

## PROGRAMME SPECIFICATION

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### Bachelor of Engineering with Honours in Civil Engineering

<b>Awarding institution</b>	Liverpool John Moores University
<b>Teaching institution</b>	LJMU
<b>JACS Code</b>	H200
<b>Programme Duration</b>	Part-Time: 5 Years
<b>Language of Programme</b>	All LJMU programmes are delivered and assessed in English
<b>Subject benchmark statement</b>	Engineering (2015)
<b>Programme accredited by</b>	Joint Board of Moderators (JBM) on behalf of: the Institution of Civil Engineers (ICE), the Institution of Structural Engineers (IStructE), the Chartered Institution of Highways and Transportation (CIHT) and the Institute of Highway Engineers (IHE) and the Permanent Way Institute (PWI)
<b>Description of accreditation</b>	ICE - <a href="http://www.engc.org.uk/informationfor/students-apprentices-and-graduates">http://www.engc.org.uk/informationfor/students-apprentices-and-graduates</a> 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.
<b>Validated target and alternative exit awards</b>	Bachelor of Engineering with Honours in Civil Engineering  Diploma of Higher Education in Civil Engineering  Certificate of Higher Education in Civil Engineering
<b>Programme Leader</b>	Edward Loffill

### Educational aims of the programme

This is a Degree Apprenticeship programme.

The BEng (Hons) in Civil Engineering fulfils all the academic requirements for Incorporated 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 progress to an MSc or PhD in Civil Engineering.

The educational aims of the BEng (Hons) 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 apprentices 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 apprentices progressively take responsibility for their learning, becoming, independent learners, while receiving appropriate tutoring and support.

Equip apprentices with a range of transferable skills and attributes in the use of computers, software packages, team working, communication, time management, commercial awareness, business awareness 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 apprentices to work in and manage teams and also to work independently.

To encourage apprentices to engage with the development of employability skills by completing a self-awareness statement

Provide learning opportunities to enable apprentices to demonstrate the required Knowledge, Skills and Behaviours (KSBs) to meet the requirements of the apprenticeship end point assessment (EPA).

Provide support to apprentices and employers to achieve the requirements of the apprenticeship end point assessment (EPA) including tripartite meetings, reflection and development of learning plans and recording of off the job learning (OTJL).

### **Alternative Exit/ Interim Award Learning Outcomes - Certificate of Higher Education**

*A student who is eligible for this award will be able 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/ Interim Award Learning Outcomes - Diploma of Higher Education**

*A student who is eligible for this award will be able to:*

Demonstrate analytical and evaluation skills and be able to apply them to a deeper knowledge of the principles and concepts of civil engineering and related subjects. Apprentices 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.

## **Target award Learning Outcomes - Bachelor of Engineering with Honours**

*A student successfully completing the programme of study will have acquired the following subject knowledge and understanding as well as skills and other attributes.*

*A student who is eligible for this award will be able to:*

1. Apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems.
2. 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 in an academic and workplace environment.
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.
4. Select and evaluate technical literature and other sources of information to address complex Civil Engineering problems in an academic and work place environment.
5. 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.
6. Design innovative solutions in accordance with current appropriate codes of practice and industry standards.
7. Demonstrate professional and ethical behaviour with regard to Civil Engineering, involving consideration of Health and Safety, diversity, inclusion, cultural, societal, environmental and commercial matters.
8. 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.
9. Develop an awareness and the ability to identify ethical concerns and to make reasoned and justified ethical choices.
10. Evaluate and mitigate risk, including environmental, commercial and security risk associated with Civil Engineering projects.
11. 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.
12. Apply practical engineering skills acquired through laboratory work, to the design of complex civil engineering projects.
13. Use a range of land surveying equipment effectively for setting out engineering works and for collecting site data for the production of engineering plans.
14. Exercise initiative and ethical personal responsibility both as a leader and as a team member in academic

and work settings.

15. Plan and record CPD for personal and professional development.

16. Develop specifications for materials and methods to ensure quality of engineering design solution and its construction.

17. Develop planning and control project schedules with regard to Civil Engineering project management principles, commercial and legal aspects.

18. Ability to write original technical and research reports in compliance to relevant intellectual property and copyrights.

19. Communicate effectively through the written word, engineering drawings, clear use of mathematic notation, orally and through effective use of IT.

20. Communicate effectively on complex engineering matters with technical and non-technical audiences in academic and work place settings.

## Teaching, Learning and Assessment

*The methods used to enable outcomes to be achieved and demonstrated are as follows:*

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.

## Programme structure - programme rules and modules

Apprentices will study modules as follows on the revised programme:

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

For apprentices that enrolled on the programme prior to Sept 2022 they will study the following:

Started 2018-19

Modules for 2022-23

6304DCIV

6201CIV

6303DCIV

Complete in 2022-23

Started 2019-20

Modules for 2022-23

5302DCIV

5303DCIV

5305DCIV

6305DCIV

6303DCIV

Modules for 2023-24

Year 5 of revised programme.

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.

Level 6	Potential Awards on completion	Bachelor of Engineering with Honours
Core	Option	Award Requirements
<a href="#">6300DCIV</a> Advanced Materials (10 credits) <a href="#">6301DCIV</a> Transportation and Infrastructure (10 credits) <a href="#">6302DCIV</a> Applied Geotechnics and Design (20 credits) <a href="#">6303DCIV</a> Structural Design and Risk Management (20 credits) <a href="#">6304DCIV</a> Research Project (40 credits) <a href="#">6305DCIV</a> Water Supply and Wastewater Management (20 credits)		120 core credits at level 6 0 option credits at level 6
Level 5	Potential Awards on completion	
Core	Option	Award Requirements
<a href="#">5300DCIV</a> Materials II (20 credits) <a href="#">5301DCIV</a> Surveying and Transportation (20 credits) <a href="#">5302DCIV</a> Engineering Mathematics II (10 credits) <a href="#">5303DCIV</a> Geotechnics II (10 credits) <a href="#">5304DCIV</a> Water Engineering (20 credits) <a href="#">5305DCIV</a> Structural Analysis and Design II (20 credits) <a href="#">5307DCIV</a> Work Based Learning Project (20 credits)		120 core credits at level 5 0 option credits at level 5
Level 4	Potential Awards on completion	
Core	Option	Award Requirements
<a href="#">4300DCIV</a> Engineering Mathematics I (20 credits) <a href="#">4301DCIV</a> Structural Analysis and Design I (20 credits) <a href="#">4302DCIV</a> Materials I (10 credits) <a href="#">4303DCIV</a> Surveying and CAD (20 credits) <a href="#">4304DCIV</a> Geotechnics I (20 credits) <a href="#">4305DCIV</a> Hydraulics (10 credits) <a href="#">4306DCIV</a> Infrastructure Design and Skills Project (20 credits)		120 core credits at level 4 0 option credits at level 4

## Information about assessment regulations

All programmes leading to LJMU awards operate within the University's Academic Framework.  
<https://www.ljmu.ac.uk/about-us/public-information/academic-quality-and-regulations/academic-framework>

## Opportunities for work-related learning ( location and nature of activities)

To put the apprentices' learning into appropriate vocational contexts project modules are assessed in realistic, industrially relevant contexts.

## Criteria for admission

### A/AS Level

Level 4: 112 UCAS points: Minimum Two A2 levels

Science and Mathematics preferred but not essential.

### Irish Leaving Certificate

Level 4 : 112 UCAS points; minimum 3 subjects at Higher level

### Scottish Higher

Level 4 : 112 UCAS points; minimum 2 subjects at Advanced Higher level

### International Baccalaureate

24 IB points

### Higher national diploma

HNC/HND (Cognate)

Level 4 Entry: Pass

Level 5 Entry: Pass with an average mark of at least 60%

### Other

GCSE Pass in Mathematics and English required (above Grade 4/C or equivalent)

Knowledge, Skills and Behaviours (KSB) 'Skill Scan' required on entry onto the programme.

### Overseas qualifications

Overseas student applicants must have the equivalent qualifications as UK students. In addition they must have achieved an IELTS score of at least 6.

## External Quality Benchmarks

All programmes leading to LJMU awards have been designed and approved in accordance with the UK Quality Code for Higher Education, including the Framework for Higher Education Qualifications in the UK (FHEQ) and subject benchmark statements where applicable.

The University is subject to periodic review of its quality and standards by the Quality Assurance Agency (QAA) Published review reports are available on the QAA website at [www.qaa.ac.uk](http://www.qaa.ac.uk)

Programmes which are professionally accredited are reviewed by professional, statutory and regulatory bodies (PSRBs) and such programmes must meet the competencies/standards of those PSRBs.

## Support for students and their learning

The University aims to provide students with access to appropriate and timely information, support and guidance to ensure that they are able to benefit fully from their time at LJMU. All students are assigned a Personal Tutor to provide academic support and when necessary signpost students to the appropriate University support services.

Students are able to access a range of professional services including:

- Advice on practical aspects of study and how to use these opportunities to support and enhance their personal and academic development. This includes support for placements and careers guidance.
- Student Advice and Wellbeing Services provide students with advice, support and information, particularly in the areas of: student funding and financial matters, disability, advice and support to international students, study support, accommodation, health, wellbeing and counselling.
- Students studying for an LJMU award at a partner organisation will have access to local support services

# Methods for evaluating and improving the quality and standards of teaching and learning

## Student Feedback and Evaluation

The University uses the results of student feedback from internal and external student surveys (such as module evaluations, the NSS and PTES), module evaluation questionnaires and meetings with student representatives to improve the quality of programmes.

## Staff development

The quality of teaching is assured through staff review and staff development in learning, teaching and assessment.

## Internal Review

All programmes are reviewed annually and periodically, informed by a range of data and feedback, to ensure quality and standards of programmes and to make improvements to programmes.

## External Examining

External examiners are appointed to programmes to assess whether:

- the University is maintaining the threshold academic standards set for awards in accordance with the FHEQ and applicable subject benchmark statements
- the assessment process measures student achievement rigorously and fairly against the intended outcomes of the programme(s) and is conducted in line with University policies and regulations
- the academic standards are comparable with those in other UK higher education institutions of which external examiners have experience
- the achievement of students are comparable with those in other UK higher education institutions of which the external examiners have experience

and to provide informative comment and recommendations on:

- good practice and innovation relating to learning, teaching and assessment observed by external examiners
- opportunities to enhance the quality of the learning opportunities provided to students

## **Please note:**

*This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content, teaching, learning and assessment methods of each module can be found in module and programme guides.*