

University of Plymouth

Faculty of Science and Engineering

School of Geography, Earth and Environmental Science

Programme Specification

Master of Science (MSc)
in
Environmental and Engineering Geology
7035

September 2021

1. MSc Environmental and Engineering Geology

Final award title: MSc Environmental and Engineering Geology

Level 7 Intermediate award title(s):

Completion of 60 credits: Postgraduate Certificate

Level 7 Intermediate award title(s):

Completion of 120 credits: Postgraduate Diploma

UCAS code N/A

HECOS code 101106

2. Awarding Institution: University of Plymouth

Teaching institution(s): University of Plymouth

3. Accrediting body(ies)

4. Distinctive Features of the Programme and the Student Experience

The University's [Education and Student Experience Strategy](#) has an overarching aim: "To deliver outstanding education that makes a difference, improving local, national and global communities". This programme meets that aim by educating students who will, upon graduation, contribute to the development of measures for the prevention, or remediation, of geological hazards as a result of the interaction of geology and humankind. The distinctive feature of the MSc Environmental and Engineering Geology programme, and the reasons why students should study this subject area at Plymouth, are:

- **Professional experience.** Course content uses industry provided standards and case-studies and offers a substantial work placement in environmental consultancy / environmental engineering companies, specialist geotechnical companies, civil engineering contractors and consultancies, regulatory authorities and environmental organisations as part of the course.
- **Experiential learning:** A focus on learning in laboratory and field environments, training in the correct use of field and laboratory analytical equipment with professional engineering geologists.
- **Contemporary knowledge and skills.** Provides students with an advanced knowledge of engineering geology in a sustainable environmental context. Offers students the opportunity to specialise in the analysis and interpretation of environmental and engineering information in order to help solve contemporary problems focussed around real-life case studies.
- **Authentic assessment:** students will demonstrate key skills via assessments that reflect the types of projects and tasks expected from them in a professional working environment. Examples include generation and interpretation of laboratory data, appropriate analytical method selection, risk assessments, GIS presentation of data, and the writing of professional reports.
- **Self-directed learning, project management and research.** Students will undertake a self-directed research project on an agreed topic of their choice with supervision from a suitably qualified member of staff.
- **Interdisciplinary learning.** Students will draw from advanced teaching and learning in the fields of geology, engineering and environmental science by experienced teaching and research staff that are specialists in their respective field. Crucially learning the ability to communicate between and draw knowledge across disciplines in preparation for a multidisciplinary working environment.
- **Academically challenging:** suitable preparation for students preparing to undertake a PhD in a related area (chemistry, geology, environmental science) that may not currently hold the appropriate undergraduate skills.

5. Relevant QAA Subject Benchmark Group(s)

There is no specific Masters-level Environmental and Engineering Geology benchmark group. We have therefore employed the most appropriate benchmark group to the programme, namely

- MSc Engineering
- Earth Sciences, Environmental Sciences and Environmental Studies
- the QAA 'Masters' Degree Characteristics'

6. Programme Structure

| | | | |
|--|--|---|--|
| Semester 1 | GEES528 Soil and Rock Mechanics, Characterisation and Field Skills (20 credits) | GEES515 Professional Practice in the Environmental Sector (20 credits) | GEES519 Environmental Knowledge: from Field to Stakeholder (20 credits) |
| Semester 2 | GEES529 Site Investigation and Geohazards (20 credits) | ENVS5002 Investigation and Assessment of Contaminated Environments (20 credits) | |
| | ^{*2} GEES530 Professional Experience in Environmental and Engineering Geology (20 credits) | | |
| GEES520 MSc Dissertation (60 credits) | | | |

^{*2}Semester 2 is 15 weeks long and includes the Easter vacation. The taught element of each of the modules shown (GEES529+ ENVS5002) is completed by the start of the Easter vacation, allowing the work placement element (GEES530) to occur, without interruption, in at least part of the vacation and the second part of the semester.

7. Programme Aims

The aim of the MSc Environmental and Engineering Geology programme is to offer an employability and practically focused curriculum in environmental and engineering geology to meet the current and future needs of the environmental and engineering geology industry through post graduate training. This new programme aims to provide students with training in:

- 1) The science devoted to the investigation, study and solution of environmental and engineering problems which may arise as the result of the interaction between geology and the works or activities of humans, as well as of the prediction of and development of measures for the prevention or remediation of geological hazards.
- 2) Developing knowledge of a wide variety of research methods, assessment techniques and consultation practices relevant to environmental and engineering geology practice.
- 3) Skill development to design and undertake site investigations, environmental monitoring and assessment programmes.

8. Programme Intended Learning Outcomes

8.1. Knowledge and understanding

On successful completion graduates should have developed:

- 1) A critical awareness of current problems and new insights in environmental and engineering geology practice, much of which is at, or informed by, the forefront of the academic discipline.
- 2) A comprehensive understanding of quantitative & qualitative research, site investigations and environmental assessment methods, and the ability to apply these methods to their own work.

8.2. Cognitive and intellectual skills

On successful completion graduates should have developed:

- 1) The ability to undertake analysis of complex, incomplete, or contradictory data and to effectively communicate the outcome of such analyses.
- 2) The ability to synthesize theory and data / information in a manner that may be innovative, utilising knowledge or processes from the forefront of environmental and geological science.
- 3) The ability to critically evaluate research from a methodological and theoretical perspective.

- 4) The ability to apply theory and research methods to solve problems, including the ability to generate novel hypotheses based on previous research and theory.

8.3. Key and transferable skills

On successful completion graduates should have developed the ability to:

- 1) Work effectively with a team as leader or member.
- 2) Identify problems and develop strategies for solving them, using the range of available resources.
- 3) Competently undertake research, monitoring and assessment tasks with minimum guidance.
- 4) Be an independent and self-critical learner, managing own requirements for continued professional development.
- 5) Engage confidently in academic and professional communication with others, including specialist and non-specialist audiences.

8.4. Employment related skills

On successful completion graduates should have developed:

- 1) The ability to design and conduct original research and monitoring programmes relevant to environmental and engineering geology consultancy and practice.
- 2) The awareness of issues involved in research with human participants, including research design, issues of validity and reliability, and ethical considerations.
- 3) The ability to use reflection to explore knowledge, skills and attitudes which inform and facilitate independent research and practice in environmental and engineering geology consultancy and practice.

8.5. Practical skills

On successful completion graduates should have developed:

- 1) The ability to operate in complex and unpredictable and/or specialised contexts.
- 2) The ability to exercise initiative and personal responsibility in professional laboratory and consultancy practice.
- 3) The ability to use their technical expertise to perform analyses with precision and have the ability to adapt their skills, or develop new skills and/or procedures, for new situations.

9. Admissions Criteria, including APCL, APEL and Disability Service arrangements

The Programme Leader (who is also responsible for admissions) uses the criteria below to guide their admissions decisions. Wherever possible, established relationships or equivalencies to other international qualifications will be used in making decisions.

Students admitted to the MSc programme are expected to have a good Honours degree in a relevant discipline e.g., Environmental Science, Geosciences, Geography. The Programme Leader is responsible for ensuring that applicants have, through prior learning (acquired by formal study and/or experience) in the critical subject areas, developed the requisite knowledge, understanding and skills required for successful participation in this programme. Candidate suitability is assessed through a combination of the written application, evidence of formal qualifications, personal references and candidate interviews (where appropriate).

In compliance with the University's policies of equality and diversity, and disability, all appropriately qualified applicants will be given equal consideration during the selection process. The University welcomes applications from people with disabilities and the support available is described [here](#).

10. Entry requirements (in summary):

1. An honours degree (normally at upper second class or better) in a relevant discipline (e.g., BSc Geography, Environmental Science, Geological Sciences) OR overseas equivalent. If you apply with a recent lower second-class degree along with relevant industry experience, this will also be considered. If you apply without recent formal qualifications, but with relevant industry experience you will also be considered.
2. A minimum grade C in English Language at GCSE level OR a minimum overall score of 6.5 in IELTS with no less than 5.5 in any component.

11. Accreditation of Prior Certificated Learning (APCL)

Students can exceptionally apply for exemption from any modules through APEL or APCL, following standard University procedures, as described in the current University regulations on [admissions](#). This decision will be made by the Programme Leader.

12. Progression criteria for Final and Intermediate Awards

Successful completion of the final and intermediate awards, including the award of the MSc with Merit and Distinction, is as set out in the University's current [academic regulations](#).

13. Non-Standard Regulations

None

14. Transitional Arrangements

None

Appendices

Programme Specification Mapping (PGT)

Programme Specification Mapping (PGT): module contribution to the meeting of Award Learning Outcomes

Tick those Award Learning Outcomes the module contributes to through its assessed learning outcomes.

| Module | Credits | Core Elective | | | | | | | | | | | | | | | | Compensation Y/N | Assessment element(s) and weightings [use KIS definition] E1 - exam E2 - clinical exam T1 - test C1 - coursework A1 - generic assessment P1 - practical | | |
|--------------------------------------|---------|---------------|---------------------------|---|---------------------------------|---|---|---|---------------------------|---|---|---|---|---------------------------|---|---|------------------|------------------|--|----------------|---|
| | | | Knowledge & understanding | | Cognitive & intellectual skills | | | | Key & transferable skills | | | | | Employment related skills | | | Practical skills | | | | |
| | | | 1 | 2 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 1 | | | 2 | 3 |
| GEES528 | 20 | C | X | X | X | X | X | X | | | | | | | | X | | X | Y | E1 50% P1 50% | |
| GEES515 | 20 | C | | | X | X | X | X | | X | X | X | X | | X | X | | | Y | C1 100% A1 P/F | |
| GEES519 | 20 | C | | X | X | X | X | X | | X | X | X | X | X | X | X | X | X | Y | C1 100% | |
| Learning Outcomes 60 credits | | | X | X | X | X | X | X | | X | X | X | X | X | X | X | X | X | | | |
| GEES529 | 20 | C | X | X | X | X | X | X | | X | X | X | X | X | X | X | X | X | Y | C1 100% | |
| ENVS5002 | 20 | C | X | X | X | X | X | X | | X | X | X | X | X | | X | X | X | Y | C1 100% | |
| GEES530 | 20 | C | | X | X | X | X | X | X | X | X | X | X | | X | | | | Y | C1 80% P1 20% | |
| Learning Outcomes 120 credits | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | |
| GEES520 | 60 | C | X | X | X | X | X | X | | X | X | X | X | X | X | X | X | X | N | C1 100% | |
| Learning Outcomes 180 credits | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | |
| Confirmed Award LOs | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | |

