University of Sheffield

Programme Specification

This specification provides a summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided.

The content of our courses is reviewed annually to make sure it's up-to-date and relevant. Individual modules are occasionally updated or withdrawn. This is in response to discoveries through our world-leading research; funding changes; professional accreditation requirements; student or employer feedback; outcomes of reviews; and variations in staff or student numbers. In the event of any change we will inform students and take reasonable steps to minimise disruption.

Programme Details

1. Programme title	Civil Engineering		
2. Award type	Bachelor of Engineering		
3. Programme details	**FHEQ Level:** 6	**Mode of Study:** Full time Full time	**Duration:** 3 years 4 years (Foundation)
4. Faculty	Faculty of Engineering		
5. School	**Owning:** School of Mechanical, Aerospace and Civil Engineering		
6. Accrediting Professional or Statutory Body	Joint Board of Moderators (JBM) Institution of Civil Engineers (ICE) Institution of Structural Engineers (IStructE) Chartered Institution of Highways and Transportation (CIHT) Institute of Highway Engineers (IHE) Engineering Council		
7. HECoS code *Select between one and three codes from the HECoS vocabulary.*	**Code:** 100148 **Percentage:** 100	**Code:** **Percentage:**	**Code:** **Percentage:**
Programme code (internal use)	MACU012 (Full time) MACU024 (Foundation)		

9. Programme aims

The programme aims to:	
A1	To provide students with a sound technical foundation in the key areas of civil and structural engineering including structures, geotechnics, water, and the environment.
A2	To introduce the multi-disciplinary, global and professional context in which civil and structural engineering projects are developed, enabling students to develop an appreciation of the professional responsibilities of civil and structural engineers to society and the environment.
A3	To develop students' ability to produce effective, innovative designs solutions for the benefit of humanity, by taking a holistic approach, integrating engineering principles, subject-specialist knowledge with professional engineering skills and attitudes.
A4	For students to develop independence of thought, a critical approach to new information and ability to make rational, evidence-based decisions.
A5	For students to develop key engineering and professional skills and attitudes valued by employers, including ability to communicate clearly and effectively in a professional environment and to plan and manage work both independently and as part of a diverse but integrated team.
A6	To inspire intellectual curiosity and develop the breadth of vision for students to become life-long learners by appreciating the need to adapt and keep up to date with changing knowledge and requirements.

10. Programme learning outcomes

Knowledge and understanding (K) On successful completion of the programme, students will be able to demonstrate knowledge and understanding of:	
K1	Broad knowledge and understanding of fundamental concepts, principles and theories of engineering science relevant to civil engineering.
K2	Broad knowledge and understanding of the mathematics necessary to represent physical concepts and apply engineering science to civil engineering.
K3	Broad knowledge and understanding of analytical and design methods used in civil and structural engineering.
K4	Knowledge and understanding of the use of information and computation technology for analysis, design and management.
K5	An understanding of the operation of the civil engineering industry, including business practice and project management.
K6	An understanding of the professional and ethical responsibilities of civil engineers, the global context and impacts of civil engineering projects, and the social, environmental, ethical, economic and commercial considerations and constraints that influence engineering decisions.
Skills and other attributes (S) *When considering the skills and attributes developed in this programme, please refer to the Sheffield Graduate attributes (SGAs). SGAs can be found here*	

On successful completion of the programme, students will be able to:	
S1	Use engineering science, mathematics and, where appropriate, information technology to analyse and develop solutions to engineering problems.
S2	Analyse and interpret experimental and other numerical data.
S3	Design a system, component, process or structure to meet a need.
S4	Be creative and innovative in solving unfamiliar problems and developing designs.
S5	Take an integrated / holistic approach to solving problems and developing designs, applying professional judgement to take into account risks, costs, benefits, safety, reliability, social and environmental impact.
S6	Integrate and evaluate information and data from a variety of sources, exercising independent thought and judgement, taking a critical approach to new information.
S7	Undertake health and safety risk assessments and devise safe systems of working.
S8	Plan and undertake research to investigate a technical / design problem.
S9	Plan and conduct safely practical experiments to investigate engineering behaviour and material properties.
S10	Use laboratory equipment to generate data.
S11	Undertake basic surveying activities.
S12	Prepare technical sketches and drawings, using hand or computer methods as appropriate.
S13	Write computer programs to perform analysis of engineering problems.
S14	Use commercial computer software for analysis and design.
S15	Use published scientific / engineering literature effectively.
S16	Prepare technical reports and give technical presentations.
S17	Use information technology for communication and presentation.
S18	Communicate effectively (in writing, orally and through drawings).
S19	Collaborate with others in interdisciplinary teams.
S20	Plan and manage their time and resources efficiently.
S21	Find information and learn independently in familiar and unfamiliar situations, through critical enquiry.
S22	Review their experience and level of competence and plan further personal / professional development in a wide context throughout their career.

11. Learning and teaching methods *(this should include a summary of methods used throughout the programme, including any unique features and should be written with a student focus as this information will display to current students and applicants i.e. prospectus)*

Development of the learning outcomes is promoted through the following teaching and learning methods:

- Lectures – used to transmit information, explain theories and concepts, and illustrate methods of analysis or design. For most lecture programmes tutorial sheets are provided to enable students to develop their understanding during private study.
- Practical classes - students undertake laboratory experiments, surveying and computing to gain practical skills.
- Coursework assignments - generally require students to seek additional information and work on their own, or sometimes in small groups, to develop understanding of subject matter.
- Tutorials and example classes - run for small groups or a whole class to help students with their understanding and to resolve problems as they work through tutorial sheets.
- Design classes - students work to solve design problems related to real engineering situations in order to learn design methods and to practise associated analytical techniques.
- Individual investigative project – a major study involving a significant research component. It is supervised by a member of the academic staff but allows the student ample scope to display initiative, originality and creativity.
- Group projects - teams, typically of 4 - 6 students, collaborate to tackle realistic design and field-based engineering projects by working through various design stages from concept and elaboration of design briefs to elements of detailed design. These projects, which increase in complexity over the duration of the course, develop a wide range.

12. Assessment and feedback methods *(this should include the range of types of methods used and should be written with a student focus as this information will display to current students and applicants i.e. prospectus)*

Formative feedback is provided in all modules, sometimes through the teaching and learning methods outlined above (e.g. advice in tutorial, example and design classes) and sometimes in the form of written comments or verbal discussion relating to coursework assignments. The feedback is usually given by academic staff and teaching assistants, but also through organised peer- and self-assessment, which are very effective learning methods.

Opportunities to demonstrate achievement of the learning outcomes are provided through the following assessment methods:

- Written examinations – typically of 2 or 3 hours duration.
- Coursework submissions - these include design studies, computational assignments, laboratory reports and essays.
- Class tests - tests conducted in a lecture theatre or workroom during the main teaching periods to assess progress, as an alternative to more formal assessment methods.
- Oral presentations – most group design projects involve an oral presentation of the proposed design in which each group member plays a part. The audience may include industrial visitors, fellow students and academics.
- Individual project reports – these include intermediate and final written reports for the Individual Investigative Project and other written reports describing individual work and experience gained in group design projects.

- Group design project reports – written reports assembled by teams of students with shared authorship.

Version Number:	**Purpose / Change:**	**Cohort affected: (academic year and level)**	**Date change approved:**
1			March 2015
2			September 2023
3			October 2024
4	Programme Simplification	25/26 - Foundation 26/27 - Year 1	June 2025

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