# COURSE SPECIFICATION

## *MSc Water and Environmental Engineering*

# COURSE SPECIFICATION

| | |
|---|---|
| Course Title | *MSc Water and Environmental Engineering* |
| Final Award | *MSc (180 credits)* |
| Exit Awards | PGCert (60 credits) or PGDip (120 credits). |
| Course Code / UCAS code (if applicable) | P3422FTC / PTC |
| Mode of study | Full time/Part time |
| Mode of delivery | Campus |
| Normal length of course | 1 year/ 2 years |
| Cohort(s) to which this course specification applies | September 2023 intake onwards |
| Awarding Body | University of Portsmouth |
| Teaching Institution | University of Portsmouth |
| Faculty | Faculty of Technology |
| School/Department/Subject Group | School of Civil Engineering and Surveying |
| School/Department/Subject Group webpage | https://www.port.ac.uk/about-us/structure-and-governance/organisational-structure/our-academic-structure/faculty-of-technology/school-of-civil-engineering-and-surveying |
| Course webpage including entry criteria | https://www.port.ac.uk/study/courses/postgraduate-taught/msc-water-and-environmental-engineering |
| Professional and/or Statutory Regulatory Body accreditations | Accreditation will be sought from the Joint Board of Moderators, representing IStructE, ICE, IHIE, IHT and PWI |
| Quality Assurance Agency Framework for Higher Education Qualifications (FHEQ) Level | Level 7 |

This course specification provides a summary of the main features of the course, identifies the aims and learning outcomes of the course, the teaching, learning and assessment methods used by teaching staff, and the reference points used to inform the curriculum.
This information is therefore useful to potential students to help them choose the right course of study, to current students on the course and to staff teaching and administering the course.

Further detailed information on the individual modules within the course may be found in the relevant module descriptors and the Course Handbook provided to students on enrolment.

Please refer to the Course and Module Catalogue for further information on the course structure and modules.

## Educational aims of the course

- To broaden and extend undergraduate knowledge of water and environmental issues and engineering, developing understanding and skill base to a level M, Masters qualification
- To provide an opportunity for students to develop as critically reflective practitioners in the field of water and environmental engineering, and understand the importance of innovation and best practice in the sector to meet the UN Sustainable Development Goals.
- To provide an advanced educational experience that develops intellectual and practical skills.
- To provide students with the opportunity to develop research in a critical perspective.
- To provide students with the opportunity to develop key and professional skills.

## Course Learning Outcomes and Learning, Teaching and Assessment Strategies

The Quality Assurance Agency for Higher Education (QAA) sets out a national framework of qualification levels, and the associated standards of achievement are found in their Framework for Higher Education Qualifications document.

The Course Learning Outcomes for this course are outlined in the tables below.

| **A. Knowledge and understanding of:** | | | |
|---|---|---|---|
| **LO number** | **Learning outcome** | **Learning and Teaching methods** | **Assessment methods** |
| A1 | The key aspects of water and environmental engineering, including fundamental principles of water quality; the current challenges in water and environmental protection; and design approaches to water treatment and environmental protection and remediation | Lectures, tutorials and seminars as appropriate and directed reading and guided research. Laboratory and computer sessions for practical skills, and site visits for real-life case studies | Examinations, group and individual coursework, oral presentations and individual reports. |
| A2 | Ideas, concepts, research methodologies and arguments relating to water and environmental engineering, at an advanced level of study | | |
| A3 | Current research, public policy, and legislation in the water and environment sector as the wider context of water and environmental engineering. | | |
| A4 | Best practice, consensus and disagreements, new developments, and limits of existing knowledge in the field of water and environmental engineering | | |

| B. Cognitive (Intellectual or Thinking) skills, able to: | | | |
|---|---|---|---|
| **LO number** | **Learning outcome** | **Learning and Teaching methods** | **Assessment methods** |
| B1 | Select and critically evaluate current research, technical literature, public policy and legislation in the water and environment sector | Lectures, tutorials and seminars as appropriate and directed reading and guided research. Laboratory and computer sessions for practical skills, and site visits for real-life case studies | Examinations, group and individual coursework, oral presentations and individual reports. |
| B2 | Formulate, analyse and critically examine different solutions to complex engineering problems, apply a comprehensive knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems, and design solutions for complex problems that evidence some originality. These design solutions will meet a combination of stakeholder needs, and involve consideration of applicable health and safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards. | | |
| B3 | Conceptualise, investigate and develop water and environmental engineering analytical techniques and designs, utilising knowledge from the forefront and limits of the discipline and first principles of mathematics, statistics, natural science and engineering. | | |
| B4 | Synthesise projects that integrate technical, environmental and legal requirements, evaluate environmental and societal impacts of solutions to complex problems and minimise adverse impacts. | | |
| B5 | Exercise informed and reflective judgement in the research and formulation of briefs as relevant to specific contexts and circumstances in the development of sustainable infrastructure. | | |
| B6 | Critically evaluate advanced research and methodologies and argue alternative approaches. Gather, integrate and synthesise material, its significance within appropriate intellectual frameworks and apply in self-directed and original ways as part of autonomous research, apply knowledge and skills in resolving conflicting requirements within projects in the water and environment sector | | |

| C. Practical (Professional or Subject) skills, able to: | | | |
|---|---|---|---|
| **LO number** | **Learning outcome** | **Learning and Teaching methods** | **Assessment methods** |
| C1 | Demonstrate expertise in the utilisation of fieldwork and analytical laboratory techniques, desk-based evaluation methods, and engineering design to investigate complex problems in the fields of water and environmental engineering, selecting and applying appropriate materials, equipment, engineering technologies and processes, recognising their limitations. | Lectures, tutorials and seminars as appropriate and directed reading and guided research. Laboratory and computer sessions for practical skills, and site visits for real-life case studies | Examinations, group and individual coursework, oral presentations and individual reports. |
| C2 | Develop ideas in ways which demonstrate adaptability and imagination and apply them to new situations. | | |
| C3 | Use specialist software similar to that used in professional practice in water and environmental engineering, select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed. | | |
| C4 | Initiate, develop and implement distinctive engineering solutions, applying an integrated or systems approach to the solution of complex problems, and discuss the role of quality management systems and continuous improvement in this context. | | |
| C5 | Confidently and competently use skills appropriate to professional communications, apply scholarly conventions of academic writing consistently and accurately. | | |

| D. Transferrable (Graduate and Employability) skills, able to: | | | |
|---|---|---|---|
| **LO number** | **Learning outcome** | **Learning and Teaching methods** | **Assessment methods** |
| D1 | Demonstrate advanced communication skills in appropriate formats, communicating effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used. | Lectures, tutorials and seminars as appropriate and directed reading and guided research. Laboratory and computer sessions for practical skills, and site visits for real-life case studies | Examinations, group and individual coursework, oral presentations and individual reports. |
| D2 | Advance the ability to present an effective, coherent and sustained argument and attend to the critical responses of others. | | |
| D3 | Use IT effectively and appropriately to select, analyse, present and communicate information from a variety of sources | | |
| D4 | Work autonomously and in groups, prioritising and exercising management of workload, evaluating the effectiveness of own and team performance. | | |
| D5 | Adopt and inclusive approach to engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion. | | |

## Academic Regulations

The current University of Portsmouth Academic Regulations: Examination & Assessment Regulations will apply to this course. Approved course exemptions can be found here.

## Support for Student Learning

The University of Portsmouth provides a comprehensive range of support services for students throughout their course, details of which are available at the MyPort student portal.

## Evaluation and Enhancement of Standards and Quality in Learning and Teaching

The University of Portsmouth undertakes comprehensive monitoring, review and evaluation of courses within clearly assigned staff responsibilities. Student feedback is a key feature in these evaluations, as represented in our Policy for Listening to and Responding to the Student Voice where you can also find further information.

## Reference Points

The course and outcomes have been developed taking account of:

- University of Portsmouth Curriculum Framework Specification
- University of Portsmouth Vision
- Office for Students Conditions of Registration
- University of Portsmouth Code of Practice for Work-based and Placement Learning
- Quality Assurance Agency UK Quality Code for Higher Education
- Quality Assurance Agency Qualification Characteristic Statements

- Quality Assurance Agency Subject Benchmark Statement
- Quality Assurance Agency Framework for Higher Education Qualifications
- Requirements of Professional and/or Statutory Regulatory Bodies: **Engineering Council UK-SPEC requirements for the Accreditation of Higher Education Programmes 4th Edition (AHEP4), and Joint Board of Moderators Guidelines for MSc and Doctoral Programmes (ver.2 rev.4)**
- Vocational and professional experience, scholarship and research expertise of the University of Portsmouth's academic members of staff
- National Occupational Standards

## Changes to your course/modules

The University of Portsmouth has checked the information provided in this Course Specification and will endeavour to deliver this course in keeping with this Course Specification. However, changes to the course may sometimes be required arising from annual monitoring, student feedback, and the review and update of modules and courses.

Where this activity leads to significant changes to modules and courses there will be prior consultation with students and others, wherever possible, and the University of Portsmouth will take all reasonable steps to minimise disruption to students.

It is also possible that the University of Portsmouth may not be able to offer a module or course for reasons outside of its control, for example, due to the absence of a member of staff or low student registration numbers. Where this is the case, the University of Portsmouth will endeavour to inform applicants and students as soon as possible, and where appropriate, will facilitate the transfer of affected students to another suitable course.

## Copyright



| **Document Details** | |
|---|---|
| **CSD Template date** | *January 2025* |
| **Author** | *Dr Peter Cruddas* |
| **Date of production and version number** | *04/08/2023 v2* |
| **Date of update and version number** | *[Date] [Version number]* |
| **Minimum student registration numbers** | *15* |