

Overview

Programme Code	30968
Programme Title	Water, Energy and The Environment
Awarding Institution	Liverpool John Moores University
Programme Type	Masters
Programme Leader	Edward Loffill
Link Tutor(s)	

Awards

Award Type	Award Description	Award Learning Outcomes
Alternative Exit	Postgraduate Certificate - PC	Engage with advanced levels of theory and practice in relation to the academic disciplines related to energy, water and the environment. Demonstrate knowledge and an awareness of essential facts, concepts, theories and principles relating to the management of water, energy and the environment, and its underpinning science and mathematics, and have an appreciation of the wider multidisciplinary context and its underlying principles. Demonstrate appropriate levels of critical analysis, reflection and contextual awareness in focused areas of study and use environmental, scientific and engineering principles in the development of solutions to practical problems. Communicate effectively through the media of the written word, the spoken word, and through drawing with both specialist and non-specialist audiences.
Target Award	Master of Science - MS	See Learning Outcomes Below
Recruitable Target	Master of Science - MS240	See Learning Outcomes Below
Alternative Exit	Postgraduate Diploma - PD	Apply appropriate techniques to analyse and solve environmental problems, assess their limitations, and critically evaluate the environmental impact of human activities. Critically evaluate design and operation within the context of both regulation and current developments in the field of water, energy and the environment. Make appropriate use of mathematical models for design and environmental assessment, and assessment of the limitations. Apply environmental and engineering techniques, together with a thorough understanding of current practice and its limitations, to design and problem solving. Promote Sustainable Development and critically evaluate the sustainability of both design and operation. Apply effective problem solving and decision making and undertake environmental and commercial evaluation of risk. Communicate effectively with professionals from a wide range of academic backgrounds within the general sphere of water, energy and the environment. Take responsibility for personal and professional career development, and exercise initiative and personal responsibility within group work. Make effective use of reflective learning, CPD and metacognition to improve performance, and demonstrate awareness of the need for a high level of professional and ethical conduct. Use creativity and innovation in problem solving, including the ability to work with limited or contradictory information.

Alternate Award Names	
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External Benchmarks

Subject Benchmark Statement	PGT-Engineering (2020)
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Accreditation

Programme Accredited by

PSRB Name	Type of Accreditation	Valid From Date	Valid To Date	Additional Notes
Chartered Institution of Water and Environmental Management (CIWEM)	Accredited by the Chartered Institution of Water and Environmental Management (CIWEM) on behalf of the Engineering Council for the purposes of partially meeting the academic requirement for registration as a Chartered Engineer.			

Programme Offering(s)

Mode of Study, Mode of Delivery	Intake Month	Teaching Institution	Programme Length
Full-Time, Face to Face	September	LJMU Taught	1 Years

Aims and Outcomes

Educational Aims of the Programme

The programme aims to deepen understanding of the relevant scientific, engineering and management principles, and to develop the students' ability to apply these principles to design, analysis, operation and management within the fields of water, energy and the environment. The programme aims to build upon the existing work and life experiences of each graduate student on the basis that an understanding of the environment is best achieved and developed within the students' known situation. Acknowledging that the ability to communicate effectively with professionals across a broad range of relevant subject areas is fundamental to the environmental discipline, the programme builds upon the varied academic and employment background of its students to broaden the knowledge of each student. The programme aims for each student to achieve both an holistic understanding of the broad range of environmental processes, and an aptitude for critical evaluation of detail in their chosen specialisms. The specific aims of the programme are: 1. To develop and extend students' exposure to the current and emerging theories and practices of the management of water, energy and the environment. 2. To provide opportunities for individual student-centred study in order to develop analytical, critical and problem solving skills appropriate to developing the use of innovative products and taking responsibility for complex systems. 3. To develop the students' skill sets in communication and interpersonal skills to both technical and non-technical audiences and individuals. 4. To develop student skills to become autonomous learners. 5. Develop the students' capacity to design, carry out, and analyse research. 6. Develop the students' capacity to manage their own development.

Learning Outcomes

Code	Description
PLO1	Apply advanced theoretical concepts, analytical tools and empirical methods within the field of civil engineering.
PLO2	Use engineering principles in the development of solutions to practical problems.
PLO3	Undertake risk evaluation.
PLO4	Set clear objectives, assemble information from a variety of sources, analyse such data and form logical conclusions.
PLO5	Collect and analyse data; selecting and using appropriate methodologies.
PLO6	Critically evaluate research, published work and other evidence.
PLO7	Communicate effectively with professionals working within fields related to civil engineering.
PLO8	Undertake design and practical testing of research and design ideas in a laboratory or in the field to develop valuable data for analysis and critical evaluation and the evaluation of novel ideas.
PLO9	Take responsibility for personal and professional career development.
PLO10	Manage civil engineering projects, and develop management strategies.
PLO11	Use scientific evidence-based and risk assessed methods in the solution of problems.
PLO12	Apply appropriate techniques to achieve, and measure, sustainable construction.
PLO13	Communicate effectively through the media of the written word, the spoken word, and through drawing with both specialist and non-specialist audiences.
PLO14	Work effectively both independently and in teams.
PLO15	Create and innovate both in design, and in the solution of problems.
PLO16	Understand own limitations and have the ability to discern when help is required.
PLO17	Make effective use of reflective learning, CPD and metacognition to improve performance.
PLO18	Develop appropriate research techniques, including the setting of research questions, an understanding of statistical analysis, and knowledge of measurement methods.
PLO19	Develop a critical awareness of management principles, including professional, ethical and safety responsibilities.
PLO20	Promote sustainable development and critically evaluate the sustainability of both design and operation.
PLO21	Critically evaluate design and operation within the context of both regulation and current developments in civil engineering.
PLO22	Apply appropriate mathematical models to both design and analysis.
PLO23	Integrate the civil engineer's professional, ethical and legal responsibilities, including global aspects, in design and construction.

Code	Description
PLO24	Select and apply appropriate analytical tools for solving and/or modelling relevant problems.

Programme Structure

Programme Structure Description

The Postgraduate Diploma and Postgraduate Certificate are alternative exit awards and do not recruit directly. A total of 60 credits is required for a PG Certificate and 120 credits for a PG Diploma (excluding the dissertation). 7101CIVPG Research Methodology must be passed prior to the submission of the project dissertation (7002CIVPG Research Project). If the 240 credit mode is selected as the route of study this has an additional 60 credit 'Group Project' module (7001FETGDP). Part-time students who commenced study in 2021-22 should take the following modules to complete the programme: 7301CIV 7106CIVPG 7108CIVPG 7002CIVPG The normal part-time mode of study for the 180 credit option is as follows: Year 1: 7302CIV 7457BEPG 7425CIVPG 7101CIVPG Year 2: 7301CIV 7108CIVPG 7106CIVPG Year 3 7002CIVPG The normal mode of study for the 240 credit option is as follows: Year 1: 7302CIV 7457BEPG 7425CIVPG 7101CIVPG 7108CIVPG 7106CIVPG 7002CIVPG Year 2: 7301CIV 7001FETGDP

Programme Structure - 180 credit points	
Level 7 - 180 credit points	
Level 7 Core - 180 credit points	CORE
[MODULE] 7002CIVPG Research Project Approved 2022.01 - 60 credit points	
[MODULE] 7101CIVPG Research Methodology Approved 2022.01 - 10 credit points	
[MODULE] 7106CIVPG Water and Wastewater Treatment Approved 2022.01 - 20 credit points	
[MODULE] 7108CIVPG Environmental Systems Approved 2022.01 - 20 credit points	
[MODULE] 7301CIV Sustainable Infrastructure Approved 2022.01 - 20 credit points	
[MODULE] 7302CIV Energy and Carbon Management Approved 2022.01 - 20 credit points	
[MODULE] 7425CIVPG River Basin Management Approved 2022.01 - 10 credit points	
[MODULE] 7457BEPG Collaborative BIM Project Approved 2022.01 - 20 credit points	

Module specifications may be accessed at <https://proformas.ljmu.ac.uk/Default.aspx>

Teaching, Learning and Assessment

Acquisition of knowledge is achieved mainly through lectures, seminars and problem solving sessions. Students are expected and encouraged to take an active role in their learning through debates, discussions and student led presentations. Site visits and laboratory sessions supplement these. Students are encouraged to attend professional body talks and visits. The assessments are designed as part of the learning process, and both individual and group feedback on the assignments adds to their knowledge base. Assessment of the knowledge base is through a combination of written examinations, assignments, presentations and the dissertation. Intellectual skills are developed through interactive seminars and lectures of the taught modules, and through case studies and assignments. These skills are further developed in the dissertation module, which is supplemented by the teaching of these skills in the Research Methodology module. The skills of critical evaluation are an integral part of most assessments, and feedback on these assessments is an integral part of the learning process. Intellectual skills are assessed through a combination of written examinations, assignments, and the dissertation report. Professional skills are developed throughout the programme mainly through class discussion, interactive seminars, the dissertation, and professional body activities. The assessment of professional skills is mainly through assignments and presentations, but it is also assessed to a lesser degree in the written examinations. Transferable skills are taught throughout the programme, in all learning activities. Transferable skills are assessed throughout the range of assessment methods (written examinations, assignments, oral presentations and the dissertation).

Opportunities for work related learning

To put the students' learning into appropriate vocational contexts project modules are based on real challenges faced by industry. Research modules are often centred around particular industrial challenges and their appropriate mitigation.

Entry Requirements

Type	Description
Undergraduate degree	An Honours degree in a relevant subject with a minimum 2:2 classification or a professional qualification of equivalent standing and/or such relevant professional experience as deemed appropriate by the Department.
Other international requirements	International applicants: Equivalent qualifications plus minimum IELTS score of 6.5. Applicants who have studied and successfully achieved a UK degree within 24 months of the start of the MSc are exempt from this requirement