

# Civil Engineering with Year in Industry

MEng

## COURSE DETAILS

- A level requirements: [AAA](#)
- UCAS code: H204
- Study mode: Full-time
- Length: 5 years

## KEY DATES

- Apply by: [29 January 2025](#)
- Starts: 22 September 2025

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## Course overview

Civil engineers are responsible for the design, project management and construction of the physical infrastructure of our society. Our broad-based, vocational programme covers all the required bases of a civil engineer's education, with an emphasis on applying your learning in context.

## INTRODUCTION

You will be introduced to the essentials – everything from structural analysis and design, geomechanics and materials, to the digital built environment and its digitisation. You'll also study relevant subjects such as maths, computer-aided drawing, and analysis and design.

Site visits are integral to the programme, as are various individual and group design exercises, which provide an opportunity for industrial feedback. Our teaching staff offer projects based on their research expertise.

Students will gain relevant work experience to enhance their employability by applying for a year placement with an approved company/organisation.

Civil engineering graduates are in great demand and our programme aims to provide the educational base for graduates who demonstrate ingenuity whilst being practical, articulate, numerate, literate, imaginative, versatile, confident and inquisitive.

## WHAT YOU'LL LEARN

- All bases underpinning the field of Civil Engineering
- Hands-on construction experience
- How to undertake research

- Adapting to a busy hands-on industry environment
  - Critical thinking
  - Teamwork
  - How to present and communicate clearly
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## **ACCREDITATION**

This degree is accredited by the Joint Board of Moderators (JBM) comprising the Institution of Civil Engineers, Institution of Structural Engineers, Institute of Highway Engineers, the Chartered Institution of Highways and Transportation and the Permanent Way Institution on behalf of the Engineering Council for the purposes of fully meeting the academic requirement for registration as a Chartered Engineer (CEng).

See [www.jbm.org.uk](http://www.jbm.org.uk) for further information.

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# Course content

Discover what you'll learn, what you'll study, and how you'll be taught and assessed.

## YEAR ONE

### COMPULSORY MODULES

#### **GEOMECHANICS 1 (CIVE120)**

**Credits: 7.5 / Semester: semester 2**

The Geotechnical Engineer is responsible for the safe design of how a building or infrastructure asset interacts with the ground. This module introduces students to the role of the Geotechnical Engineer and the fundamental principles and concepts that form the basis of soil mechanics

#### **SOLIDS AND STRUCTURES 1 (ENGG110)**

**Credits: 15 / Semester: whole session**

This module aims to introduce students to the fundamental concepts and theory of how engineering structures work to sustain loads. It will also show how stress analysis leads to the design of safer structures. It will also provide students with the means to analyse and design basic structural elements as used in modern engineering structures.

#### **ENERGY SCIENCE (ENGG116)**

**Credits: 15 / Semester: whole session**

To develop an understanding of the basic principles of fluid mechanics, the laws of thermodynamics, and an appreciation of how to solve simple engineering problems. To develop skills in performing and reporting simple experiments.

#### **CIVIL AND ARCHITECTURAL ENGINEERING PROJECTS (CIVE162)**

**Credits: 30 / Semester: whole session**

This module provides students with an introduction to projects within the built environment, the roles of professional engineers, the professions they will interact with, and the skills required by a professional engineer operating in the built environment

#### **ENGINEERING MATHEMATICS (ENGG198)**

**Credits: 22.5 / Semester: whole session**

To provide a basic level of mathematics including calculus and extend the student's knowledge to include an elementary introduction to complex variables and functions of two variables.

## **DIGITAL ENGINEERING (CIVE125)**

**Credits: 15 / Semester: whole session**

The module introduces both computer programming concepts and surveying of the built environment in engineering contexts. In the first semester, students will study basic programming concepts using MATLAB (or equivalent proprietary software packages) enabling them to write a basic modular program to solve a data analysis problem, which will be transferable to other programming languages. In the second semester, students will explore through personal use the ways construction equipment and digital technologies are used for surveying, inclusive of data recording, survey design and documentation, plus data analysis and interpretation. This work in the second semester will be supplemented by applying Building Information Modelling (BIM) using industry standard software in an applied digital exercise.

*Programme details and modules listed are illustrative only and subject to change.*

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## **YEAR TWO**

In the second semester students may have the option to take a week-long residential course at the Constructionarium, for which there will be a subsidised charge.

### **COMPULSORY MODULES**

#### **GEOMECHANICS 2 (CIVE220)**

**Credits: 15 / Semester: semester 1**

This module introduces students to the theoretical framework of geotechnical engineering. It emphasizes soil as a material and provides an introduction to the application of the theory to practical geotechnical engineering problems including bearing capacity of foundations, earth pressures on retaining walls and slope stability.

#### **GROUP DESIGN PROJECT (CIVE263)**

**Credits: 15 / Semester: semester 2**

The students are provided with a realistic design brief that needs to be met over the course of the semester. This is achieved via a defined set of realistic work stages which enables the students to produce an open-ended structural design within a group working environment, thus promoting teamwork and industrial awareness. The final deliverable will be the submission of structured design portfolio/sketchbook and oral presentation to academic members of staff and relevant industry partners.

## **HYDRAULICS (CIVE210)**

**Credits: 15 / Semester: semester 2**

Hydraulics belongs to applied fluid mechanics and covers hydrostatics and hydrodynamics of liquid such as water. The module focuses on pipe flows and open channel flows, which occur in a wide range of science and engineering problems. It is delivered via lectures, laboratory class and tutorials.

## **STRUCTURAL ELEMENT DESIGN (CIVE241)**

**Credits: 15 / Semester: whole session**

This module introduces students to the structural design concepts and applications of structural steelwork, reinforced concrete and other common building materials. The basic principles are covered and design examples (for design to the relevant sections of the Eurocodes) are given.

## **ENVIRONMENTAL PLANNING AND INFRASTRUCTURE PROJECT (CIVE261)**

**Credits: 15 / Semester: semester 1**

This module provides students with an introduction to the contexts of transport and infrastructure, and the skills required by a professional engineer operating in this sector.

## **EXPERIMENTAL METHODS (ENGG201)**

**Credits: 7.5 / Semester: semester 1**

The module focusses on the essentials of data analysis and interpretation, engineering experimentation, measurement techniques and principles of instrumentation.

## **PROGRAMMING FOR CIVIL ENGINEERS (CIVE286)**

**Credits: 7.5 / Semester: semester 2**

Students will be introduced to the basic concepts of computer programming and Excel to solve engineering problems. Gain knowledge of basic procedural programming concepts. Become proficient in the use of Excel and Excel Macros. Enhance problem solving skills. Gain experience in solving engineering problems using a software tool.

*Programme details and modules listed are illustrative only and subject to change.*

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## **YEAR IN INDUSTRY**

During this year you will undertake a year placement with an approved company/organisation. The aim is to develop an understanding of the practical application of theories and technical skills in a real-work environment. Industry-relevant activities will develop your transferrable skills and professional competence, leading to enhanced employability.

Whilst we will provide all necessary support and guidance, it is the responsibility of the student to secure an industrial placement. Applicants should note that these are highly sought after, and competition to be accepted into one can be significant. They therefore cannot be guaranteed. Students who fail to secure a suitable placement will transfer back to the standard version of the programme without a year in industry.

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## **COMPULSORY MODULES**

### **SCHOOL OF ENGINEERING YEAR IN INDUSTRY (ENGG299)**

**Credits: 120 / Semester: whole session**

This module is associated with the placement year of the 'year in industry' programme. On accepting an approved offer, students spend a minimum of 40 weeks employed in a company/organisation. Placements will be approved and arranged at places accessible to the individual student. An academic mentor will be assigned to monitor and assess the student's progress during placement. This will involve at least one site visit and follow-up telephone call as well as checking that the student's placement log is being kept up to date. The placement year should be a mutually beneficial experience for both student and employer. Students will be given opportunities and gain confidence to apply theories and technical skills learned in Years 1 and 2 of their studies in a real-time work environment. Ideally (depending on the placement), these activities will be engineering/industry relevant and project (team) based extending over several months and will therefore provide opportunities to develop the student's transferable skills and professional competence leading to enhanced employability.

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## **YEAR FOUR**

The year four modules are currently being reviewed and will be updated shortly.

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## **COMPULSORY MODULES**

### **GEOTECHNICAL ENGINEERING (CIVE320)**

**Credits: 15 / Semester: semester 2**

This module introduces students to the theory and methods that underpin geotechnical engineering practice. It covers the design of shallow and deep foundations, retaining walls, slopes and other structures according to Eurocode 7. In addition, it provides a comprehensive introduction to modern finite element methods and their application to geotechnical engineering.

## **INDIVIDUAL PROJECT (ENGG341)**

**Credits: 30 / Semester: whole session**

The Year 3 individual research project; 300 hours student work over 2 semesters; 3 assessment stages (proposal 5%, interim 20%, final 75%).

## **SUSTAINABLE WATER ENGINEERING (CIVE316)**

**Credits: 15 / Semester: semester 2**

In the face of growing populations, increasing demand from agriculture and industry, unsustainable use of water reserves and on going environmental change, water engineers face enormous challenges. This module will study the natural water systems, which underpin our use of water resource. Furthermore, it will apply fundamental hydraulic principles to predict flood risks, estimate water demand and supply, design and optimise water storage, transfer and supply infrastructure as well as set out the basic principles and practical measures to deal with these challenges.

## **STRUCTURES 3 (CIVE344)**

**Credits: 7.5 / Semester: semester 1**

This module introduces students to plastic structural analysis. At the member level the principle and method for assessing the load carrying capacity of a section is discussed. Topics covered at the structural level include principle and method behind collapse mechanisms, determining collapse loads by incrementally increasing load magnitude (incremental load analysis), and by investigation of the final incipient collapse state (plastic limit state analysis). Implications on limit state design are also discussed.

## **OLD STRUCTURES OF STEEL, TIMBER AND MASONRY (CIVE334)**

**Credits: 15 / Semester: semester 2**

It has been shown that the refurbishment of existing buildings is a more sustainable option than demolition and reconstruction as it leads to significant reductions in CO2 emissions. Additionally, the benefits of refurbishment (in comparison to new construction) extend beyond CO2 emissions and reduced energy expenditure: (i) less raw materials, (ii) less waste, (iii) heritage conservation and community retention and finally, (iv) well restored structures have a high economic value. This module gives students an insight into the structural appraisal and reuse of existing structures.

## **SUSTAINABLE DESIGN AND CONSTRUCTION MANAGEMENT (CIVE350)**

**Credits: 15 / Semester: whole session**

Sustainability and Management are areas of professionalism that are very important within the construction industry and wider built environment sector. Both areas are also emerging as new and exciting career paths for many graduate civil engineers plus architectural engineers. On completion of this module, students will understand a range of approaches to designing for climate change adaptation and net-zero carbon implementation, as well as appreciate diverse management practices associated with modern methods of construction plus industry innovation. In addition, skills will be gained by students in career evaluation, market analysis, design appraisal, options review and project judgements, all linked to enhanced graduate employment and responsible decision-making as a professional engineer.

## **OPTIONAL MODULES**

### **INTRODUCTION TO FINITE ELEMENTS (ENGG302)**

**Credits: 7.5 / Semester: semester 1**

In this module the students will gain a basic understanding of the Finite Element method and learn to use some Finite Element software. This software will then be used to analyse a variety of different problems which are relevant to both mechanical and civil engineers.

### **UNCERTAINTY, RELIABILITY AND RISK 1 (ENGG304)**

**Credits: 7.5 / Semester: semester 1**

This module covers broad aspects of uncertainty quantification methods, reliability analysis and risk assessment in engineering applications. It also provides understanding of statistical analysis of engineering data and computational methods for dealing with uncertainty in engineering problems.

### **STRUCTURAL DYNAMICS (ENGG301)**

**Credits: 7.5 / Semester: semester 1**

This module introduces essential principles necessary for the understanding of vibrations in Civil Engineering structures.

### **EARTHQUAKE ENGINEERING (CIVE342)**

**Credits: 7.5 / Semester: semester 1**

This module aims at introducing students to earthquake engineering. It acquaints students with basic skills for analyzing the seismic response of structures subjected to earthquake excitations using structural dynamics principles. Background knowledge in engineering seismology will be covered to provide a comprehensive perspective to the topic. Seismic design principles are also introduced to provide a sound understanding of the rationale behind seismic codes.



## **PRESTRESSED CONCRETE DESIGN (CIVE343)**

**Credits: 7.5 / Semester: semester 1**

This module builds on the knowledge and skills gained in CIVE241 Reinforced Concrete and Steelwork and extends them to the design of prestressed concrete. The module gives a background to the history and principles of prestressed concrete design and construction. This is all illustrated with extensive practical examples. All the concepts required to design simple prestressed concrete elements are covered

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## **YEAR FIVE**

### **COMPULSORY MODULES**

#### **MATERIALS FOR DURABLE AND SUSTAINABLE CONSTRUCTION (CIVE401)**

**Credits: 15 / Semester: semester 1**

The aim of the module is to enhance students' knowledge and understanding of the advances made in conventional construction materials and alternative construction materials that have and are currently being developed for use in construction to achieve more innovative, and sustainable structures.

#### **RISK AND UNCERTAINTY: PROBABILITY THEORY (ENGG404)**

**Credits: 7.5 / Semester: semester 1**

This module develops understanding and appreciation of basic probability theory. It involves the quantification of uncertainties in input and models, their implementation, and the evaluation of the associated results in view of decision making. An introduction to numerical concepts will be provided. The methods shown in the module have a general applicability, which is demonstrated by examples and practical applications.

#### **ADVANCED GEOMECHANICS (CIVE420)**

**Credits: 15 / Semester: semester 1**

This module introduces students to advanced theories, concepts and methods of modern geomechanics, with emphasis on: – Advanced methods of simulation – Plasticity theory – Stability analysis – Groundwater flow analysis – Constitutive modelling.

#### **CAPSTONE: MULTIDISCIPLINARY PROJECT (CIVE462)**

**Credits: 30 / Semester: semester 2**

This module presents an opportunity to practise comprehensive, multidisciplinary design in civil engineering. The students work in teams to provide complete solutions to demanding civil engineering design problems with some significant reliance on self, guided learning.

## **STRUCTURAL SYSTEMS (CIVE405)**

**Credits: 15 / Semester: semester 2**

This module focuses on the conceptual design of civil engineering structures, and structural behaviour and assessment. It provides a review of the basics of structural engineering analysis and design including construction of bending moment and shear force diagrams, cross-sectional analysis, material properties and basic design code requirements.

## **ADVANCED CONSTRUCTION MANAGEMENT (CIVE450)**

**Credits: 15 / Semester: whole session**

Management linked to industry innovation and employee practice is an area of professionalism that is very important within the construction and wider built environment sector. It is also emerging as a distinctive and rewarding career path for many graduate civil engineers plus architectural engineers. On completion of this module, students will understand a range of approaches to project management implementation, diverse practices associated with modern methods of construction, as well as effective judgement-making of challenging tasks in complex real-life situations. It will both prepare graduates for professional development in civil engineering, as well as make them fully aware of multiple aspects of strategic, operational and lifecycle management as applied to this specific industrial sector.

## **STRUCTURAL OPTIMISATION (ENGG414)**

**Credits: 7.5 / Semester: semester 2**

This module is about classical optimisation and modern optimisation and their numerical methods. Structural optimisation and their numerical methods. Students will get an idea of how to optimise simple structure and get optimal solutions by analytical and numerical methods.

## **OPTIONAL MODULES**

### **COASTAL AND ESTUARY PROCESSES (CIVE487)**

**Credits: 15 / Semester: semester 1**

This module aims to introduce student the basic theory of surface waves, understand the nearshore morphological process and estuary processes.

## **POLITICS OF THE ENVIRONMENT (ENVS525)**

**Credits: 15 / Semester: semester 1**

Increasingly recognition of the environmental threats that we all face means that responding to this crisis affects the decisions we all make at a variety of different scales. This module explores the extent to which environmental concerns are taken into account in various decision-making processes involving the public (government), private and third sectors at a variety of different scales, global, European, national and local. The module is assessed by an essay and an open-book exam, which provides students with significant choice to explore those parts of the module they find most interesting.

*Programme details and modules listed are illustrative only and subject to change.*

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### **HOW YOU'LL LEARN**

We are leading the UK's involvement in the international [Conceive-Design-Implement-Operate \(CDIO\)](#) initiative – an innovative educational framework for producing the next generation of engineers.

Our degree programmes encompass the development of a holistic, systems approach to engineering. Technical knowledge and skills are complemented by a sound appreciation of the life-cycle processes involved in engineering and an awareness of the ethical, safety, environmental, economic, and social considerations involved in practicing as a professional engineer.

You will be taught through a combination of face-to-face teaching in group lectures, laboratory sessions, tutorials, and seminars. Our programmes include a substantial practical component, with an increasing emphasis on project work as you progress through to the final year. You will be supported throughout by an individual academic adviser.

### **HOW YOU'RE ASSESSED**

Assessment takes many forms, each appropriate to the learning outcomes of the particular module studied. The main modes of assessment are coursework and examination. Depending on the modules taken, you may encounter project work, presentations (individual and/or group), and specific tests or tasks focused on solidifying learning outcomes.

### **LIVERPOOL HALLMARKS**

We have a distinctive approach to education, the Liverpool Curriculum Framework, which focuses on research-connected teaching, active learning, and authentic assessment to ensure our students graduate as digitally fluent and confident global citizens.

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# Careers and employability

We are committed to developing the modern professional engineers for the future, ensuring that learning environments reflect future working environments. The skills gained through studying a degree in Civil Engineering equip our graduates with the knowledge necessary to excel in an ever-changing industry.

Many graduates have moved on to have careers with employers such as:

- Airbus
- BMI
- British Airways
- Highways Agency
- Jaguar Land Rover
- National Nuclear Laboratory
- Network Rail
- Pilkington
- Rolls Royce
- Siemens.

**4 IN 5** OF OUR ENGINEERING STUDENTS FIND THEIR MAIN ACTIVITY AFTER GRADUATION MEANINGFUL.

*Graduate Outcomes, 2018-19.*

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# Fees and funding

Your tuition fees, how to pay, and other costs to consider.

## TUITION FEES

<b>UK fees (applies to Channel Islands, Isle of Man and Republic of Ireland)</b>	
Full-time place, per year	£9,250
Year in industry fee	£1,850
Year abroad fee	£1,385

<b>International fees</b>	
Full-time place, per year	£27,200
Year in industry fee	£1,850
Year abroad fee	£13,600

*Fees shown are for the academic year 2024/25. Please note that the Year Abroad fee also applies to the Year in China.*

Tuition fees cover the cost of your teaching, assessment, operating University facilities such as libraries, IT equipment, and access to academic and personal support.

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## ADDITIONAL COSTS

We understand that budgeting for your time at university is important, and we want to make sure you understand any course-related costs that are not covered by your tuition fee. This includes a lab coat, safety boots, and a residential construction course.

Find out more about the [additional study costs](#) that may apply to this course.

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## **SCHOLARSHIPS AND BURSARIES**

We offer a range of scholarships and bursaries to provide tuition fee discounts and help with living expenses while at university.

Check out our [Liverpool Bursary](#), worth up to £2,000 per year for eligible UK students. Or for international students, our [Undergraduate Global Advancement Scholarship](#) offers a tuition fee discount of up to £5,000 for eligible international students starting an undergraduate degree from September 2024.

[Discover our full range of undergraduate scholarships and bursaries](#)

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# Entry requirements

The qualifications and exam results you'll need to apply for this course.

Your qualification	Requirements <a href="#">About our typical entry requirements</a>
A levels	AAA including Mathematics Applicants with the Extended Project Qualification (EPQ) are eligible for a reduction in grade requirements. For this course, the offer is <b>AAB</b> with <b>A</b> in the EPQ. You may automatically qualify for reduced entry requirements through our <a href="#">contextual offers scheme</a> .
GCSE	4/C in English and 4/C in Mathematics
Subject requirements	Mathematics For applicants from England: For science A levels that include the separately graded practical endorsement, a "Pass" is required.
BTEC Level 3 Subsidiary Diploma	Acceptable at grade Distinction* alongside AA at A level including A Level Mathematics.
BTEC Level 3 Diploma	Distinction* Distinction* in relevant BTEC considered alongside A Level Mathematics grade A. Accepted BTECs include Aeronautical, Aerospace, Construction, Mechanical, Mechatronics and Engineering.
BTEC Level 3 National Extended Diploma	Not accepted without grade A in A Level Mathematics.
International	36 overall, including 5 at Higher Level Mathematics

<b>Your qualification</b>	<b>Requirements</b> <a href="#">About our typical entry requirements</a>
Baccalaureate	
Irish Leaving Certificate	H1,H1,H2,H2,H2,H2, including H2 in Higher Maths. We also require a minimum of H6 in Higher English or O3 in Ordinary English
Scottish Higher/Advanced Higher	Pass Scottish Advanced Highers with grades AAA including Mathematics
Welsh Baccalaureate Advanced	Acceptable at grade A alongside AA in A Level Mathematics.
Cambridge Pre-U Diploma	D3 in Cambridge Pre U Principal Subject is accepted as equivalent to A-Level grade A M2 in Cambridge Pre U Principal Subject is accepted as equivalent to A-Level grade B Global Perspectives and Short Courses are not accepted.
Access	Not accepted.
International qualifications	Many countries have a different education system to that of the UK, meaning your qualifications may not meet our direct entry requirements. Although there is no direct Foundation Certificate route to this course, completing a Foundation Certificate, such as that offered by the <a href="#">University of Liverpool International College</a> , can guarantee you a place on a number of similar courses which may interest you.

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## ALTERNATIVE ENTRY REQUIREMENTS

- If your qualification isn't listed here, or you're taking a combination of qualifications, [contact us](#) for advice
- [Applications from mature students](#) are welcome.



**THE ORIGINAL**

**REDBRICK**