

Ministry of Higher Education and Scientific Research
University of Mosul
College of Engineering
Department of Electrical Engineering



Courses Description

Department of Electrical Engineering

Electronic and Communications

2023-2024

Academic Program Description form

University Name: University of Mosul

Faculty / Institute: College of Engineering

Scientific Department: Electrical Engineering

Academic or Professional Program Name:

B.Sc. Electrical Engineering / Electronics and Communication

B.Sc. Electrical Engineering / Power and Machines

Final Certificate Name: B.Sc. in Electrical Engineering

Academic System: Courses System + Bologna Process

Description Preparation Date: March, 2024

File Completion Date: March, 2024

Signature:

Head of Department Name:

Dr. Mohammad Tariq Yaseen

Date: March, 2024

Signature:

Scientific Associate Name:

Dr. Ayman T.Hameed

Date: March, 2024

The file is checked by: Department of Quality Assurance and University Performance

Director of Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

a) Undergraduate

Bologna Process / College of Engineering / University of Mosul / First level for the academic year 2023-2024 / Department of Electrical Engineering

Fall Semester / First Level							
Notes	Code	Units	Practical hours	Theoretical hours	Subject	Type	Name
	UOM101	2	-	2	Arabic Language	Support or related learning activity	University Requirements
	UOM103	3	2	2	Computer	Basic learning activities	
	EE105	3	-	2	mechanics Engineering	Support or related learning activity	Department Requirements
	EE101	8	2	4	Basics of Electrical Engineering I	Core learning activity	
	EE102	6	-	4	Mathematics I	Basic learning activities	
	EE103	4	2	2	Engineering drawing	Support or related learning activity	
	EE104	4	-	2	Physics	Basic learning activities	
		30	6	18	Total Hours		

Spring Semester / First Level							
Notes	Code	Units	Practical hours	Theoretical hours	Subject	Type	Name
	UOM102	2	-	2	English Language	Support or related learning activity	University Requirements
	UOM104	2	-	2	Democracy and Human Rights	Support or related learning activity	
	EE111	3	-	3	Digital Techniques	Core learning activity	Department Requirements
	EE108	8	2	4	Basics of Electrical Engineering II	Core learning activity	
	EE109	6	-	4	Mathematics II	Basic learning activities	
	EE110	6	2	2	Computer Programming	Basic learning activities	
	EE112	3	-	3	Electronics Physics	Basic learning activities	
		30	4	18	Total Hours		

Semesters / College of Engineering / University of Mosul / Second year for the academic year 2023-2024 / Department of
Electrical Engineering

Second Year/ First semester /Electronic and communications					
Code	Title	Theoretical	Lab.	Credits	Notes
EEC 201	Management and Industrial Safety I	2	-	2	
EEC 202	Engineering Mathematics I	4	-	3	
EEC 204	Electromagnetic Fields I	3	-	2	
EEC 205	Electronics Principles I	3	-	2	
EEC 206	Communication Principles I	4	-	3	
EEC 207	Electrical Power System	2	-	2	
EEC 203	Computer Applications I	3	2	3	
EEC 208	Electric Networks I	3	-	2	
EEC 209	Laboratories I	-	2	1	
		24	4	20	

Semesters / College of Engineering / University of Mosul / Second year for the academic year 2023-2024 / Department of
Electrical Engineering

Second Year/Second semester /Electronic and communications					
Code	Title	Theoretical	Lab.	Credits	Notes
EEC 211	Management & Industrial Safety II	2	-	2	
EEC 212	Engineering Mathematics II	4	-	3	
EEC 214	Electromagnetic Fields II	3	-	2	
EEC 215	Electronics Principles II	3	-	2	
EEC 216	Communication Principles II	4	-	3	
EEC 217	Electrical Machines	2	-	2	
EEC 213	Computer Applications II	3	2	3	
EEC 218	Electric Networks II	3	-	2	
EEC 219	Laboratories II	-	2	1	
		24	4	20	

Courses / College of Engineering / University of Mosul / Third level for the academic year 2023-2024 / Department of
Electrical Engineering

Fall Semester / Third Level – E&C								
Notes	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
Compulsory for Dept. Students	ENGE 320	Calculus I, II	2	-	2	Numerical Analysis	Elective	College Requirements
	ENGC 327	-	2	-	2	Statistics	Compulsory	
	DCOM 301	Analog Communications	2	-	2	Digital Communications I	Compulsory	Department Requirements
	RADP 303	Electromagnetic Theory	3	-	3	& Radiation Propagation	Compulsory	
	ELCD 305	Analog Electronics	3	-	3	Electronic Devices	Compulsory	
	DELC 307	Digital Techniques	3	-	3	Digital Electronics	Compulsory	
	ELAB 309	Electrical Engineering Lab II	2	6	-	& Electronics Communications Lab I	Compulsory	
The student should select one subject only (no. of units =2 only)	PWEL 311	Electrical Circuit Analysis I	2	-	2	Power Electronics	Elective	
	SPTC 313	Analog Communications				Special Topics in Communications		
The student should select one subject only (no. of units =2 only)	RENE 314	Electrical Circuit Analysis I	2	-	2	Renewable Energy	Elective	
	ELCD 312	Electrical Circuit Analysis I				Electrical Circuits Design		
			21	6	19	Total Hours		

Spring Semester / Third Level – E&C								
Notes	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
	-	-	2	-	2	English Language Intermediate	Compulsory	University Requirements
	ENGC 326	-	2	-	2	Engineering Economic	Compulsory	College Requirements
	MINS 350	Electrical Circuit Analysis I	3	-	3	Electrical Measurements	Compulsory	Department Requirements
	ICOS 352	Signals & Systems	3	-	3	Introduction to Control Systems	Compulsory	
	COME 351	Computer Programming	3	-	3	Computer Architecture	Compulsory	
	DCOM 353	Digital Communications I	3	-	3	Digital Communications II	Compulsory	
	ELAB 355	Electronic & Communication Lab 1	2	6	-	& Electronics Communications Lab II	Compulsory	
The student should select one subject only (no. of units =2 only)	PCON 362	Digital Techniques	2	-	2	Programmable Controller	Elective	
	AINT 364	Digital Techniques				Artificial Intelligence		
			21	6	18	Total Hours		

Note: The student is required to complete the summer training after the end of the second semester of the third level

Fall Semester / Fourth Level – E&C								
Notes	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
	SATC 401	Digital Communication II	2	-	2	Satellite Communications	Compulsory	Department Requirements
	COSA 402	Introduction to Control Systems	4	-	4	Control Systems Analysis	Compulsory	
	CNET 403	Digital Communication II	3	-	3	Computer Networks	Compulsory	
	DSIP405	Signals & Systems	2	-	2	Digital Signal Processing	Compulsory	
	MIWA 411	Analog Electronics	2	-	2	Microwaves	Compulsory	
	ELAB 407	Electronic & Communication Lab II	2	6	-	& Electronics Communications Lab III	Compulsory	
	GPRO 409	All compulsory department requirements for the third level	2	-	2	Graduation Project I	Compulsory	
The student should select one subject only (no. of units =2 only)	FOCS 415	Digital Communication II	2	-	2	Fiber-Optic Communication Systems	Elective	
	RADAR 413	Digital Communication II				RADAR		
			19	6	17	Total Hours		

Spring Semester / Fourth Level – E&C								
Notes	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
	UOMC 104	-	2	-	2	Professional Ethics	Compulsory	University Requirements
	-	-	2	-	2	-English Language Upper Intermediate	Compulsory	
	ENGC425		2	-	2	Engineering Management	Compulsory	College Requirements
	MELC453	Electronic Devices	4	-	4	Microelectronics	Compulsory	Department Requirements
	MCOM451	Satellite Communication	3	-	3	Mobile Communications	Compulsory	
	GPRO457	Graduation Project I	2	-	2	Graduation Project II	Compulsory	
	ELAB455	Electronics & Communications Lab III	2	6	-	Electronics & Communications Lab IV	Compulsory	
The student should select one subject only (no. of units =2 only)	WNSE 459	Computer Networks	2	-	2	Wireless Networks & Security	Elective	
	CINT461	Computer Architecture				Computer Interface Systems		
	DIMP463	Digital Signal Processing				Digital Image Processing		
			19	6	17	Total Hours		

b) Postgraduate

	Subject	Type	Hours	Units	Code
Master	Antennas and Wave (Elective)	Semesters	2	2	EEE644
	Microelectronics (Elective)	Semesters	2	2	EEE 653
	Digital Signal Processing (Compulsory)	Semesters	2	2	EEE652
	Engineering Analysis (Compulsory)	Semesters	2	2	EEE 640
	Modern Control Theory (Compulsory)	Semesters	2	2	EEE 647
	Modeling and Simulation(Compulsory)	Semesters	2	2	EEP 670
	Power Electronics (Compulsory)	Semesters	2	2	EEP 667
	A.C. Machines (Elective)	Semesters	2	2	EEP669
	Power System Analysis (Elective)	Semesters	2	2	EEP683
	Antennas and Wave (Elective)	Semesters	2	2	EEE646
	Microwave Devices (Elective)	Semesters	2	2	
	Computer Networks (Elective)	Semesters	2	2	EEE661
	Programmable Controllers(Compulsory)	Semesters	2	2	EEE680
	English Language II (Compulsory)	Semesters	2	2	
	Scientific Research Methods (Compulsory)	Semesters	1	1	EEE 690
	Electrical Drive (Elective)	Semesters	2	2	EEP 672
Advanced High Voltage (Elective)	Semesters	2	2	EEP 671	
Power System Protection (Elective)	Semesters	2	2		

	Subject	Type	Hours	Units	Code
PhD	Advanced Communication Systems (Elective)	Semesters	2	2	EED709
	CMOS Integrated Circuits (Elective)	Semesters	2	2	
	Advanced Antenna Theory (Elective)	Semesters	2	2	EED708
	Advanced Control Systems (Compulsory)	Semesters	2	2	EED710
	Advanced DSP (Compulsory)	Semesters	2	2	
	Advanced Topics in Electrical (Compulsory)	Semesters	2	2	EED720
	Advanced Electrical Drives (Elective)	Semesters	2	2	EED714
	Flexible A C Transmission System (FACTS) (Elective)	Semesters	2	2	EED706
	Power Systems Stability (Elective)	Semesters	2	2	EED712
	Wave Propagation (Elective)	Semesters	2	2	EED718
	Computer Network Security (Elective)	Semesters	2	2	EED717
	Advanced Microprocessors (Elective)	Semesters	2	2	
	English Language II (Compulsory)	Semesters	2	2	
	Research Methodology (Compulsory)	Semesters	1	1	
	& Advanced Modeling Simulation (Compulsory)	Semesters	2	2	EED701
	Smart Grids and Renewable Energy (Compulsory)	Semesters	2	2	EED711
	Advanced Alternating Machines (Elective)	Semesters	2	2	EE768
	Advanced High Voltage DC (Elective)	Semesters	2	2	
: Modern Protection Systems (Elective)		2	2	EED704	