Undergraduate Degree Program Catalogue | 2024-2025 |
دليل البرنامج الدراسي

Al-Furat Al-Awsat Technical University
Al-Mussaib Technical College
Bachelor of Science Honors (B.Sc. Honors)
Building & Construction Engineering Technologies
علوم – هندسة تقنيات البناء والإنشاءات بكالوريوس

1. Mission & Vision Statement

Vision Statement

The building & construction engineering technologies academic staff of the Natural and Behavioral Sciences Division at Al-Furat Al-Awsat Technical University believe that students come to understand the discipline of building & construction through a combination of course work, laboratory experiences, research, and fieldwork. The combination of instructional methods leads students to a balanced understanding of the scientific methods used by civil engineers to be site engineers.

Mission Statement

The building & construction engineering technologies academic staff pursues a multifaceted charge at Al-Furat Al-Awsat Technical University. The Program seeks to provide all civil students with fundamental knowledge of construction, as well as a deeper understanding of a selected focus area within the civil sciences. The curriculum and advising have been designed to prepare graduates for their professional future, whether they choose to work as field or site engineers, or to pursue advanced degrees in the life sciences. The civil program also provides the necessary fundamental knowledge of the design & analysis of structures to support their study, the Environmental Studies degree, and the Associate of Science degree in. In addition, building & construction courses provide a key laboratory science experience for those students seeking to complete the general education requirements.

2. Program Specification

Programme code:	B.Sc.-BCE	**ECTS**	240
Duration:	4 levels, 8 Semesters	**Method of Attendance:**	Full Time

The building & construction is a wonderfully wide-ranging subject. The emphasis of the programme is the whole construction to which everything is related. The degree is popular - for some it's the breadth of the subject that appeals, for others it's a path to specialisation. All students have the opportunity to transfer onto our specialist degrees in whole branches of civil engineering at the end of the first year.

Level 1 exposes students to the fundamentals of building & construction, suitable for progression to all programmes within the civil programme group. Programme-specific core topics are covered at Level 2 preparing for research-led subject specialist modules at Levels 3 and 4. building & construction graduate is therefore trained to appreciate how research informs teaching, according to the University and School Mission statements.

At Levels 2, 3 and 4 students are free to choose more than half of their module credits with the proviso a range of modules are selected that reflect the complexity of life forms. This allows students to develop their own wide-ranging interests in civil engineering. Decisions on what to study are made with input from personal tutors.

The research ethos is developed and fostered from the start via practicals, which are either embedded in lecture modules or taught in dedicated practical modules, research seminars and tutorials. There is a compulsory field course in Level 1, which students must pass in order to progress into Level 2, and optional field courses in Levels 2, 3 and 4. At Level 4 all students carry out an independent research project, which may be a xx credit library or data analysis project, or a xx credit field or laboratory based project.

Academic tutorials are held at Levels 1 and 2 with the same tutor, who is also the personal tutor, providing continuity and progressive guidance. Level 1 and 2 tutorials include a number of workshops to teach skills, e.g. library use and presentation skills,

followed by assessed exercises, e.g. essays and talks, as opportunities to practice these skills in a subject-specific context.

International years and Industrial placements are also offered and individual needs are discussed with the appropriate tutor and accommodated wherever possible.

3. Program Goals

1. To provide a comprehensive education in building & construction that stresses scientific reasoning and problem solving across the spectrum of disciplines within building & construction
2. To prepare students for a wide variety of post-baccalaureate paths, including graduate school, professional training programs, or entry level jobs in any area of building & construction
3. To provide extensive hands-on training in electronic technology, statistical analysis, laboratory skills, and field techniques
4. To provide thorough training in written and oral communication of scientific information
5. To enrich students with opportunities for alternative education in the area of building & construction through undergraduate research, internships, and study-abroad

4. Student Learning Outcomes

building & construction is the study of the safety method in constructing different buildings and roach bridges construction materials…etc. The Department offers a Bachelor of Science in building & construction with a concentration in General civil; Surveying / Design of pavements. Additionally, the Department offers courses to a large number of students from other departments and supports pre-professional programs. The building & construction curriculum and experiences are designed to

prepare students, in part, for entry into professional structural programs, graduate studies, technical careers and education

Outcome 1

Identification of Complex Relationships

Graduates will be able to illustrate the structure and function of material components and explain how they interact in building members.

Outcome 2

Oral and Written Communication

Graduates will be able to formally communicate the results of soil and material investigations using both field tests and written communication skills.

Outcome 3

Laboratory and Field Studies

Graduates will be able to perform laboratory experiments and field studies, by using scientific equipment and computer technology while observing appropriate safety protocols.

Outcome 4

Scientific Knowledge

Graduates will be able to demonstrate a balanced concept of how scientific knowledge develops, including the historical development of foundational theories and laws and the nature of science.

Outcome 5

Data Analyses

Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses.

Outcome 6

Critical Thinking

Graduates will be able to use critical-thinking and problem solving skills to develop a research project and/or paper.

5. Academic Staff

Academic staff of the department

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6. Credits, Grading and GPA

Credits

ATU is following the Bologna Process with the European Credit Transfer System (ECTS) credit system.

The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   CGPA of a 4-year B.Sc. degree:

   CGPA = [(1st ^{m}odule score x ECTS) + (2nd ^{m}odule score x ECTS) + ……] / 240

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ATU22011	Engineering mechanics	93	157	10.00	C	NO
ATU22012	Engineering drawing	78	22	4.00	C	NO
ATU22013	Mathematics	93	107	8.00	S	NO
ATU22014	Engineering physics	63	37	4.00	S	NO
ATU22015	Human rights & democracy	18	32	2.00	B	NO
ATU22016	Advanced English skills	48	2	2.00	B	NO
Total		393	357	30		

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ATU22021	Construction material	123	102	9.00	C	
ATU22022	Plane Surveying	123	102	9.00	C	
ATU22023	Engineering Geology	33	42	3.00	C	
ATU22024	Descriptive Geometry	48	37	4.00	S	
ATU22025	Computer Principles	48	27	3.00	B	
ATU22026	ARABIC LANGUAGE	18	32	2.00	B	
Total		393	342	30		

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ATU22031	Concrete Technology	63	87	6.00	C	
ATU22032	Strength of Materials (1)	63	87	6.00	C	
ATU22033	Fluid mechanics (1)	63	62	5.00	S	
ATU22034	Applied Surveying	78	47	5.00	C	ATU22022
ATU22035	Probability & Statistics	63	37	4.00	S	
ATU22036	Advanced mathematics	63	37	4.00	S	ATU22013
Total		393	357	30		

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ATU22041	Strength of Materials (2)	63	87	6.00	C	**ATU22032**
ATU22042	Applied Surveying	63	62	5.00	S	**ATU22034**
ATU22043	Building Construction	123	127	10.00	C	
ATU22044	English Language	33	17	2.00	B	ATU22016
ATU22045	Computer Application	48	27	3.00	B	
ATU22046	arabic language	3	47	2.00	B	
ATU22047	The crimes of the extinct Baath Party	33	17	2.00	B	
Total		366	384	30		

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ATU22051	Reinforced Concrete (1)	63	62	5.00	C	**ATU22032**
ATU22052	Structural analysis theory (1)	48	77	5.00	C	
ATU22053	Soil mechanics(1)	63	62	5.00	C	
ATU22054	Computer Application of structural	63	12	3.00	B	
ATU22055	Pavement Engineering	63	37	4.00	C	
ATU22056	Advanced Concrete Technology	93	107	8.00	C	
Total		393	357	30		

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ATU22061	Reinforced Concrete (2)	63	62	5.00	C	**ATU22032**
ATU22062	Soil mechanics(2)	63	62	5.00	C	
ATU22063	Construction Management	93	82	7.00	C	
ATU22064	Engineering & Numerical analysis	63	37	4.00	S	
ATU22065	Transportation Engineering	63	37	4.00	C	
ATU22066	Structural analysis theory	48	77	5.00	C	
Total		393	357	30		

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ATU22071	Design of Reinforced Concrete buildings (1)	63	62	5.00	C	**ATU22032**
ATU22072	Foundation Engineering(1)	63	87	6.00	C	
ATU22073	Ethic	33	17	2.00	B	
ATU22074	Computer Aided design of structure	48	27	3.00	B	
ATU22075	Design of steel structures (1)	63	62	5.00	C	
ATU22076	Environmental Engineering	123	102	9.00	C	
Total		393	357	30		

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ATU22081	Design of Reinforced Concrete buildings (2)	63	62	5.00	C	**ATU22032**
ATU22082	Quantity surveying & Estimation	108	67	7.00	C	
ATU22083	Design of steel structures (2)	63	62	5.00	C	
ATU22084	Foundation Engineering(2)	63	87	6.00	C	
ATU22085	Construction drawing	63	12	3.00	C	
ATU22086	Innovative project	63	37	4.00	S	
Total		423	327	30		

8. Contact

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