

Overview

Programme Code	35559
Programme Title	Civil and Transportation Engineering
Awarding Institution	Liverpool John Moores University
Programme Type	Integrated Masters

Awards

Award Type	Award Description	Award Learning Outcomes
Recruitable Target	Master of Engineering (SW) - SMG	Achieve the same learning outcomes as for the target award, and demonstrate the professional and personal skills necessary for effective employment within a professional environment. The industrial training year takes place at the end of Level 5. Employment on industrial placement must be with an approved civil engineering company or organisation. Each student is allocated an industrial training tutor, who visits the work place and monitors their progress.
Target Award	Master of Engineering - MG	N/A

Alternate Award Names	
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External Benchmarks

Subject Benchmark Statement	UG-Engineering (2019)
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Programme Offering(s)

Mode of Study, Mode of Delivery	Intake Month	Teaching Institution	Programme Length Programme Length Unit
Sandwich Year Out, Face to Face	September	LJMU Taught	5 Years
Full-Time, Face to Face	September	LJMU Taught	4 Years

Aims and Outcomes

Educational Aims of the Programme	<p>The MEng in Civil and Transportation 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 and Transportation 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. 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. Civil and Transportation engineering graduates are concerned with the energy and carbon impact of their design. Graduates can choose to work in a design office or on site, where they can apply high level numerical and design skills to practical designs.</p>
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Learning Outcomes

Code	Number	Description
PLO1	1	1. 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.
PLO2	2	10. 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	3	11. Apply practical engineering skills acquired through laboratory work, to the design of complex civil engineering projects.
PLO4	4	12. 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	5	13. Exercise initiative and ethical personal responsibility both as a leader and as a team member.
PLO6	6	14. Plan and record CPD for personal and professional development.
PLO7	7	15. Apply an extensive knowledge and understanding of a wide range of engineering materials and components to civil engineering design.
PLO8	8	16. Develop specifications for materials and methods to ensure quality of engineering design solution and its construction.
PLO9	9	17. Develop planning and control project schedules with regard to Civil Engineering project management principles, commercial and legal aspects.
PLO10	10	18. Ability to write original technical and research reports in compliance to relevant intellectual property and copyrights.
PLO11	11	19. Communicate effectively through the written word, engineering drawings, clear use of mathematic notation, orally and through effective use of IT.
PLO12	12	2. 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	13	20. Evaluate carbon impact and the sustainability of construction projects.
PLO14	14	21. Demonstrate a wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them to unfamiliar situations.
PLO15	15	22. Manage the design process and evaluate outcomes.
PLO16	16	3. 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.
PLO17	17	4. 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.
PLO18	18	5. Design innovative solutions in accordance with current appropriate codes of practice and industry standards.
PLO19	19	6. Demonstrate professional and ethical behaviour with regard to Civil Engineering, involving consideration of Health and Safety, diversity, inclusion, cultural, societal, environmental and commercial matters
PLO20	20	7. 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.
PLO21	21	8. Develop an awareness and the ability to identify ethical concerns and to make reasoned and justified ethical choices.
PLO22	22	9. Evaluate and mitigate risk, including environmental, commercial and security risk associated with Civil Engineering projects.

Course Structure

Programme Structure Description	<p>The programme is offered in full-time and full-time sandwich attendance modes. Entry to the programme is normally at level 4 for suitably qualified candidates. Students have the option to undertake a placement year. The placement year, module 5200CIVSW, will follow Level 5 and students will be enrolled on a 600 credit honours sandwich programme. The Level 5 mean for the final award mark will be calculated based upon the 240 credits at Level 5. Students not undertaking a placement year are registered on the non sandwich version of the programme and will have the opportunity of an additional study year abroad following Level 5. Students will be enrolled on a 600 credit honours (with study abroad) programme. Of those 600 credits, 120 will be taken via a Level 5 study abroad module 5200CIVSA. The modules to be studied in the host institution must be agreed in advance. The Level 5 mean for the final award mark will be calculated based upon the 240 credits at Level 5. Students who do not attain the target award will be transferred to the BEng (Hons) in Civil Engineering. This programme structure does not apply to students joining level 7 in September 22 - they will follow the previously validated structure.</p>
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Programme Structure - 360 credit points	
Level 4 - 120 credit points	
Level 4 Core - 120 credit points	CORE
[MODULE] 4300CIV Engineering Mathematics I Approved 2022.01 - 20 credit points	
[MODULE] 4301CIV Structural Analysis and Design I Approved 2022.01 - 20 credit points	
[MODULE] 4302CIV Introduction to Materials I Approved 2022.01 - 10 credit points	
[MODULE] 4303CIV Surveying and CAD Approved 2022.01 - 20 credit points	
[MODULE] 4304CIV Geotechnics I Approved 2022.01 - 20 credit points	
[MODULE] 4305CIV Hydraulics Approved 2022.01 - 10 credit points	
[MODULE] 4306CIV Infrastructure Design and Skills Project Approved 2022.01 - 20 credit points	
Level 5 - 120 credit points	
Level 5 Core - 120 credit points	CORE
[MODULE] 5300CIV Materials II Approved 2022.01 - 20 credit points	
[MODULE] 5301CIV Surveying and Transportation Approved 2022.01 - 20 credit points	
[MODULE] 5302CIV Engineering Mathematics II Approved 2022.01 - 10 credit points	
[MODULE] 5303CIV Geotechnics II Approved 2022.01 - 10 credit points	
[MODULE] 5304CIV Water Engineering Approved 2022.01 - 20 credit points	
[MODULE] 5305CIV Structural Analysis and Design II Approved 2022.01 - 20 credit points	
[MODULE] 5306CIV Civil Engineering Project Approved 2022.01 - 20 credit points	
Optional placement - 120 credit points	OPTIONAL
Placement Year - 120 credit points	OPTIONAL
[MODULE] 5200CIVSW Sandwich Year - Civil Engineering Approved 2022.01 - 120 credit points	
OR Study Abroad - 120 credit points	OPTIONAL

[MODULE] 5200CIVSA Study Year Abroad - Civil Engineering Approved 2022.01 - 120 credit points	
Level 6 - 120 credit points	
Level 6 Core - 120 credit points	CORE
[MODULE] 6300CIV Advanced Materials Approved 2022.01 - 10 credit points	
[MODULE] 6301CIV Transportation and Infrastructure Approved 2022.01 - 10 credit points	
[MODULE] 6302CIV Applied Geotechnics and Design Approved 2022.01 - 20 credit points	
[MODULE] 6303CIV Structural Design and Risk Management Approved 2022.01 - 20 credit points	
[MODULE] 6304CIV Research Project Approved 2022.01 - 40 credit points	
[MODULE] 6305CIV Water Supply and Wastewater Management Approved 2022.01 - 20 credit points	
Level 7 - 120 credit points	
Level 7 Core - No credit points	CORE
[MODULE] 7205CIV Pavement, Highways and Transport Engineering Approved 2022.01 - 20 credit points	
[MODULE] 7206CIV Design and Construction of Transport Infrastructure Approved 2022.01 - 20 credit points	
[MODULE] 7300CIV Engineering Design Project Approved 2022.01 - 60 credit points	
[MODULE] 7301CIV Sustainable Infrastructure Approved 2022.01 - 20 credit points	

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

Teaching, Learning and Assessment	<p>Acquisition of underpinning knowledge is achieved mainly through lectures and directed student-centred learning. Student-centred learning is used where appropriate resource material is available. 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. Student-centred learning will be delivered through, tutorials, seminars and workshops, laboratory and computer sessions. There will also be off-site learning through surveying field course and site visits. Testing of the knowledge base is through a combination of unseen written examinations, and coursework assignment submissions. Engineering Analysis is developed through lectures, case-studies and coursework assignments. Fundamental principles are delivered predominantly by lectures and laboratory classes. More advanced techniques are delivered by project work and coursework supported by lectures. Engineering Analysis and problem solving skills are assessed through a combination of unseen written examinations, assessed coursework and laboratory work, and project work Design is taught by coursework, individual and group project work supported by an appropriate lecture programme. Design skills are assessed by coursework, individual and group written design project reports, and student presentations. Engineering Practice permeates almost every activity within the programme content and assessment. Assessment of Engineering Practice is varied throughout the programme but is mostly coursework based.</p>
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Opportunities for work related learning

Opportunities for work related learning
<p>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. 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.</p>

Entry Requirements

Type	Description
A levels	Level 4: 128 UCAS points: Minimum Two A2 levels. Science and maths subjects are preferred but not essential for A-Levels and including GCSE/O-level standard requirements.
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.
International Baccalaureate	27 IB points
Alternative qualifications considered	<p>Foundation degree Level 5 entry: Foundation Degree in Civil Engineering with a final award mark of at least 65%.</p> <p>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%.</p>
NVQ	HNC/HND (Cognate) Level 4 Entry: Pass Level 5 Entry: Pass with an average mark of at least 65%

Programme Contacts

Programme Leader

Contact Name

Denise Lee

Link Tutor

Contact Name