PROGRAMME SPECIFICATION

Bachelor of Engineering with Honours in Civil Engineering

Awarding institution	Liverpool John Moores University
Teaching institution	LJMU
JACS Code	H200
Programme Duration	Full-Time: 3 Years, Sandwich Thick: 4 Years
Language of Programme	All LJMU programmes are delivered and assessed in English
Subject benchmark statement	Engineering (2015)
Programme accredited by	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 Institution (PWI)
Description of accreditation	ICE - http://www.engc.org.uk/informationfor/students-apprentices-and-graduates 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.
Validated target and alternative exit awards	Bachelor of Engineering with Honours in Civil Engineering Bachelor of Engineering Honours (SW) in Civil Engineering Diploma of Higher Education in Civil Engineering Diploma in Higher Education (SW) in Civil Engineering Certificate of Higher Education in Civil Engineering
Programme Leader	Denise Lee

Educational aims of the 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 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 AHEP-4 UK Spec and the needs of

industry.

Develop students to work in and manage teams and also to work independently.

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.

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 in Higher Education (SW)

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

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.

For the award of Diploma of Higher Education (SW), students must also demonstrate the professional and personal skills necessary for effective employment within a professional environment.

Alternative Exit/ Interim Award Learning Outcomes - Diploma of Higher Education

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

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.

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.

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.

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.

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. 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.

Alternative target awards

A student who is eligible for the following awards will be able to:

Bachelor of Engineering Honours (SW) in Civil Engineering -

In addition to the learning outcomes above a student who is eligible for this award will have successfully completed a placement year and be able to demonstrate the professional and personal skills necessary for effective employment within a professional Civil Engineering environment.

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

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.

The programme will offer the opportunity of 60 credits of study abroad at Level 5. Students will be enrolled on a 360 credit (or 480 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 480 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 480 credit honours with study abroad programme. Of those 480 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.

Level 6	Potential Awards on completion	Bachelor of Engineering with Honours
Core	Option	Award Requirements
6300CIV Advanced Materials (10 credits) 6301CIV Transportation and Infrastructure (10 credits) 6302CIV Applied Geotechnics and Design (20 credits) 6303CIV Structural Design and Risk Management (20 credits) 6304CIV Research Project (40 credits) 6305CIV 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
5300CIV Materials II (20 credits) 5301CIV Surveying and Transportation (20 credits) 5302CIV Engineering Mathematics II (10 credits) 5303CIV Geotechnics II (10 credits) 5304CIV Water Engineering (20 credits) 5305CIV Structural Analysis and Design II (20 credits) 5306CIV Civil Engineering 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
4300CIV Engineering Mathematics I (20 credits) 4301CIV Structural Analysis and Design I (20 credits) 4302CIV Introduction to Materials I (10 credits) 4303CIV Surveying and CAD (20 credits) 4304CIV Geotechnics I (20 credits) 4305CIV Hydraulics (10 credits) 4306CIV 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 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.

This 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.

Criteria for admission

A/AS Level
Level 4: 112 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.

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
Level 4: 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 Maths grade 4 (C)or above (or equivalent).

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

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.