & Materials (Statics 1, Statics 2 and Materials), and FEEG1003 Thermofluids.
- A **Long Answer Exam** to test your ability to solve problems using the concepts from FEEG1002 (Statics 1, Dynamics), FEEG1003 and CENG1027

The regulations relating to failure in these assessments may be found in Section VI of the University Calendar

UNIVERSITY OF Southampton

Appendix 4

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		Students 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 species permissible models from time to time and these may be purchased from any source.
Stationery		You will be expected to provide your own day-to-day stationary items, e.g. pens, pencils, notebooks, etc.). · The third year module FEEG3003 Individual Project requires you to print an Al portrait poster on paper. The typical cost for this is in the range £5 to £20.
Textbooks		Where a module specifies core texts these should generally be available on the reserve list in the library. However due to demand, students may prefer to buy their own copies. These can be purchased from any source. Some modules suggest reading texts as **optional** background reading. The library may hold copies of such texts, or alternatively you may wish to purchase your own copies. Although not essential reading, you may benefit from the additional reading materials for the module.
Equipment and Materials	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.
IT	Computer discs	For CENV2026, you will need two CDs to submit computer codes. Please refer to the module profile for CENV2026.
Clothing	Protective Clothing: Hard hat; safety boots; hi-viz vest/jackets;	Students are required to purchase their own safety boots for the Constructionarium (CENV1027). A budget cost of £40 should be allowed for. Information will be given on Blackboard about local suppliers with whom discounts have been negotiated. Please refer to the module profile for CENV1027.

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
	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. Students are expected to cover the costs associated with the printing of drawings and graphic presentations. These are typically expected to be of the order of £20 - 50 per student. The third year module FEEG3003 Individual Project requires you to print an Al portrait poster on paper at a typical cost of £20.
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. For costs related to study abroad please see the relevant module profile.
Travel and Subsistence		For additional costs related to travel and subsistence for the Industrial Placement Year, please refer to the module profile for FEEG 3009.