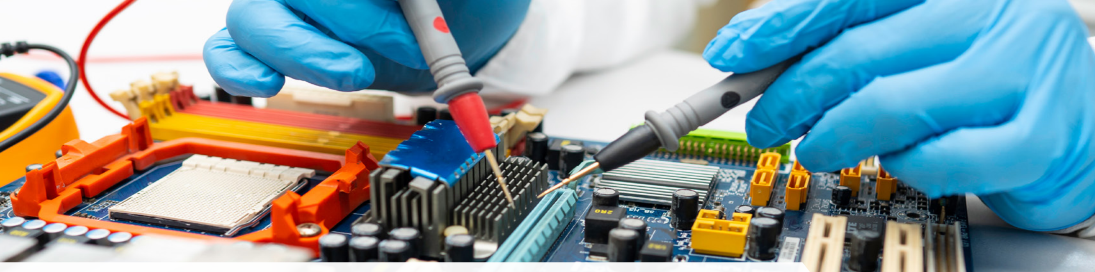

LSBU London South Bank University

ASU جامعة العلوم التطبيقية APPLIED SCIENCE UNIVERSITY

BEng (Hons) Electrical and Electronic Engineering (Bridging)

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Apply Now

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
2 Years	81 Credit Hours	15 Courses

Brief about the Programme

The Bridging Programme is open to students who have completed a diploma or associate degree in related disciplines from the Kingdom of Bahrain or an equivalent qualification from outside the Kingdom, provided the certificate is accredited by the relevant authorities in the issuing country. The programme is designed to reflect developments in the electrical and electronic engineering industry, particularly the Engineering Council UK (ECUK) Standard for Professional Engineering Competence (UK-SPEC). The curriculum emphasises strong numerical and analytical skills, supported by advanced hardware, software, and simulation tools, alongside a creative and enquiry-based approach sought by employers.

The programme leads to a dual award from the Applied Science University (ASU Bahrain) and London South Bank University (LSBU-UK).

Aims of the Programme

1. Provide graduates with a comprehensive understanding of electrical and electronic engineering.
2. Equip graduates with strong competence in mathematics, circuit theory, digital and analogue systems, hybrid electronic systems, computer hardware/software, and control systems.
3. Enable graduates to analyse electrical and electronic engineering components and systems using advanced simulation techniques and select appropriate analytical approaches.
4. Strengthen graduates' practical skills, including design, measurement, and the use of advanced hardware and software tools.
5. Develop the ability to critically evaluate arguments, assumptions, abstract concepts, and incomplete data to make informed decisions and identify effective solutions.

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

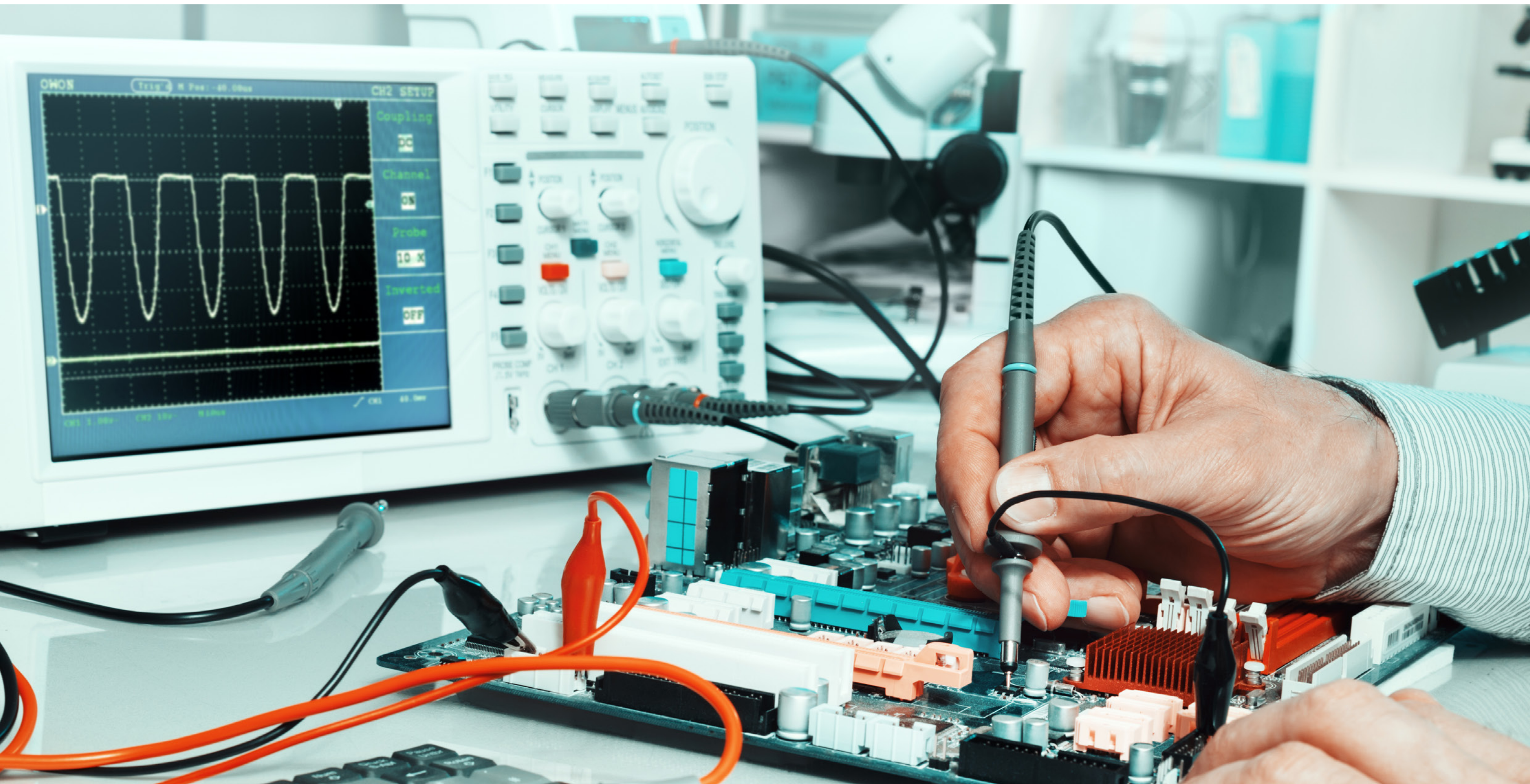
Ranked 301+ Worldwide in the Times Higher Education University Impact Rankings

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

1. The applicant must hold a diploma or associate degree from the Kingdom of Bahrain or its equivalent from outside the Kingdom, provided the qualification is accredited by the relevant authorities in the issuing country.
2. The applicant's cumulative GPA must be at least "Good" or its equivalent. Applicants with a lower GPA must provide evidence of at least one year of relevant professional experience or complete a set of remedial courses according to their specialization.
3. The applicant's previous specialization must qualify them to study in the programme they wish to join.
4. Applicants holding professional or vocational qualifications (such as National Diploma - ND, Higher National Diploma - HND, or equivalent) are required to complete a number of remedial courses according to their specialization, in addition to HEC compulsory courses where applicable.
5. The applicant must have obtained a score of 6.0 or higher in IELTS, or an equivalent qualification. (Free English-language support will be provided based on the initial OOPT test result.)



Study Plan

HEC Compulsory Courses				
No.	Course Code	Course Title	Credit	Level
1	ASU_S_HUR	Human Rights	0	S
2	ASU_S_ALA ASU_S_ALN	Arabic Language or Arabic Language for Non-Arabic Speakers	0	S
3	ASU_S_BCH	Bahrain Civilization C History	0	S

Programme Study Plan				
No.	Course Code	Course Title	Credit	Level
Year 1 – First Semester				
1	ASU_5_AMM	Advanced Engineering Mathematics and Modelling	20	5
2	ASU_5_CSS	Circuits, Signals and Systems	20	5
3	ASU_5_POC	Principles of Control	20	5
Year 1 – Second Semester				
1	ASU_5_TDP	Team Design Project	10	5
2	ASU_5_EPE	Electrical Machines and Power Electronics	20	5
3	ASU_5_ADC	Analogue and Digital Circuit Design	20	5
Year 1 – Summer Semester				
1	ASU_5_INT	Internship	10	5
Year 2 – First Semester				
1	ASU_6_DSD	Digital Systems Design	20	6
2	ASU_6_PRO	Project	40	6
Year 2 – Second Semester				
1	ASU_6_AAE	Advanced Analogue and RF Electronics	20	6
2	ASU_6_IAE	Innovation and Enterprise	20	6
3	ASU_6_CEN	Control Engineering	20	6

ASU_5_AMM Advanced Engineering Mathematics and Modelling
This module covers advanced engineering mathematical techniques used for solving engineering problems, including Computational Techniques in Engineering, Vectors, Differential equations, Selected Numerical and Computational methods, Advanced Matrix computation techniques, and Advanced Computational Optimisation and advanced Statistical techniques, including Permutations and combinations. Binomial, Poisson and normal distributions.

ASU_5_CSS Circuits, Signals and Systems
In practical engineering, it is very common to assume, at least initially, that the system to be analysed or designed is linear and time-invariant. Linear, time-invariant systems provide potentially good approximations of the behaviour of many systems in their normal operating region. The advantage of linear, time-invariant systems is that they can generally be analysed. On the other hand, Nonlinear systems cannot generally be analysed, and one is forced to resort to approximate analysis based on simulation. This module offers an introduction to the analysis of linear, time-invariant systems. Ideally, the analysis of a system involves the determination as mathematical functions of time of all of the signals associated with the system. Accordingly, it is impossible to provide an analysis procedure for systems without a preliminary discussion of signals. Specifically, the module introduces and explains the mathematical ideas, which underpin the very important concept of the frequency content of a signal. The module covers the mathematics required to undertake a study of dynamics, communication theory, signal processing, advanced circuit theory, partial differential equations and control theory, with engineering examples. The module also provides advanced techniques for the solution of linear, constant coefficient, and ordinary differential equations. The module includes a practical component where students perform Matlab/Simulink experiments to apply the theoretical concepts and gain practical skills in the design of linear systems.

ASU_5_POC Principles of Control
The module is an introduction to the theory and practice of continuous-time feedback control systems to enable the design and implementation of control systems for applications, such as robotics, automobiles, aircraft, automatic machinery, and chemical processes. It provides an analytical approach to the modelling of dynamical systems and their analysis by applying engineering mathematics. The module includes a practical component where students perform experiments to apply the theoretical concepts and gain practical skills in control systems.

ASU_5_TDP Team Design Project
This module aims at developing students' skills in engineering design, including identifying and meeting requirements for new products (tangible product, process, or system), such as consideration of regulatory, professional and standards requirements. The module develops students' abilities in working as part of a team, handling information, project planning and management, and report-writing and presentation skills.

ASU_5_EPE Electrical Machines and Power Electronics
The module discusses the design of modern electrical drives, with consideration of the machine, power electronics and control requirements. Comparisons are made between drive types and typical applications considered. Magnetic and electric loadings; thermal design; winding design, choice of pole number, phase number, field and armature location. Permanent magnet machines; induction machines; switched reluctance machines; vector control of ac machines; applications characteristic of ac drives; comparative evaluation of different drives. Use of commercially available software to perform machine analysis and design. The module includes a practical component where students perform experiments to apply theoretical concepts and gain practical skills in electrical machines and power electronics.

ASU_5_ADC Analogue and Digital Circuit Design
This module provides students with the knowledge of analogue, mixed-signal and digital circuits and also experience with both the practical issues of device-level design and system-level performance requirements. A key feature is a balanced approach to both analogue and digital IC design. The module includes a practical component where students perform experiments to apply the theoretical concepts and gain practical skills in analogue and digital circuit design.

ASU_5_INT Internship
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.

ASU_6_DSD Digital Systems Design
This module covers the design and analysis of modern digital systems utilising finite state machines. Comparison between the use of CPLDs and microcontrollers in typical embedded systems will be made, and appropriate hardware and software methods for a successful design will be considered. Synchronous and asynchronous designs will be covered along with a consideration of the principles of 'design for testability' and JTAG technologies. CAD tools will be used to design and simulate integrated circuits on the silicon workspace. The module also covers further programming methods using HDLs and HLL programming of MCUs. The module includes a practical component where students perform lab experiments to apply the theoretical concepts and gain practical skills in designing and testing digital electronic systems.

ASU_6_PRO Project
The Individual Project is a learning experience that enables students to do independent research and bring together many of the concepts they have learned. The work calls for careful planning, critical judgment, engineering competence, and communication skills. Further details are provided in the Individual Project Guide for Students. This guide may be updated from time to time and include information generally on how to plan the project, milestones, important dates, and deliverables. The module will spread over the first and second semesters of year 4.

ASU_6_AAE Advanced Analogue and RF Electronics
This module covers the design and analysis of radio frequency systems from early design to modern digital systems. Noise measurement, reduction, shielding, grounding and general issues of EMC are covered. RF terminology and wave propagation are explained, along with a look at modulation/demodulation techniques and the circuits needed to carry them out, such as mixers, oscillators, amplifiers, etc. The module includes a practical component where students perform experiments to apply the theoretical concepts and gain practical skills in analogue and RF electronics.

ASU_6_IAE Innovation and Enterprise
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 business strategies, risk assessments and scenario testing so that they demonstrate the commercial viability of their ideas. Topics include project management skills, which help determine the critical path of a proposed business, such as intellectual property, market research, market placement, advertising and finance. Students will be expected to reflect on what they can contribute to a group.

ASU_6_CEN Control Engineering

This module builds on the Level 5 module Principles of Control. It introduces a range of Analogue and Digital Control methods to estimate system dynamics and improve system stability, servo tracking and regulation of system outputs against unknown disturbances. Implementation of these methods in a laboratory will closely support the theory. The application-oriented part of the module will use case studies and laboratory work relating specifically to the individual disciplines. The module includes a practical component where students perform experiments to apply the theoretical concepts and gain practical skills in control engineering.