

Program Catalogue | 2025 - 2026 | دليل البرنامج الدراسي

Al – Muthanna University College of Engineering



First Cycle - Bachelor's degree (B.SC.) – Electronic and Communications Engineering





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1. Mission & Vision Statement

Vision Statement

Our vision is to support our community with a worthy engineering education that will allow our students to work in various fields of electronic and communications engineering to improve the infrastructure and achieve the economic well-being of the community. We look forward to maintaining a strong focus on undergraduate-level education so that our program is well recognized in the analysis and design of electronics and communications engineering work, and for a high-quality education.

Mission Statement

The mission of the electronic and communications engineering program (ECE) is consistent with both the university and College of Engineering missions. The ECE mission highlights three primary goals of teaching, research, and service. The first component states that preparing successful engineers in the field of electronics and communications. The program's mission is to provide them with the confidence and experience to face the technical and social challenges of the future. The second component states that “conduct high quality and innovative research”. The University’s mission addresses this goal implicitly in statements such as “Students work side by side with some of the world’s best faculty to advance, the sciences, and the professions”. The Department’s mission also addresses a similar goal in the statement, “Conducting research that produces new knowledge and new researchers for the future”. The third component states that “serve the community and industry, by providing educational and research resources”. The program educational objectives of the Electronics and Communication Engineering department are consistent with the mission of the department.

2. Program Specification

Program code:	BSc - ECE	ECTS:	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full-Time

The electronic and communications engineering program at Al-Muthanna University was established to give its students a vast and detailed education in electronics and communications engineering basics, applications, and design that enable them to practice electronics and communications engineering at the professional level.

The program's mission is to provide them with the confidence and experience needed to meet the technical and social challenges of the future. In addition to the use of modern engineering tools, the program gives education in mathematics, physics, engineering mechanics, computer programming, and electronics and communications engineering to perform its mission.

Graduates will be able to put themselves in entry-level of electronics and communications engineering positions leading to professional engineering practices and gain a solid undergraduate base that enables them to continue their learning at higher levels.

3. Program Goals

Our program is devoted to prepare students within three to five years after graduation to:

1. Develop into competent and engaged engineering professionals and apply their technical and managerial qualifications in the planning, designing, constructing, operating, and/or maintaining of the infrastructure concerning the field of electronic and communications engineering.
2. Using their skills to analyze and design systems, identify project execution means and materials, carry out cost estimation and analyses, and participate in directing technical activities for electronic and communications engineering projects or projects related to other fields.
3. Be able to actively participate in their communities and their profession by developing their oral, written, visual and graphic modes communication abilities when working as team members or leaders.
4. Initiate a program of continuous learning which may include studies leading to proficient licensure or a higher degree in engineering that provides continued development of their technical abilities and management skills, and attainment of professional expertise.
5. Improve their understanding of sustainability, professionalism, ethics, quality performance, and safety that allows them to be professional influential to society when solving engineering problems and creating solutions in the field of electronic and communications engineering.

4. Student Learning Outcomes

A program outcome is a skill, understanding, knowledge, or any other characteristic that describes what students are expected to know and are able to do by the time of graduation as well as during their professional career. A student successfully passing the Electronic and communications Engineering program would be able to demonstrate:

Outcome 1

Apply principles of mathematics, science, and engineering in a variety related to electronic and communications engineering.

Outcome 2

Use the techniques, skills, and tools necessary for science and engineering practice.

Outcome 3

Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.

Outcome 4

Design and conduct experiments, as well as to analyze and interpret data related to electronic and communications engineering.

Outcome 5

Identify, formulate, and solve engineering problems related to electronic and communications engineering.

Outcome 7

Participate in projects that cross disciplines and function on multi-disciplinary teams.

Outcome 7

Understanding of professional and ethical responsibility

Outcome 8

A recognition of the need for, and an ability to engage in life-long learning and knowledge of contemporary issues.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

Al – Muthanna University 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 hrs 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 student 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 shortcoming
	E – Sufficient	مقبول	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45 – 49)	More work required but credit awarded
	F – Fail	راسب	(0 – 44)	Considerable amount of work required
Note:				
Marks with 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 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 Cumulative Grade point Average (CGAP)

- The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the total ECTS.
CGPA of 4-year B.Sc. degrees:
$$CGPA = \frac{[1^{st} \text{ module score} \times \text{ECTS}] + [2^{nd} \text{ module score} \times \text{ECTS}] + \dots}{240}$$



Semester 1 | 30 ECTS | 1 ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS
ENG111	Mathematics I	62	63	5
ECE112	Electrical circuits I	107	93	8
ECE113	Electronics physics	47	78	5
ENG114	Engineering Drawing	64	61	5
UNI115	Computers I	48	52	4
UNI116	Arabic Language	31	44	3

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS
ENG121	Mathematics II	62	63	5
ECE122	Electrical circuits II	107	93	8
UNI123	Human Rights & Democracy	31	44	3
ECE124	Electronics Materials	62	88	6
UNI125	Technical English Language I	32	68	4
ENG126	Workshop Technology	47	53	4

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS
ENG211	Mathematics III	62	63	5
ECE212	Electronics I	94	106	8
ECE213	Network Analysis I	32	43	3
ECE214	Electromagnetic fields I	62	63	5
ECE215	Digital Electronics I	64	61	5
ECE216	Computers II	64	36	4



Semester 4 | 30 ECTS | 1 ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS
ENG221	Mathematics IV	62	63	5
ECE222	Electronics II	94	81	7
ECE223	Network Analysis II	47	53	4
ECE224	Electromagnetic fields II	47	78	5
ECE225	Digital Electronics II	64	61	5
UNI226	Technical English Language II	32	68	4

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS
ECE311	Communication Systems I	94	106	8
ECE312	Energy Conversion	47	53	4
ECE313	Electronics III	62	88	6
ECE314	Wave Propagation	32	43	3
ECE315	Microprocessors	79	46	5
ECE316	Engineering Statistics & Probability	43	57	4

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS
ECE321	Communication Systems II	94	106	8
ECE322	Information Theory and coding	47	78	5
ECE323	Antennas	47	103	6
ECE324	Computer Architecture	47	53	4
ECE325	Numerical Analysis	94	81	7

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ECE411	Project 1	32	43	3	C	
ECE412	Microwave Engineering	47	103	6	C	ECE214 & ECE224 & ECE314



ECE413	Digital Signal Processing	62	113	7	C	
ECE414	Digital System Design	47	103	6	C	ECE215 & ECE225 & ECE315
ECE415	Network & Communication Protocols	62	88	6	C	
UNI416	Ethics	31	19	2	S	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ECE421	Project 2	32	43	3	C	ECE411
ECE422	VLSI Technology	47	103	6	C	
ECE423	Satellite Communications	62	113	7	C	ECE214 & ECE224 & ECE314
ECE424	Wireless & Mobile Communications	62	113	7	C	ECE311 & ECE321
ECE425	Optical Communications	47	128	7	C	ECE311 & ECE321

8. Contact

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