

**University of the West of Scotland**  
**Postgraduate Programme Specification**

**Session: 2020/21**

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Status: Published

<b>Named Award Title:</b>	<b>MSc Civil Engineering</b>
<b>Award Title for Each Award:</b>	<b>MSc Civil Engineering PG Dip Civil Engineering PG Cert Civil Engineering</b>
<b>Date of Validation:</b>	December 2015
<b>Details of Cohorts Applies to:</b>	January 2020 entrants into the Level 11
<b>Awarding Institution/Body:</b>	University of the West of Scotland
<b>Teaching Institution:</b>	University of the West of Scotland
<b>Language of Instruction &amp; Examination:</b>	English
<b>Award Accredited By:</b>	Accredited by the Joint Board of Moderators as a Technical MSc
<b>Maximum Period of Registration:</b>	Full time - 3 years, Part time - 4 years
<b>Mode of Study:</b>	Full Time Part Time
<b>Campus:</b>	Paisley
<b>School:</b>	School of Computing, Engineering and Physical Sciences
<b>Programme Board</b>	Engineering
<b>Programme Leader:</b>	Stuart Tennant

## **Admission Criteria**

Candidates must be able to satisfy the general admission requirements of the University of the West of Scotland as specified in Chapter 2 of the University Regulatory Framework together with the following programme requirements:

### **Appropriate Undergraduate Qualification**

Bachelors Honours degree (normally a JBM accredited 2.2 or above) in Civil Engineering, or a relevant discipline, from a UK academic institution or an equivalent international degree qualification. Applicants with a JBM accredited IEng degree will need to demonstrate competences in the subject areas of Structures, Materials and Geotechnics.

### **Other Required Qualifications/Experience**

Applicants may also be considered with other academic, vocational or professional qualifications deemed to be equivalent at the discretion of the Programme Leader.

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### **Further desirable skills pre-application**

Where English is not the first language, applicants must be able to satisfy the University of their competence in English. For all programmes of the university, except for International Foundation as detailed in 2.12 of the regulations, applicants must be able to satisfy the University of their competence in English with an overall IELTS comparable score of 6.0 or above (with a minimum of 5.5 in each component).

## **General Overview**

The MSc in Civil Engineering is a unique UK postgraduate taught programme that draws upon the research strengths of the University of The West of Scotland in Civil Engineering and other engineering disciplines. It offers an advanced qualification to engineering graduates wishing to progress their career and develop an in-depth and practical understanding of Civil Engineering in the provision of sustainable and resilient civil engineering solutions for the built environment. The content of the programme is both timely and is desired by industry both locally and globally. In terms of the internationalisation the School has a well-established partner institution in China – Changchun Institute of Technology.

The MSc is intended to be completed in a 12 month period synchronised with the main undergraduate intake, but running through to the end of the summer break period. There is the opportunity for a January intake; however, this will extend the length of the programme to 18 months.

The Postgraduate Certificate (PG Cert) and Postgraduate Diploma (PG Dip) awards provide an exit award from the Masters programme at the end of Trimesters 1 and 2 respectively. However, the main focus is on completion of the MSc.

The first trimester comprises of three core taught modules, worth 20 credits each. These include Project Scheme Design (group-based scheme design project), Advanced Materials for Sustainable Construction and Project Management. Trimester two consists of a further 60 credits comprising an Advanced Structural Analysis module (10 credits), a Civil Engineering Project Design module (20 credits), a Research Design & Methods module (10 credits), a Finite Element Analysis – Linear module (10 credits) and an Advanced Geotechnical Engineering module (10 credits). All of the Trimester 1 and 2 modules are compulsory. The group-based activities (Project Scheme Design & Civil Engineering Project Design) involve the application of design and project management approaches and techniques, and provide the basis for an integrated approach to civil & structural engineering, but with the possibility of specialising in the chosen Masters topic. It is a feature of this programme that the project work proceeds as far as possible in a way typical of best industrial practice, with a focus on Health and Safety implicit within every module studied. The Trimester 1 Project Scheme Design module undertakings have significant scheme planning features including the definition of milestones and deliverables according to a time-scale defined by the students in consultation with their academic supervisor and (where appropriate) their industrial advisor.

Student learning is through an arrangement of lectures, tutorials, case studies, laboratory work, research and independent learning. The units are continuously assessed (reports, projects, oral presentations, seminars), examined by a written exam, or a combination of these assessment methods.

The remaining balance of the overall calendar year is devoted to completion of each student's individual MSc Dissertation, scheduled and started in the early third trimester. A written Thesis on this work is submitted and an oral presentation of the work delivered, towards the end of the academic year. This MSc Dissertation is worth

60 credits and will support existing research programmes wherever possible. Where possible, the projects will be based on current UWS research or a company-based research project (particularly beneficial to part-time students). To ease pressure on the School's laboratories it may be possible for some students to carry out research on desk-top projects, including Computational Modelling. Students will be educated using a range of practical tools within each module; in particular, they will leave with knowledge of rigorous decision analysis to support the use of innovative civil engineering techniques and sustainable construction. Most modules will contain a range of contributions from the external guest lecturer (industrial practitioners). Site visits will also be incorporated into the programme wherever possible. The programme's academic content reflects the desire to provide a grounding in the core areas of Structures, Materials and Geotechnics.

Students, upon completion of the course, will have attained a Masters level qualification and may pursue additional postgraduate study or doctoral level both within the University and at other Higher Education Institutes. These may be either on a full-time/part-time or post-experience basis.

Modules within the programme, with exception of the dissertation modules, share a standard delivery model based around several hours of contact time per module per week, with hours allocated to face to face delivery in lectures/seminar and additional tutorial time. There will also be aspects of the learning Classes will also be "Flipped" or "blended" learning is where students undertake some of their learning outside of the classroom. Opportunities will be given for students to become exposed to industry practitioners acting on a consultancy basis on design problems, where their learning will be problem-based and will involve the assessment of a combination of physical, economic and financial constraints. Each module is supported by further online content hosted via the University's Campus Moodle virtual learning environment (VLE). This will include access to directed readings, online discussion fora, wiki sites and embedded content from a variety of other settings. Whilst directed readings and tasks will be provided via the Campus Moodle platform, students will be encouraged and expected to take responsibility for their own learning by contributing to the activities provided, making decisions about which additional content to access and uploading their own additional materials for distribution and discussion among the student body.

## **Graduate Attributes, Employability & Personal Development Planning**

UWS Graduate Attributes focus on academic, personal and professional skills and throughout the programmes that these skills develop competent and innovative graduates who are universally prepared, work-ready and successful (<https://www.uws.ac.uk/current-students/your-graduate-attributes/>). The MSc Civil Engineering Programme will support students to develop following UWS graduate attributes:

Academic - critical and analytical thinking, inquiring, knowledgeable, digitally literate, innovative, and problem-solving;

Personal - ethically minded, creative, imaginative;

Professional - research-minded and socially responsible.

Upon completion of the course, students will have attained SCQF level 11 skills in relation to employment and PDP in the following areas: Knowledge and Understanding; Generic Cognitive Skills; Communication, ICT and Numeracy Skills; Autonomy, Accountability and Working With Others.

This Programme is accredited by the Joint Board of Moderators as a Technical MSc and meeting Further Learning requirements for a Chartered Engineer (CEng). Graduates will, therefore, achieved the additional requisite skills to register with the appropriate professional body with a view to becoming a Chartered Engineer.

## **Work Based Learning/Placement Details**

Work Based Learning is not applicable to the MSc in Civil Engineering.

## **Engagement and Attendance**

In line with the Academic Engagement and Attendance Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on Moodle, and complete assessments and submit these on time.

For the purposes of this programme, this equates to the following:

In line with the Academic Engagement and Attendance Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on Moodle, and complete assessments and submit these on time.

For this programme, this equates to the following:

Students are expected to attend all timetabled sessions and to engage with all formative and summative assessment elements of all the modules that are included in the programme specification as core modules as well as any optional module when applicable.

## **Equality and Diversity**

The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: [UWS Equality and Diversity Policy](#)

**Programme structures and requirements, SCQF level, term, module name and code, credits and awards ( [Chapter 1, Regulatory Framework](#) )**

A. PG Cert  
Learning Outcomes (Maximum of 5 per heading)

<b>Knowledge and Understanding</b>	
<b>A1</b>	An overall professional knowledge and integration of the main areas of the Civil Engineering profession in relation to its disciplines and specialisms into the overall design and development of associated projects.
<b>A2</b>	A Critical understanding and embedment of the main theories, concepts and principles within Civil Engineering towards the practice of the profession.
<b>A3</b>	Comprehension, appreciation and critical understanding of a range of specialised theories applied to the dynamic nature of Civil Engineering Knowledge towards understanding each individual project.
<b>A4</b>	Extensive, detailed and critical knowledge and understanding in Civil Engineering, much of which are informed by developments within each specialism of Civil Engineering.
<b>Practice - Applied Knowledge and Understanding</b>	
<b>B1</b>	Gain expertise in using a significant range of the principal professional skills, techniques, practices and/or materials associated with the Civil Engineering Profession.
<b>B2</b>	In the demonstration of originality and creativity, including in Civil Engineering practice and application whilst practising within a wide and often changeable variety of environments.
<b>B3</b>	Develop expertise in a range of specialised Civil Engineering skills, techniques, practices and associated materials that are at the forefront of, and are informed by recent developments.
<b>B4</b>	In planning and executing a significant project of Civil Engineering investigation or development.
<b>Communication, ICT and Numeracy Skills</b>	
<b>C1</b>	Communicate with peers, more senior colleagues and specialists.
<b>C2</b>	Communicate, using appropriate Civil Engineering methods, to a range of audiences with different levels of knowledge/expertise.
<b>C3</b>	Use a wide range of ICT applications to support and enhance work at this level and adjust features to suit the purpose of the associated task.
<b>Generic Cognitive Skills - Problem Solving, Analysis, Evaluation</b>	
<b>D1</b>	Identify, conceptualise and define specific problems and issues in Civil Engineering Design and Development.
<b>D2</b>	Develop original and creative responses to problems and issues within a Civil Engineering context.
<b>D3</b>	The Application of critical analysis, evaluation and synthesis to current issues, or issues that are informed by current developments in Civil Engineering.
<b>Autonomy, Accountability and Working With Others</b>	

<b>E1</b>	Take responsibility for own work and also take significant responsibility for the work of others within a team environment
<b>E2</b>	Demonstrate leadership and initiative and make an identifiable contribution to change and development and new thinking.
<b>E3</b>	Take significant responsibility for a range of resources in order to complete specific tasks.

#### Core Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	

\* Indicates that module descriptor is not published.

Footnotes

#### Optional Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
11	ENGG11026	Adv Materials for Sustainable Construction	20				
11	ENGG11025	Advanced Geotechnical Engineering	10				
11	ENGG11027	Advanced Structural Analysis	10				
11	ENGG11021	Applied Finite Element Analysis-Linear	10				
11	ENGG11028	Civil Engineering Project Design	20				
11	ENGG11031	Project Management (Engineering - B)	20				
11	ENGG11040	Project Scheme Design	20				
11	COMP11017	Research Design and Methods	10				

\* Indicates that module descriptor is not published.

Footnotes

The above modules are offered as optional for the PgCert Civil Engineering Award. The modules are core for the PgD Civil Engineering and MSc Civil Engineering awards.

#### Criteria for Progression and Award

A total of 60 credits must be achieved from the above modules to gain the PGCert Civil Engineering.



<b>Knowledge and Understanding</b>	
<b>A1</b>	An overall professional knowledge and integration of the main areas of the Civil Engineering profession in relation to its disciplines and specialisms into the overall design and development of associated projects.
<b>A2</b>	A Critical understanding and embedment of the main theories, concepts and principles within Civil Engineering towards the practice of the profession.
<b>A3</b>	Comprehension, appreciation and critical understanding of a range of specialised theories applied to the dynamic nature of Civil Engineering Knowledge towards understanding each individual project.
<b>A4</b>	: Extensive, detailed and critical knowledge and understanding in Civil Engineering, much of which or informed by, research and development within each specialism within Civil Engineering.
<b>A5</b>	A critical awareness of current issues within the Civil Engineering, and within its subdivision/specialisms.
<b>Practice - Applied Knowledge and Understanding</b>	
<b>B1</b>	Gain expertise in using a significant range of the principal professional skills, techniques, practices and/or materials associated with the Civil Engineering Profession.
<b>B2</b>	Develop expertise in a range of specialised Civil Engineering skills, techniques, practices and associated materials that are at the forefront of, and are informed by recent developments/research.
<b>B3</b>	The application of a range of standard and specialised research techniques and equivalent mechanisms within the Civil Engineering Industry.
<b>B4</b>	In the demonstration of originality and creativity, including in Civil Engineering practice and application.
<b>B5</b>	Practising within a wide and often changeable variety of environments in the field of Civil Engineering.
<b>Communication, ICT and Numeracy Skills</b>	
<b>C1</b>	Communicate, using appropriate Civil Engineering methods, to a range of audiences with different levels of knowledge/expertise.
<b>C2</b>	Communicate with peers, more senior colleagues and specialists.
<b>C3</b>	Use a wide range of ICT applications to support and enhance work at this level and adjust features to suit the purpose of the associated task.
<b>C4</b>	Undertake critical evaluations of a wide range of numerical and graphical data.
<b>Generic Cognitive Skills - Problem Solving, Analysis, Evaluation</b>	
<b>D1</b>	The Application of critical analysis, evaluation and synthesis to current issues, or issues that are informed by current developments in Civil Engineering.
<b>D2</b>	Identify, conceptualise and define specific problems and issues in Civil Engineering Design, Research and Development.

<b>D3</b>	Develop original and creative responses to problems and issues within a Civil Engineering context.
<b>D4</b>	Critically review, consolidate and broaden knowledge, skills, practices and thinking within the discipline of Civil Engineering.
<b>D5</b>	Deal with complex issues and make informed judgements in situations in the absence of complete or consistent data/information.
<b>Autonomy, Accountability and Working With Others</b>	
<b>E1</b>	Exercise substantial autonomy and initiative in Civil Engineering professional and technical activities.
<b>E2</b>	Work in a peer relationship with specialist practitioners.
<b>E3</b>	Practise in ways which draw on critical reflection on own and others' roles and responsibilities.
<b>E4</b>	Manage complex ethical and professional issues and make informed judgements on issues not addressed by current professional and/or ethical codes or practices.

#### Core Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
11	ENGG11026	Adv Materials for Sustainable Construction	20				
11	ENGG11025	Advanced Geotechnical Engineering	10				
11	ENGG11027	Advanced Structural Analysis	10				
11	ENGG11021	Applied Finite Element Analysis-Linear	10				
11	ENGG11028	Civil Engineering Project Design	20				
11	ENGG11031	Project Management (Engineering - B)	20				
11	ENGG11040	Project Scheme Design	20				
11	COMP11017	Research Design and Methods	10				

\* Indicates that module descriptor is not published.

#### Footnotes

All core modules (total of 120 credits) are required for the award of PgDip Civil Engineering. Students who achieve less than 120 credits may be eligible for the award PgCert Civil Engineering.

#### Optional Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	

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\* Indicates that module descriptor is not published.

Footnotes

**Criteria for Progression and Award**

A total of 120 credits must be achieved to gain the PgDip Civil Engineering, and therefore progress onto the MSc Civil Engineering.

C. Masters  
Learning Outcomes (Maximum of 5 per heading)

<b>Knowledge and Understanding</b>	
<b>A1</b>	An overall professional knowledge and integration of the main areas of the Civil Engineering profession in relation to its disciplines and specialisms into the overall design and development of associated projects.
<b>A2</b>	A Critical understanding and embedment of the main theories, concepts and principles within Civil Engineering towards the practice of the profession.
<b>A3</b>	Comprehension, appreciation and critical understanding of a range of specialised theories applied to the dynamic nature of Civil Engineering Knowledge towards understanding each individual project.
<b>A4</b>	Extensive, detailed and critical knowledge and understanding in Civil Engineering, much of which or informed by, research and development within each specialism within Civil Engineering.
<b>A5</b>	A critical awareness of current issues within the Civil Engineering, and within its subdivision/specialisms.
<b>Practice - Applied Knowledge and Understanding</b>	
<b>B1</b>	In planning and executing a significant project of Civil Engineering research, investigation or development.
<b>B2</b>	The application of a range of standard and specialised research techniques and equivalent mechanisms within the Civil Engineering Industry.
<b>B3</b>	In the demonstration of originality and creativity, including in Civil Engineering practice and application.
<b>Communication, ICT and Numeracy Skills</b>	
<b>C1</b>	Communicate with peers, more senior colleagues and specialists.
<b>C2</b>	Use a wide range of ICT applications to support and enhance work at this level and adjust features to suit the purpose of the associated task.
<b>C3</b>	Undertake critical evaluations of a wide range of numerical and graphical data.
<b>Generic Cognitive Skills - Problem Solving, Analysis, Evaluation</b>	
<b>D1</b>	The Application of critical analysis, evaluation and synthesis to current issues, or issues that are informed by current developments in Civil Engineering.
<b>D2</b>	The Application of critical analysis, evaluation and synthesis to current issues, or issues that are informed by current developments in Civil Engineering.
<b>Autonomy, Accountability and Working With Others</b>	
<b>E1</b>	Take responsibility for own work and also take significant responsibility for the work of others within a team environment.
<b>E2</b>	Take significant responsibility for a range of resources in order to complete specific tasks.
<b>E3</b>	Work in a peer relationship with specialist practitioners.

<b>E4</b>	Demonstrate leadership and initiative and make an identifiable contribution to change and development and new thinking.
<b>E5</b>	Manage complex ethical and professional issues and make informed judgements on issues not addressed by current professional and/or ethical codes or practices.

#### Core Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	
11	ENGG11029	MSc Dissertation (Civil Eng/Const Mgt)	60				

\* Indicates that module descriptor is not published.

Footnotes

#### Optional Modules

SCQF Level	Module Code	Module Name	Credit	Term			Footnotes
				1	2	3	

\* Indicates that module descriptor is not published.

Footnotes

#### Criteria for Award

A total of 180 credits is required for the award of MSc Civil Engineering.

<b>Regulations of Assessment</b>
<p>Candidates will be bound by the general assessment regulations of the University as specified in the <a href="#">University Regulatory Framework</a>.</p> <p>An overview of the assessment details is provided in the Student Handbook and the assessment criteria for each module is provided in the module descriptor which forms part of the module pack issued to students. For further details on assessment please refer to Chapter 3 of the Regulatory Framework.</p> <p>To qualify for an award of the University, students must complete all the programme requirements and must meet the credit minima detailed in Chapter 1 of the Regulatory Framework.</p>

## **Changes**

**Changes made to the programme since it was last published:**

**Version Number: 1.03**