B.Eng. (Hons)

Architectural Design Engineering

B.Eng. (Hons) in Architectural Design Engineering

Programme Specification

1	**Final award title(s)**	B.Eng. (Hons) in Architectural Design Engineering	
2	**Intermediate award title(s)**	N/A	
3	**Awarding Institution**	Applied Science University	
4	**Department**	Civil and Architectural Engineering	
6	**Delivery site(s) for course(s)**	Applied Science University	
7	**Mode(s) of delivery/Credit Value**	Full-time/150 Credit hours	
8	**Approval dates:**	Course(s) validated	
		Course specification last updated and signed off	
		Version number/date	
9	**Professional, Statutory and Regulatory Body accreditation**	HEC (*Pending)*	
10	**Reference points:**	Internal	• ASU Mission Statement and Strategic Plan; • ASU Core Skills Policy; • ASU Academic Regulations
		External	• Subject Benchmark Statement for Engineering; • Framework for Higher Education Qualifications (QAA 2001); • SEEC Credit Level Descriptors 2001; • ECUK UK Standard for Professional Engineering Competence; • ECUK The Accreditation of Higher Education Courses; • Joint Board of Moderators, Guidelines for Accredited MEng and BEng (Hons) Courses

Distinctive features of Programme

This programme is intended for undergraduate students who wish to study the discipline of Architectural Design Engineering to Honours degree level and who may wish to achieve professional status later on. This Programme is designed to embrace developments in the industry, in particular the ECUK UK Standard for Professional Engineering Competence (UK-SPEC).

Programme aims

More specifically the Programme aims to:

1. Develop students' core, personal and employability skills, to help them adapt to the changing labour market;
2. Create a unique educational environment that seeks to benefit from practical experience;
3. Utilise the variety of construction professions within the Department, to expose students to a multitude of aspects of construction process, and prepare them for work in multidisciplinary teams;
4. Give students a blend of architecture and civil engineering courses, exploring the form and appearance of buildings, as well as their analysis, design and construction;
5. Enhance the teaching team with visiting lecturers, from industry;
6. Produce graduates with knowledge, problem-solving skills and practical know-how of the key aspects of Architectural and civil engineering, and the creativity and individuality of architecture;
7. Produce graduates aware of the whole design process, including design procedures in codes of practice, architectural engineering procedure, project management, quality issues, finance, ethical conduct, environmental issues and health and safety;
8. Develop team working skills;
9. Produce graduates committed to life-long learning and professional and personal development;
10. Produce graduates who can work in multidisciplinary design practices and provide a link between engineering and architecture professionals;
11. Provide graduates with the necessary academic qualification which will provide the full educational base for a successful career in industry.

Programme outcomes

The Programme outcomes have been developed with reference to the JBM guidelines, UK-SPEC, and the benchmark statement for Engineering (E).

A: Students will have knowledge and understanding of:

A1 Mathematics as a means of communicating results, concepts, and ideas that are relevant to Architectural Design engineering (E).
A2 The fundamental concepts, principles, and theories of civil engineering and architecture (E).
A3 The concepts, principles and theories of structural analysis, soil mechanics, and design to an advanced level (E).
A4 Information and Communications Technology relevant to architectural and civil engineering (E).
A5 The general principles of engineering design and construction and the application of specific design techniques to particular elements and systems (E).
A6 The characteristics and behaviour of engineering materials (E).
A7 Management and business practices that are relevant to the construction industry (E).
A8 The role of the engineer in society, including the global and social context of the built environment (E).
A9 Sustainability issues and the importance of architectural engineering to the quality of the environment. (E).
A10 Health and safety issues, risk assessment, quality issues and regulatory frameworks (E).
A11 Context in which engineering knowledge can be applied.

Teaching and learning strategy:

Acquisition of 1, 2 and 6 is through a combination of lectures, seminars, tutorials, practical classes, coursework, design, and project work at Levels 4 and 5
Acquisition of 3 is through lectures, tutorials, coursework, and project work at Level 6 of the programme.
Acquisition of 4 is through a combination of lectures and practical work at Level 4. This is developed further in the majority of units at all Levels of the Programme either through formal classes or self-directed study.
Acquisition of 5 is through a combination of lectures, seminars, individual and group-based design exercises at all Levels, and the use of self-directed CAD tutorials.
Acquisition of 7 is through a combination of lectures, seminars, tutorials, student role-plays, discussion of students' current work-based problems, coursework, and project work at all Levels of the Programme.

Acquisition of 8, 9, 10 and 11 is through lectures (including those from practising engineers), seminars, field work, sites visits, coursework, and projects at all Levels of the Programme.
Throughout the Programme students have course guides relevant to each topic of study, giving additional reading material which students are encouraged to use for private study to consolidate the formal learning process, and both broaden and deepen their knowledge and understanding in the subject area. All students are encouraged to become student members of the professional Institutions, use their libraries and resources, and attend meetings.

Assessment:
Testing of the knowledge base is through a combination of unseen written examinations, problem solving exercises, essays, oral presentations, student-led seminars, design exercises, laboratory reports, poster displays, and individual and group projects.

B: Students will develop their intellectual skills such that they are able to:

B1 Use mathematical methods to analyse engineering problems (E).
B2 Analyse and solve engineering problems (E).
B3 Design engineering elements and whole systems to meet a need, critically evaluate, and make improvements (E).
B4 Apply engineering knowledge and understanding in the solution of problems and the development of designs (E).
B5 Undertake research, obtain and evaluate primary and secondary data (E).
B6 Plan, conduct and report on an individual research Programme.
B7 Be aware of all the relevant frameworks in solving problems and designing systems, taking into account financial aspects, risk analysis and environmental impact (E).
B8 Use creativity and innovation in designing solutions.

Teaching and learning strategy:
Intellectual skills are developed through the teaching and learning Programme. Analysis and problem-solving skills are further developed through regular tutorial sheets. Experimental, research, and design skills are further developed through coursework exercises, laboratory and fieldwork, and research and design projects. Individual feedback is provided to students in all work submitted.

Assessment:
Analysis and problem-solving skills are assessed through unseen written examinations, critiques and viva voce examinations. Experimental, research, and design skills are assessed through laboratory reports, coursework exercises, project reports, poster displays and oral presentations.

C: Students will acquire and develop practical skills in Architectural Design Engineering such that they are able to:

C1 Carry out safely a series of planned experiments (E).
C2 Use laboratory and field work equipment to generate data (E).
C3 Analyse experimental results and determine their validity and accuracy (E).
C4 Prepare technical reports.
C5 Give technical presentations using a variety of media.
C6 Prepare technical drawings including the use of CAD and freehand sketching.
C7 Use the library, internet and other sources effectively (E).
C8 Use computer packages (E).
C9 Manage projects efficiently (E).

Teaching and learning strategy:

Practical skills are developed through the teaching and learning programme.
Experimental and fieldwork skills are developed through laboratory experiments, fieldwork, and project work.
Skills 4 and 5 are taught in the Engineering Practice and Design course at Level 4 and further developed in reports and presentations throughout the Programme.
Skill 6 is taught at Level 4 and further developed through design coursework exercises.
Skill 7 is taught through project work.
Skill 8 and 9 are taught and developed through coursework exercises and project work.

Assessment:

Practical skills are assessed through laboratory experiment reports, coursework exercises, project reports and presentations.

D: Students will acquire and develop transferrable skills such that they are able to:

D1 Communicate effectively - oral presentations, report writing, drawing (E).
D2 Apply mathematical skills.
D3 Work independently.
D4 Manage time and work to deadlines (E).
D5 Use Information and Communications Technology (E).
D6 Work constructively as a member of a group (E).
D7 Manage tasks and solve problems, transfer techniques and solutions from one area to another, apply critical analysis and judgement (E).
D8 Learn effectively for the purpose of continuing professional development and in a wider context throughout their career (E).

Teaching and learning strategy:

Transferable skills are developed through the teaching and learning programme.
Skill 1 is taught at Level 1 and developed in coursework and presentations.
Skill 2 is taught formally at Level 4 and developed throughout the Programme.

Skill 3 is supported through the provision of unit guides.
Skill 4 is developed through setting coursework deadlines.
Skill 5 is developed through laboratory experiments, project work, presentations, and individual learning.
Skill 6 is developed in laboratory work, fieldwork, and group project work.
Skill 7 is developed in the technical subject areas of the Programme.
Although not explicitly taught, other skills are nurtured and developed throughout the Programme which is structured and delivered in such a way as to promote this.

Assessment:
Skill 1 is assessed by coursework exercises, laboratory and field study reports, presentations and oral examinations.
Skill 2 is assessed through unseen written examinations and course works.
Skill 4 is assessed by applying penalties for failure to meet deadlines.
Skill 5 is formally assessed at Level 4 and further assessed throughout the Programme where ICT is used.
Skill 6 is assessed in group work projects.
Skill 7 is assessed through unseen written examinations, coursework exercises, design work, and individual and group project work.
The other skills are not formally assessed.