BEng (Hons) Mechanical Engineering

LSBU London South Bank University

ASU Applied Science University جامعة العلوم التطبيقية

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Enquiry

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	32 Courses

Brief about the Programme

This programme is for students who wish to study Mechanical Engineering to Honours degree level and who wish to achieve professional status later. It 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. Mechanical engineering is a broad discipline offering many specialisms, and this degree provides a solid foundation for all of them. 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. Graduates will have a systematic understanding of key topics such as Dynamics, Thermofluids, Solid Mechanics, and Manufacturing, supported by Mathematics, Electrical Engineering, and Computing.
2. Graduates will acquire analytical abilities and Competence in analysing components and systems.
3. Graduates will enhance their practical skills and proficiency in manufacturing, measurement, and instrumentation techniques.
4. Graduates will develop skills in self-awareness, reflection, independent judgment, and lifelong learning.
5. Graduates will master project management and demonstrate creativity in problem-solving, project execution, and innovation-driven design.

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

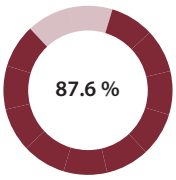
Ranked 30th in the QS Arab Region University Rankings 2026

Ranked 613 in the QS World University Rankings 2026

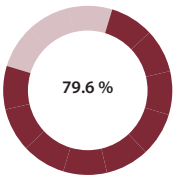
Ranked 301+ Worldwide in the Times Higher Education University Impact Rankings

General Statistics

Advisory Board Satisfaction Rate:



Student Satisfaction Rate:



Career Paths

1. Mechanical Engineer
2. Manufacturing Engineer
3. Automotive Engineer
4. Maintenance Engineer
5. HVAC Engineer
6. Robotics Engineer
7. Energy Systems Engineer
8. Quality Assurance Engineer
9. Industrial Engineer
10. Product Design Engineer

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 from the industrial track can also be admitted to BEng (Hons) Mechanical Engineering. 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) – BBC or equivalent in UCAS points including Maths or Physical Science

International Baccalaureate- IB 30 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
	Scientific Principles of Engineering	ASU_S_SPE	3 hrs. (10 CAT)	Engineering Design and Modelling	ASU_S_EDM	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	Design and Practice	ASU_4_DAP	6 hrs. (20 CAT)	Engineering Computing	ASU_4_ENC	6 hrs. (20 CAT)	4	Core
	Engineering Mathematics and Modelling	ASU_4_EMM	6 hrs. (20 CAT)	Thermofluids and Dynamics	ASU_4_TAD	6 hrs. (20 CAT)	4	Core
	Introduction to Mechanical Engineering	ASU_4_IME	6 hrs. (20 CAT)	Introduction to Electrical and Electronic Engineering	ASU_4_IEE	6 hrs. (20 CAT)	4	Core
Total			60			60		120
3	Advanced Engineering Mathematics and Modelling	ASU_5_AMM	6 hrs. (20 CAT)	Dynamics and Control	ASU_5_DAC	6 hrs. (20 CAT)	5	Core
	Solid Mechanics and Finite Element Analysis	ASU_5_FEA	6 hrs. (20 CAT)	Thermofluids and Sustainable Energy	ASU_5_TSE	6 hrs. (20 CAT)	5	Core
	Machine Drives and Mechatronics	ASU_5_MDM	6 hrs. (20 CAT)	Engineering Design	ASU_5_END	3 hrs. (10 CAT)	5	Core
Summer	**Internship**				**ASU_5_INT**	**3 hrs. (10 CAT)**	**5**	**Core**
Total			**60**			**60**		**120**
4	Dynamics and System Modelling	ASU_6_DSM	6 hrs. (20 CAT)	Innovation and Enterprise	ASU_6_IAE	6 hrs. (20 CAT)	6	Core
	Project	ASU_6_PRM	12 hrs. (40 CAT)	Thermofluids and Turbo machinery	ASU_6_TTM	6 hrs. (20 CAT)	6	Core
				Manufacturing Systems and Materials Technologies	ASU_6_MMT	6 hrs. (20 CAT)	6	Core
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 to meet the requirements for entry into the BEng programmes at ASU. Therefore, it is a preparatory or foundation module building on knowledge obtained at school.

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 time independently to practice the mathematical concepts learned during lectures and solve additional problems.

Engineering Science 1 (ASU_S_ES1)

This module covers scientific principles of physics and chemistry at a level between secondary school 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 the study of engineering.

Engineering Science 2 (ASU_S_ES2)

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

Intermediate English (ASU_S_IEN)

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

Module Descriptors

Advanced English (ASU_S_AEN)

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

Engineering Design and Modelling (ASU_S_EDM)

This module introduces engineering design, including the basics of the design process, machining and fabrication, and hand and computer-based engineering drawings. It highlights the role of engineering design within the industry and is taught in a mechanical workshop where students use model-making tools.

Scientific Principles of Engineering (ASU_S_SPE)

This module develops students' understanding of essential physics and chemistry principles for engineering study. It is accessible to students from various science backgrounds. The module introduces fundamentals of statics, dynamics, and the electrical and mechanical properties of materials.

Study Skills and Professional Practice (ASU_S_SSP)

This module introduces both study and professional skills and practices. It covers individual and team-working skills, exam preparation, revision techniques, and question-answering strategies. Students are introduced to Personal Development Planning processes and appropriate safe working practices expected in engineering and industrial environments.

Laboratory and Workshop Skills (ASU_S_LWS)

This module combines workshop exercises with practical experiments and projects. Students work in small groups of 2–5 members depending on the task. It also introduces design skills and basic engineering drawing.

Computer Programming for Engineering (ASU_S_CPE)

This module introduces programming concepts including conditionals, iterations, and block structures. Structured programming and data types are illustrated through typical and simple engineering problems.

Human Rights (ASU_S_HUR)

This module covers the basic principles of human rights, including definitions, scope, and sources, focusing on international human rights law. It includes:

a. Charter of the United Nations
b. Universal Declaration of Human Rights
c. International Covenant on Civil and Political Rights
d. International Covenant on Economic, Social and Cultural Rights
e. Convention against Torture and Cruel, Inhuman Punishments
f. Protection mechanisms and constitutional organisation of public rights and freedoms
g. Freedom in the Kingdom of Bahrain

Bahrain Civilisation and History (ASU_S_BCH)

This module highlights the role of the Kingdom of Bahrain locally, regionally, and internationally through various historical eras from ancient times to the modern era. It demonstrates Bahrain's Arab and Islamic identity and its political and cultural significance.

Arabic Language (ASU_S_ALA)

A 10 CAT module running 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)

A 10 CAT module running for one semester of 7 weeks (Summer Semester). This module is required for non-Arabic speaking students in ASU undergraduate engineering programmes and provides intensive beginner-level practice in reading, oral presentations, writing, and note-taking.

Design and Practice (ASU_4_DAP)

This module introduces engineering practice and design, including hand and computer-aided drawings, design activities, sustainable design principles, project management, group work, and health and safety issues. The module includes a lab component where students apply theoretical concepts.

Module Descriptors

Engineering Mathematics and Modelling (ASU_4_EMM)

This module consolidates the mathematical skills underpinning BEng engineering degrees. Content includes differentiation and integration, complex numbers, linear algebra, statistics, elementary probability, and probability distributions with engineering applications. A practical component involves the use of mathematical software packages such as MATLAB and Excel.

Introduction to Mechanical Engineering (ASU_4_IME)

This module introduces core mechanical engineering concepts including engineering materials, statics, strength of materials, dynamics, and material science. A practical laboratory component equips students with relevant professional skills.

Engineering Computing (ASU_4_ENC)

This introductory module covers Object-Oriented Programming (OOP) using Python. It enables students to develop programming skills required for engineering design and simulation.

Thermofluids and Dynamics (ASU_4_TAD)

This module introduces thermofluids, including heat transfer, fluid mechanics, and thermodynamics, enabling students to analyse simple engineering systems. A practical component includes laboratory experiments.

Introduction to Electrical and Electronic Engineering (ASU_4_IEE)

This module covers fundamentals of electrical and electronic engineering, including voltage, current, power, energy, Ohm's Law, Kirchhoff's Laws, node voltage and mesh current methods, DC and AC circuit analysis, and semiconductors (diodes, BJTs, and op-amps). A practical laboratory component reinforces theoretical concepts.

Advanced Engineering Mathematics and Modelling (ASU_5_AMM)

This module covers advanced mathematical techniques for engineering problem-solving, including computational techniques, vectors, differential equations, numerical methods, matrix computation, optimisation, and advanced statistical methods.

Module Descriptors

Solid Mechanics and Finite Element Analysis (ASU_5_FEA)

This module builds on earlier solid mechanics knowledge and introduces finite element analysis (FEA) techniques for structural and stress analysis. A practical component involves the use of FEA software.

Machine Drives and Mechatronics (ASU_5_MDM)

This module covers mechanical drives, power transmission systems, microcontrollers, and electrical actuation systems. A laboratory component supports practical application.

Dynamics and Control (ASU_5_DAC)

This module extends dynamics from point masses to rigid bodies and introduces classical control methods including Bode, Nyquist, and Root Locus techniques. A practical component includes experimental work and technical reporting.

Thermofluids and Sustainable Energy (ASU_5_TSE)

This module advances knowledge in thermodynamics, heat transfer, and fluid mechanics. Topics include steam cycles, air-standard cycles, refrigeration cycles, turbulence, combustion, and heat transfer applications.

Engineering Design (ASU_5_END)

This module develops students' ability to apply structured design methodologies and computer-aided design tools. It emphasises problem-solving, 2D and 3D parametric modelling, and industry-relevant software.

Internship (ASU_5_INT)

This module provides students with industrial experience through participation in real-world projects. The University assists students in securing suitable placements.

Dynamics and System Modelling (ASU_6_DSM)

This module introduces system dynamics modelling for analysing complex, time-dependent systems. Topics include modelling processes, feedback structures, system mapping tools, and applications in energy, water, and aquaculture sectors.

Project (ASU_6_PRO)

This module enables students to undertake independent research, integrating knowledge and skills acquired throughout their studies. It develops planning, critical thinking, engineering competence, and communication skills across two semesters.

Innovation and Enterprise (ASU_6_IAE)

This practical module guides students in developing commercially viable ideas. Topics include project management, intellectual property, market research, risk assessment, finance, and business strategy development.

Thermofluids and Turbo Machinery (ASU_6_TTM)

This module provides advanced study in thermodynamics, fluid mechanics, and heat transfer, including internal combustion engines, pumps, turbines, and heat exchangers. Laboratory experiments support theoretical learning.

Manufacturing Systems and Materials Technologies (ASU_6_MMT)

This module covers advanced stress analysis, material behaviour, manufacturing systems, automation, process planning, robotics, and operations management principles.