Courses Description
Department of Electrical Engineering
Power and Machines
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

Notes	Code	Units	Practical hours	Theoretical hours	Subject	Type	Name
				Fall Semester / First Level			
	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		

Notes	Code	Units	Practical hours	Theoretical hours	Subject	Type	Name
				Spring Semester / First Level			
	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 / Power and Machines					
Code	**Title**	**Theoretical**	**Lab.**	**Credits**	**Notes**
EEP 201	Management & Industrial Safety I	2	-	2	
EEP 202	Engineering Mathematics I	4	-	3	
EEP 203	Computer Application I	3	2	3	
EEP 205	Electronics I	3	-	2	
EEP 208	Electric Networks I	3	-	2	
EEP 204	Electromagnetic Fields I	3	-	2	
EEP 209	D.C. Distribution Systems	2	-	2	
EEP 206	Machines I	4	-	3	
EEP 207	Laboratories I	-	2	1	
		24	4	20	

Second Year/Second semester / Power and Machines					
Code	**Title**	**Theoretical**	**Lab.**	**Credits**	**Notes**
EEP 211	Management & Industrial Safety II	2	-	2	
EEP 212	Engineering Mathematics II	4	-	3	
EEP 213	Computer Application II	3	2	3	
EEP 215	Electronics II	3	-	2	
EEP 218	Electric Networks II	3	-	2	
EEP 214	Electromagnetic Fields II	3	-	2	
EEP 219	A.C. Distribution Systems	2	-	2	
EEP 216	Machines II	4	-	3	
EEP 217	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

Notes	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
Fall Semester / Third Level – P&M
Compulsory for Dept. Students	ENGE 320	Calculus I, II	2	-	2	Numerical Analysis	Elective	College Requirements
	ENGC 327	-	2	-	2	Statistics	Compulsory	
	TRSY 300	Electrical Circuit Analysis II	3	-	3	Transmission Systems	Compulsory	Department Requirements
	PECT 302	Power Electronics I	3	-	3	Power Electronics II	Compulsory	
	INMA 304	Electrical Transformers	3	-	3	Induction Machines	Compulsory	
	PLAB 306	Electrical Engineering Lab II	2	6	-	& Power Machines Lab I	Compulsory	
The student should select one subject only (no. of units =2 only)	ELCD 312	Electrical Circuit Analysis I	2	-	2	Electrical Circuits Design	Elective	
	RENE 314	Electrical Circuit Analysis I				Renewable Energy		
The student should select one subject only (no. of units =2 only)	DSIP 405	Signals & Systems	2	-	2	Digital Signal Processing	Elective	
	MICP 316	Digital Techniques				Microprocessors		
			19	6	17		Total Hours	

	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
						Spring Semester / Third Level – P&M		
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	
	ECSS 354	Signals & Systems	2	-	2	Electronic and Communication Systems	Compulsory	
	SYMA 356	Electrical Transformers	3	-	3	Synchronous Machines	Compulsory	
	PLAB 358	Power and Machines Lab 1	2	6	-	Power & Machines Lab II	Compulsory	
يختار الطالب مقرر واحد ، عدد الوحدات المطلوبة 2 وحدة	PCON 362	Digital Techniques	2	-	2	Programmable Controller	Elective	
	AINT 364	Signals & Systems				Artificial Intelligence		
			19	6	17	Total Hours		

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

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

Fall Semester / Fourth Level – P&M								
Notes	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
	PSAN 400	Numerical Analysis	4	-	4	Power System Analysis	Compulsory	Department Requirements
	COSA 402	Introduction to Control Systems	4	-	4	Control Systems Analysis	Compulsory	
	SPIM 404	Induction Machines	3	-	3	Single Phase Induction Motors	Compulsory	
	PGST 406	Synchronous Machines	2	-	2	Power Generating Stations	Compulsory	
	MLAB 408	Power & Machines Lab II	2	6	-	Power & Machines Lab III	Compulsory	
	GPRO 410	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)	HVDC 414	Power Electronics II	2	-	2	High Voltage DC	Elective	
	SGRD 416	Electrical Circuit Analysis II				Smart Power Grid Systems		
			19	6	17	Total Hours		

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