



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

Al-Furat Al-Awsat Technical University

Bachelor of Science Honours (B.Sc. Honours) – Building & Construction engineering بكالوريوس – هندسة تقنيات البناء والإنشاءات Technologies



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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:		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**

	Name	Certificate	Scientific degree	Email	Mobile Number	
1	Muhammed Kerim Abed	Ph.D.	Professor	mohammed_k1965@atu.edu.iq	+9647801685690	
2	Ali Abed Alhusain Abed	MSc.	Professor	alialdhalemi@atu.edu.iq	+9647801184490	
3	Nadia Moneim Abdel Hussein	Ph.D.	Ass.Professor		+9647801008031	
4	Kamal Ali Muhammed	Ph.D.	Lecturer	Kamal.alfadhly@atu.edu.iq	+9647801020119	
5	Muhammad Ali Ahmed	Ph.D.	Lecturer	inj.moh@atu.edu.iq	+9647833122150	
6	Mahdi Jasim Husain	Ph.D.	Lecturer	Mahdi. Jasimcnj @atu.edu.iq	+9647831801138	
7	Atheer Hilal Mahdi	Ph.D.	Lecturer	atheer.helal.cnj@atu.edu.iq	+9647821048260	
8	Zaid Nori Hashim	Ph.D.	Lecturer	Zaid.nori@atu.edu.iq	+9647807300057	
9	Hanaa Mehmood Amir	MSc.	Lecturer	Han. @atu.edu.iq	+9647725111257	
10	Mohammed Qasim Raheem Shaaban	MSc.	lecturer	Mohammed.shaaban@atu.edu.iq	+9647803058943	
11	Alaa Muhsin Dawood	MSc.	lecturer	Alaa.dawood@atu.edu.iq	+9647823607213	
12	Adnan Kadum Jewad	MSc.	Ass.lecturer	Adnan.jewad@atu.edu.iq	+9647806503094	
13	Hawraa Khaled Henoon	MSc.	Ass.lecturer	Hawraa. khaled@atu.edu.iq	+9647817577506	
14	Mohammad Hussein Abdel Khaleq	MSc.	Ass.lecturer	mohammed.al-kaaby@atu.edu.iq	+9647803848873	
15	Dyaa Kareem Ali	MSc.	Ass.lecturer	deyaa.ali@atu.edu.iq	+9647847475939	
16	Noor Hashim Abdulmunaf	MSc.	Ass.lecturer	noor.abd@atu.edu.iq	+9647811638489	
17	Ahmed kadhum saeed	MSc.	Ass.lecturer		+9647800644666	
18	Ahmed Ali Jasim	MSc.	Ass.lecturer			
19	Malak Haider Kadum	MSc.	Ass.lecturer			

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 (GPA)

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

GPA of a 4-year B.Sc. degrees:

$$\text{GPA} = [(1\text{st module score} \times \text{ECTS}) + (2\text{nd module score} \times \text{ECTS}) + \dots] / 240$$

7. Curriculum/Modules**Semester 1 | 30 ECTS**

Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code
				hr/sem	hr/sem	hr/sem			
ATU16011	Engineering mechanics (1)	الميكانيك الهندسي (1)	English	93	107	200	8.00	C	NO
ATU16012	Engineering drawing	الرسم الهندسي	English	93	57	150	6.00	C	NO
ATU16013	Mathematics	الرياضيات	English	78	122	200	8.00	B	NO
ATU16014	Human rights & democracy	الحقوق والديمقراطية	Arabic	33	17	50	2.00	S	NO
ATU16015	English Language	لغة انكليزية	English	33	17	50	2.00	S	NO
ATU16016	Arabic Language	اللغة العربية	Arabic	33	17	50	2.00	S	NO
ATU16017	Workshop	معامل	Arabic	33	17	50	2.00	S	NO
			Total	396	354	750	30		

Semester 2 | 30 ECTS

Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code
				hr/sem	hr/sem	hr/sem			
ATU16021	Engineering mechanics (2)	الميكانيك الهندسي (2)	English	78	72	150	6.00	C	NO
ATU16022	Construction material	المواد الإنشائية	Arabic	78	72	150	6.00	C	NO
ATU16023	Plane Surveying	المساحة المستوية	English	93	107	200	8.00	C	NO
ATU16024	Engineering Geology	الجيولوجيا الهندسية	Arabic	33	42	75	3.00	B	NO
AT16025	Engineering physics	الفيزياء الهندسية	English	63	37	100	4.00	S	NO
ATU16026	Computer Principles	أساسيات الحاسبة	English	48	27	75	3.00	B	NO
			Total	393	357	750	30		

Semester 3 | 30 ECTS

Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code
				hr/sem	hr/sem	hr/sem			
ATU16031	Concrete Technology	تقنية الخرسانة	Arabic	63	87	150	6.00	C	no
ATU16032	Strength of Materials (1)	مقاومة المواد (1)	English	63	87	150	6.00	C	no
ATU16033	Fluid mechanics	ميكانيك الموائع	English	63	62	125	5.00	S	no
ATU16034	Applied Surveying	المساحة التطبيقية	English	108	17	125	5.00	C	no
ATU16035	Probability & Statistics	الإحصاء الهندسي	English	33	67	100	4.00	S	no
ATU16036	Advanced mathematics	الرياضيات المتقدمة	English	63	37	100	4.00	S	no
			Total	393	357	750	30		

Semester 4 | 30 ECTS

Module Code	Module Name in English	اسم المادة الدراسية	Language	SSW L	USSW L	SWL	ECT S	Module Type	Prerequisite Module(s) Code
				hr/se m	hr/se m	hr/se m			
ATU16041	Strength of Materials (2)	مقاومة المواد (2)	English	63	87	150	6.00	C	no
ATU16042	Building Construction	إنشاء المباني	Arabic	63	62	125	5.00	C	no
ATU16043	Engineering Surveying	المساحة الهندسية	English	93	57	150	6.00	C	no
ATU16044	English Language	لغة انكليزية	English	18	32	50	2.00	B	no
ATU16045	Computer Application	تطبيقات حاسبة وذكاء اصطناعي	English	48	27	75	3.00	B	no
ATU16046	arabic language	لغة عربية	Arabic	18	32	50	2.00	B	no
ATU16047	The crimes of the extinct Baath Party	جرائم حزب البعث البائد	Arabic	33	17	50	2.00	B	no
ATU16048	Fresh Concrete	الخرسانة الطرية	Arabic	63	37	100	4.00	C	no
			Total	399	351	750	30		

Semester 5 | 30 ECTS

Module Code	Module Name in English	اسم المادة الدراسية	Language	SSW L	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code
				hr/se m	hr/se m	hr/se m			
ATU16051	Reinforced Concrete (1)	الخرسانة المسلحة (1)	English	63	87	150	6.00	C	no
ATU16052	Structural analysis theory (1)	نظرية تحليل الإنشاءات (1)	English	63	87	150	6.00	C	no
ATU16053	Soil mechanics	ميكانيك التربة	English	63	62	125	5.00	C	no
ATU16054	Engineering Construction Management	ادارة المشاريع الهندسية	English	63	37	100	4.00	S	no
ATU16055	Pavement Engineering	هندسة رصف الطرق	English	63	37	100	4.00	C	no
ATU16056	Advanced Concrete Technology	تقنية الخرسانة متقدم	English	78	47	125	5.00	C	no
			Total	393	357	750	30		

Semester 6 | 30 ECTS

Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code
				hr/sem	hr/sem	hr/sem			
ATU16061	Reinforced Concrete (2)	الخرسانة المسلحة (2)	English	63	87	150	6.00	C	no
ATU16062	Structural analysis theory	نظرية تحليل الإنشاءات (2)	English	63	87	150	6.00	C	no
ATU16063	Computer Application of structural	تطبيقات الحاسبة الإنشائية	English	63	37	100	4.00	C	no
ATU16064	Construction Equipment Management	إدارة المعدات الإنشائية	English	63	37	100	4.00	S	no
ATU16065	Engineering & Numerical analysis	التحليلات الهندسية و العددية	English	78	72	150	6.00	C	no
ATU16066	Transportation Engineering	هندسة المواصلات	English	63	37	100	4.00	C	no
			Total	393	357	750	30		

Semester 7 | 30 ECTS

Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code
				hr/sem	hr/sem	hr/sem			
ATU16071	Design of Reinforced Concrete buildings (1)	تصميم المنشآت الخرسانية المسلحة (1)	English	63	62	125	5.00	C	no
ATU16072	Foundation Engineering	هندسة الأساسات	English	78	72	150	6.00	C	no
ATU16073	Construction drawing	الرسم الإنشائي	English	63	37	100	4.00	C	no
ATU16074	Quantity surveying & Estimation	المسح الكمي والتخمين	English	63	87	150	6.00	C	no
ATU16075	Design of steel structures (1)	تصميم المنشآت الفولاذية (1)	English	63	62	125	5.00	C	no
ATU16076	Environmental Engineering	هندسة البيئة	English	63	37	100	4.00	C	no
			Total	393	357	750	30		

Semester 8 | 30 ECTS

Module Code	Module Name in English	اسم المادة الدراسية	Language	SS WL	USS WL	SW L	ECT S	Module Type	Prerequisite Module (s) Code
				hr/sem	hr/sem	hr/sem			
ATU1 6081	Design of Reinforced Concrete buildings (2)	تصميم المنشآت الخرسانية المسلحة (2)	English	63	87	150	6.00	C	no
ATU1 6082	Computer Aided design of structures	تطبيقات الحاسبة لتصميم المنشآت	English	63	37	100	4.00	C	no
ATU1 6083	Design of steel structures (2)	تصميم المنشآت الفولاذية (2)	English	63	62	125	5.00	C	no
ATU1 6084	Repairs & Rehabilitation of structural members	تصليح وإعادة تأهيل الأعضاء الإنشائية	English	48	52	100	4.00	S	no
ATU1 6085	Sanitary engineering techniques	تقنيات الهندسة الصحية	English	63	37	100	4.00	C	no
ATU1 6086	Quality & Safety Management	إدارة الجودة والسلامة المهنية	Arabic	30	70	100	4.00	C	no
ATU1 6087	Engineering Project	المشروع الهندسي	English	63	12	75	3.00	S	no
Total				393	357	750	30		

	SSWL	USSWL	SWL	ECTS
	hr/sem	hr/sem	hr/sem	
Total for all semester	3153	2847	6000	240.0

8. Contact

Program Manager:

Kamal Ali Muhammed | Ph.D. in Structural Engineering | Lecturer

Email:

Kamal.alfadhly@atu.edu.iq

Mobile no.:

+9647801020119

Program Coordinator: Mohammed Q. Shaaban | Msc. in Structural Engineering | Lecturer

Email: mohammed.shaaban@atu.edu.iq Mobile no.: +9647803058943