Programme Specification Document

Approved, 2022.02

Overview

Programme Code	45019
Programme Title	Civil Engineering
Awarding Institution	Liverpool John Moores University
Programme Type	Degree with Foundation
Programme Leader	Denise Lee
Link Tutor(s)	

Awards

Award Type	Award Description	Award Learning Outcomes
Alternative Exit	Diploma in Higher Education (SW) (Fnd) - SDHEF	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 within civil engineering.
Recruitable Target	Bachelor of Engineering Honours (SW) (Fnd) - SBGHF	See Learning Outcomes Below
Target Award	Bachelor of Engineering with Honours (Fnd) - BGHF	See Learning Outcomes Below
Alternative Exit	Certificate of Higher Education (Fnd) - CHEF	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	Diploma of Higher Education (Fnd) - DHEF	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 within civil engineering.

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 Institution of Civil Engineers (ICE) on behalf of the Engineering Council for the purposes of fully meeting the academic requirement for registration as an Incorporated Engineer and 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
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

The BEng (Hons) Fnd in Civil Engineering fulfils all the academic requirements for Incorporated Engineer status. It is designed to allow students 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 progress to an MSc or PhD in Civil Engineering. The educational aims of the BEng (Hons) Fnd in Civil Engineering are to: Provide a programme of study that fully meets the academic requirement for registration as an Incorporated Engineer and partially meets the academic requirements for registration as a Chartered Engineer. Enable students to develop specialist knowledge, intellectual, analytical, practical and critical abilities that will enable them to analyse, investigate and develop 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 the Engineering Council AHEP-4 UK Spec and the needs of industry. Develop students to work in and manage teams and also to work independently. 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. The programme aims specific to level 3 are: - study effectively as reflective and independent learners in preparation for level 4 and above - select and apply appropriate basic mathematical techniques to engineering and technology problems - use basic physical models and understand how physical principles underpin a range of engineering and technology disciplines - appreciate how algorithms and computer programming are used to solve problems, analyse data and make decisions - carry out an effective experimental investigation

Learning Outcomes

Code	Description
PLO1	Apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems.
PLO2	Evaluate and mitigate risk, including environmental, commercial and security risk associated with Civil Engineering projects.
PLO3	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.
PLO4	Apply practical engineering skills acquired through laboratory work, to the design of complex civil engineering projects.
PLO5	Use a range of land surveying equipment effectively for setting out engineering works and for collecting site data for the production of engineering plans.
PLO6	Exercise initiative and ethical personal responsibility both as a leader and as a team member.
PLO7	Plan and record CPD for personal and professional development.
PLO8	Develop specifications for materials and methods to ensure quality of engineering design solution and its construction.

Code	Description
PLO9	Develop planning and control project schedules with regard to Civil Engineering project management principles, commercial and legal aspects.
PLO10	Ability to 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	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	Communicate effectively on complex engineering matters with technical and non-technical audiences.
PLO14	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.
PLO15	Select and evaluate technical literature and other sources of information to address complex Civil Engineering problems.
PLO16	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.
PLO17	Design innovative solutions in accordance with current appropriate codes of practice and industry standards.
PLO18	Demonstrate professional and ethical behaviour with regard to Civil Engineering, involving consideration of Health and Safety, diversity, inclusion, cultural, societal, environmental and commercial matters
PLO19	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.
PLO20	Develop an awareness and the ability to identify ethical concerns and to make reasoned and justified ethical choices.

Programme Structure

Programme Structure Description

The programme is offered in full-time and full-time sandwich attendance modes. Entry to the programme is normally at level 3 for suitably qualified candidates. The programme will offer the opportunity of 60 credits of study abroad at Level 5. Students will be enrolled on a 480 credit (or 600 credit, if combined with a placement year or a study abroad year) honours with study abroad programme. A 60 credit Level 5 study abroad module, 5300CIVSA will normally replace the semester 2 modules on the standard programme. This study abroad should cover the same learning outcomes as the modules being replaced. 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 120 credits at Level 5 (or 240 credits, if combined with a placement year or a study abroad year). 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.

Programme Structure - 480 credit points	
Level 3 - 120 credit points	
Level 3 Core - 120 credit points	CORE
[MODULE] 3100FNDET Algorithms and Computing Approved 2022.02 - 10 credit points	
[MODULE] 3101FNDET Engineering and Technology Practice Approved 2022.02 - 20 credit points	
[MODULE] 3102FNDET Foundation Mathematics for Engineering and Technology 1 Approved 2022.02 - 20 credit points	
[MODULE] 3103FNDET Foundation Mathematics for Engineering and Technology 2 Approved 2022.01 - 20 credit points	
[MODULE] 3107FNDET Introductory Foundation Physics Approved 2022.01 - 20 credit points	
[MODULE] 3108FNDET Additional Foundation Physics Approved 2022.01 - 20 credit points	
[MODULE] 3116FNDET Programming for Engineers Approved 2022.01 - 10 credit points	
Level 4 - 120 credit points	
Level 4 Core - 120 credit points	CORE
[MODULE] 4300CIV Engineering Mathematics I Approved 2022.02 - 20 credit points	
[MODULE] 4301CIV Structural Analysis and Design I Approved 2022.02 - 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 2022.02 - 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 2022.02 - 20 credit points	
[MODULE] 5301CIV Surveying and Transportation Approved 2022.02 - 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 2022.02 - 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	
Optional Study Semester - 60 credit points	OPTIONAL
[MODULE] 5300CIVSA Study Semester Abroad - Civil Engineering Approved 2022.01 - 60 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 2022.02 - 20 credit points	
[MODULE] 6303CIV Structural Design and Risk Management Approved 2022.01 - 20 credit points	
[MODULE] 6304CIV Research Project Approved 2022.02 - 40 credit points	
[MODULE] 6305CIV Water Supply and Wastewater Management Approved 2022.02 - 20 credit points	

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

Teaching, Learning and Assessment

Teaching includes lectures, tutorials, problem solving sessions, seminars, workshops, laboratory and computer sessions, off-site learning activities (including a surveying field course),participation in a group projects. Case studies from industry practitioners, and the use of real examples from within civil engineering, add to the student knowledge and understanding. Specific work based modules will require the students to analyse and comment on their own work experiences and the techniques and practices to which they are exposed. The main vehicle for the skills development will be through the projects which involve verbal and visual presentations to a panel of experts, backed up by written reports. The major vehicles for practical skills are laboratory work, field work including the surveying field course week, and the research project at level 6. Assessment is by a combination of unseen examinations, open book examinations, assignments, preparation of reports, design tasks, oral presentations, visual presentations, workshops, peer review, computer-based exercises, work placement reports.

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 completion of level 5, 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
BTECs	BTEC Extended Diploma To the value of 88 UCAS points BTEC Diploma / 90 Credit Diploma / Subsidiary Diploma /Certificate To the value of 88 UCAS points when combined with other qualifications.
International Baccalaureate	Applicants should have or expect to obtain a total of 88 UCAS points overall.
Alternative qualifications considered	Qualifications deemed equivalent to the above upon completion of appropriate assessment will be considered acceptable. Applicants should have five GCSE (or equivalent) passes of at least grade C including Mathematics and English (or IELTS 6.0).
A levels	Applicants should have or expect to obtain a total of 88 UCAS points and a minimum of one A level.
Other international requirements	Applicants offering other awards will be considered on an individual basis in line with the agreed entry criteria.