

School of Physics, Engineering & Computer Science

Title of Programme: MSc Civil Engineering

Programme Code: PECIVM

# Programme Specification

This programme specification is relevant to students entering:  
01 September 2023

Associate Dean of School (Academic Quality Assurance):  
Mariana Lilley



A programme specification is a collection of key information about a programme of study (or course). It identifies the aims and learning outcomes of the programme, lists the modules that make up each stage (or year) of the programme, and the teaching, learning and assessment methods used by teaching staff. It also describes the structure of the programme, its progression requirements and any programme-specific regulations. This information is therefore useful to potential students to help them choose the right programme of study, to current students on the programme, and to staff teaching and administering the programme.

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**Summary of amendments to the programme**

Date	Section	Amendment

If you have any queries regarding the changes please email [AQO@herts.ac.uk](mailto:AQO@herts.ac.uk)

# Programme Specification MSc Civil Engineering

This programme specification (PS) is designed for prospective students, enrolled students, academic staff and potential employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content for each module can be found in Definitive Module Documents (DMDs).

## Section 1

<b>Awarding Institution/Body</b>	University of Hertfordshire
<b>Teaching Institution</b>	University of Hertfordshire
<b>University/partner campuses</b>	College Lane
<b>Programme accredited by</b>	Accreditation by JBM will be sought, see Section D
<b>Final Award (Qualification)</b>	MSc
<b>All Final Award titles</b>	Civil Engineering
<b>(Qualification and Subject)</b>	Civil Engineering (Sandwich) Civil Engineering with Advanced Research
<b>FHEQ level of award</b>	7

### A. Programme Rationale

There is a growing interest in the construction sector for Civil Engineering graduates with specialised skills on areas that deemed of extreme importance in the sector. This is well highlighted in a recent report (June 2020) by McKinsey & Company where the specialisation and the sustainability are highlighted between the factors shaping the future construction industry dynamics. This was also highlighted in 2019 Construction Leadership Council "Future Skills Report" and a Deloitte study where the need for specialisation is connected to the growth of the sector. The United Nations predict growing urbanisation rates for the decades to come and this is linked to significant growth in the construction sector. The demand for new civil infrastructure will increase so will the need for properly trained civil engineers.

This programme is designed to enable students to develop advanced knowledge of civil engineering and associated engineering and scientific disciplines such as materials characterisation techniques, structural engineering, geotechnical design for large infrastructure, floodplain management, sustainability policies and innovative technologies for the construction sector. It provides students with the awareness of the context in which civil engineering operates and develops their transferable skills necessary for careers in industry and research.

The curriculum is designed such that students are provided with a thorough exposure to advanced principles that underpin civil engineering. The programme puts emphasis on materials, design and sustainability as these threads will always be relevant for the sector. Throughout, theoretical work will be reinforced with practical application, with students recognising and appreciating how the underpinning science reflects on practical solutions in civil engineering projects. The aim of the programme is to provide a comprehensive holistic training such that prospective graduates become competent not only in understanding the principles but also putting them in practice. This will be a very important asset for their future careers.

There is a strong emphasis on hands-on learning, with students engaging with learning material through practice. This is designed not just to help embed learning, but also to instil confidence and independence in students' technical capabilities, which will mature to a professional standard and encompass an increasing range of skills as the course develops. We also aim to ensure students develop independence in their analytical and critical thinking, bringing their own initiative and creativity to solve problems. This will be nurtured in 'practical' exercises, where students will be encouraged to use their new skills to develop creative solutions to interesting problems, presented as real-world relevant construction problems.

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## B. Educational Aims of the Programme

### Diversity and Inclusion

Our programmes are purposefully designed to enable all students to engage meaningfully with the curriculum by being accessible and representative. We will support students to shape their learning experience, removing barriers and enabling them to succeed. The curriculum explicitly includes multiple and representative perspectives, valuing collective identities and individual diversity. Learning, teaching and assessment activities help students to understand how they can enhance outcomes both for themselves and for others. All students belong to a learning community, and during their studies we really want to hear their voices, encourage them to listen to others, and express themselves.

The programme has been devised in accordance with the University's graduate attributes of programmes of study as set out in [UPR TL03](#).

### Additionally this programme aims to:

- Offer an education and training on advanced civil engineering principles and current industry standards and practices (including codes of practice and specialist software).
- Help students to develop advanced skills and realise their own potential, preparing them for employment in a variety of roles related to civil engineering.
- Develop competence in communicating technical findings to other experts and to non-specialists, including the use of computers and software packages for information retrieval and presentation.
- Develop the ability to approach problem-solving activities using critical thinking and identifying the most appropriate engineering solutions using technical knowledge and appropriate software.
- Provide studies that develop innovation, technology transfer and the use of emerging technologies.
- Provide learning experiences that address priority areas for the sector such as: design, sustainability, construction materials, geotechnics, and global awareness.

### Graduate Attributes

Our graduates will be capable and professional, creative and enterprising, and will build their social and global awareness throughout. In addition to their subject expertise and proficiency, as a University of Hertfordshire graduate, they will be:

- Professionally focused
- Globally minded
- Sustainability driven
- Digitally capable and confident
- Inclusive and collaborative
- Evidence based and ethical

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## C. Intended Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas. The programme outcomes are referenced the Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (2014) and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education (2021) have been used as a guiding framework for curriculum design.

Knowledge and Understanding:	Teaching/learning methods & strategies	Assessment
A1 – Demonstrate knowledge and comprehensive understanding of the mathematical and analytical methods employed in Civil Engineering contexts.  A2 - Demonstrate knowledge and comprehensive understanding of the engineering sciences employed in Civil Engineering contexts.	Acquisition of knowledge and understanding is through the following approaches.  Acquisition of A1 and A2 is through a combination of lectures, small group tutorials, coursework and laboratory work.	Knowledge and understanding are assessed through a combination of unseen examinations (A1, A2, A3 and A5) and in-course assessments (A1-A6) in the form of laboratory reports, essays and phase tests. Some aspects of A3, A4 and A6 are assessed by design exercises and project reports and presentations. A5 and A6 are assessed using module specific

<p>A3 - Demonstrate knowledge and comprehensive understanding of the design principles and design-to-build processes (including emerging technologies) employed in Civil Engineering contexts.</p> <p>A4 - Demonstrate knowledge and comprehensive understanding of the impact of environmental, legal, social, ethical, and sustainability issues to Civil Engineering contexts.</p> <p>A5 - Demonstrate knowledge and comprehensive understanding of codes of practice and industry standards appropriate to Civil Engineering with an appreciation of likely new developments.</p> <p>A6 - Demonstrate knowledge and comprehensive understanding of the application of innovation, technology transfer, emerging technologies in Civil Engineering.</p>	<p>Additional support is provided through the Mathematics Drop-in Centre</p> <p>Acquisition of A3, A4, A5 and A6 is through a combination of lectures, projects, coursework, laboratory work, and guest lectures.</p> <p>Staff deploy a range of teaching and learning strategies in the most appropriate way for each individual module. This will vary depending on the subject nature of a particular module and its associated activities.</p> <p>Throughout, the learner is encouraged to undertake independent study both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.</p>	<p>assessments, case studies and design exercises</p>
<b>Intellectual skills:</b>	<b>Teaching/learning methods &amp; strategies</b>	<b>Assessment</b>
<p>B1 - Critically analyse complex civil engineering problems to reach substantiated conclusions using appropriate techniques.</p> <p>B2 - Model and critically analyse relevant engineering systems, recognising the limitations of the approaches employed.</p> <p>B3 - Select and apply appropriate computational techniques to model complex problems, recognising the limitations of the techniques employed.</p> <p>B4 - Fully evaluate external influences on the design process including those outside of engineering.</p> <p>B5 - Innovatively design appropriate systems, components or processes (as applicable) that meet a combination of societal, user, business and customer needs as appropriate, utilising emerging technologies in both known and unfamiliar problems.</p> <p>B6 - Promote advanced designs and design methods and consider</p>	<p>Intellectual skills are developed throughout the programme by the methods and strategies outlined for section A of the intended learning outcomes above, again moving from a more didactic approach to an increasingly self-directed and interactive approach at higher levels, particularly for B3, B4, B5, B6 and B7.</p> <p>Analysis, problem solving and modelling skills (B1, B2 and B7) are further developed through tutorial work, laboratory work, in-course exercises and project work.</p> <p>Design and IT skills (B3-B6) are further developed through project work and design exercises.</p> <p>Feedback is given to all students on all coursework produced.</p> <p>Throughout, the learner is encouraged to develop intellectual skills further by independent study.</p>	<p>Intellectual skills B1, B2, B5 and B6 are assessed through unseen examination papers, laboratory reports and coursework related to in-course exercises.</p> <p>Intellectual skills B3, B4, B6 and B7 are assessed through project reports, design projects, analysis and reports, and presentations.</p>

<p>the complexity of inter-related factors in designs.</p> <p><b>For students on the Advanced Research award only:</b> B7 – Fully evaluate the complex issues involved in the design, conduct and evaluation of experimental and empirical research in civil engineering.</p>		
<b>Practical skills:</b>	<b>Teaching/learning methods &amp; strategies</b>	<b>Assessment</b>
<p>C1 - Apply analytical skills and modelling techniques to solve problems, including unfamiliar problems, appropriate to Civil Engineering.</p> <p>C2 – Design and perform experimental work and draw conclusions based on critical evaluation, making sound judgement in the absence of complete data.</p> <p>C3 – Select and use appropriate computational techniques and computer-based engineering tools to solve problems, recognising the limitations of the techniques and/or tools employed.</p> <p>C4 - Produce technical documentation and clearly communicate this to a range of audiences.</p> <p>C5 - Critically evaluate Civil engineering designs at system, component or process level.</p> <p>C6 - Plan and manage a project, taking into account technical, commercial, industrial and other external constraints.</p> <p><b>For students on the Sandwich award only:</b> C7 - Develop practical, technical and communication skills within an industrial environment.</p>	<p>Practical skills are developed throughout the programme by the methods and strategies outlined in sections A and B of the intended learning outcomes above, again moving from a more didactic approach to an increasingly self-directed and interactive approach depending on the nature of each module.</p> <p>C1 is developed through laboratory work, coursework assignments and tutorial work.</p> <p>C2 is developed through laboratory work.</p> <p>C3 is developed through the use of software simulation tools at all levels.</p> <p>C4 is developed through project work, lab exercises and software documentation.</p> <p>C5 and C6 are developed through, lectures, lab and project work.</p> <p>C7 will be developed through industrial placement (where applicable).</p> <p>Feedback is given to all students on all coursework produced.</p>	<p>Practical skills are assessed through laboratory reports, coursework assignments, design exercise submissions, case study reports, presentations and project reports.</p>
<b>Transferable skills:</b>	<b>Teaching/learning methods &amp; strategies</b>	<b>Assessment</b>
<p>D1 - Communicate effectively on complex engineering matters with technical and non-technical audiences, orally, graphically or in writing.</p> <p>D2 – Select and use appropriate IT tools.</p>	<p>Transferable skills are developed throughout the programme by the methods and strategies outlined in sections A, B and C of the intended learning outcomes above.</p>	<p>Transferable skills are assessed through the following approaches.</p> <p>D1, D2, D5 and D6 are assessed through coursework, individual project and technical reports, and oral presentations.</p>

<p>D3 - Manage time and resources effectively.</p> <p>D4 - Function effectively as an individual, and as a member or leader of a team.</p> <p>D5 - Evaluate available data using engineering principles, and use engineering judgment to work with information that may be uncertain or incomplete.</p> <p>D6 - Apply an integrated or systems approach to the solution of complex problems.</p> <p>D7 - Plan and record self-learning and development, as the foundation for lifelong learning.</p>	<p>D1 is developed through feedback on coursework reports, oral presentations and project reports.</p> <p>D2 is developed through their use in preparing project reports, laboratory reports, case studies, design work, etc.</p> <p>D3 is developed through project work planning and throughout the programme.</p> <p>D4 is developed through group project, lab-pairings and assignment work.</p> <p>D5 and D6 are developed through lectures and tutorial work throughout the programme.</p> <p>D7 is developed and promoted throughout the programme.</p> <p>Throughout, the learner is encouraged to develop transferable skills by maintaining a record of evidence and completing a personal development plan.</p>	<p>D4 is assessed by review of group project work.</p> <p>D3 and D7 are specifically assessed by review of an individual's progress during individual project work</p>
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## D. Programme Structures, Features, Levels, Modules, and Credits

The MSc Civil Engineering award is offered full-time Semester A (September) entry 12 months, Semester B (January) entry 18 Months, Part Time study is offered as Semester A entry (September) only and can take up to 36 months to complete. In addition, MSc Civil Engineering (Sandwich) and MSc Civil Engineering with Advanced Research is offered full time 24 months, Semester A entry (September) and , Semester B (January) entry for all awards is normally at Masters (7) level (with related qualifications).

### Professional and Statutory Regulatory Bodies

The programme has been designed to meet the requirements of the Joint Board of Moderators (JBM) and the Engineering Council's learning outcomes. Accreditation will be sought at the earliest opportunity in consultation with JBM.

### Sandwich award

Industrial placement awards offer the opportunity for students to undertake a period of industrial placement, and so develop their understanding and skills within a professional environment. The industrial placement (Sandwich) award is for full-time study only.

A Sandwich award requires the successful completion of at least 30 weeks full-time equivalent placement activity from a maximum of two separate approved placements, neither of which will be normally less than 12 weeks in duration as defined in [UPR AS11](#). Students are supported by the Careers and Employment Service in finding a placement.

### With Advanced Research award

There is the opportunity for students to study advanced research topics in civil engineering, including training in research methods, and to undertake an extended masters project on a cutting-edge research topic. Graduates obtaining these awards will be equipped to pursue research to PhD level, or to enter specialist employment in technically advanced and unpredictable working environments requiring sound judgment and the exercise of

personal responsibility and initiative. In addition, graduates of these awards can also seek employment in the vast growing “research and development” divisions that many companies now operate.

### Programme Structure

The programme structure and progression information below (Table 1a and 1b) are provided for the award. Any interim awards are identified in Table 1b. The Programme Learning Outcomes detailed above are developed and assessed through the constituent modules. Table 2 identifies where each learning outcome is assessed.

Table 1a Outline Programme Structure

### MSc Civil Engineering

**Mode of study:** Full-time, 1 year

**Entry point:** Semester A

	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
<b>Compulsory Modules</b>							
<b>Module Title</b>							
Advanced Materials & Structures for Resilient Built Environment	7ENT2030	15	0	60	40	0	A
Systems, Data and Technologies for Civil Engineering	7ENT2024	30	0	0	70	30	A
Structural Design for Fire Safety	7ENT2025	15	0	50	50	0	A
Environmental Policy and Governance	7ENT2027	15	0	0	70	30	B
Advanced Geotechnical Design and Construction for Large Infrastructure	7ENT2028	15	0	50	50	0	B
Integrated Floodplain Management	7ENT2029	15	0	0	70	30	B
Design of Steel and Composite Structures	7ENT2033	15	0	0	100	0	B
MSc Individual Project (Civil)	7ENT2037	60	0	0	80	20	C

**Mode of study:** Full-time, 18 Months

**Entry point:** Semester B

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
<b>Academic Session 1</b>							
Design of Steel and Composite Structures	7ENT2033	15	0	0	100	0	B
Advanced Geotechnical Design and Construction for Large Infrastructure	7ENT2028	15	0	50	50	0	B
Integrated Floodplain Management	7ENT2029	15	0	0	70	30	B
Environmental Policy and Governance	7ENT2027	15	0	0	70	30	B
Advanced Materials & Structures for Resilient Built Environment	7ENT2030	15	0	60	40	0	A
Systems, Data and Technologies for Civil Engineering	7ENT2024	30	0	0	70	30	A
Structural Design for Fire Safety	7ENT2025	15	0	50	50	0	A
<b>Academic Session 2</b>							
MSc Individual Project (Civil)	7ENT2037	60	0	0	80	20	B

### MSc Civil Engineering (Part-time route)

**Mode of study:** Part-time, 3 years

**Entry point:** Semester A

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
<b>Year 1</b>							
Advanced Materials & Structures for Resilient Built Environment	7ENT2030	15	0	60	40	0	A
Structural Design for Fire Safety	7ENT2025	15	0	50	50	0	A
Design of Steel and Composite Structures	7ENT2033	15	0	0	100	0	B
Advanced Geotechnical Design and Construction for Large Infrastructure	7ENT2028	15	0	50	50	0	B
<b>Year 2</b>							
Systems, Data and Technologies for Civil Engineering	7ENT2024	30	0	0	70	30	A
Integrated Floodplain Management	7ENT2029	15	0	0	70	30	B
Environmental Policy and Governance	7ENT2027	15	0	0	70	30	B
<b>Year 3</b>							
MSc Individual Project (Civil)	7ENT2037	60	0	0	80	20	AB



## MSc Civil Engineering (Sandwich)

**Mode of study:** Full-time, 2 years

**Entry point:** Semester A, Year 1

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
<b>Year 1</b>							
Advanced Materials & Structures for Resilient Built Environment	7ENT2030	15	0	60	40	0	A
Systems, Data and Technologies for Civil Engineering	7ENT2024	30	0	0	70	30	A
Structural Design for Fire Safety	7ENT2025	15	0	50	50	0	A
Design of Steel and Composite Structures	7ENT2033	15	0	0	100	0	B
Advanced Geotechnical Design and Construction for Large Infrastructure	7ENT2028	15	0	50	50	0	B
Integrated Floodplain Management	7ENT2029	15	0	0	70	30	B
Environmental Policy and Governance	7ENT2027	15	0	0	70	30	B
<b>Year 2</b>							
Professional Work Placement (Civil Engineering)	7ENT2043	60	0	0	P/F	0	AB
MSc Individual Project (Civil)	7ENT2037	60	0	0	80	20	C

To be eligible to progress onto their placement, students must pass 120 credits from their year 1 modules, and must also pass their first 60 credits at first sitting. Students who fail to meet these requirements will be transferred onto the Advanced Research route.

## MSc Civil Engineering (Sandwich)

**Mode of study:** Full-time, 2 years

**Entry point:** Semester B, Year 1

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
<b>Year 1</b>							
Design of Steel and Composite Structures	7ENT2033	15	0	0	100	0	B
Advanced Geotechnical Design and Construction for Large Infrastructure	7ENT2028	15	0	50	50	0	B
Integrated Floodplain Management	7ENT2029	15	0	0	70	30	B
Environmental Policy and Governance	7ENT2027	15	0	0	70	30	B
Advanced Materials & Structures for Resilient Built Environment	7ENT2030	15	0	60	40	0	A
Systems, Data and Technologies for Civil Engineering	7ENT2024	30	0	0	70	30	A
Structural Design for Fire Safety	7ENT2025	15	0	50	50	0	A
<b>Year 2</b>							
Professional Work Placement (Civil Engineering)	7ENT2043	60	0	0	P/F	0	BC
MSc Individual Project (Civil)	7ENT2037	60	0	0	80	20	A

To be eligible to progress onto their placement, students must pass 120 credits from their year 1 modules, and must also pass their first 60 credits at first sitting. Students who fail to meet these requirements will be transferred onto the Advanced Research route.

## MSc Civil Engineering with Advanced Research

**Mode of study:** Full-time, 2 years

**Entry point:** Semester A, Year 1

<b>Compulsory Modules</b> <b>Module Title</b>	<b>Module Code</b>	<b>Credit Points</b>	<b>% Test</b>	<b>% Examination</b>	<b>% Coursework</b>	<b>% Practical</b>	<b>Semesters</b>
Advanced Materials & Structures for Resilient Built Environment	7ENT2030	15	0	60	40	0	A
Systems, Data and Technologies for Civil Engineering	7ENT2024	30	0	0	70	30	A
Structural Design for Fire Safety	7ENT2025	15	0	50	50	0	A
Design of Steel and Composite Structures	7ENT2033	15	0	0	100	0	B
Advanced Geotechnical Design and Construction for Large Infrastructure	7ENT2028	15	0	50	50	0	B
Integrated Floodplain Management	7ENT2029	15	0	0	70	30	B
Environmental Policy and Governance	7ENT2027	15	0	0	70	30	B
<b>Year 2</b>							
Advanced Research Methods for Civil Engineering	7ENT2041	30	0	0	100	0	A
Civil Engineering Research and Professional Skills	7ENT2042	30	0	0	100	0	B
MSc Individual Project (Civil)	7ENT2037	60	0	0	80	20	C

## MSc Civil Engineering with Advanced Research

**Mode of study:** Full-time, 2 years.

**Entry point:** Semester B, Year 1

Compulsory Modules Module Title	Module Code	Credit Points	% Test	% Examination	% Coursework	% Practical	Semesters
Design of Steel and Composite Structures	7ENT2033	15	0	0	100	0	B
Advanced Geotechnical Design and Construction for Large Infrastructure	7ENT2028	15	0	50	50	0	B
Integrated Floodplain Management	7ENT2029	15	0	0	70	30	B
Environmental Policy and Governance	7ENT2027	15	0	0	70	30	B
Advanced Materials and Structures for Resilient Built Environment	7ENT2030	15	0	60	40	0	A
Systems, Data and Technologies for Civil Engineering	7ENT2024	30	0	0	70	30	A
Structural Design for Fire Safety	7ENT2025	15	0	50	50	0	A
<b>Year 2</b>							
Advanced Research Methods for Civil Engineering	7ENT2041	30	0	0	100	0	B
Civil Engineering Research and Professional Skills	7ENT2042	30	0	0	100	0	C
MSc Individual Project (Civil)	7ENT2037	60	0	0	80	20	A

The following tables show the breakdown of modules per route and entry point.

### MSc Civil Engineering (Full Time)

MSc Civil Engineering – Semester A entry			
Year 1			
Semester A		Semester B	Semester C
Advanced Materials & Structures for Resilient Built Environment (15)		Design of Steel & Composite Structures (15)	MSc Individual Project (Civil) (60)
Systems Data & Technologies for Civil Engineering (30)		Advanced Geotechnical Design & Construction for Large Infrastructure (15)	
Structural Design for Fire Safety (15)		Integrated Floodplain Management (15)	
-		Environmental Policy & Governance (15)	
(60)		(60)	(60)
(180)			
MSc Civil Engineering – Semester B entry			
Year 1			Year 2
Semester B	Semester C	Semester A	Semester B

Design of Steel & Composite Structures (15)	Vacation	Advanced Materials & Structures for Resilient Built Environment (15)	MSc Individual Project (Civil) (60)
Advanced Geotechnical Design & Construction for Large Infrastructure (15)		Systems Data & Technologies for Civil Engineering (30)	
Integrated Floodplain Management (15)		Structural Design for Fire Safety (15)	
Environmental Policy & Governance (15)		-	
(60)		(60)	(60)
(180)			

### ***MSc Civil Engineering (Part Time)***

MSc Civil Engineering; Part Time – Semester A entry								
Year 1			Year 2			Year 3		
Semester A	Semester B	Semester C	Semester A	Semester B	Semester C	Semester A	Semester B	Semester C
Advanced Materials & Structures for Resilient Built Environment (15)	Design of Steel & Composite Structures (15)	Vacation	Systems Data & Technologies for Civil Engineering (30)	Integrated Floodplain Management (15)	Vacation	MSc Individual Project (Civil) (60)		
Structural Design for Fire Safety (15)	Advanced Geotechnical Design & Construction for Large Infrastructure (15)			Environment al Policy & Governance (15)				
(60)			(60)			(60)		
(180)								

**MSc Civil Engineering (Sandwich)**

MSc Civil Engineering (Sandwich) – Semester A entry					
Year 1			Year 2		
Semester A	Semester B	Semester C	Semester A	Semester B	Semester C
Advanced Materials & Structures for Resilient Built Environment (15)	Design of Steel & Composite Structures (15)	Vacation	Professional Work Placement (60)		MSc Individual Project (Civil) (60)
Systems Data & Technologies for Civil Engineering (30)	Advanced Geotechnical Design & Construction for Large Infrastructure (15)				
Structural Design for Fire Safety (15)	Integrated Floodplain Management (15)				
-	Environmental Policy & Governance (15)				
(60)	(60)	(60)			(60)
(240)					

MSc Civil Engineering (Sandwich) – Semester B entry					
Year 1			Year 2		
Semester B	Semester C	Semester A	Semester B	Semester C	Semester A
Design of Steel & Composite Structures (15)	Vacation	Advanced Materials & Structures for Resilient Built Environment (15)	Professional Work Placement (60)		MSc Individual Project (Civil) (60)
Advanced Geotechnical Design & Construction for Large Infrastructure (15)		Systems Data & Technologies for Civil Engineering (30)			
Integrated Floodplain Management (15)		Structural Design for Fire Safety (15)			
Environmental Policy & Governance (15)					
(60)	(60)		(60)		(60)
(240)					

### **MSc Civil Engineering with Advanced Research**

<b>MSc Civil Engineering with Advanced Research – Semester A entry</b>					
<b>Year 1</b>			<b>Year 2</b>		
<b>Semester A</b>	<b>Semester B</b>	<b>Semester C</b>	<b>Semester A</b>	<b>Semester B</b>	<b>Semester C</b>
Advanced Materials & Structures for Resilient Built Environment (15)	Design of Steel & Composite Structures (15)	Vacation	Advanced Research Methods for Civil Engineering (30)	Civil Engineering Research and Professional Skills (30)	MSc Individual Project (Civil) (60)
Systems Data & Technologies for Civil Engineering (30)	Advanced Geotechnical Design & Construction for Large Infrastructure (15)				
Structural Design for Fire Safety (15)	Integrated Floodplain Management (15)				
-	Environmental Policy & Governance (15)				
(60)	(60)		(30)	(30)	(60)
(240)					

<b>MSc Civil Engineering with Advanced Research – Semester B entry</b>					
<b>Year 1</b>			<b>Year 2</b>		
<b>Semester B</b>	<b>Semester C</b>	<b>Semester A</b>	<b>Semester B</b>	<b>Semester C</b>	<b>Semester A</b>
Design of Steel & Composite Structures (15)	Vacation	Advanced Materials & Structures for Resilient Built Environment (15)	Advanced Research Methods for Civil Engineering (30)	Civil Engineering Research and Professional Skills (30)	MSc Individual Project (Civil) (60)
Advanced Geotechnical Design & Construction for Large Infrastructure (15)		Systems Data & Technologies for Civil Engineering (30)			
Integrated Floodplain Management (15)		Structural Design for Fire Safety (15)			
Environmental Policy & Governance (15)		-			
(60)		(60)	(30)	(30)	(60)
(240)					

The award of an MSc Sandwich requires 240 credit points plus the requirements specified in Table 1b. The award of MSc With Advanced Research award requires 240 credit points plus the requirements specified in Table 1b.

**Table 1b Final and interim awards available**

The programme provides the following final and interim awards:

<b>Final Award</b>	<b>Award Title</b>	<b>Minimum requirements</b>	<b>Available at end of (normally):</b>	<b>Programme Learning Outcomes developed (see above)</b>
Masters	MSc Civil Engineering	180 credit points, including 7ENT2037 MSc Individual Project (Civil)	3 Semesters	All programme learning outcomes (see Table 2), excluding B7 and C7
Masters	MSc Civil Engineering (Sandwich)	240 credit points, including 7ENT2043 Professional Work Placement, 7ENT2037 MSc Individual Project (Civil)	6 Semesters	All programme learning outcomes (see Table 2), excluding B7
Masters	MSc Civil Engineering with Advanced Research	240 credit points, including 7ENT2037 MSc Individual Project (Civil), 7ENT2042 Civil Engineering Research and Professional Skills, 7ENT2041 Advanced Research Methods for Civil Engineering	6 Semesters	All programme learning outcomes (see Table 2), excluding C7

<b>Interim Award</b>	<b>Award Title</b>	<b>Minimum requirements</b>	<b>Available at end of Level</b>	<b>Programme Learning Outcomes developed (see above)</b>
Postgraduate Certificate	Untitled Certificate	60 credit points, including at least 45 at level 7	1-2 Semesters	See UPR AS11, section 13: <a href="http://sitem.herts.ac.uk/secreg/upr/AS11.htm">http://sitem.herts.ac.uk/secreg/upr/AS11.htm</a>
Postgraduate Diploma	Civil Engineering	120 credit points, including at least 90 at level 7	2-3 Semesters	A1, A2, B1, B2, C1, D1

Masters and Diploma awards can be made "with Distinction" or "with Commendation" where criteria as described in [UPR AS14](#), Section D.



## Programme-specific assessment regulations

The programme is compliant with the University's academic regulations (in particular, [UPR AS11](#), [UPR AS12](#) and [UPR AS14](#)) with the exception of those listed below, which have been specifically approved by the University:

- There is no compensation allowed for the module MSc Individual Project (Civil) (7ENT2037), which must be included in the calculation of the degree classification;
- There is no compensation allowed for the module Professional Work Placement (Civil Engineering) (7ENT2043);
- To comply with professional body regulations students must achieve in all 15 credit point modules, after all available attempts under the University regulations, a minimum of 40% (in any allowable attempt) at level 7, before the board of examiners will be able to consider compensation for an accredited honours degree. Compensation is limited to 15 credit points at Level 7.

Further points of clarification and interpretation relevant to this specific programme are given below:

- To enrol on the project module, students must typically have studied 120 credits of taught modules from the programme and passed at least 60 credits (in order to satisfy UPR AS14, D5.2.3).
- To be eligible to progress onto their placement, students must pass 120 credits from their year 1 modules, and must also pass their first 60 credits at first sitting. Students who fail to meet these requirements will be transferred onto the Advanced Research route.
- All students who have become eligible for a placement will be issued a statement of eligibility from the Department of Engineering. Students who have not met these progression requirements, will normally be transferred from the sandwich course to the corresponding 2-year 'with Advanced Research' course. Students may also be eligible to transfer to the 180-credit MSc Civil Engineering pathway, following consultation with the programme leader.
- Students are responsible for securing their placement. Students are required to secure their placement by the School's published deadline. Students who do not secure a placement by the deadline, will normally be automatically transferred from the Sandwich award to the corresponding 2-year 'With Advanced Research' course.
- For registration to continue, students should normally have met the requirements for the Postgraduate Diploma award within three years and the MSc award within four years (all periods calculated from date of registration on the Programme).
- Students who are registered on the standard 180-credit full time course are not normally allowed to change their study pattern to the corresponding 2-year full time Sandwich course or the 2-year full time 'With Advanced Research' course.

Course Code	Course Instance	Award Title	Modules code & title	Must be included in classification algorithm?
PECIVM, PECIVME		MSc Civil Engineering MSc Civil Engineering (Sandwich) MSc Civil Engineering with Advanced Research	7ENT2037 MSc Individual Project (Civil)	Yes
PECIVME		MSc Civil Engineering (Sandwich)	7ENT2043 Professional Work Placement	No
PECIVME		MSc Civil Engineering with Advanced Research	7ENT2041 Civil Engineering Research and Professional Skills 7ENT2042 Advanced Research Methods for Civil Engineering	No

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## E. Management of Programme & Support for student learning

### **Management**

The programme is managed and administered through:

- Dean of School;
- Associate Dean of School (Academic Quality Assurance) who has overall responsibility for Quality Assurance;
- Associate Dean of School (Learning, Teaching & Student Experience) who has overall responsibility for Learning & Teaching;
- The Programme Leader who is responsible for the day-to-day management of the programme, advising students on the programme as a whole, and for chairing the programme committee and;
- Module Leaders who are responsible for the day-to-day management of modules;
- An Admissions Tutor, with specific responsibility for selection;
- A programme committee that includes the above plus student representation;
- An industry advisory group.

### **Support**

Students are supported by:

- An induction week at the beginning of each new academic session;
- Overseas Orientation;
- A named member of staff who will be an important point of contact, and be able to help students gain a good understanding of the School and programme they are studying, the wider University, what's expected of them and opportunities that exist;
- A substantial Student Centre that provides advice on issues such as finance, University regulations, legal matters, accommodation, international student support etc;
- Office of Dean of Students, Student Wellbeing (incorporating Counselling, Mental Health and Disability Support), Chaplaincy, and Day Nursery;
- A versatile on-line inter-active intranet and learning environment;
- Guided student-centred learning on StudyNet module sites;
- Access to extensive digital and print collections of information resources;
- Attractive modern study environments in 3 Learning Resources Centres;
- Study Success Hubs (<https://ask.herts.ac.uk/study-success-hub>), which includes a Mathematics Drop-in centre;
- Medical Centre;
- University Disability Advisors;
- Careers and Employment;
- Hertfordshire Student's Union;
- Dedicated programme site.

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## F. Other sources of information

In addition to this Programme Specification, the University publishes guidance to registered students on the programme and its constituent modules:

- A Programme (or Student) Handbook;
- A Definitive Module Document (DMD) for each constituent module;

The [Ask Herts](#) website provides information on a wide range of resources and services available at the University of Hertfordshire including academic support, accommodation, fees, funding, visas, wellbeing services and student societies.

As a condition of registration, all students of the University of Hertfordshire are required to comply with the University's rules, regulations and procedures. These are published in a series of documents called 'University Policies and Regulations' (UPRs). The University requires that all students consult these documents which are available on-line, on the UPR web site, at: <http://www.herts.ac.uk/secreg/upr/>. In particular, [UPR SA07](#) 'Regulations and Advice for Students' Particular Attention - Index' provides information on the UPRs that contain the academic regulations of particular relevance for undergraduate and taught postgraduate students.

In accordance with section 4(5) of the Higher Education and Research Act 2017 (HERA), the UK Office for Students (OfS) has registered the University of Hertfordshire in the register of English higher education providers. The Register can be viewed at: <https://www.officeforstudents.org.uk/advice-and-guidance/the-register/the-ofs-register/>.

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## G. Entry requirements

The normal entry requirements for the programme are:

Either:

- a good (2.2 or above) Honours Degree (or equivalent) in Civil or Structural Engineering.

Or:

- a good (2.2 or above) Honours Degree (or equivalent) in a science related first degree in combination to extensive experience (>7 years) in working in the construction sector in positions that involve technical related decision making, design of projects etc.

For the second requirement the programme delivery team will request substantial evidence for the work experience (e.g., reference letters) as well as reserves the right to invite candidates to a short interview.

For current entry tariff point requirements, please refer to the relevant page for the Course on the University website or on the online prospectus.

The programme is subject to the University's Principles, Policies and Regulations for the Admission of Students to Undergraduate and Taught Postgraduate Programmes (in [UPR SA03](#)), along with associated procedures. These will take account of University policy and guidelines for assessing accredited prior certificated learning (APCL) and accredited prior experiential learning (APEL).

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If you would like this information in an alternative format, please contact: [hhaq@herts.ac.uk](mailto:hhaq@herts.ac.uk)

If you wish to receive a copy of the latest External Examiner's Report for the programme, please email a request to: [aqo@herts.ac.uk](mailto:aqo@herts.ac.uk)

## MSc Civil Engineering

**Table 2: Development of Intended Programme Learning Outcomes in the Constituent Modules**

This map identifies where the programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own learning, personal and professional development as the programme progresses.

		Programme Learning Outcomes (as identified in section 1 and the following page)																									
		Knowledge & Understanding						Intellectual Skills							Practical Skills							Transferable Skills					
Module Title	Module Code	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	D5	D6
Advanced Geotechnical Design and Construction for Large Infrastructure	7ENT2028	X	X		X	X		X		X	X	X	X						X	X		X	X		X		X
Environmental Policy and Governance	7ENT2027				X	X					X	X							X	X		X					
Structural Design for Fire Safety	7ENT2025	X	X	X		X	X	X	X		X		X		X		X		X				X				
Systems, Data and Technologies for Civil Engineering	7ENT2024			X	X		X		X	X		X	X				X	X	X			X				X	
Integrated Floodplain Management	7ENT2029		X		X	X	X	X			X	X	X						X	X		X	X		X		X
Advanced Materials and Structures for Resilient Built Environment	7ENT2030	X	X				X	X			X					X	X	X	X	X		X	X	X	X	X	X
Design of Steel and Composite Structures	7ENT2033	X	X		X	X		X		X	X	X	X			X			X	X		X	X		X		X
MSc Project	7ENT2037			X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X
Civil Engineering Research and Professional Skills	7ENT2042				X	X								X			X	X				X	X	X	X	X	
Advanced Research Methods for Civil Engineering	7ENT2041	X	X				X	X						X	X		X	X				X	X	X	X	X	
Professional Work Placement	7ENT2043																				X	X	X	X	X	X	X

## KEY TO PROGRAMME LEARNING OUTCOMES

### Knowledge and Understanding

- A1. Demonstrate knowledge and comprehensive understanding of the mathematical and analytical methods employed in Civil Engineering contexts.
- A2. Demonstrate knowledge and comprehensive understanding of the engineering sciences employed in Civil Engineering contexts.
- A3. Demonstrate knowledge and comprehensive understanding of the design principles and design-to-build processes (including emerging technologies) employed in Civil Engineering contexts.
- A4. Demonstrate knowledge and comprehensive understanding of the impact of environmental, legal, social, ethical, and sustainability issues to Civil Engineering contexts.
- A5. Demonstrate knowledge and comprehensive understanding of codes of practice and industry standards appropriate to Civil Engineering with an appreciation of likely new developments.
- A6. Demonstrate knowledge and comprehensive understanding of the application of innovation, technology transfer, emerging technologies in Civil Engineering.

### Intellectual Skills

- B1. Critically analyse complex civil engineering problems to reach substantiated conclusions using appropriate techniques.
- B2. Model and critically analyse relevant engineering systems, recognising the limitations of the approaches employed.
- B3. Select and apply appropriate computational techniques to model complex problems, recognising the limitations of the techniques employed.
- B4. Fully evaluate external influences on the design process including those outside of engineering.
- B5. Innovatively design appropriate systems, components or processes (as applicable) that meet a combination of societal, user, business and customer needs as appropriate, utilising emerging technologies in both known and unfamiliar problems.
- B6. Promote advanced designs and design methods and consider the complexity of inter-related factors in designs.
- B7. Fully evaluate the complex issues involved in the design, conduct and evaluation of experimental and empirical research in civil engineering.

### Practical Skills

- C1. Apply analytical skills and modelling techniques to solve problems, including unfamiliar problems, appropriate to Civil Engineering.
- C2. Design and perform experimental work and draw conclusions based on critical evaluation, making sound judgement in the absence of complete data.
- C3. Select and use appropriate computational techniques and computer-based engineering tools to solve problems, recognising the limitations of the techniques and/or tools employed.
- C4. Produce technical documentation and clearly communicate this to a range of audiences.
- C5. Critically evaluate Civil engineering designs at system, component or process level.
- C6. Plan and manage a project, taking into account technical, commercial, industrial and other external constraints.
- C7. Develop practical, technical and communication skills within an industrial environment.

### Transferable Skills

- D1. Communicate effectively on complex engineering matters with technical and non-technical audiences, orally, graphically or in writing.
- D2. Select and use appropriate IT tools.
- D3. Manage time and resources effectively.
- D4. Function effectively as an individual, and as a member or leader of a team.
- D5. Evaluate available data using engineering principles, and use engineering judgment to work with information that may be uncertain or incomplete.
- D6. Apply an integrated or systems approach to the solution of complex problems
- D7. Plan and record self-learning and development, as the foundation for lifelong learning.

**Table 3: Development of Graduate Attributes in the Constituent Modules**

This map identifies where the Graduate Attributes are delivered in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the development of the Graduate Attributes (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own personal and professional development as the programme progresses.

D = Delivered

Module Title	Module Code	Professionally Focused	Globally Minded	Sustainability Driven	Digitally capable & confident	Inclusive and collaborative	Evidenced based and Ethical
Advanced Geotechnical Design and Construction for Large Infrastructure	7ENT2028	D			D		
Environmental Policy and Governance	7ENT2027	D	D	D			
Structural Design for Fire Safety	7ENT2025	D				D	
Systems, Data and Technologies for Civil Engineering	7ENT2024	D			D		
Integrated Floodplain Management	7ENT2029	D		D			
Advanced Materials & Structures for Resilient Built Environment	7ENT2030	D		D	D		
Design of Steel and Composite Structures	7ENT2033	D			D		
MSc Project	7ENT2037	D	D		D		D
Civil Engineering Research and Professional Skills	7ENT2042	D				D	D
Advanced Research Methods for Civil Engineering	7ENT2041	D	D		D		D
Professional Work Placement	7ENT2043	D				D	D

## Section 2

### Programme management

**Relevant QAA subject benchmarking statements**

**Type of programme**

**Date of validation/last periodic review**

**Date of production/ last revision of PS**

**Relevant to level/cohort**

**Administrative School**

**Language of Delivery**

Engineering

Taught Postgraduate

July 22

**February 2023**

Level 7 entering September 2023

School of Physics, Engineering & Computer Science

English

**Table 4 Course structure**

Course details			
Course Code	Course Description	HECOS	UCAS
PECIVM	MSc Civil Engineering	100148	-
PECIVME	MSc Civil Engineering - Extended	100148	-