Programme Specification Document

Approved, 2022.05

Overview

Programme Code	35676-MG
Programme Title	Civil Engineering
Awarding Institution	Liverpool John Moores University
Programme Type	Integrated Masters
Language of Programme	All LJMU programmes are delivered and assessed in English
Programme Leader	Edward Loffill
Link Tutor(s)	

Awards

Award Type	Award Description	Award Learning Outcomes
Target Award	Master of Engineering - MG	See Learning Outcomes Below
Alternative Exit	Bachelor of Engineering - BG	Demonstrate a broad and comparative knowledge of the general scope of the subject, its different areas and applications, and its interactions with related subjects. A detailed knowledge of a defined subject or a more limited coverage of a specialist area balanced by a wider range of study. In each case, specialised study will be informed by current developments in the subject. Demonstrate a critical understanding of the essential theories, principles and concepts of the subject(s) and of the ways in which these are developed through the main methods of enquiry in the subject.
Alternative Exit	Diploma of Higher Education - DHE	Apply the analytical and evaluation skills attained to a deeper knowledge of the principles and concepts of civil engineering and related subjects. Students will also be able to apply these principles widely within the context of the civil engineering profession. Critically evaluate the appropriateness of different approaches to design and problem solving with civil engineering.
Alternative Exit	Certificate of Higher Education - CHE	A student will be expected to demonstrate a sound knowledge of the basic concepts of civil engineering related subjects and have learned how to take different approaches to solving engineering problems.
Alternative Exit	Bachelor of Engineering with Honours - BGH	Students who obtain this award will have achieved the learning outcomes for Bachelor of Engineering Hons but lack the required further learning outcomes at level 7 to achieve the Master of Engineering. See 35676-BGH for full learning outcomes.

Alternate Award Names	

External Benchmarks

Subject Benchmark Statement	UG-Engineering (2019)

Accreditation

Programme Accredited by

PSRB Name	Type of Accreditation	Valid From Date	Valid To Date	Additional Notes

Institution of Civil Engineers (ICE)	Accredited by the Institution of Civil Engineers (ICE) on behalf of the Engineering Council for the purposes of fully 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
Part-Time, Face to Face	September	LJMU Taught	7 Years

Aims and Outcomes

Educational Aims of the Programme

The MEng in Civil Engineering fulfils all the academic requirements for Chartered Engineer status. It is designed to develop a high level of technical expertise together with the leadership skills needed to practice successfully as a professional engineer in the modern international civil engineering environment. The knowledge and skills gained from this programme are designed to enable graduates to make an immediate contribution to their employers, and to enable them to achieve the highest positions within the civil engineering profession. The educational aims of the MEng in Civil Engineering are to: Provide a programme of study that fully meets the academic requirement for registration as a Chartered Engineer. Provide a programme of study, which develops core knowledge, and understanding of engineering principles, mathematics and computation, appropriate to the field of Civil Engineering. Enable students to develop specialist knowledge, intellectual, analytical, practical and critical abilities that will enable them to analyse, investigate and develop robust solutions to Civil Engineering problems. Develop relevant study and personal skills so that students progressively take responsibility for their learning, becoming, independent learners, while receiving appropriate tutoring and support. Enable students to develop a full range of communication skills Equip students with a range of transferable skills and attributes in the use of computers, software packages, team working, communication, time management and problem solving methodology which will enable them to undertake responsible roles in industry. Provide a degree programme which meets the accreditation requirements of AHEP-4 UK Spec and the needs of industry. Develop students to work in and manage teams and also to work independently at managerial level utilizing project management and technical skills. To encourage students to engage with the development of employability skills by completing a self-awareness statement. For students undertaking a placement year, the aim is to provide students with an extended period of work experience at an approved partner that will complement their programme of study at LJMU. This will give the students the opportunity to develop professional skills relevant to their programme of study, as well as attitude and behaviours necessary for employment in a diverse and changing environment.

Learning Outcomes

Code	Description
PLO1	Apply a comprehensive knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Knowledge will be informed promoting a critical awareness of new developments in Civil engineering.

Code	Description
PLO2	Work effectively within a group to design, analyse and evaluate Civil Engineering projects, adopting an inclusive approach and recognising the responsibilities, benefits and importance of supporting equality, diversity and inclusivity.
PLO3	Apply practical engineering skills acquired through laboratory work, to the design of complex civil engineering projects.
PLO4	Use a range of land surveying equipment effectively for setting out engineering works and for collecting site data for the production of engineering plans.
PLO5	Exercise initiative and ethical personal responsibility both as a leader and as a team member.
PLO6	Plan and record CPD for personal and professional development.
PLO7	Apply an extensive knowledge and understanding of a wide range of engineering materials and components to civil engineering design.
PLO8	Develop specifications for materials and methods to ensure quality of engineering design solution and its construction.
PLO9	Develop planning and control project schedules with regard to Civil Engineering project management principles, commercial and legal aspects.
PLO10	Write original technical and research reports in compliance to relevant intellectual property and copyrights.
PLO11	Communicate effectively through the written word, engineering drawings, clear use of mathematic notation, orally and through effective use of IT.
PLO12	Formulate and analyse complex Civil Engineering problems by collecting, processing and inferring relevant data, facts and information, and by using first principle mathematics, statistics, applied science and engineering principles.
PLO13	Generate an innovative design for construction, products, systems, components or processes to fulfil new needs
PLO14	Demonstrate an understanding of the need for a high level of professional and ethical conduct in civil engineering and a knowledge of professional codes of conduct.
PLO15	Evaluate and design structures exposed to dynamic loads
PLO16	Demonstrate a wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them to unfamiliar situations.
PLO17	Manage the design process and evaluate outcomes.
PLO18	Select and apply appropriate computational and analytical techniques to simulate complex Civil Engineering systems for planning, designing and construction, with due regard to the limitations of the techniques and scope of applications employed.
PLO19	Develop a methodology based on the critical evaluation of technical literature, using qualitative and quantitative data to provide recommendations to bring improvement aligned with UN SDG’s, through independent research.
PLO20	Design innovative solutions in accordance with current appropriate codes of practice and industry standards.

Code	Description
PLO21	Demonstrate professional and ethical behaviour with regard to Civil Engineering, involving consideration of Health and Safety, diversity, inclusion, cultural, societal, environmental and commercial matters
PLO22	Demonstrate knowledge of the holistic nature of Civil Engineering projects and the wider impact on the society, economy and environment. This will include BIM and life cycle analysis.
PLO23	Develop an awareness and the ability to identify ethical concerns and to make reasoned and justified ethical choices.
PLO24	Evaluate and mitigate risk, including environmental, commercial and security risk associated with Civil Engineering projects.

Programme Structure

Programme Structure Description

Students will study modules as follows: Year 1: modules 4300DCIV, 4301DCIV, 4302DCIV, 4305DCIV Year 2: modules 4303DCIV, 4304DCIV, 4306DCIV Year 3: modules 5300DCIV, 5301DCIV, 5304DCIV, 5305DCIV Year 4: modules 5302DCIV, 5303DCIV, 5307DCIV, 6303DCIV, 6305DCIV Year 5: modules 6300DCIV, 6301DCIV, 6302DCIV, 6304DCIV Year 6: modules 7300DCIV Year 7: modules 7305DCIV, 7301DCIV, 7303DCIV For students that enrolled on the programme prior to Sept 2022 they will study the following: Started 2018-19 Modules for 2022-23 6304DCIV 6201CIV 6303DCIV Then complete programme as normal. Complete in 2022-23 Started 2019-20 Modules for 2022-23 5302DCIV 5303DCIV 5305DCIV 6305DCIV 6303DCIV Modules for 2023-24 Complete as per normal. Started 2020-21 Take revised programme Year 3 modules and complete on revised programme. Complete in 2024-25 Started 2021-22 Modules for 2022-23 4300DCIV 4303DCIV 4305DCIV 4306DCIV Modules for 2023-24 Complete revised programme from Revised Programme Year 3

Programme Structure - 480 credit points	
Level 4 - 120 credit points	
Level 4 Core - 120 credit points	CORE
[MODULE] 4300DCIV Engineering Mathematics I Approved 2022.01 - 20 credit points	
[MODULE] 4301DCIV Structural Analysis and Design I Approved 2022.01 - 20 credit points	
[MODULE] 4302DCIV Materials I Approved 2022.01 - 10 credit points	
[MODULE] 4303DCIV Surveying and CAD Approved 2022.01 - 20 credit points	
[MODULE] 4304DCIV Geotechnics I Approved 2022.02 - 20 credit points	
[MODULE] 4305DCIV Hydraulics Approved 2022.01 - 10 credit points	
[MODULE] 4306DCIV Infrastructure Design and Skills Project Approved 2022.01 - 20 credit points	
Level 5 - 120 credit points	
Level 5 Core - 120 credit points	CORE
[MODULE] 5300DCIV Materials II Approved 2022.03 - 20 credit points	
[MODULE] 5301DCIV Surveying and Transportation Approved 2022.02 - 20 credit points	
[MODULE] 5302DCIV Engineering Mathematics II Approved 2022.02 - 10 credit points	
[MODULE] 5303DCIV Geotechnics II Approved 2022.01 - 10 credit points	
[MODULE] 5304DCIV Water Engineering Approved 2022.01 - 20 credit points	
[MODULE] 5305DCIV Structural Analysis and Design II Approved 2022.03 - 20 credit points	
[MODULE] 5307DCIV Work Based Learning Project Approved 2022.01 - 20 credit points	
Level 6 - 120 credit points	
Level 6 Core - 120 credit points	CORE
[MODULE] 6300DCIV Advanced Materials Approved 2022.01 - 10 credit points	
[MODULE] 6301DCIV Transportation and Infrastructure Approved 2022.01 - 10 credit points	
[MODULE] 6302DCIV Applied Geotechnics and Design Approved 2022.02 - 20 credit points	
[MODULE] 6303DCIV Structural Design and Risk Management Approved 2022.01 - 20 credit points	
[MODULE] 6304DCIV Research Project Approved 2022.02 - 40 credit points	
[MODULE] 6305DCIV Water Supply and Wastewater Management Approved 2022.02 - 20 credit points	
Level 7 - 120 credit points	
Level 7 Core - 120 credit points	CORE
[MODULE] 7300DCIV Engineering Design Project Approved 2022.01 - 60 credit points	
[MODULE] 7301DCIV Sustainable Infrastructure Approved 2022.01 - 20 credit points	

[MODULE] 7303DCIV Structural and Earthquake Engineering Approved 2022.01 - 20 credit points
[MODULE] 7305DCIV Civil Engineering Professional Practice Approved 2022.01 - 20 credit points

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

Approved variance from Academic Framework Regulations

Variance
There is an approved variance for this programme: Level 7 Engineering Design Project module is approved as a 60 credit module, and it is approved to run year long.

Teaching, Learning and Assessment

Acquisition of underpinning knowledge is achieved mainly through student-centred learning delivered through, lectures, tutorials, problem solving sessions, workshops, laboratory and computer sessions, off-site learning activities, participation in group projects and individual investigational/research project. The major vehicles for practical skills are laboratory work, field work including the surveying field course week, and the research project at level 6. The economic, Social and Environmental context of engineering operations is delivered by means of lectures and case studies. The use of appropriate case study material is an essential part of teaching in this area. Testing of knowledge will be done through unseen examinations, assignments, preparation of reports, design tasks, oral presentations, workshops, peer review, computer-based exercises, work placement reports. Assessment of field work and laboratory work also includes practical tests in situ. Tracking of key skills and Civil Engineering attainments.

Opportunities for work related learning

To put the students' learning into appropriate vocational contexts project modules at all levels are assessed in realistic, industrially relevant contexts. At each level of the course students participate in cross disciplinary project modules and a major design project in the final year, mentored by industry, develops this further. The full-time course is offered in Sandwich mode so that after two years of study, students may elect to work in a design and/or consultancy practice or with a contractor for a one year placement. This would afford students the opportunity to contextualise their theoretical learning in a real life working environment.

Entry Requirements

Type	Description
A levels	Level 4: 128 UCAS points: Minimum Two A2 levels Maths and Sciences preferred but not essential.
Other international requirements	Overseas student applicants must have the equivalent qualifications as UK students. In addition they must have achieved an IELTS score of at least 6.

Alternative qualifications considered	Foundation degree Level 5 entry: Foundation Degree in Civil Engineering with a final award mark of at least 65%. Progression from LJMU B.Eng. in Civil Engineering: Level 6 entry: available for LJMU students who have completed level 5 LJMU B.Eng. in Civil Engineering with a capped mean mark from all level 5 modules of at least 55%. GCSE Maths Grade 4 (C or equivalent).
International Baccalaureate	24 IB points
NVQ	HNC/HND (Cognate) Level 4 Entry: Pass Level 5 Entry: Pass with an average mark of at least 65%

Extra Entry Requirements