



LSBU
London South
Bank University

ASU
جامعة العلوم التطبيقية
APPLIED SCIENCE UNIVERSITY

BEng (Hons) Electrical and Electronic Engineering

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

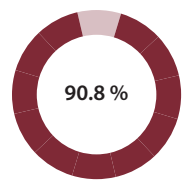
This programme is intended for undergraduate students who wish to study the discipline of Electrical and Electronic Engineering to Honours degree level and who may wish to achieve professional status later. This programme is designed to embrace developments in the industry, in particular the Engineering 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. The programme leads to a dual award from Applied Science University (ASU Bahrain) and London South Bank University (LSBU-UK).

Aims of the Programme

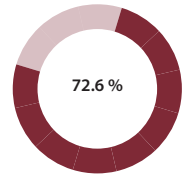
1. Equip graduates with a deep understanding of electrical and electronic engineering.
2. Develop graduate expertise in mathematics, circuit theory, digital and analogue systems, hybrid electronic systems, computer hardware and software, as well as the theory and applications of control systems.
3. Equip graduates with the ability to analyse electrical and electronic engineering components and systems using advanced simulation techniques, understand the advantages and disadvantages of different analytical approaches, and select the most appropriate solution.
4. Enhance practical design, testing, measurement skills, and proficiency with advanced software and hardware tools.
5. Graduates will acquire the ability to critically evaluate arguments, assumptions, abstract concepts, and data (even when incomplete), make judgements, and identify a range of effective solutions.

General Statistics

Advisory Board Satisfaction Rate:



Student Satisfaction Rate:



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

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Enquiry

Career Paths

1. Electrical Engineer
2. Electronics Engineer
3. Power Systems Engineer
4. Telecommunications Engineer
5. Control Systems Engineer
6. Instrumentation Engineer
7. Renewable Energy Engineer
8. Embedded Systems Developer
9. Automation Engineer
10. Network 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) Electrical and Electronic 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.



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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)	Practical Electronics	ASU_S_PRE	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 Principles	ASU_4_EPR	6 hrs. (20 CAT)	Introduction to Electrical and Electronic Engineering	ASU_4_IEE	6 hrs. (20 CAT)	4	Core
	Engineering Mathematics and Modelling	ASU_4_EMM	6 hrs. (20 CAT)	Introduction to Digital Electronics	ASU_4_IDE	6 hrs. (20 CAT)	4	Core
Total			60			60		120
3	Advanced Engineering Mathematics and Modelling	ASU_5_AMM	6 hrs. (20 CAT)	Team Design Project	ASU_5_TDP	3 hrs. (10 CAT)	5	Core
	Circuits, Signals and Systems	ASU_5_CSS	6 hrs. (20 CAT)	Electrical Machines and Power Electronics	ASU_5_EPE	6 hrs. (20 CAT)	5	Core
	Principles of Control	ASU_5_POC	6 hrs. (20 CAT)	Analogue and Digital Circuit Design	ASU_5_ADC	6 hrs. (20 CAT)	5	Core
Summer	Internship				ASU_5_INT	3 hrs. (10 CAT)	5	Core
Total			60			60		120
4	Digital Systems Design	ASU_6_DSD	6 hrs. (20 CAT)	Advanced Analogue and RF Electronics	ASU_6_AAE	6 hrs. (20 CAT)	6	Core
	Project	ASU_6_PRE	12 hrs. (40 CAT)	Innovation and Enterprise	ASU_6_IAE	6 hrs. (20 CAT)	6	Core
				Control Engineering	ASU_6_CEN	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 provide 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.

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 additional time practicing mathematical concepts learned during lectures and solving extra 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 and introduces students to a range of skills required for the study of engineering.

Engineering Science 2 ASU_S_ES2

This module extends the science knowledge of engineering students 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 of 15 weeks for 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. It develops students' English language and analytical skills to pursue more advanced academic English modules and cope with literacy demands of specialised modules taught in English.

Module Descriptors

Advanced English ASU_S_AEN

A 10 CAT module running for one semester of 15 weeks for three hours per week. It is the second credit English module required for ASU undergraduate students. The module provides intensive practice in advanced reading, oral presentations, writing, and listening. Academic and study skills are embedded. It enhances students' English and analytical skills as preparation for academic and professional success.

Practical Electronics ASU_S_PRE

This module discusses electrical measurement equipment and practical circuit design and construction techniques. It combines theory and practical components where students become familiar with the basics of electrical and electronic engineering, particularly safe working practices in electronics.

Scientific Principles of Engineering ASU_S_SPE

This module develops students' understanding of essential physics and chemistry principles for engineering study. It introduces fundamentals of statics, dynamics, and electrical and mechanical properties of materials.

Study Skills and Professional Practice ASU_S_SSP

This module introduces study and professional skills, including individual and team-working skills, exam preparation, revision techniques, and question-answering strategies. It also introduces Personal Development Planning and safe working practices in engineering and industrial environments.

Laboratory and Workshop Skills ASU_S_LWS

This module consists of workshop exercises, practical experiments, and projects. Students work in small groups (2–5 members). It also introduces design skills and basic engineering drawing.

Computer Programming for Engineering ASU_S_CPE

This module introduces programming concepts including conditionals, iterations, block structures, structured programming, and data types. These are illustrated using simple engineering problems.

Human Rights ASU_S_HUR

This module covers basic principles of human rights, definitions, scope, and sources, focusing on international human rights law, including the Charter of the United Nations, the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, the International Covenant on Economic, Social and Cultural Rights, and the Convention against Torture and Cruel, Inhumane Punishments. It also addresses protection mechanisms and constitutional organisation of public rights and freedom in the Kingdom of Bahrain.

Bahrain Civilisation and History ASU_S_BCH

This module highlights the role of the Kingdom of Bahrain at local, regional, and international levels through various historical eras, from ancient times through the Islamic era to the modern era. It demonstrates the Arab and Islamic identity of Bahrain and its political and cultural significance.

Arabic Language ASU_S_ALA

A 10 CAT module running for one semester of 7 weeks (Summer Semester). It provides intensive practice in reading, oral presentations, writing, and note-taking.

Arabic Language for Non-Arabic Speakers ASU_S_ALN

This module of 10 CAT's 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.

Design and Practice ASU_4_DAP

This module introduces engineering practice and design, including hand and computer-aided drawing, sustainable design principles, project management, group work, and health and safety. It includes a lab component for practical application.

Engineering Mathematics and Modelling ASU_4_EMM

This module consolidates mathematical skills underpinning BEng degrees, including differentiation, integration, complex numbers, linear algebra, statistics, probability, and probability distributions. It includes practical use of Matlab and Excel.

Engineering Principles ASU_4_EPR

This module develops understanding of scientific principles including measurement systems, thermal physics, mechanical and electrical principles, and engineering materials.

Engineering Computing ASU_4_ENC

An introductory module to Object-Oriented Programming using Python. It develops programming skills for engineering design and simulation.

Introduction to Electrical and Electronic Engineering ASU_4_IEE

This module covers fundamentals of voltage, current, power, energy, Ohm's Law, Kirchhoff's Laws, circuit analysis techniques, DC and AC circuits, and semiconductor basics (diodes, BJTs, op-amps). It includes practical laboratory experiments.

Introduction to Digital Electronics ASU_4_IDE

This module covers Boolean logic circuits, CAD modelling, VHDL, sequential logic circuits, and programmable logic devices. A practical component allows students to apply theoretical concepts.

Advanced Engineering Mathematics and Modelling ASU_5_AMM

This module covers advanced techniques including vectors, differential equations, numerical methods, matrix computation, computational optimisation, and advanced statistical techniques.

Circuits, Signals and Systems ASU_5_CSS

This module introduces analysis of linear time-invariant systems, frequency content of signals, system dynamics, communication theory, signal processing, and control theory. It includes Matlab/Simulink practical work.

Principles of Control ASU_5_POC

An introduction to continuous-time feedback control systems, modelling of dynamical systems, and practical control applications including robotics and industrial systems.

Team Design Project ASU_5_TDP

Develops engineering design skills including requirements identification, standards compliance, teamwork, project management, and professional reporting.

Electrical Machines and Power Electronics ASU_5_EPE

This module covers electrical drives, machine design, power electronics, vector control of AC machines, and machine analysis using software. Includes laboratory experiments.

Analogue and Digital Circuit Design ASU_5_ADC

Provides knowledge of analogue, mixed-signal, and digital circuits, with practical experience in device-level and system-level design.

Internship ASU_5_INT

Provides industrial experience through real-world projects. The University assists students in securing suitable placements.

Digital Systems Design ASU_6_DSD

Covers modern digital system design using finite state machines, CPLDs, microcontrollers, synchronous/asynchronous systems, design for testability, and CAD tools. Includes practical labs.

Project ASU_6_PRO

An individual research project spanning two semesters. It develops planning, engineering competence, critical judgment, and communication skills.

Innovation and Enterprise ASU_6_IAE

This module develops entrepreneurial skills including idea generation, market research, intellectual property, financial planning, and business strategy development.

Control Engineering ASU_6_CEN

Builds on Principles of Control, introducing analogue and digital control methods to improve system stability and performance. Includes laboratory implementation.

Advanced Analogue and RF Electronics ASU_6_AAE

Covers RF system design, noise measurement, EMC, wave propagation, modulation techniques, and related circuits. Includes practical laboratory experiments.