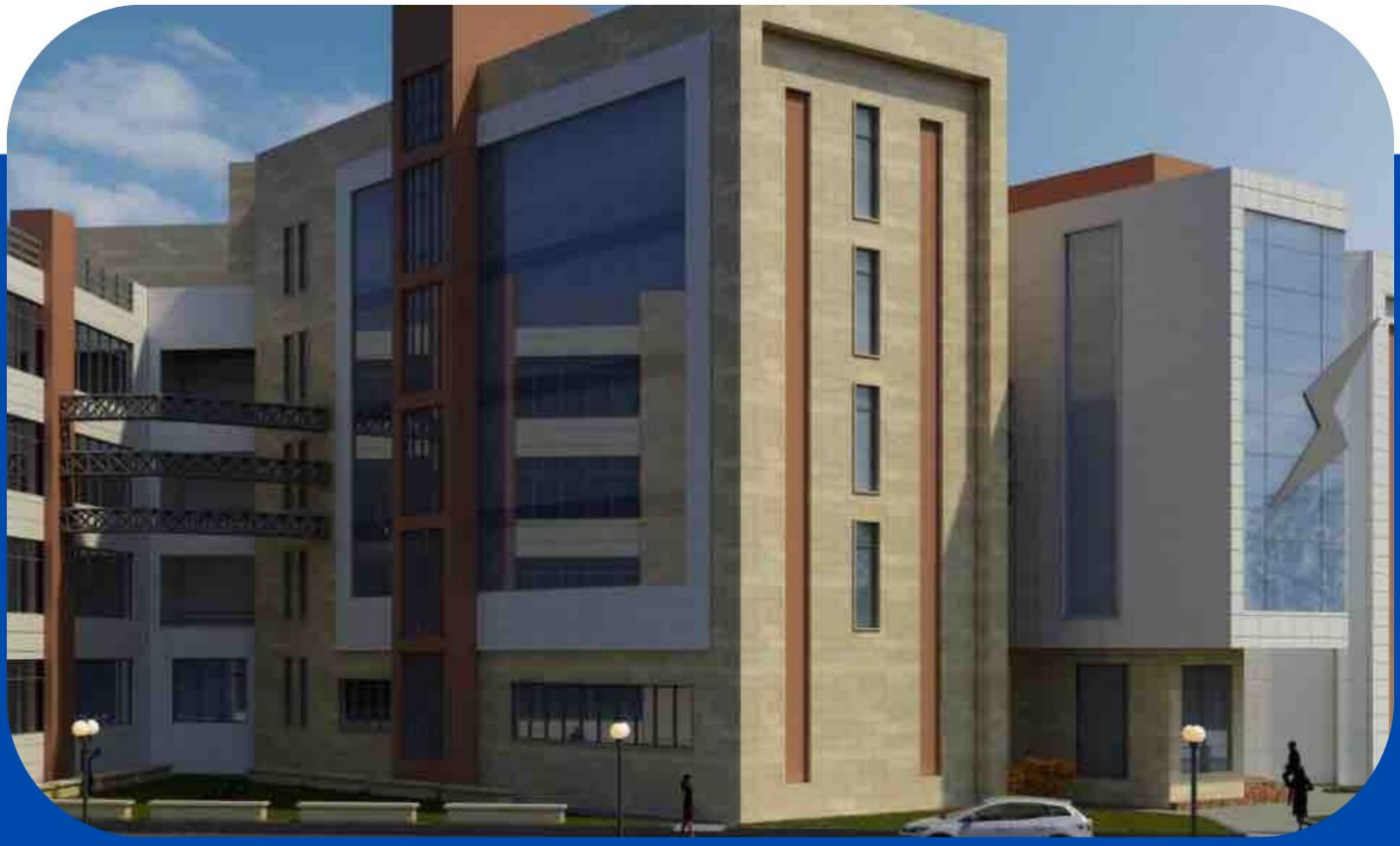
University of Mosul
College of Engineering

Guide of Department of Electrical Engineering



2025 Edition

9 الصناعة والابتكار والبنية التحتية

Uomosul.edu.iq/engineering/ Iraq-Mosul-Al Majmoaa Street

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Head of Electrical Engineering Department

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Head of Mechanical Engineering Department

Asst. Prof. Dr. Omar Miqdad Abdulghani
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Head of of Architecture Engineering Department

Prof. Dr. Salah Abdulghani Alabady
Head of Computer Engineering Department

Asst. Prof. Dr. Aws Hazim Saber
Head of Mechatronics Engineering Department

Asst. Prof. Dr. Abdullah Ismail Ibrahim
Head of Environmental Engineering Department

Lecturer Dr. Younis Mahal Najm
Head of Sustainable Energy Engineering Department

Introduction

The Department of Electrical Engineering at the University of Mosul is one of the first departments established in the Faculty of Engineering. This guide provides an overview of the department, its buildings, laboratories, scientific activities, events, and community service.

In addition to the Bachelor degree programme in Electrical Engineering, the Department of Electrical Engineering offers graduate studies in Power & Machines Engineering, and Electronics & Communications Engineering.

This guidebook is available in Arabic and English. This work was compiled according to the guidance of the Dean of the College of Engineering, Prof. Abdul Rahim Ibrahim Jassim, and under the supervised by the Head of the Department of Electrical Engineering, Assistant Professor Dr. Mohammad Tariq Yaseen.

2025-2024

Department management

Asst. Prof. Dr. Mohammad Tariq Yaseen

- **Electronics Engineering**
- **Head of the Electrical Engineering Department**

Dr. Omar Mustafa Ali

- **Computer Networks Engineering**
- **Assistant Head of Electrical Engineering Department**

Department laboratories

Electrical Engineering Laboratory - First Level

- Lab Manager: Ahmed Abdul Jabbar Ismail

Computer Laboratory - First Level

- Lab Manager: Dr. Hiba Nadhim Ameen

Electrical Engineering Laboratory - Second Level

- Lab Manager: Mohammed Idrees Dawod

Machines Laboratory - Third Stage

- Lab Manager: Omar Turath Tawfeeq

Renewable Energy Laboratory

- Lab Manager: Bilal Aqeel Fathe

Power and Machines Laboratory

- Lab manager: Dr. Wael Hashem Hamdon

Vision:

To be distinguished in education research and community service in the field of electrical engineering.

Message:

To provide an educational program characterized by depth in the field of specialization with comprehensiveness in Electrical Engineering foundations. And disseminate engineering knowledge and contribute to its development in the field of specialization. In addition to serving industrial projects and specialists in all sectors of community.

Goals :

1. **Preparing professional engineers in the field of electronic and communications engineering, and power & machine, as well as preparing specialized engineering staff with postgraduate degrees in the same field above in order to contribute to the comprehensive development and urban renaissance of the country.**

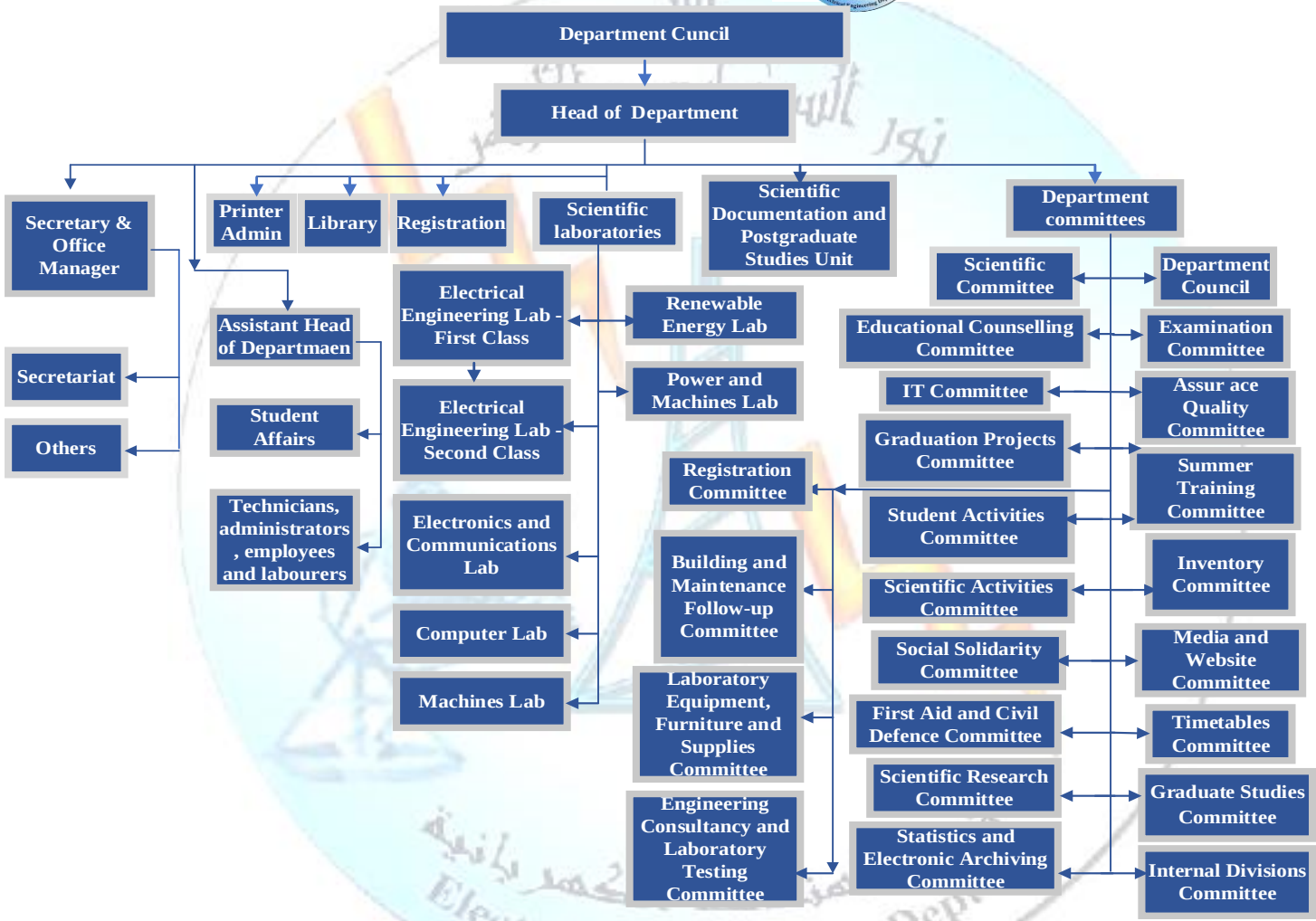
2. **Contribute to the provision of academic, scientific, practical and applied services and consultants to all sectors of the state, public, mixed and private, through cooperation agreements, as well as through consultancy bureau of the College of Engineering.**

3. **Preparing research that works and contributes to solving engineering and industrial problems and obstacles facing industrial establishments and projects in the country.**

4. **Contribute to the dissemination and development of engineering knowledge and the transfer of the latest developments in the fields of electrical and electronic engineering to engineers in various fields of work through the establishment of continuing education courses and training courses, as well as through the publication of scientific research in specialized local and international scientific journals.**

5. **Development of academic teaching staff by sending them in delegate scientific participation in conferences, seminars or joint workshops with Arab and international institutions and global or as well as by granting licenses to full -time work at universities outside the country, which helps in the exchange and development of expertise.**

6. **Participation in organizing and holding of conferences, seminars, workshops and scientific discussions inside and outside the country.**


Department Cuncil
Head of Department
Secretary & Office Manager
Secretariat
Others
Printer Admin
Library
Registration
Assistant Head of Departmaen
Student Affairs
Technicians, administrators , employees and labourers
Scientific laboratories
Electrical Engineering Lab - First Class
Electrical Engineering Lab - Second Class
Electronics and Communications Lab
Computer Lab
Machines Lab
Renewable Energy Lab
Power and Machines Lab
Registration Committee
Building and Maintenance Follow-up Committee
Laboratory Equipment, Furniture and Supplies Committee
Engineering Consultancy and Laboratory Testing Committee
Scientific Documentation and Postgraduate Studies Unit
Department committees
Scientific Committee
Educational Counselling Committee
IT Committee
Graduation Projects Committee
Student Activities Committee
Scientific Activities Committee
Social Solidarity Committee
First Aid and Civil Defence Committee
Scientific Research Committee
Statistics and Electronic Archiving Committee
Department Council
Examination Committee
Assur ace Quality Committee
Summer Training Committee
Inventory Committee
Media and Website Committee
Timetables Committee
Graduate Studies Committee
Internal Divisions Committee

Task descriptions

Duties of the Head of the Department: **Managing the department in scientific, administrative, educational, cultural, financial, technical, and student affairs. Supervising the preparation of the department's strategic plan and following up on its implementation. supervising the department's administrative, academic and research development, supervising student attendance and conducting theoretical and practical exams. Coordinating and developing the relations of the Department inside and outside the University, and supervising the provision of all the educational, research, administrative, and financial needs of the Department, raising the level of quality and developing its results. Conducting periodic reviews and evaluations to develop the scientific and academic curricula of the Department presenting them to the College Council, and inviting external lecturers to give lectures on specific topics to undergraduate and postgraduate students. Supervise the progress of teaching and teaching methods and the fulfillment of the duties of the faculty members. Preparing quarterly and annual academic reports on the activities of the academic department. Present research to the scientific committees for validation and promotion. Determine the needs of the department in terms of teaching, technical, and administrative staff. Proposing the number and conditions of the admission plan in the scientific department according to the absorption capacity. Recommending the approval of the final results of the students of the department and following up with the students in all matters related to their academic progress. Assign to the teaching studies of the scientific department. Holding a bi-annual meetings with the students of the department at least once a semester in order to identify their needs, problems, and difficulties they face during their scientific career at the university, listening to their suggestions and opinions, finding the necessary solutions, and submitting their recommendations to the Dean of the College if necessary. Preparing reports on the evaluation of the work of faculty members and employees.**

Assistant Head of Departmaen: Representing the Head of the Department in some of the powers delegated to him by the Head of the Department by supervising the organization of the Department's affairs, following up on student absences, the daily position of student absences, following up on scientific seminars in the Department, supervising the preparation of classrooms and providing the necessary materials for theoretical and practical lessons, assisting in setting the study and examination schedules of the Department, assisting in the distribution of lessons to the teaching staff of the Scientific Department.

Department Council: The Council participates with the Head of the Department in monitoring the educational process and the progress of work in the Department, and follows the implementation of the scientific plan and the plan for the development of academic, pedagogical, and administrative staff.

Scientific Committee and Postgraduate Studies Committee: The Committee participates with the Department Head in all academic decisions regarding curriculum and its development, review of academic promotions of faculty, and research and fellowship awards. The Committee reviews and develops plans for the Department's postgraduate programs and develops an ambitious plan for scientific research to study the issues that need to be studied. Conducting admission tests for postgraduate applicants and nominating those proposed for admission. In the specific program and provide consultation to postgraduate students in various research journals. Discuss research ideas and plans submitted by graduate students. Suggest research topics that are relevant to the real world for application through the department's postgraduate programs. Prepare discussion committees for students and review requests for extensions for graduate students. Appointing the supervising professor, organizing the comprehensive examination for graduate students.

Quality Committee: Spreading the culture of quality and supporting related activities by applying quality standards in all aspects of work to improve the

outcomes of the educational process. In addition to supervising the activities of academic evaluation and accreditation, supporting continuous quality. Improvement and development, and following up the preparation of program descriptions and reports of the academic department. Follow up the preparation of course descriptions and reports, and statistics in the department. Carry out other tasks assigned by the unit related to quality and its application.

Examination Committee: Follow up on the conduct of quarterly, semester, and final exams for students, organizing exam schedules and observation schedules, providing halls for exams, distributing students to halls, distributing observers to halls, receiving exam questions and exam results from teachers, organizing them and maintaining their confidentiality. Conducting statistics on the final results and determining the success and failure rates of the examined students, while following up on the organization of the examinations of the graduated students.

Registeration Committee: Its work is synchronized with the work of the Departmental Examination Committee during the exams and the announcement of the results, where its members check the grades received from the teachers (annual quest) and the grades recorded in the scorecard, and also check the exam results before they are announced to the students.

Graduation Projects Committee: Receiving proposals for final projects from teachers and then organizing them and presenting them to students to be selected by students, the selection is made according to several criteria and then announced to students and the workflow is followed and periodic seminars for the projects are prepared and finally the final project discussion committees are prepared.

Scientific Activities Committee: To supervise the scientific activities of the Department, which include seminars, training courses, continuing education courses, workshops, and educational lectures held by the Department's teachers, and to issue administrative orders for the announcement and

completion of these activities, as well as administrative orders for attendance.

Educational Guidance Committee: Meet with students to identify the problems and obstacles they face from an academic point of view and prepare a report. Contribute to the organization of direct meetings with students in a quarterly basis and help students develop their personalities in all intellectual, emotional, and physical aspects through the University Counseling Process for Students and provide the Central Committee of the College with monthly reports that include a summary of the committee's work for each month and the methods that were followed in addressing the issues and collaborating with faculty members to serve the counseling process and pay attention to unusual students (outstanding students and those who fall behind).

Summer Training Committee: To supervise the summer training program and to propose the summer training instructions in the light of the proposals submitted by the scientific departments. The committee collects information about the training institutions, expands the database, maintains it annually, makes changes in the names and addresses of these institutions, and solves the problems of the students during and after the training period. Outreach to the Private and Government Sectors Private and government sectors to find summer training opportunities and coordinate with scientific departments to follow up with students during summer training. Follow up on the issuance of official books on the training of third-level students in government departments and receive the reports submitted by the students and the evaluation provided by the training institution.

Media Committee: Editing and publishing news and reports to cover the various scientific and social events organized by the Department through images and explanatory articles on the website, after technical and linguistic review, and preparing video reports on the Department's activities.

Timetables Committee: **Prepare course schedules for undergraduate and graduate students and for the two semesters of each year.**

Statistics and Electronic Archiving Committee: **Electronic archiving of master's and doctoral theses completed in all specializations of the Faculty, as well as graduation theses of graduate students in all specializations of the Faculty and graduation theses of undergraduate students. Electronic archiving of administrative orders and minutes of the meetings of the Faculty Council, Scientific Committee, and Permanent Committees, and protection of all official documents against damage and loss.**

Inventory Committee: **Take an inventory of the furniture and equipment available in each of the departmental rooms and laboratories.**

Registration Committee: **Receiving and registering new students at the beginning of each academic year in accordance with ministerial directives, and registering students for all academic levels. Maintain and electronically archive student records. Follow up on student cases during the academic year, including transfers, admissions, deferrals, and others, with the preparation of student lists for all levels and classrooms.**

Secretary & Office Manager: **provides administrative and managerial support to faculty, staff, and students. This role involves handling correspondence, scheduling meetings, maintaining departmental records, and assisting with academic and research activities to ensure efficiency in the department’s daily functions..**

Library: **Receiving master's theses electronically and in paper form from newly graduated students, organizing the work of borrowing master's theses and books, as well as scientific laser discs related to the programs.**

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Department building

The Department of Electrical Engineering was established in September of the academic year 1964-1965 and was then affiliated to the College of Engineering / University of Baghdad. After the establishment of the University of Mosul on April 1, 1967, the department joined with the Department of Civil Engineering to form the first nucleus of the College of Engineering / University of Mosul. The study period in the department was four years, which was changed in 1971 to five years and continued until 1976, then reduced again to four years due to the country's need as a result of the development that occurred at that time in the field of building laboratories and factories and developing electricity institutions. Postgraduate studies were introduced in the department in 1976-1977 in the specializations of electronics, communications, power, and machines, which were limited to studying the higher diploma, where 17 students graduated, 7 of whom were accepted to study the master's degree, which began in 1977-1978. Since 1981, the higher diploma stage was canceled, and admission to study for the master's degree was made directly. The PhD studies started in 1992-1993 in the fields of electronics, communications, power and machines, and the higher diploma studies resumed in 2010-2011. The new department building is currently under construction.

Table showing details of the Electrical Engineering Department building

Facility type	Number	Area (square metres)
Large classrooms (shared with Nineveh University - Faculty of Architecture - Faculty of Mechanical Engineering - Faculty of Mechatronics Engineering)	8	110
Uder Graduate Halls	1	80
Post Graduate Halls	1	110
Meeting room, lectures and scientific discussions	1	80
Electrical Engineering Laboratory (Shared with Nineveh University) (First Class)	1	80
Electrical Engineering Laboratory (Shared with Nineveh University) (Second Class)	1	70
Machines Laboratory (Mechatronics Engineering Department) (Third Class)	1	51.57
Renewable Energies Laboratory (Mechatronics Engineering Department) (Third Class)	1	82.8
Power and Machines Laboratory (Nineveh University - Deanship of Electronics Engineering) (Fourth Class)	1	80
The Electronic-Workshop Lab (Nineveh University - Deanship of Electronics Engineering) (Fourth Class)	1	18
Electronics and Communications Laboratory (Nineveh University - Deanship of Electronics Engineering) (Fourth Class)	1	36+24
Computer lab	1	110
Lecturer's rooms	5	60
Register	1	60
Head of department	1	24
Assistant Head of department	1	10

Department labs

The Department of Electrical Engineering has several laboratories that are characterized by scientific and consulting activities, and these laboratories contain a large number of devices that are subject to permanent maintenance.

These laboratories contribute to the completion of the postgraduate research and to the increase of the scientific research movement of the professors.

The Department's laboratories are managed by a number of professors who are distinguished for their scientific competence and practical experience in their specializations.

1- Electrical Engineering Laboratory (First Level)

The Electrical Engineering Laboratory is one of the most important laboratories of the Department of Electrical Engineering. It aims to prepare and improve students' practical understanding of electrical theories by applying what they have learned in the theoretical sciences and preparing them for the classroom in the later stages of their studies. The laboratory also contributes to the stimulation of students' innovation through the experiments and practical training included in the laboratory curriculum. The laboratory was established with the establishment of the Faculty of Electrical Engineering, but it was destroyed during the Mosul War when it was under the control of terrorist gangs. It was rehabilitated in 2017 to receive students to continue academic activities to ensure the continuity of education and meet the needs of students and is shared with Nineveh University.

It has an area of 80 square meters and the laboratory furniture consists of a study stool (30), an armchair (5), an iron laboratory counter (4), a student ping (10), a wooden table (1) and a wooden cabinet with two doors (1). The purpose of the laboratory is to conduct various experiments to understand the behavior of electric circuits and the effect of their various elements. To support research projects and prepare students for advanced stages by providing them with scientific and practical expertise.

Description of Electrical Engineering Lab Equipment – First Level

No.	Device Name	Device Description	Device Picture
1	Oscilloscope Shared with) Nineveh (University	A waveform plotter is a device used to graphically display and analyze electrical waves. It is an essential tool in electrical engineering and electronics, as it is used to monitor changes in voltage over time. Main functions: Waveform Display: Displays an electrical waveform on a screen, allowing engineers to observe and characterize signals. Voltage Measurement: Can be used to measure the voltage across circuits,	
2	Regular and Continuous Signal Generator (Function Generator) Shared with) Nineveh (University	A regular and continuous signal generator is a device used to generate electrical signals with different waveforms, such as sine, square, triangle, and pulse waves. This device is used in engineering and electronics laboratories to test and verify circuits. Main Functions: Create multiple waveforms: The signal generator can generate a variety of waveforms, allowing engineers to test the response of different circuits. Frequency and amplitude adjustment: The frequency and amplitude of the output signal can be adjusted, allowing users to customize signals to meet the needs of their experiments. Generate continuous and periodic signals: It can generate constant (DC) or variable (AC) signals as needed, making it a flexible tool. Generate pulsed signals: It can generate pulsed signals, which are useful in applications such as control circuit testing.	

No.	Device Name	Device Description	Device Picture
3	Variable DC Power Supply (Variable DC Power Supply Shared with Nineveh University)	A switchable DC voltage and current generator is a device used to generate and provide an adjustable DC voltage or current. It is commonly used in electrical and electronic laboratories to provide circuits with the power required for testing and development. Main functions: Generating a constant voltage: The device provides a constant voltage that can be adjusted within a specified range, allowing users to choose the right value for their experiments. Current adjustment: The output current can be adjusted, allowing the amount of power supplied to different circuits to be determined. Circuit protection: Often contains circuit protection features such as surge and voltage protection, protecting components from damage. Display measurements: Equipped with a display to show voltage and current, helping users to easily monitor the values.	
4	Practical Experience Board (Board) Shared with Nineveh University	A device for designing and building electrical circuits. It provides a flexible environment for engineers and students to build practical circuits.	

2- Computer Lab

The Department of Electrical Engineering has one computer electronics laboratory on the second floor (Deanship of Electronics Engineering - Nineveh University).

Lab name	Number of Computers	Weekly hours	Engineers	Projectors
First Class	23	8	2	1

Computer Lab

Description:

This is a freshman lab that teaches hands-on programming in MATLAB, AutoCAD, and Office.

Hardware:

The lab is equipped with 23 high-performance laptops and a projector.

3- Electrical Engineering Laboratory (Second Level)

The second year, Electrical Laboratory is an important place for student to learn different practical skills in the field of Electrical Engineering. The laboratory aims to promote a practical understanding of electrical and electronic theories, helping students to apply what they have learned in the classroom in a practical environment.

Learning Objectives:

Improve theoretical understanding: Relate theoretical concepts to practical applications in the field of electricity.

Develop practical skills: Provide students with the skills needed to work with electrical devices and equipment.

Encourage innovation: Encourage students to develop innovative projects in electrical engineering.

Applications:

Hands-on Experiments: Conduct various experiments to understand the behavior of electrical circuits and components.

Scientific research: Support research projects related to advanced electrical technologies.

Internships: Preparing students for the job market by providing them with practical experience.

The laboratory was established at the beginning of the establishment of the Department of Electrical Engineering, but it was destroyed as a result of the war on Mosul during the ISIS period. Currently, we rely on the laboratory of the College of Electronics Engineering at Nineveh University to continue the study and research activities to ensure the continuity of education and meet the needs of students.

The laboratory is 7x10 m, fully furnished, and the laboratory and all its contents belong to the University of Nineveh, Faculty of Electronics Engineering, Department of Electronics.

Description of Electrical Engineering Lab Equipment – Second Level

No.	Device Name	Device Description	Device Picture
1	Oscilloscope Shared) with Nineveh (University	A waveform plotter is a device used to graphically display and analyze electrical waves. It is an essential tool in electrical engineering and electronics, as it is used to monitor changes in voltage over time. Main functions: Waveform Display: Displays an electrical waveform on a screen, allowing engineers to observe and characterize signals. Voltage Measurement: Can be used to measure the voltage across circuits, helping to determine the performance of components. Frequency Analysis: Can analyze the different frequencies of signals, helping to understand the behavior of a circuit. Fast signal acquisition: It can handle fast signals, making it useful in applications that require a quick response.	
2	(Function Generator) Shared) with Nineveh University)	A regular and continuous signal generator is a device used to generate electrical signals with different waveforms, such as sine, square, triangle, and pulse waves. This device is used in engineering and electronics laboratories to test and verify circuits. Main Functions: Create multiple waveforms: The signal generator can generate a variety of waveforms, allowing engineers to test the response of different circuits. Frequency and amplitude adjustment: The frequency and amplitude of the output signal can be adjusted, allowing users to customize signals to meet the needs of their experiments.	

No.	Device Name	Device Description	Device Picture
3	(Variable DC Power Supply) Shared) with Nineveh (University	A switching DC voltage and current generator is a device used to generate and supply an adjustable DC voltage or current. It is commonly used in electrical and electronics laboratories to provide circuits with the power needed for testing and development. Main functions: Generation of constant voltage: The unit provides a constant voltage that can be adjusted within a specified range, allowing users to select the correct value for their experiments. Current adjustment: The output current can be adjusted, allowing the amount of power supplied to different circuits to be determined. Circuit protection: Often includes circuit protection features such as overvoltage and undervoltage protection to protect components from damage. Display measurements: Equipped with a display that shows voltage and current, allowing users to easily monitor the values.	

No.	Device Name	Device Description	Device Picture
4	(Logic Board) (Shared with Nineveh (University)	A logic breadboard is a device for designing and experimenting with logic circuits. It provides engineers and students with a flexible environment for hands-on testing of digital and logic circuit concepts. Key Features: Circuit assembly: Allows users to easily build and assemble logic circuits using components such as logic gates, resistors, and capacitors. Testing circuits: Can be used to experiment with and verify the operation of digital circuits, helping to understand and analyze circuit behavior. Education: Used in educational institutions to introduce students to the concepts of logic circuits and how they work. Design Flexibility: Allows users to easily modify designs, facilitating experimentation and development. Applications: Education: An educational tool in engineering schools and technical institutes to help students understand the basics of digital electronics. Research and development: Used in the development and design of new logic circuits, helping to test ideas before final implementation.	

4- Machines Laboratory and Renewable Energy

The Machines and Renewable Energy Laboratory is an important place for the education of electrical engineering students. It is a laboratory for conducting machines, power electronics, and electronics experiments, consisting of two halls (Machines Laboratory Hall and Renewable Energies Laboratory Hall). It was opened in 2017 to accommodate students together with the Department of Mechatronics Engineering.

The area of the machines laboratory is 51.75 square meters, and the area of the renewable energy laboratory is 82.8 square meters. The laboratory furniture consists of 12 study stools, 4 aluminum armchairs, 1 iron laboratory counter, 4 wooden hangers, 4 student ping pong tables, 3 iron tables with shelves, 1 iron swivel chair with an aluminum armchair, 1 wooden table with an accessory without a drawer, and 1 iron cabinet with two doors and three shelves. The purpose of the laboratory is to carry out

the experiments of the laboratory subjects for the third stage and for both branches: Energy and Machines and Electronics and Communication.

Description of the Machines and Renewable Energy Laboratory Equipment

No.	Device Name	Device Description	Device Picture
1	Alternating current power supply	Variable AC Power Supply BL-7002	
2	Three-phase resistive load	Three-Phase Resistive Load TRL-3000	
3	Parallel-connected DC motor	Parallel DC Motor – 2191689 – 442	
4	Three-phase induction motor	Three Phase Induction Motor - 6231- 310	

No.	Device Name	Device Description	Device Picture
5	Multifunctional meter (pressure (High Shared with the) Mechatronics (Department	High Voltage Digital 2000 Multimeter - UT892	
6	Digital Tachometer (Shared with the Mechatronics (Department)	Digital Tachometer - DT-2234A	

No.	Device Name	Device Description	Device Picture
7	Variable Transformer	Variable Transformer	

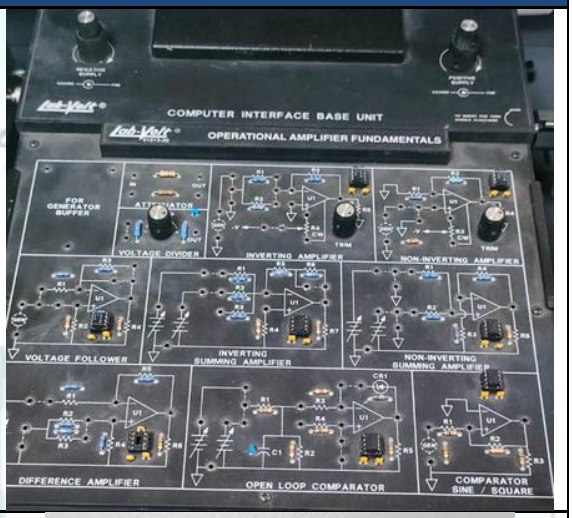
5- Power and Machines Lab

The Power and Machines Laboratory is an important place for the education of electrical engineering students. It is a set of laboratories for conducting practical application experiments for the scientific subjects of the fourth-level students of Power and Machines Branch, which includes electrical machines materials, power systems analysis, control systems, high pressure, transmission lines, and renewable energy.

It is currently located in the Faculty of Electrical Engineering / Electronics Department / Control Laboratory and Workshop behind the Dean's Office. The laboratory was established in the seventies of the last century in the building of the Department of Electrical Engineering, which was demolished as a result of military operations, and the alternative location in the Faculty of Electronics Engineering since 2017. Currently, the laboratory is located in the alternative location in two places: The control laboratory in the Department of Electronics: 10 meters long * 8 meters wide (with an area of 80 square meters), workshop behind the Deanship of Electronics Engineering: 4.5 meters long by 4 meters wide (18 square meters). All the laboratory equipment belongs to the Faculty of Electrical Engineering. The purpose of the laboratory is to conduct practical experiments for special electrical machines and single-phase induction motor machines, conduct practical experiments for control, conduct experiments for high pressure, conduct experiments for

transmission systems, and conduct practical experiments for renewable energy.

Description of Power and Machines Laboratory Equipment – Fourth Class

No.	Device Name	Device Description	Device Picture
1	Lab-Volt It contains a number of types of electrical machines Faculty of) Electronics (Engineering	To consolidate the theoretical principles in a practical Lab. for the subjects of analog electronics, digital electronics and microprocessors.	
2	Digital Tachometer	Digital Tachometer - DT-2234A	

6- Electronics and Communications Lab

The Electronics and Communications Laboratory is an important place for the education of students in the field of electrical engineering. It is a laboratory for conducting experiments in electronics and communications and consists of two rooms. It was inaugurated in 2017 in collaboration with Nineveh University. The area of the first laboratory: is 6 meters long * 4 meters wide with an area of 24 square meters, and the area of the second laboratory: is 6 meters long * 6 meters wide with an area of 36 square meters. The laboratory furniture in the first hall consists of 9 laboratory tables, 9 small chairs, 9 small chairs, 1 office desk, 1 iron cabinet with two doors and three shelves, 1 ceiling fan, and 1 air conditioner, all borrowed from the Faculty of Electrical Engineering. The laboratory furniture for the second hall consists of a student ping (12), an air compressor (1), a wooden table (4), a cabinet (2), a plastic chair (20), an iron cupboard (2), an iron cupboard (2), a whiteboard (1), a ceiling fan (2), and a 2-ton wall basket (2). The purpose of the laboratory is to carry out practical experiments for the students of the fourth stage of the Electronics and Communication specialization.

Description of Electronics and Communications Laboratory Equipment – Fourth Level

No.	Device Name	Device Description	Device Picture
1	GWINSTEK (Function generator) Shared with) Nineveh (University	Signal generator	
2	Digital Signaller	A device used for digital signalling	
3	Fiber optics Communication kit (Lab Volt)	Device for fibre optic communication experiments	
4	GPS-1850D DC Power Supply Shared with) Nineveh (University	DC powered device	
5	Function) (generator Shared with) Nineveh (University	Function generator	
6	Digital Multimeter Digital Multimeter Small and Medium	Multi-Tasking Scale	
7	Model M9803R Root Mean Square Meter	Real Root Mean Square Measurement Apparatus	

No.	Device Name	Device Description	Device Picture
8	Spectrum Analyst	Spectrum Analyst	
9	clampmeter-) m266f Current (meter	Loop current meter	
10	Frequency counter FC-3000 Frequency counter Shared with) Nineveh (University	Bandwidth meter	
11	DECADE RESISTANCE BOX BR70 Shared with) Nineveh (University	Variable resistor box	

University of Mosul / College of Engineering / Department of Electrical Engineering
2025-2024 Course Catalogue
First and Second Level / Bologna Process / Electronics and Communications

Republic of Iraq - Ministry of Higher Education and Scientific Research
University of Mosul
Bachelor's degree in Electrical Engineering - Electronic and communication (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum (2023 - 2024)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة الموصل
بكالوريوس في الهندسة الكهربائية - الكترونيك واتصالات (الدورة الأولى)
أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٣-٢٠٢٤

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL	Lect	Lab	Pr	Tut	Semn	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGI	One	1	EE101	Basics of Electrical Engineering I	اسس الهندسة الكهربائية I	English	3		2		1		3	93	107	200	8.00	C	
		2	EE102	Mathematics I	الرياضيات I	English	3				1		3	63	87	150	6.00	B	
		3	EE103	Engineering drawing	الرسم الهندسي	English	2		2				3	63	37	100	4.00	S	
		4	EE104	Physics	الفيزياء	English	2						3	33	67	100	4.00	B	
		5	EE105	mechanics Engineering	الهندسة الميكانيكية	English	2						3	33	42	75	3.00	S	
		6	UOM1031	Computer 1	الحاسوب I	English	2		2				3	63	12	75	3.00	B	
		7	UOM1011	Arabic Language 1	اللغة العربية I	Arabic	2						3	33	17	50	2.00	S	
						Total	16	0	6	0	2	0	21	381	369	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL	Lect	Lab	Pr	Tut	Semn	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
	Two	1	EE108	Basics of Electrical Engineering II	اسس الهندسة الكهربائية II	English	3		2		1		3	93	107	200	8.00	C	
		2	EE109	Mathematics II	الرياضيات II	English	3				1		3	63	87	150	6.00	B	
		3	EE110	Computer programming	برمجة الحاسوب	English	2		2				3	63	87	150	6.00	B	
		4	EE111	Digital Techniques	التقانيات الرقمية	English	2				1		3	48	27	75	3.00	C	
		5	EE112	Electronics Physics	فيزياء الالكترونيات	English	2				1		3	48	27	75	3.00	B	
		6	UOM1040	Democracy and human rights	الديمقراطية و حقوق الانسان	Arabic	2						3	33	17	50	2.00	S	
		7	UOM1021	English language 1	اللغة الانكليزية 1	English	2						3	33	17	50	2.00	S	
						Total	16	0	4	0	4	0	21	381	369	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL	Lect	Lab	Pr	Tut	Semn	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGII	Three	1	EEEC201	Electrical Circuits Analysis I	تحليل الدوائر الكهربائية I	English	4				2		3	93	32	125	5.00	C	
		2	EEEC202	Engineering Mathematics I	الرياضيات الهندسية I	English	4				1		3	78	47	125	5.00	B	
		3	EEEC203	Electronics Principles	مبادئ الالكترونيات	English	3				1		3	63	37	100	4.00	C	
		4	EEEC204	Communication Principles	مبادئ الاتصالات	English	3				1		3	63	62	125	5.00	C	
		5	EEEC205	Electromagnetic Fields	المجالات الكهرومغناطيسية	English	2				1		3	48	52	100	4.00	B	
		6	EEEC206	Electrical Engineering Lab. I	مختبرات الهندسة الكهربائية I	English			2				3	33	42	75	3.00	C	
		7	UOM2050	The crimes of the Baath regime in Iraq	جرائم نظام البعث في العراق	Arabic	2						3	33	17	50	2.00	S	
		8	UOM2012	Arabic Language 2	اللغة العربية 2	Arabic	2						3	33	17	50	2.00	S	
						Total	20	0	2	0	6	0	24	444	306	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL	Lect	Lab	Pr	Tut	Semn	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
	Four	1	EEEC209	Electrical Circuits Analysis II	تحليل الدوائر الكهربائية II	English	4				2		3	93	32	125	5.00	C	
		2	EEEC210	Engineering Mathematics II	الرياضيات الهندسية II	English	4				1		3	78	47	125	5.00	B	
		3	EEEC211	Electronic Circuits	دوائر الكترونية	English	3				1		3	63	37	100	4.00	C	
		4	EEEC212	Analoge Communication	الاتصالات التناظرية	English	3				1		3	63	62	125	5.00	C	
		5	EEEC213	Electrical measurements	القياسات الكهربائية	English	2				1		3	48	27	75	3.00	B	
		6	EEEC214	Electrical Engineering Lab. II	مختبرات الهندسة الكهربائية II	English			2				3	33	42	75	3.00	C	
		7	UOM2022	English language 2	اللغة الانكليزية 2	English	2						3	33	17	50	2.00	S	
		8	UOM2032	Computer 2	الحاسوب 2	English	2		2				3	63	12	75	3.00	B	
						Total	20	0	4	0	6	0	24	474	276	750	30.00		

University of Mosul / College of Engineering / Department of Electrical Engineering
2025-2024 Course Catalogue
First and Second Level / Bologna Process / Power and Machines

Republic of Iraq - Ministry of Higher Education and Scientific Research
University of Mosul
Bachelor's degree in Electrical Engineering - Power and Machines (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum (2023 - 2024)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة الموصل
بكالوريوس في الهندسة الكهربائية - قدرة ومكائن (الدورة الأولى)
اربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٣-٢٠٢٤

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGI	One	1	EE101	Basics of Electrical Engineering I	اسس الهندسة الكهربائية I	English	3		2		1		3	93	107	200	8.00	C	
		2	EE102	Mathematics I	الرياضيات I	English	3				1		3	63	87	150	6.00	B	
		3	EE103	Engineering drawing	الرسم الهندسي	English	2		2				3	63	37	100	4.00	S	
		4	EE104	Physics	الفيزياء	English	2						3	33	67	100	4.00	B	
		5	EE105	mechanics Engineering	الهندسة الميكانيكية	English	2						3	33	42	75	3.00	S	
		6	UOM1031	Computer 1	الحاسوب I	English	2		2				3	63	12	75	3.00	B	
		7	UOM1011	Arabic Language 1	اللغة العربية I	Arabic	2						3	33	17	50	2.00	S	
						Total	16	0	6	0	2	0	21	381	369	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGI	Two	1	EE108	Basics of Electrical Engineering II	اسس الهندسة الكهربائية II	English	3		2		1		3	93	107	200	8.00	C	
		2	EE109	Mathematics II	الرياضيات II	English	3				1		3	63	87	150	6.00	B	
		3	EE110	Computer Programming	برمجة الحاسوب	English	2		2				3	63	87	150	6.00	B	
		4	EE111	Digital Techniques	التقنيات الرقمية	English	2				1		3	48	27	75	3.00	C	
		5	EE112	Electronics Physics	فيزياء الالكترونيات	English	2				1		3	48	27	75	3.00	B	
		6	UOM1040	Democracy and Human Rights	الديمقراطية وحقوق الانسان	Arabic	2						3	33	17	50	2.00	S	
		7	UOM1021	English Language 1	اللغة الانكليزية I	English	2						3	33	17	50	2.00	S	
						Total	16	0	4	0	4	0	21	381	369	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGII	Three	1	EEPM201	Electrical Circuits Analysis I	تحليل الدوائر الكهربائية I	English	4				2		3	93	32	125	5.00	C	
		2	EEPM202	Engineering Mathematics I	الرياضيات الهندسية I	English	4				1		3	78	47	125	5.00	B	
		3	EEPM203	Electromagnetic Fields	المجالات الكهرومغناطيسية	English	3				1		3	63	37	100	4.00	C	
		4	EEPM204	Electrical Transformers	المحولات الكهربائية	English	3				1		3	63	62	125	5.00	C	
		5	EEPM205	Electronics Principles	مبادئ الالكترونيات	English	2				1		3	48	52	100	4.00	B	
		6	EEPM206	Electrical Engineering Lab. I	مختبرات الهندسة الكهربائية I	English			2				3	33	42	75	3.00	C	
		7	UOM2050	The crimes of the Baath regime in Iraq	جرائم نظام البعث في العراق	Arabic	2						3	33	17	50	2.00	S	
		8	UOM2012	Arabic Language 2	اللغة العربية 2	Arabic	2						3	33	17	50	2.00	S	
						Total	20	0	2	0	6	0	24	444	306	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGII	Four	1	EEPM209	Electrical Circuits Analysis II	تحليل الدوائر الكهربائية II	English	4				2		3	93	57	125	5.00	C	
		2	EEPM210	Engineering Mathematics II	الرياضيات الهندسية II	English	4				1		3	78	47	125	5.00	B	
		3	EEPM211	DC Machines	مكائن التيار المستمر	English	3				1		3	63	62	125	5.00	C	
		4	EEPM212	Distribution Systems	نظم التوزيع	English	3				1		3	63	62	125	5.00	B	
		5	EEPM213	Renewable Energies Siences	علوم الطاقات المتجددة	English	2				1		3	48	52	50	2.00	C	
		6	EEPM214	Electrical Engineering Lab. II	مختبرات الهندسة الكهربائية II	English			2				3	33	42	75	3.00	C	
		7	UOM2022	English language 2	اللغة الانكليزية 2	English	2						3	33	17	50	2.00	S	
		8	UOM2032	Computer 2	الحاسوب 2	English	2		2				3	63	12	75	3.00	B	
						Total	20	0	4	0	6	0	24	474	351	750	30.00		

University of Mosul / College of Engineering / Department of Electrical Engineering
Third stage / Semester system / Electronic and Communications for the academic year 2024-2025

(Third Stage / Electronic and Communications / First semester)					
Title	Theoretical hours	Practical hours	Units	Code	Notes
Statistics	2	-	2	EEC 301	
Engineering Analysis I	4	-	3	EEC 302	
Microprocessors	2	-	2	EEC 308	
Antennas and Wave Propagation	3	-	2	EEC 303	
Principals of Digital Communication	4	-	3	EEC 304	
Electronics Circuits I	3	-	2	EEC 305	
Digital Electronics I	3	-	2	EEC 306	
Electrical measurements fundamentals	2	-	2	EEC 307	
Electronics & Communications Lab I		6	2	EEC 309	
Total hours	23	6	20		

(Third Stage / Electronic and Communications / Second semester)					
Title	Theoretical hours	Practical hours	Units	Code	Notes
Engineering Economy	2	-	2	EEC 311	
Engineering Analysis II	4	-	3	EEC 312	
Microcontroller and PLC	2	-	2	EEC 318	
Microwave Devices	3	-	2	EEC 313	
Digital Modulation	4	-	3	EEC 314	
Digital Electronics II	3	-	2	EEC 316	
Electronics Circuits II	3	-	2	EEC 315	
Instrumentation systems	2	-	2	EEC 317	
Electronics & Communications Lab II		6	2	EEC 319	
Total hours	23	6	20		

Note: Summer Training is one of the requirements that the student has to apply during July or August.

University of Mosul / College of Engineering / Department of Electrical Engineering
Third stage / Semester system / Power and Machines for the academic year 2024-2025

(Third Stage / Power and Machines / First semester)					
Title	**Theoretical hours**	**Practical hours**	**Units**	**Code**	**Notes**
Statistics	**2**	**-**	**2**	**EEP 301**	
Engineering Analysis I	**4**	**-**	**3**	**EEP 302**	
Electronics Systems	**3**	**-**	**2**	**EEP 307**	
Microprocessors	**2**	**-**	**2**	**EEP 308**	
Transmission Systems I	**3**	**-**	**2**	**EEP 305**	
Induction machines	**3**	**-**	**2**	**EEP 304**	
Power Electronics Fundamentals	**4**	**-**	**3**	**EEP 303**	
Electrical measurements fundamentals	**2**	**-**	**2**	**EEP 306**	
Power & Machines Lab. I		**6**	**2**	**EEP 309**	
Total hours	**23**	**6**	**20**		

(Third Stage / Power and Machines / Second semester)					
Title	Theoretical hours	Practical hours	Units	Code	Notes
Engineering Economy	2	-	2	EEP 311	
Engineering Analysis II	4	-	3	EEP 312	
Microcontroller and PLC	3	-	2	EEP 317	
Microwave Devices	2	-	2	EEP 318	
Digital Modulation	3	-	2	EEP 315	
Digital Electronics II	3	-	2	EEP 314	
Electronics Circuits II	4	-	3	EEP 313	
Instrumentation systems	2	-	2	EEP 316	
Electronics & Communications Lab II		6	2	EEP 319	
Total hours	23	6	20		

Note: Summer Training is one of the requirements that the student has to apply during July or August.

University of Mosul / College of Engineering / Department of Electrical Engineering

Fourth Level / Course system / Electronics and Communications for the academic year 2024-2025

(Fourth Level/ Electronic and Communications / Fall semester)								
	Type	Subject	Theoretical hours	Practical hours	Units	Pre-request	Code	Notes
Department requirements	Compulsory	Satellite Communications	2	-	2	Digital Communication II	SATC 401	
	Compulsory	Control Systems Analysis	4	-	4	Introduction to Control Systems	COSA 402	
	Compulsory	Computer Networks	3	-	3	Digital Communication II	CNET 403	
	Compulsory	Digital Signal Processing	2	-	2	Signals & Systems	DSIP405	
	Compulsory	Microwaves	2	-	2	Analog Electronics	MIWA 411	
	Compulsory	Electronics & Communications Lab III	-	6	2	Electronic & Communication Lab II	ELAB 407	
	Compulsory	Graduation Project I	2	-	2	All compulsory department requirements for the third level	GPRO 409	
	Elective	Fiber-Optic Communication Systems	2	-	2	Digital Communication II	FOCS 415	Student choose one
	Elective	RADAR				Digital Communication II	RADAR 413	
		Total hours	17	6	19			

(Fourth Level/ Electronic and Communications / Spring semester)								
	Type	Subject	Theoretical hours	Practical hours	Units	Pre-request	Code	Notes
University requirements	Compulsory	Professional Ethics	2		2	-	UOMC 104	
	Compulsory	English Language- Upper Intermediate	2		2	-	-	
College requirements	Compulsory	Engineering Management	2		2		ENGC425	
Department requirements	Compulsory	Microelectronics	4		4	Electronic Devices	MELC453	
	Compulsory	Mobile Communications	3		3	Satellite Communication	MCOM451	
	Compulsory	Graduation Project II	2		2	Graduation Project I	GPRO457	
	Compulsory	Electronics & Communications Lab IV	-	6	2	Electronics & Communications Lab III	ELAB455	
	Elective	Wireless Networks & Security	2		2	Computer Networks	WNSE 459	Student choose one
	Elective	Computer Interface Systems				Computer Architecture	CINT461	
	Elective	Digital Image Processing				Digital Signal Processing	DIMP463	
		Total hours	17	6	19			

University of Mosul / College of Engineering / Department of Electrical Engineering

Fourth Level / Course system / Power and Machines for the academic year 2024-2025

(Fourth Level/ Power and Machines / Fall semester)								
	Type	Subject	Theoretical hours	Practical hours	Units	Pre-request	Code	Notes
Department requirements	Compulsory	Power System Analysis	4	-	4	Numerical Analysis	PSAN 400	
	Compulsory	Control Systems Analysis	4	-	4	Introduction to Control Systems	COSA 402	
	Compulsory	Single Phase Induction Motors	3	-	3	Induction Machines	SPIM 404	
	Compulsory	Power Generating Stations	2	-	2	Synchronous Machines	PGST 406	
	Compulsory	Power & Machines Lab III	-	6	2	Power & Machines Lab II	MLAB 408	
	Compulsory	Graduation Project I	2	-	2	All compulsory department requirements for the third level	GPRO 410	
	Elective	High Voltage DC	2	-	2	Power Electronics II	HVDC 414	Student choose one
	Elective	Smart Power Grid Systems	2			Electrical Circuit Analysis II	SGRD 416	
	Total hours		17	6	19			

(Fourth Level/ Power and Machines / Spring semester)								
	Type	Subject	Theoretical hours	Practical hours	Units	Pre-request	Code	Notes
University requirements	Compulsory	Professional Ethics	2		2	-	UOMC 104	
	Compulsory	English Language- Upper Intermediate	2		2	-	-	
College requirements	Compulsory	Engineering Management	2		2		ENGC425	
Department requirements	Compulsory	Power System Protection	3		3	Transmission Systems	PSRP 450	
	Compulsory	High Voltage Engineering	3		3	Electronic Physics Electromagnetic Theory	HVEN 452	
	Compulsory	Special Electrical Machines	2		2	Induction Machines	SPEM 458	
	Compulsory	Graduation Project II	2		2	Graduation Project I	GPRO454	
	Compulsory	Power & Machines Lab IV	-	6	2	Power & Machines Lab III	MLAB456	The student should select one subject only (no. of units =2 only)
	Elective	Electrical Drives	2		2	Power Electronics II	ELDR 462	
	Elective	Energy Management				Power Generating Stations Power Electronics II	ENEM 460	
		Total hours	18	6	20			

Postgraduate studies:

Department of Electrical Engineering / Master / First Semester

No.	Title	Type	Code	Units	Hours
1	Antennas and Wave	Elective	EEE644	2	2
2	Microelectronics	Elective	EEE 653	2	2
3	Digital Signal Processing	Compulsory	EEE652	2	2
4	Engineering Analysis	Compulsory	EEE 640	2	2
5	Modern Control Theory	Compulsory	EEE 647	2	2
6	Modeling and Simulation	Compulsory	EEP 670	2	2
7	Power Electronics	Compulsory	EEP 667	2	2
8	Advanced Electrical Machine	Elective	EEP669	2	2
9	Power System Analysis	Elective	EEP683	2	2
				14	14

Department of Electrical Engineering / Master / Second Semester

No.	Title	Type	Code	Units	Hours
1	Mobile communications	Elective	EEE646	2	2
2	Microwave Devices	Elective	EEE662	2	2
3	Computer Networks	Elective	EEE661	2	2
4	Programmable Controller	Compulsory	EEE680	2	2
5	English Language II	Compulsory	EEE638	2	2
6	Scientific Research Methods	Compulsory	EEE 690	2	2
7	Electrical Drive	Elective	EEP 672	2	2
8	Advanced High Voltage	Elective	EEP 671	2	2
9	Power System Protection	Elective	EEE682	2	2
				12	12

Department of Electrical Engineering / Phd / First Semester

No.	Title	Type	Code	Units	Hours
1	Advanced Communication Systems	Elective	EED709	2	2
2	CMOS Integrated Circuits	Elective	EEE742	2	2
3	Advanced Antenna Theory	Elective	EED708	2	2
4	Advanced Control Systems	Compulsory	EED710	2	2
5	Advanced DSP	Compulsory	EEP730	2	2
6	Advanced Topics in Electrical	Compulsory	EED720	2	2
7	Advanced Electrical Drives	Elective	EED714	2	2
8	Flexible A C Transmission System (FACTS)	Elective	EED706	2	2
9	Power Systems Stability	Elective	EED712	2	2
				12	12

Department of Electrical Engineering / Phd / Second Semester

No.	Title	Type	Code	Units	Hours
1	Wave Propagation	Elective	EED718	2	2
2	Computer Network Security	Elective	EED717	2	2
3	Advanced Microprocessors	Elective	EEE731	2	2
4	English Language II	Compulsory	EEE740	2	2
5	Research Methodology	Compulsory	EEE702	2	2
6	Advanced Modeling & simulation	Compulsory	EED701	2	2
7	Smart Grids and Renewable Energy	Compulsory	EED711	2	2
8	Advanced Alternating Machines	Elective	EE768	2	2
9	Modern Protection Systems	Elective	EEP773	2	2
10	Advanced High Voltage DC	Elective	EED784	2	2
				14	14

Research Directions/Aspects Considered of the Department of Electrical Engineering

The department provides a wide range of facilities for training and research in electrical engineering. Research aspects in the Department of Electrical Engineering focus on: theoretical electrical engineering, motor engineering, neural network applications, artificial intelligence, electronics engineering, power engineering, simulation of physical systems, communications engineering, and robotics. The great diversity in electrical engineering specializations has created confusion for the student when deciding to specialize in this branch, which puts him in a continuous search for the best specialization in electrical engineering. The following are the most prominent branches in electrical engineering to facilitate the student's choice:

Power and machines engineering:

The specializations that this branch is concerned with are as follows:

1. **Theoretical Electrical Engineering**

This specialization depends on conveying the physical descriptions and theoretical rules obtained from the science of electricity, including Electrical circuit analysis theory, and flux theory for discussing Maxwell's equations.

2. **Electrical Machines Engineering**

This specialization is concerned with converting electrical energy into mechanical energy using electric motors, and motor engineering has great

importance in automation techniques, as most mechanical motors are handled and operated electrically.

3. **Power Engineering**

Power engineering specializes in transmitting, producing, and converting electrical energy through the design of various devices such as generators, transformers, and electric motors, where electricity is distributed through generators that produce electrical energy.

Electronicand Communications Engineering:

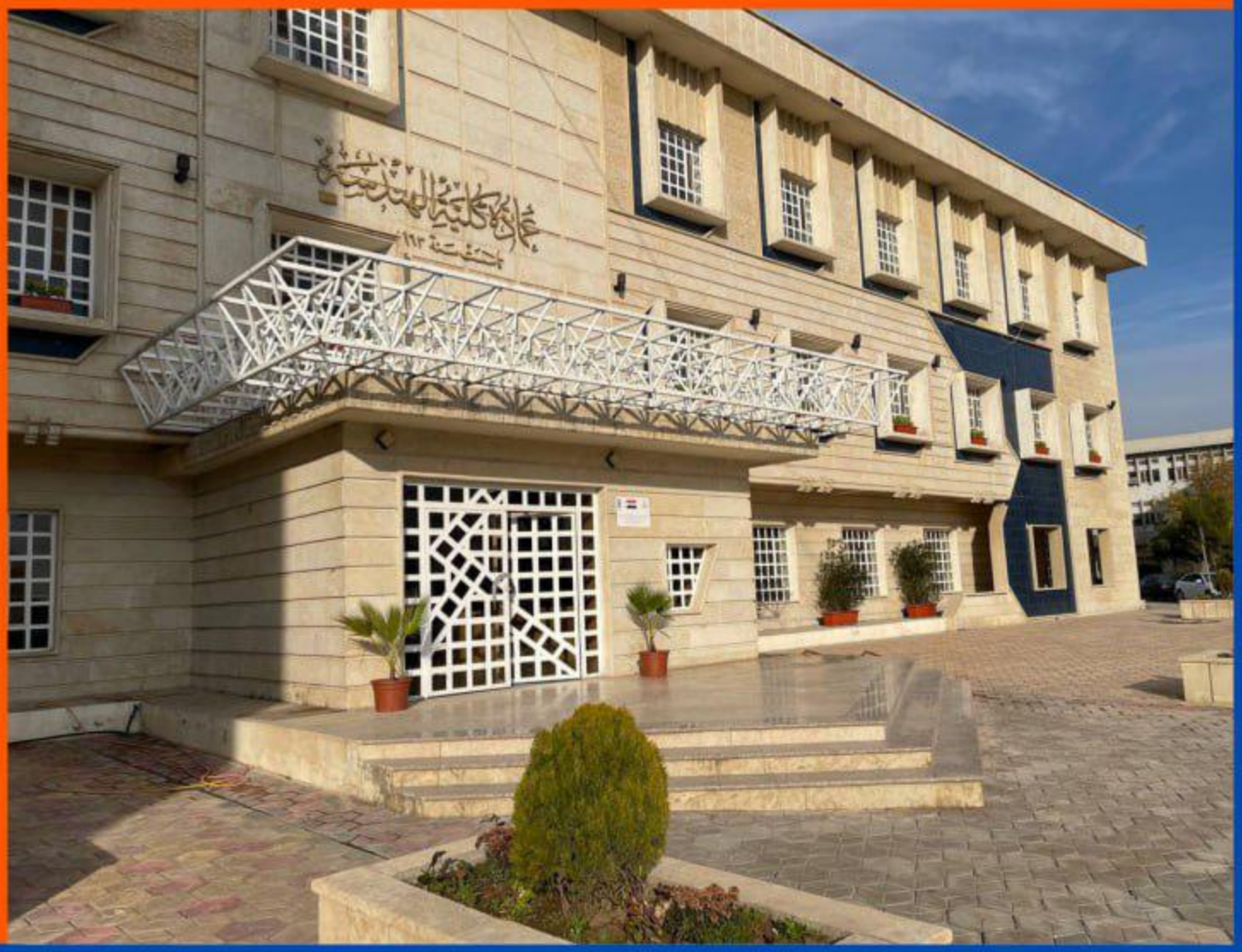
The specializations that this branch is concerned with are as follows:

1. **Electronics Engineering**

It is one of the specializations that is concerned with the manufacture and development of electronic components such as inductors, capacitors, and semiconductor elements such as transistors and diodes. The capacitor is treated as an electrical part, but at the same time, it is one of the important parts in the formation of electronic circuits such as electronic compatibility circuits and resonance circuits used in receiving and transmitting.

2. **Communications Engineering**

Communications engineering transmits information from the sender to the receiver using electromagnetic waves and electrical pulses, as it is concerned with transmitting information with the least data losses, in addition to signal processing systems such as encryption.



University of Mosul
College of Engineering

This guide has been prepared under the guidance of the Dean of the College of Engineering

Professor Dr. Abdul Rahim Ibrahim Jassim

Under the supervision of the Head of the Electrical Engineering Department

Asst. Prof. Dr. Mohammad Tariq Yaseen

To serve as a reference for introducing the Department of Electrical Engineering, its members, and the study programs for undergraduate and graduate studies

coordination

Department of Media and Government Communication at the College of Engineering

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