BEng (Hons) Civil Engineering

LSBU London South Bank University

ASU Applied Science University جامعة العلوم التطبيقية

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Programme Details

Final Qualification	Language of Study	Mode of Study
BEng (Hons)	English	Full Time

Programme Structure

Study Period	Total Credit Hours	Number of Courses
4 Years	150 Credit Hours	49 Courses

Brief about the Programme

CIOB The Chartered Institute of Building

This programme is intended for undergraduate students who wish to study the discipline of Civil Engineering to Honours degree level and who may wish to achieve professional status later. This programme is designed to embrace developments in the industry, in particular the Engineering Council UK (ECUK) Standard for Professional Engineering Competence (UK-SPEC). The curriculum emphasises the development of traditional engineering numerical strengths coupled with an enquiring creative approach as required by employers. This degree will give students a solid foundation for entering the industry equipped with the necessary skills required to excel in a competitive environment. The programme leads to a dual award from Applied Science University (ASU Bahrain) and London South Bank University (LSBU-UK).

Aims of the Programme

1. Empower graduates to pursue global careers in civil engineering by fostering a commitment to professional excellence and adaptability within diverse international environments.
2. Equip graduates who are equipped for postgraduate study and prepare them to take up responsible professional employment in the construction industry. Graduates will also become lifelong learners who appreciate the value of a civil engineering education to society.
3. Empower graduate with a breadth and depth of knowledge and understanding of the key aspects of civil engineering.
4. Foster the acquisition of advanced analytical, problem-solving, and subject-specific skills. In addition, enable them to develop the ability to evaluate evidence, arguments, and assumptions, reach sound judgements, and communicate effectively.
5. Provide graduates with the necessary academic qualification to enter advanced postgraduate studies as well as providing the necessary educational base to become a Chartered Engineer.

The first university in the Kingdom of Bahrain to achieve global accreditation from the British Quality Assurance Agency for Higher Education (QAA)

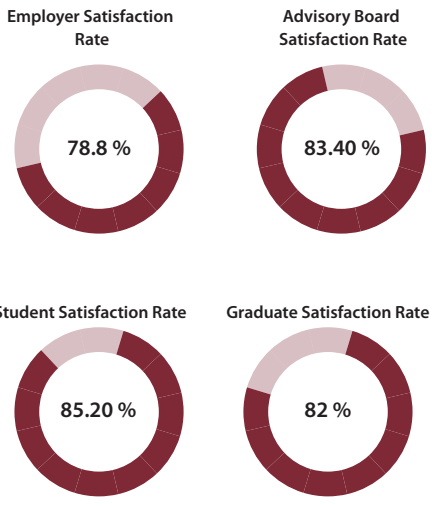
Rated 5 Stars in the QS Rating System

Ranked 30th in the QS Arab Region University Rankings 2026

Ranked 613 in the QS World University Rankings 2026

Ranked 301+ Worldwide in the Times Higher Education University Impact Rankings

General Statistics



Career Paths

1. Civil Engineer
2. Structural Engineer
3. Project Engineer
4. Site Engineer
5. Transportation Engineer
6. Water Resources Engineer
7. Environmental Engineer
8. Construction Manager
9. Geotechnical Engineer
10. Infrastructure Consultant

Entry Requirements

Foundation Level / Year 1

A Bahraini or GCC Secondary School (Scientific) Certificate with a minimum of 65% GPA* and 60% in Mathematics and 60% in English language or equivalent. Candidates with a lower GPA may also be admitted, subject to a satisfactory interview by the College.

IELTS Test Score of 4.5 or equivalent.

Direct Entry to Level 4 Year 2

Foundation Year Completion Certificate, or equivalent international qualifications which may typically include:

Advanced Level (A-Level) – BCC or equivalent in UCAS points including Mathematics and preferably a Science in either Chemistry or Physics

International Baccalaureate- IB 29 points

CBSE minimum of 65% with 70% in English

IELTS Test Score of 6.0 or equivalent.

Study Plan

Year	Semester 1	Module Codes	Credit Hours	Semester 2	Module Codes	Credit Hours	Level	
1	Engineering Science 1	ASU_S_ES1	3 hrs. (10 CAT)	Engineering Science 2	ASU_S_ES2	3 hrs. (10 CAT)	S	Core
	Intermediate English	ASU_S_IEN	3 hrs. (10 CAT)	Advanced English	ASU_S_AEN	3 hrs. (10 CAT)	S	Core
	Mathematics 1	ASU_S_MA1	3 hrs. (10 CAT)	Mathematics 2	ASU_S_MA2	3 hrs. (10 CAT)	S	Core
	Principles of Engineering	ASU_S_POE	3 hrs. (10 CAT)	Constructing the Built Environment	ASU_S_CBE	3 hrs. (10 CAT)	S	Core
	Laboratory and Workshop Skills	ASU_S_LWS	3 hrs. (10 CAT)	Study Skills and Professional Practice	ASU_S_SSP	3 hrs. (10 CAT)	S	Core
				Computer Programming for Engineering	ASU_S_CPE	3 hrs. (10 CAT)	S	Core
Summer	Human Rights				ASU_S_HUR	3 hrs. (10 CAT)	S	Core
	Bahrain Civilisation and History				ASU_S_BCH	3 hrs. (10 CAT)	S	HEC req.
	Arabic Language				ASU_S_ALA	3 hrs. (10 CAT)	S	HEC req.
	Arabic Language for Non-Arabic Speakers				ASU_S_ALN			
Total			50			90		140
2	Engineering Practice and Design 1	ASU_4_EP1	3 hrs. (10 CAT)	Engineering Practice and Design 2	ASU_4_EP2	3 hrs. (10 CAT)	4	Core
	Engineering Mathematics 1	ASU_4_EM1	3 hrs. (10 CAT)	Engineering Mathematics 2	ASU_4_EM2	3 hrs. (10 CAT)	4	Core
	Principles of Engineering Science 1	ASU_4_PE1	3 hrs. (10 CAT)	Principles of Engineering Science 2	ASU_4_PE2	3 hrs. (10 CAT)	4	Core
	Surveying and Structures 1	ASU_4_SS1	3 hrs. (10 CAT)	Surveying and Structures 2	ASU_4_SS2	3 hrs. (10 CAT)	4	Core
	Civil Engineering Drawing and Surveying	ASU_4_CDS	3 hrs. (10 CAT)	Engineering Ethics	ASU_4_EET	3 hrs. (10 CAT)	4	Core
	Structural Design	ASU_4_SDG	3 hrs. (10 CAT)	Soil Mechanics	ASU_4_SME	3 hrs. (10 CAT)	4	Core
Total			60			60		120
3	Advanced Engineering Mathematics	ASU_5_AEM	3 hrs. (10 CAT)	Infrastructure and Highway Engineering	ASU_5_IHE	3 hrs. (10 CAT)	5	Core
	Design and Construction 1	ASU_5_DC1	3 hrs. (10 CAT)	Civil Engineering and Construction Field Studies	ASU_5_CCF	3 hrs. (10 CAT)	5	Core
	Hydraulics	ASU_5_HYD	3 hrs. (10 CAT)	Design and Construction 2	ASU_5_DC2	3 hrs. (10 CAT)	5	Core
	Structural Mechanics	ASU_5_STM	3 hrs. (10 CAT)	Advanced Structural Analysis and Design	ASU_5_ASD	3 hrs. (10 CAT)	5	Core
	Environmental Engineering	ASU_5_EEG	3 hrs. (10 CAT)	Theory of Structures	ASU_5_THS	3 hrs. (10 CAT)	5	Core
	Engineering Management and Economics	ASU_5_EME	3 hrs. (10 CAT)					
Summer	Internship				ASU_5_ITS	3 hrs. (10 CAT)	5	Core
Total			60			60		120
4	Structural Design and Analysis 1	ASU_6_SA1	3 hrs. (10 CAT)	Current Topics in Civil and Construction Engineering	ASU_6_CTC	3 hrs. (10 CAT)	6	Core
	Civil Engineering Materials	ASU_6_CEM	3 hrs. (10 CAT)	Geotechnical Engineering	ASU_6_GTE	3 hrs. (10 CAT)	6	Core
	Foundations	ASU_6_FDS	3 hrs. (10 CAT)	Structural Design and Analysis 2	ASU_6_SA2	3 hrs. (10 CAT)	6	Core
	Engineering System Design	ASU_6_ESD	3 hrs. (10 CAT)	Construction Management	ASU_6_CMG	3 hrs. (10 CAT)	6	Core
	Engineering Research Methods	ASU_6_ERM	3 hrs. (10 CAT)	Project	ASU_6_PRJ	6 hrs. (20 CAT)	6	Core
	Innovation, Enterprise and Management	ASU_6_IEM	3 hrs. (10 CAT)					
Total			60			60		120
Total 150 credit hours including HEC requirements								

Mathematics 1 (ASU_S_MA1)

The module is designed to provide students with the mathematical knowledge and skills to support the study of engineering and the requirement for entry into the BEng programmes at ASU. Therefore, it is a preparatory or foundation module building on the knowledge obtained at school.

Intermediate English (ASU_S_IEN)

A 10 CAT module which runs for one semester of 15 weeks for three hours per week. It is the first credit English module that ASU undergraduate students are required to take. The module provides intensive practice in upper-intermediate reading, oral presentations, writing, and note-taking. Academic and study skills are embedded in the module. The module develops students' English language and analytical skills to pursue a more advanced ASU academic English module and cope with the literacy demands of specialised modules taught in English.

Principles of Engineering (ASU_S_POE)

This module develops the students' understanding of essential scientific principles for the study of engineering to the degree level. It is designed to be accessible to students with a wide range of prior science specialisations. The module comprises two blocks of study. These blocks are common to all engineering disciplines and introduce the principles of measurement systems and units, thermal physics, mechanical and electrical principles and engineering materials and their properties.

Study Skills and Professional Practice (ASU_S_SSP)

This module provides an introduction to both study and professional skills and practice. The module introduces study skills considering both individual and team-working skills; it covers exam preparation, revision and question answering techniques. It introduces students to their own Personal Development Planning processes.

It also enables students to develop and use appropriate safe working practices as expected in an engineering and industrial environment.

Engineering Science 1 (ASU_S_ES1)

This module covers scientific principles of physics and chemistry at a level between secondary school level and Advanced Level. It serves as a preparatory module for students intending to undertake engineering undergraduate degree programmes at the University and introduces students to a range of skills required for studying engineering.

Laboratory and Workshop Skills (ASU_S_LWS)

This module is a mixture of workshop exercises and practical experiments and projects. Students work in small groups of 2–5 people, depending on the task. The module also provides students with an introduction to design skills and basic engineering drawing.

Engineering Science 2 (ASU_S_ES2)

This module aims to extend engineering students' science knowledge in preparation for continuing their respective engineering degrees. It covers general applied physical principles, including dynamics, statics, fluids, heat and energy.

Computer Programming for Engineering (ASU_S_CPE)

This module introduces students to concepts of programming. This includes conditional, iterations and block structure. Structured programming and data types will also be introduced and illustrated on typical and simple engineering problems.

Mathematics 2 (ASU_S_MA2)

The module is designed to provide students with the mathematical knowledge and skills necessary for transition to Level 4 study of engineering subjects. Students will attend lectures and tutorials where mathematical exercises are undertaken. Where possible, the statistical content will introduce the use of statistical packages and the presentation of real-life data sets. All students will keep a logbook of the problems tackled.

Besides the 36 contact hours, students are encouraged to spend some time on their own to practise the mathematical concepts they learn during the lectures and solve extra problems.

Constructing the Built Environment (ASU_S_CBE)

This module introduces students to design principles and processes specific to constructing the built environment. It will explore traditional and modern construction methods, and students will understand how new methods and materials can sustain the built environment.

Advanced English (ASU_S_AEN)

A 10 CAT module which runs for one semester of 15 weeks for three hours per week. It is the second credit English module that ASU undergraduate students are required to take. The module provides intensive practice in advanced level reading, oral presentations, writing, and listening. Academic and study skills are embedded in the module. This module aims to enhance students' English and analytical skills as a prerequisite for academic and professional success.

Human Rights (ASU_S_HUR)

This module deals with the basic principles of human rights in terms of the definition of human rights and its scope and source, focusing on the provisions of the international law of human rights, which include the following international documents:

a. Charter of the United Nations
b. The Universal Declaration of Human Rights
c. The International Covenant on Civil and Political Rights
d. The International Covenant on Economic, Social and Cultural Rights
e. Convention against Torture and Cruel, Inhumane Punishments.
f. Protection Mechanisms and Constitutional Organisation of Public Rights and
g. Freedom in the Kingdom of Bahrain

Bahrain Civilisation and History (ASU_S_BCH)

The aim of the module is to highlight the role of the Kingdom of Bahrain in its local, regional and international levels through various historical eras, beginning with the Old Ages through the Islamic era to the modern era. The module demonstrates the Arab and Islamic identity of the Kingdom of Bahrain and the vital role they play politically and culturally.

Arabic Language (ASU_S_ALA)

The module runs for one semester of 7 weeks (Summer Semester). The module provides intensive practice in reading, oral presentations, writing, and note-taking.

Arabic Language for Non-Arabic Speakers (ASU_S_ALN)

The module runs for one semester of 7 weeks (Summer Semester). This Arabic module is required to be taken by non-Arabic speaking students in ASU undergraduate Engineering programmes. The module provides intensive practice for beginners in reading, oral presentations, writing, and note-taking.

Engineering Practice and Design 1 (ASU_4_EP1)

This module provides an introduction to engineering practice and design. Design activities, sustainable design principles, and transferable skills will be considered.

Structural Design (ASU_4_SDG)

Introduction to stress and deformation of basic structural materials subjected to axial, torsional, bending, and pressure loads. Plane stress, plane strain, and stress-strain laws. Applications of stress and deformation analysis to members subjected to centric, torsional, flexural, and combined loading. Introduction to theories of failure.

Engineering Mathematics 1 (ASU_4_EM1)

This module consolidates the mathematical skills that underpin the BEng Engineering Degrees.

Principles of Engineering Science 1 (ASU_4_PE1)

This module develops the students' understanding of essential scientific principles for the study of engineering to the degree level. It is designed to be accessible to students with a wide range of prior science specialisations.

This module develops the students' understanding of methods for quantifying the forces between bodies. Forces that are responsible for maintaining equilibrium. This module is common to all engineering disciplines and introduces the principles of measurement systems, force and moment vector and traditional analysis, and forces in equilibrium.

Surveying and Structures 1 (ASU_4_SS1)

This module introduces students to principles of surveying and setting out, including distance and angular measurements, levelling, volume and curve calculation, dimensional control and positioning. Students will use various surveying instruments, including tapes, levels, and Theodolite/Total Stations. Students are also introduced to modern advances in surveying technology, such as GPS and lasers and their uses in civil engineering and construction. Knowledge is acquired through computational exercises and the completion of practical survey work.

Civil Engineering Drawing and Surveying (ASU_4_CDS)

Civil Engineering Drawing – rationale, documentation, standards, use of CAD or BIM software to produce structural engineering drawings in concrete and steel. Interpret civil engineering drawings for structures, roads and drainage. Civil Engineering Survey – theory and practice in the use of surveying instruments as applied to civil engineering and construction projects. Calculations and survey techniques.

Engineering Practice and Design 2 (ASU_4_EP2)

The module covers practical work, project management, health and safety and risk management, and transferable skills.

Engineering Mathematics 2 (ASU_4_EM2)

This module consolidates the mathematical skills that underpin the BEng Engineering Degrees.

Principles of Engineering Science 2 (ASU_4_PE2)

This module develops the students' understanding of essential scientific principles for the study of engineering to the degree level. It is designed to be accessible to students with a wide range of prior science specialisations. The module comprises two blocks of study. These blocks are common to all engineering disciplines and introduce mechanical and electrical principles and engineering materials and their properties.

Surveying and Structures 2 (ASU_4_SS2)

This module develops students' practice with structural engineering, provides an introduction to structural concepts, and provides an overview of specific techniques for analysing determinate structures, trusses, beams, and frames.

Engineering Ethics (ASU_4_EET)

This module introduces the theory and the practice of engineering ethics using a multi-disciplinary and cross-cultural approach. The theory includes ethics and the philosophy of engineering. Historical cases that were taken primarily from the scholarly literature on engineering ethics and hypothetical cases were examined and critically evaluated by students linking to the codes of engineering ethics set by different professional bodies. Students will compare these cases and recommend action.

Soil Mechanics (ASU_4_SME)

This module introduces a number of simple models which were used to describe soil and its mechanical behaviour. Standard laboratory tests were carried out, and soil properties were derived from the results.

Advanced Engineering Mathematics (ASU_5_AEM)

This module covers advanced undergraduate engineering mathematics.

Design and Construction 1 (ASU_5_DC1)

This module offers the knowledge and skills of masonry and reinforced masonry structure design to Eurocodes, analysis of structural form and the ability to design in both qualitative and quantitative directions.

Hydraulics (ASU_5_HYD)

This module develops the fundamental principles of Fluid Mechanics and applies them to practical applications of analysis and design. Students will develop a greater understanding of the flow of ideal and real fluids and will apply these principles to the analysis and design of pipes and open channels. Students will perform simple laboratory tests and prepare a formal report.

Structural Mechanics (ASU_5_STM)

This module introduces Building Information Modelling (BIM) and explains how BIM has changed the construction industry worldwide. Case studies of projects where BIM improved sustainability and reduced cost were studied. Students model typical multi-storey framed steel and concrete buildings in Autodesk Revit and apply appropriate variable actions on the floors. They transfer the building model to the Autodesk Robot Structural Analysis programme and analyse design beams and columns. They compare computer results to hand calculations results, obtained using load take-down methods and design formulae.

Environmental Engineering (ASU_5_EEG)

This module takes the principles of environmental engineering and applies them to practical applications of analysis and design. Students will be introduced to the principles of water, water quality, and wastewater treatment processes and to consider sustainability issues. Students will develop an understanding of the hydrological cycle and surface hydrology, and apply these principles to the calculation of precipitation and unit hydrograph. Students will also learn the basics of groundwater flow and the problem of contamination in groundwater. The unit also introduces air pollution and noise pollution.

Infrastructure and Highway Engineering (ASU_5_IHE)

This is substantially a theory and project-based module. It brings together construction, design, contractual, planning, management and safety processes. It emphasises the link between materials and site geological properties and their relationship with design and execution. Highway engineering will occupy half the contact time, and this will include geometric and structural design aspects, which will integrate some geology, earthwork and drainage. The module will also include site visits. Standard laboratory tests were carried out, and bitumen properties were derived from the results. Problems to be solved include geometric design, traffic volume, channelisation, and hydrology. Lab projects involve roadway designing.

Engineering Management and Economics (ASU_5_EME)

This module helps to prepare students for their future roles as professional engineers in a number of ways. It includes:

- detailed study of project planning techniques, including network techniques, with preparation for the student's individual projects
- an overview of the business functions which interact with engineering
- an introduction to Systems Thinking. A formal method for studying systems will be introduced.
- An introduction to recruitment, retention and equal opportunities in employment
- the use of published Standards in engineering
- use of the BSI website to access national and international standards
- an introduction to statistics and their use in managing engineering processes

• an introduction to Quality Management, with particular reference to the ISO 9000 series
• An introduction to European Directives and harmonised standards
• Writing technical business reports, including the importance of acknowledging published sources and the use of formal methods for doing so

Internship (ASU_5_ITS)

This module provides the students with an opportunity to experience the industrial world and be part of a team working on real-world projects. The University assists each student in finding the most suitable industry.

Design and Construction 2 (ASU_5_DC2)

This module offers the knowledge and skills of marine structures, analysis and design of Eurocodes, analysis of structural form and the ability to design in both qualitative and quantitative directions - including ports and offshore structures and dams.

Advanced Structural Analysis and Design (ASU_5_ASD)

This module develops students' practice with structural engineering, introduces structural concepts, and provides an overview of specific techniques for analysing indeterminate structures beams, and frame structures.

Theory of Structures (ASU_5_THS)

This module mainly deals with the matrix-stiffness analysis of structures. It begins with a review of the basic concepts of structural analysis and matrix algebra and shows how the latter provides a mathematical framework for the former.
This is followed by detailed descriptions and demonstrations through many examples of how matrix methods can be applied to linear static analysis of skeletal structures (plane and space trusses; beams and grids; plane and space frames) by the stiffness method.
Also, it is shown how simple structures can be conveniently solved using a reduced stiffness formulation, involving far less computational effort. Finally, the Finite Element Analysis is discussed.

Civil Engineering and Construction Field Study (ASU_5_CCF)

The module introduces students to the practical side of the civil and construction engineering industry. It gives them the opportunity to visit sites. It ensures that students are aware of real-life situations in projects. Students will be able to critically appraise and evaluate construction management situations and report on them.

Structural Design and Analysis 1 (ASU_6_SA1)

This module offers the knowledge and skills of reinforced concrete design to Eurocodes, analysis of structural form and the ability to design in both qualitative and quantitative directions.

Civil Engineering Materials (ASU_6_CEM)

The module provides an overview of general civil engineering material performance requirements and properties: strength, stiffness, durability, and appearance. This will include concrete, steel, and timber. The module will provide an overview of available materials, geotextile functions and mechanisms, designing with geotextiles, stresses in materials and biaxial stress systems.

Foundations (ASU_6_FDS)

Shallow foundations design. Bearing capacities of soils, safe, net and ultimate; factor of safety; mass concrete footings; footing resisting lift; column type footings. Two-way footing concentrically or eccentrically loaded; AS 3600 code requirements; design loads; critical section for shear; punching shear and bending shear, anchor bolts. Combined footings; design of strap or cantilever footings. Design of mat foundations. Design of retaining walls. Design of reinforced retaining walls. Sheet pile walls design. Residential footings design.

Innovation, Enterprise and Management (ASU_6_IEM)

The module is intended to be practical, with students developing some appropriate ideas of their own in such a way that they become practical, profitable propositions. Students will practice ways of finding ideas, testing those ideas and developing them, and will write their own business strategies, risk assessments and scenario testing so that they demonstrate the commercial viability of their ideas.
One of the assignments will require students to work in groups, typically to adopt a concept and develop it such that it could be commercially viable and sustainable. This might be a product or a service (such as consultancy or contract management).
Students will experience topics addressing intellectual property, market research, market placement, advertising and finance. They will be expected to reflect on what they can contribute to a group.

Engineering System Design (ASU_6_ESD)

To involve the student in the process of engineering project development from planning to detailed design and working with a project team.

Engineering Research Methods (ASU_6_ERM)

The module studies the scope and significance of engineering research. It introduces students to the various aspects of engineering research; its types, tools and methods and students will learn how to apply research techniques to real-world situations. The module covers topics such as the identification

of a topic by the student, proposition of hypothesis, formulation of research inquiries, development of literature review, and select research design and methodologies. Additionally, students will learn data collection techniques; primary and secondary data with application to specific problems, scaling and research instrument design and sampling design.

Current Topics in Civil and Construction Engineering (ASU_6_CTC)

The module introduces students to new issues, ideas and trends in the civil and construction engineering industry. It ensures that students are kept up-to-date with developments. Students will experience topics addressing Building Information Modelling, 3D Printing, Smart analyses of Buildings and Smart Cities, Modular Construction, Plastic Roads, Sustainability issues, and other related matters.

Geotechnical Engineering (ASU_6_GTE)

This module shows how the soil mechanics theories introduced in Soil Mechanics are applied to the solution of a number of geotechnical analyses and design problems.

Structural Design and Analysis 2 (ASU_6_SA2)

This module offers the knowledge and skills of steel design to Eurocodes, analysis of structural form and the ability to design in both qualitative and quantitative directions.

Construction Management (ASU_6_CMG)

This module prepares students with the ability to critically appraise and evaluate the performance of the construction industry and shed light on the role of construction management.

Project (ASU_6_PRJ)

To plan, execute, review and report upon a piece of project work related to the BEng programme being followed by the student. A Module Guide for the project is augmented by eight lectures.