

University of Plymouth

Faculty of Science and Engineering

School of Engineering

Programme Specification

MEng (Hons) Civil and Coastal Engineering - 2224

September 2019

1. Master of Engineering with Honours Civil Engineering

Final award title MEng (Hons) in Civil and Coastal Engineering

Level 4 Intermediate award title Certificate of Higher Education (CertHE)

Level 5 Intermediate award title Diploma of Higher Education (DipHE)

Level 6 Intermediate award title BEng (Hons) in Civil and Coastal Engineering

UCAS code: H251

JACS code: H200

2. Awarding Institution: University of Plymouth

Teaching institution: University of Plymouth

3. Accrediting bodies

- The following 4 bodies form the Joint Board of Moderators (JBM) which recommends courses for accreditation.
- Institution of Civil Engineers (ICE)
- Institution of Structural Engineers (IStructE)
- Institute of Highway Engineers (IHE)
- The Chartered Institution of Highways & Transportation (CIHT)



MEng Accredited CEng (Full)

This degree is accredited as fully satisfying the educational base for a Chartered Engineer (CEng).

See www.jbm.org.uk for further information.

The programme is studied full time over a 4 year period (5 years with placement).

Date of re-accreditation:2021

4. Distinctive Features of the Programme and the Student Experience

- MEng (Hons) fully meeting the academic requirement for achieving Chartered Engineer status.
- Coastal & Port Engineering modules taught by lecturers actively researching these subject areas.
- Teaching facilities for teaching hydraulic & coastal engineering housed in the new £19 million Marine Building.
- Optional work placement year working enhances employability.
- Individual project focuses on a coastal engineering research topics.
- Design projects in coastal engineering and integrated design develop specialist skills and understanding relevant to practicing engineers.
- HSE Diving option.
- Key skills developed during studies include: team working, communications, self-management and leadership.

5. Relevant QAA Subject Benchmark Group

The [QAA Engineering Subject Benchmark](#) statement defines the academic standard expected of graduates with an engineering degree

The defined learning outcomes were those published by the [Engineering Council](#) in the UK Standard for Professional Engineering Competence (UK-SPEC):
["The Accreditation of Higher Education Programmes \(2014\) - 3rd Edition"](#).

6. Programme Structure

NC = not compensatory, Cr = credits

Assessment

E1 = Examination

T1 = Test

C1 = Coursework

P1 = Practical

A1 = Generic Assessment

BEng/ MEng Stage 1 (Level 4)						Assessment				
Code	Title	NC	Cr	Sem	E1	T1	C1	P1	A1	
CIVL103	Civil Engineering Practice		20	1			100			
MATH187	Engineering Maths		20		50		50			
SURV100	Civil Engineering Surveying		20		50		50			
CIVL104	Introduction to Hydraulics & Geotechnics		20	2	50		50			
MATS123	Materials for Civil Eng & Construction	Y	20		50		50			
STAD117	Structural Analysis & Design 1	Y	20		60		40			
BPIE114	Stage 1 Civils Placement Preparation		0							
Total			120							

BEng/ MEng Stage 2 (Level 5)						Assessment				
Code	Title	NC	Cr	Sem	E1	T1	C1	P1	A1	
CIVL200	Civil Engineering Design and Construction	Y	20	1	25		75			
MATH238	Engineering Analysis		20		50	15	35			
MGMT222	Construction Management	Y	20		50		50			
GEEN213	Geotechnical Engineering 1	Y	20	2	50		50			
HYFM232	Hydraulic & Coastal Engineering	Y	20		50		50			
STAD215	Structural Analysis & Design 2	Y	20		40		60			
BPIE214	Stage 1 Civils Placement Preparation		0							
Total			120							

BEng/ MEng Stage 3 (optional)						Assessment				
Code	Title	NC	Cr	Sem	E1	T1	C1	P1	A1	
BPIE340	Civil Engineering Related Placement	0					100			
Total			0	Pass/ fail						

BEng/ MEng Stage 4 (Level 6)						Assessment				
Code	Title	NC	Cr	Sem	E1	T1	C1	P1	A1	
PRCE310	Individual Project	Y	40	1+2			100			
HYFM321	Hydraulic Engineering 2	Y	20	1	75		25			
COUE318	Coastal Engineering Analysis & Design	Y	20		60		40			
GEEN313	Geotechnical Engineering 2	Y	20	2	75		25			
COUE319	Coastal Engineering Design Project	Y	20				100			
Total			120							

BEng/ MEng Stage 5 (Level 7)						Assessment				
Code	Title	NC	Cr	Sem	E1	T1	C1	P1	A1	
GEEN501	Advanced Geotechnical Engineering	Y	20	1	80		20			
MGMT504	Engineering Business Management		20		50		50			
COUE506	Port & Harbour Engineering	Y	20		60		40			
HYFM504	Advanced Hydraulic Engineering	Y	20	2	80		20			
MATH511	Advanced Engineering Analysis		20				100			
PRCE513	Interdisciplinary Design Project		20				100			
Total			120							

7. Programme Aims

The MEng(Honours) Civil and Coastal Engineering degree is accredited for CEng registration and not only includes the outcomes of accredited Bachelors (Honours) degrees but also aims to go beyond these, to provide a greater range and depth of specialist knowledge within a research and industrial environment, as well as a broader and more general academic base particularly with regard to large scale civil engineering projects concerned with infrastructure, coastal defence and coastal protection measures and the design of ports. The programme aims to provide both a foundation for leadership and a wider appreciation of the economic, legal social, ethical and environmental context of engineering.

8. Programme Intended Learning Outcomes (PLO)

The overarching learning outcome of this degree programme is that its graduates should be able to demonstrate competence and commitment at a level commensurate with that of a BEng (Hons) Accredited CEng (Partial) engineering degree as defined in ["The Accreditation of Higher Education Programmes \(2014\) - 3rd Edition"](#) UK Standard for Professional Engineering Competence (UK-SPEC). An acceptable threshold level of competence is indicated by the award, with a spectrum of competence reflected in the degree classification of any individual graduate.

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8.1 General Learning Outcomes (GLO)

The MEng Civil and Coastal Engineering programme is intended to produce graduates able to extend knowledge and understanding to unique engineering problems and to lead and innovate in industry.

On successful completion graduates will be able to demonstrate:

- Knowledge and Understanding: The students study final year modules at level 7 which extend their knowledge and understanding of scientific and engineering principles. Their individual projects are intended to enable the student to extend their knowledge and understanding by researching topics which often form part of the Supervisor's own research which might include Coastal Engineering, Port Engineering, Marine Energy, Flood Risk or other areas of related fields of research.
- Intellectual Ability: These are met by all modules, and modules at level 7 which encourage the student to "think outside of the box". This is particularly tested in the Interdisciplinary Design project where students are set a broad design brief with undefined boundaries. The individual project also tests this outcome.
- Practical Skills: These are developed throughout the four years of the MEng programme through laboratory work and the individual project.

- **General Transferable Skills:** These are developed throughout the four years of the MEng programmes through activities such as report writing, presentations, planning of individual projects and group working. The Interdisciplinary Design project is a good example of this where the students have to plan their work, manage the tasks and discuss findings with academic staff.

8.2 Specific Learning Outcomes (SLO) in MEng Civil and Coastal Engineering

Additionally, degree graduates in the MEng Civil and Coastal Engineering should be able to demonstrate the following specific learning outcomes using Joint Board of Moderator (JBM) definitions:

- **SLO1 Underpinning Science and Mathematics**

- A comprehensive knowledge and understanding of scientific and mathematical principles and methodologies underpinning both general Civil Engineering and Coastal Engineering disciplines;
- The application of mathematical methods, tools and notations proficiently in the analysis and solution of both Civil and Coastal Engineering problems and an appreciation of their limitations;
- An awareness of developing technologies related to a general Civil Engineering and particular specialist knowledge of the state of art in Coastal Engineering practice;
- The ability to apply and integrate knowledge and understanding of other engineering and non-engineering disciplines.

- **SLO2 Engineering Analysis**

- Understanding of Civil and Coastal Engineering principles and the ability to apply them to analyse key engineering processes;
- The ability to use fundamental knowledge to investigate new and emerging technologies;
- Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques;
- Ability to apply quantitative methods and computer software relevant to the Engineering disciplines, in order to solve Coastal Engineering problems in marine environments and to assess the limitations of particular cases;
- Understanding of and ability to apply a systems approach to engineering problems.
- The ability to extract data pertinent to an unfamiliar problem, and apply in its solution using computer based engineering tools when appropriate.

- **SLO3 Design**

- Investigate and define a problem and identify constraints including environmental and sustainability limitations, health and safety and risk assessment issues;

- Wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations, particularly when working in the coastal environment;
 - Understand customer and user needs and the importance of considerations such as aesthetics;
 - Identify and manage cost drivers;
 - Use creativity to establish innovative solutions;
 - Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal;
 - Manage the design process and evaluate outcomes.
 - The ability to generate an innovative design to fulfil new needs.
- **SLO4 Economic, Social and Environmental Context**
 - Knowledge and understanding of commercial and economic context of engineering processes;
 - Extensive knowledge of management and business practices, and their limitations, and how these may be applied appropriately;
 - Understanding of the requirement for engineering activities to promote sustainable development;
 - Awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues;
 - Understanding of the need for a high level of professional and ethical conduct in engineering.
 - The ability to make general evaluations of commercial risks through some understanding of the basis of such risks
 - **SLO5 Engineering Practice**
 - Extensive knowledge of characteristics of particular materials, equipment, processes, or products;
 - Workshop and laboratory skills;
 - A thorough understanding of contexts in which general Civil Engineering knowledge can be applied with particular regard to the coastal and marine environments (e.g. operations and management, technology development, etc.);
 - Understanding use of technical literature and other information sources;
 - Awareness of nature of intellectual property and contractual issues;
 - Understanding of appropriate codes of practice and industry standards;
 - Awareness of quality issues;
 - The ability to apply engineering techniques taking account of a range of commercial and industrial constraints

See module records (PUMRs) for module specific interpretations.

9. Admissions Criteria, including APCL, APEL and DAS arrangements

See Appendix A

10. Progression criteria for Final and Intermediate Awards

120 credits from stage 1 required for the award of Certificate of Higher Education (CertHE).

120 credits from stage 1 plus 120 credits from stage 2 required for the award of Diploma of Higher Education (DipHE).

480 credits is required for the award of MEng (Hons) Civil and Coastal Engineering. The requirement is 120 credits from each of stages 1, 2, 4 & 5.

Transfer Routes

- Transfer between MEng Civil Engineering and MEng Civil and Coastal Engineering is possible up until the end of stage 3.
- Direct entry is permitted into stage 4 of the MEng programmes where qualifications indicate the potential to succeed on the programme.
- Progression from BEng year 2 to MEng year 3 is allowed for those students achieving an overall mark of 65% and above. Students with marks between 60% and 65% are considered on a case by case basis
- Students who do not complete stage 5 of the MEng will be awarded the BEng.

11. Exceptions to Regulations

There are a number of exceptions to the standard University Assessment Regulations in order to satisfy the professional accreditation requirements of the Joint Board of Moderators (JBM).

The following summarises the key exceptions.

- The minimum pass mark for an assessment element in **MEng and BEng levels 4, 5 and 6 modules** is 35% and **Level 7** is 40%.
- The following civil engineering subjects must be passed: structures, geotechnics, hydraulics, management, and the individual project. The core (i.e. non-optional) modules covering these subjects are deemed “non-compensatable” and are indicated with a * in the programme structure tables above. The remaining modules on this programme are compensatable provided the overall module mark is between 30-39% (in up to 20 credits in the stage) and subject to a minimum mark of 25% in all elements.
- Students on MEng Stage 2 who achieve less than 55% overall may be required to transfer into BEng year 3 (stage 3/4).

- Students who do not achieve 120 credits by the second attempt for Level 7 modules of the MEng (Hons) programme will be awarded a BEng (Hons) degree to comply with the JBM list of accredited degree programmes, having passed the required modules at levels 4-6.
- The final award is based upon the following weightings applied to the final 2 stages of the degree programme.
 - Level 6 (Stage 4): 50%
 - Level 7 (Stage 5): 50%

12. Transitional Arrangements

2018/19 modules	2019/20 modules
CONS203, HYFM229	CIVL200
GEEN212	GEEN213
HYFM228	HYFM232
MGMT503	MGMT504

13. Mapping and Appendices:

13.1 ILO's against Modules Mapping

See Appendix B.

13.2 Assessment against Modules Mapping

See Tables in Section 6.

13.3 Skills against Modules Mapping

See Appendix C

Appendix A: Entry Requirements - Civil Engineering Courses 2018 Entry

MEng (Hons) Civil Engineering	H202	Use CIVCO
MEng (Hons) Civil & Coastal Engineering	H251	MEng/BEng Letter
To progress onto MEng student must pass FPT with 60% or above		
A Level:	128 points, minimum 2 A Levels, to include grade B in A Level Maths. Applicants must also be studying a second relevant subject. . If no second science/technology refer. (A Level Use of Maths NOT accepted in lieu of Maths but ok as a second subject)	
18 Unit BTEC National Diploma/QCF Extended Diploma:	Constructions & the Built Environment: DDM in a related subject plus Grade E t A or AS Level Maths	
International Baccalaureate:	32 overall to include 5 at HL Maths (Standard Level Maths is <u>NOT</u> acceptable in lieu of Higher Level) English accepted within If Advanced Level = 4+ (A1) or 5 (A2/B) If Standard Level = 5+ (A1) or 6 (A2/B) If overseas & not studying English within IB – MUST have IELTS: 6.0 overall with 5.5 in each element	
European Baccalaureate:	78% overall to include 8.5 in Mathematics and 7.5 in English or first language	
Irish Highers:	AABBB @ Highers including Maths. Irish Leaving Cert Ordinary Level Grade C or above for English and Maths.	
Welsh Baccalaureate:	ok to accept as add on points of 120 but must have 3 A Levels including grade B at A Level Maths	
Access courses: (Offer 3)	For all MEng courses, unless the applicant has additional qualifications or experience ALT BSc and possible BEng if further qualifications or experience REFER.	
Greek Apolyterion	achieve an average grade of 19/20 overall, including at least 19/20 in ALL maths and physics subjects plus IELTS	
Foundation Pathway	<p>BEng Civil Engineering with Foundation Year</p> <p>2014-15 foundation year progressing in 2015-16 stage 0 aggregate marks as follows: >40% progression to BSc >50% progression to BEng >60% progression to MEng</p> <p>2015-16 foundation year progressing in 2016-17 onwards >40% progression to BSc >60% progression to BEng and progression to MEng will happen at the end of stage 2 (subject to our usual rule).</p>	

Appendix B: ILO's against Modules Mapping

		GLO				SLO				
		1	2	3	4	1	2	3	4	5
Civil and Coastal Engineering										
BEng/ MEng STAGE 1 (Level 4)										
CIVL103	Civil Engineering Practice	x	x	x	x				x	x
CIVL104	Introduction to Hydraulics & Geotechnics	x	x			x	x			
MATH187	Engineering Mathematics	x	x			x	x			
MATS123	Materials for Civil Engineering & Construction	x						x	x	x
STAD117	Structural Analysis & Design 1	x	x				x	x		
SURV100	Civil Engineering Surveying	x	x	x	x	x				x
BEng/ MEng STAGE 2 (Level 5)										
CIVL200	Civil Engineering Construction	x	x		x	x	x	x	x	x
GEEN213	Geotechnical Engineering 1	x	x			x	x	x		
HYFM232	Hydraulic & Coastal Engineering	x	x			x	x	x		
MATH238	Engineering Analysis	x	x			x	x			
MGMT222	Construction Management	x	x	x					x	
STAD215	Structural Analysis & Design 2	x	x				x	x		
BEng/ MEng STAGE 3										
BPIE340	Engineering Related Placement (generic)	x		x	x					x
BEng/ MEng STAGE 4 (Level 6)										
GEEN313	Geotechnical Engineering 2	x				x		x		x
HYFM321	Hydraulic Engineering 2	x		x		x			x	
PRCE310	Individual Project	x	x		x		x			
COUE318	Coastal Engineering Analysis & Design	x		x			x	x		
COUE319	Coastal Engineering Design Project	x				x		x	x	x
MEng STAGE 5 (Level 7)										
GEEN501	Advanced Geotechnical Engineering	x	x				x	x		
HYFM504	Advanced Hydraulic Engineering	x		x				x	x	
MATH511	Advanced Engineering Analysis	x	x				x	x		
MGMT503	Engineering Business Management	x			x				x	x
PRCE512	Interdisciplinary Design Project	x			x				x	x
COUE506	Port & Harbour Engineering	x		x			x			x

General Learning Outcomes (GLO)

- 1 Knowledge and Understanding
- 2 Intellectual Abilities
- 3 Practical Skills
- 4 General Transferable Skills

Specific Learning Outcomes (SLO)

- 1 Underpinning Science and Mathematics
- 2 Engineering Analysis
- 3 Design
- 4 Economic, Social and Environmental Context
- 5 Engineering Practice

Appendix C: Skills against Modules Mapping

Civil and Coastal Engineering		GLO3	GLO4
BEng/ MEng STAGE 1 (Level 4)			
CIVL103	Civil Engineering Practice	X	X
CIVL104	Introduction to Hydraulics & Geotechnics		
MATH187	Engineering Mathematics		
MATS123	Materials for Civil Engineering & Construction		
STAD117	Structural Analysis & Design 1		
SURV100	Civil Engineering Surveying	X	X
BEng/ MEng STAGE 2 (Level 5)			
CIVL200	Civil Engineering Construction		X
GEEN213	Geotechnical Engineering 1		
HYFM232	Hydraulic & Coastal Engineering		
MATH238	Engineering Analysis		
MGMT222	Construction Management	X	
STAD215	Structural Analysis & Design 2		
BEng/ MEng STAGE 3			
BPIE340	Engineering Related Placement (generic)	X	X
BEng/ MEng STAGE 4 (Level 6)			
GEEN313	Geotechnical Engineering 2		
HYFM321	Hydraulic Engineering 2	X	
PRCE310	Individual Project		X
COUE318	Coastal Engineering Analysis & Design	X	
COUE319	Coastal Engineering Design Project		
MEng STAGE 5 (Level 7)			
GEEN501	Advanced Geotechnical Engineering		
HYFM504	Advanced Hydraulic Engineering	X	
MATH511	Advanced Engineering Analysis		
MGMT503	Engineering Business Management		X
PRCE512	Interdisciplinary Design Project		X
COUE506	Port & Harbour Engineering	X	

GLO3 Practical Skills

GLO4 General Transferable Skills