

University OF MOSUL



First Cycle – Bachelor's Degree (B.Sc.) – Electrical Engineering (Electronic and Communication / Power and Machines)

بكالوريوس - هندسة كهربائية (الإلكترونيك والاتصالات / القدرة والمكائن)



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1. Mission & Vision Statement

To be distinguished in scientific research and community service in the field of electrical Engineering to be one of the best electrical engineering departments.

Mission Statement

- ✚ To provide comprehensive electrical engineering programs with a broad engineering basis.
- ✚ To conduct, applied and academic research spread knowledge, and contribute to the advancement of science and technology.
- ✚ To serve the industry, professionals, and community at large through consultancy, innovative technology, and providing up-to-date information via conducting symposiums, seminars, and short courses.

2. Program Specification

Programme code:	BSc-Electrical	ECTS	240
Duration:	(2 specialist) each one has 4 levels, 8 Semesters	Method of Attendance:	Full Time

Electrical engineering drives the fundamental technologies of today's connected world. Every area of our lives, from energy supply and transmission, medicine and healthcare to industrial applications, global trade, transport, communications, entertainment and security, is dependent on electrical technology. As a result, electrical engineering is now one of the fastest growing job fields in the world and skilled electrical and electronic engineers are very much in demand

Level 1 exposes students to the fundamentals of electrical engineering, suitable for progression to all programmers within the electrical programmer group. Programmer-specific core topics are covered at Level 2 preparing for research-led subject specialist modules at Levels 3 and 4. **Electrical Engineering graduate from the University of Mosul** is therefore trained to appreciate how research informs teaching, according to the University and School Mission statements.

At Levels 2, students are chosen more one of the specialists (Power and Machines / Electrical and Communication) depends on credits that obtained in Level 1, 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 electrical. Decisions on what to study are made with input from personal tutors.

The research ethos is developed and fostered from the start via practical's, which are either embedded in lecture modules or taught in dedicated practical modules, research seminars and tutorials. all students carry out an independent research project.

Academic tutorials are held with the same tutor, who is also the personal tutor, providing continuity and progressive guidance. 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.

3. Program Goals

- ✚ Provide you with a sound foundation and to develop the skills, knowledge, and application required for a wide range of professional engineering careers as a high-quality practitioner and leader in business, engineering, research and development, and industry.
- ✚ Provide coherent and well-balanced coverage of theory, design and practical subjects based on mathematics, science and engineering, integrated with business and management.
- ✚ Have a flexible academic structure, which is relevant and attractive not only to you, but also to staff and industry and which is responsive to progress and development in technology and the needs of the industrial and academic communities,
- ✚ Be at the leading edge of scholarship in electrical engineering,
- ✚ Maximize the benefit of an environment in which staff are carrying out internationally competitive and leading research across all aspects of electronics and computer science,
- ✚ Provide an environment which contributes towards your personal and professional development and provides a foundation for a wide range of subsequent study and lifelong learning,
- ✚ Provide a well-found learning environment with sufficient laboratories containing appropriate equipment and facilities, up-to date CAD tools, and a first class web-site, motivating you towards the practice of engineering,

- ✚ Provide a supportive pastoral environment with opportunities for you to participate in social and recreational activities

4. Student Learning Outcomes

Having successfully completed this programmed you will be able to demonstrate knowledge and understanding of: Knowledge and Understanding On successful completion of this programmed you will have knowledge and understanding of.

Graduate Learning Outcomes (GOs) for engineering from ICAEE,

Learning Outcome (GO 1) : An ability to distinguish, identify, define, formulate, and solve Electronics and Communications engineering problems by applying principles of engineering, science, and mathematics.

Learning Outcome (GO 2) : An ability to produce engineering designs that meet desired needs within certain constraints by applying both analysis and synthesis in the design process.

Learning Outcome (GO 3) : An ability to create and carry out proper measurements and tests with quality assurance, analyze and interpret results, and utilize engineering judgment to make inferences.

Learning Outcome (GO 4) : An ability to skillfully communicate orally with a gathering of people and in writing with various managerial levels.

Learning Outcome (GO 5) : An ability to perceive ethical and professional responsibilities in engineering cases and make brilliant judgments, taking into account the consequences in worldwide financial, ecological, and societal considerations

Learning Outcome (GO 6) : An ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble, and apply it properly.

Learning Outcome (GO 7) : An ability to work adequately on teams and to set up objectives, plan activities, meet due dates, and manage risk and uncertainty.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

Mosul 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 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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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 Cumulative 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:

$$CGPA = [(1st\ module\ score \times ECTS) + (2nd\ module\ score \times ECTS) +] / 240$$

7. Curriculum/Modules

7.1 Electronic & Communication

The course description of the program of Electronics and Communication in the Department of Electrical Engineering

First Level (Electronics and Communications Branches)

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EE101	Basics of Electrical Engineering I	93	107	8.00	C	
EE102	Mathematics I	63	87	6.00	B	
EE103	Engineering drawing	63	37	4.00	S	
EE104	Physics I	33	67	4.00	B	
EE105	Mechanics Engineering	33	42	3.00	S	
UOM1031	Computer 1	63	12	3.00	B	
UOM1011	Arabic Language 1	33	17	2.00	B	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EE108	Basics of Electrical Engineering II	93	107	8.00	C	
EE109	Mathematics II	63	87	6.00	B	
EE110	Computer programming	63	87	6.00	B	
EE111	Digital Techniques	48	27	3.00	C	
EE112	Physics II	48	27	3.00	B	
UOM1040	Democracy and human rights	33	17	2.00	B	
UOM1021	English language 1	33	17	2.00	B	

Second Level

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEEC201	Electrical Circuits Analysis I	93	32	5.00	C	
EEEC202	Mathematics III	78	47	5.00	B	
EEEC203	Electronics Principles	63	37	4.00	C	
EEEC204	Communication Principles	63	62	5.00	C	
EEEC205	Electromagnetic Fields	48	52	4.00	B	
EEEC206	Electrical Engineering Lab. I	33	42	3.00	C	
UOM2050	The crimes of the Baath regime in Iraq	33	17	2.00	B	
UOM2012	Arabic Language 2	33	17	2.00	B	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEEC208	Electrical Circuits Analysis II	93	32	5.00	C	
EEEC209	Mathematics IV	78	47	5.00	B	
EEEC210	Electronic Circuits	63	37	4.00	C	
EEEC211	Analog Communication	63	62	5.00	C	
EEEC212	Electrical measurements	48	27	3.00	B	
EEEC213	Electrical Engineering Lab. II	33	42	3.00	C	
UOM2022	English language 2	33	17	2.00	B	
UOM2032	Computer 2	63	12	3.00	B	

Third Level**Semester 5 | 30 ECTS | 1 ECTS = 25 hrs**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEEC301	Mathematical Analysis	63	37	4.00	B	
EEEC302	Electronics I	63	87	6.00	C	
EEEC303	Microprocessors	63	87	6.00	C	
EEEC304	Digital Communication	63	87	6.00	C	
EEEC305	Digital Electronics	63	37	4.00	C	
EEEC306	Electronics and Communications Lab. I	63	37	4.00	C	

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEEC307	Numerical Analysis	63	37	4.00	B	
EEEC308	Electronics II	63	62	5.00	C	
EEEC309	Antennas and Wave Propagation	63	62	5.00	C	
EEEC310	Control Systems	63	87	6.00	C	
EEEC311	Programmable controllers	33	17	2.00	C	
EEEC312	Electronics and Communications Lab. II	63	37	4.00	C	
EEEC313	Engineering Project Design & Planning	33	17	2.00	C	
EEEC314	English language 3	33	17	2.00	S	

Four Level

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEEC401	Satellite Communications	63	87	6.00	C	
EEEC402	Digital Signal Processing	63	62	5.00	C	
EEEC403	Microelectronics I	63	87	6.00	C	
EEEC404	Computer Networks	48	77	5.00	C	
EEEC405	Electronics and Communications Lab. III	63	37	4.00	C	
EEEC406	Graduation Project I	33	17	2.00	C	
EEEC400	Chemistry	33	17	2.00	S	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEEC407	Mobile Communications	63	87	6.00	C	
EEEC408	Microelectronics II	63	87	6.00	C	
EEEC409	Design of Control Systems	63	62	5.00	C	
EEEC410	Microwave Devices	48	52	4.00	C	
EEEC411	Electronics and Communications Lab. IV	63	37	4.00	C	
EEEC412	Graduation Project II	33	17	2.00	C	
EEEC413	ethics	18	7	1.00	S	
EEEC414	Computer Network Security	33	17	2.00	S	

7.2 Power & Machine

First Level (Power and Machines Branches)

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EE101	Basics of Electrical Engineering I	93	107	8.00	C	----
EE102	Mathematics I	63	87	6.00	B	----
EE103	Engineering drawing	63	37	4.00	S	----
EE104	Physics I	33	67	4.00	B	----
EE105	Mechanics Engineering	33	42	3.00	S	----
UOM1031	Computer 1	63	12	3.00	B	----
UOM1011	Arabic Language 1	33	17	2.00	B	----

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EE108	Basics of Electrical Engineering II	93	107	8.00	C	----
EE109	Mathematics II	63	87	6.00	B	----
EE110	Computer Programming	63	87	6.00	B	----
EE111	Digital Techniques	48	27	3.00	C	----
EE112	Physics II	48	27	3.00	B	----
UOM1040	Democracy and Human Rights	33	17	2.00	B	----
UOM1021	English Language 1	33	17	2.00	B	----

Second Level

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEPM201	Electrical Circuits Analysis I	93	32	5.00	C	----
EEPM202	Mathematics III	78	47	5.00	B	----
EEPM203	Electromagnetic Fields	63	37	4.00	C	----
EEPM204	Electrical Transformers	63	62	5.00	C	----
EEPM205	Electronics Principles	48	52	4.00	B	----
EEPM206	Electrical Engineering Lab. I	33	42	3.00	C	----
UOM2050	The crimes of the Baath regime in Iraq	33	17	2.00	B	----
UOM2012	Arabic Language 2	33	17	2.00	B	----

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEPM208	Electrical Circuits Analysis II	93	32	5.00	C	----
EEPM209	Mathematics IV	78	47	5.00	B	----
EEPM210	DC Machines	63	62	5.00	C	----
EEPM211	Distribution Systems	63	62	5.00	B	----
EEPM212	Renewable Energies sciences	33	17	2.00	C	----
EEPM213	Electrical Engineering Lab. II	33	42	3.00	C	----
UOM2022	English language 2	33	17	2.00	B	----
UOM2032	Computer 2	63	12	3.00	B	----

Third Level

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEPM301	Mathematical Analysis	63	37	4.00	B	----
EEPM302	Transmission Systems	78	72	6.00	C	----
EEPM303	AC Machines	78	72	6.00	C	----
EEPM304	Electrical Measurements	63	37	4.00	B	----
EEPM305	Power Electronics I	63	87	6.00	C	----
EEPM306	Power and Machines Lab. I	63	37	4.00	C	----

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEPM307	Numerical Analysis	63	37	4.00	B	----
EEPM308	Generation Systems	63	62	5.00	C	----
EEPM309	Electrical Machines Drives	78	47	5.00	C	----
EEPM310	Power Electronics II	63	87	6.00	C	----
EEPM311	Programmable controllers	33	17	2.00	C	----
EEPM312	Power and Machines Lab. II	63	37	4.00	C	----
EEPM313	Engineering Project Design & Planning	33	17	2.00	C	
EEPM314	English language 3	33	17	2.00	S	----

Four Level

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEPM401	Control Systems	63	87	6.00	C	----
EEPM402	Power System Analysis	63	87	6.00	C	----
EEPM403	High Voltage Engineering	63	62	5.00	C	----
EEPM404	Special Electrical Machines I	63	62	5.00	C	----
EEPM405	Power and Machines Lab. III	63	37	4.00	C	----
EEPM406	Graduation Project I	33	17	2.00	C	----
EEPM400	Chemistry	33	17	2.00	S	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
EEPM407	Design of Control Systems	63	87	6.00	C	----
EEPM408	Power System Protection	63	62	5.00	C	----
EEPM409	Special Electrical Machines II	63	87	6.00	C	----
EEPM410	Smart Grid	48	52	4.00	C	----
EEPM411	Power and Machines Lab. IV	63	37	4.00	C	----
EEPM412	Graduation Project II	33	17	2.00	C	----
EEPM413	ethics	18	7	1.00	S	
EEPM414	Electrical Standards and Engineering Practice	48	2	2.00	S	----

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