COLLEGE OF ENGINEERING AND ARCHITECTURE
Department of Electrical and Computer Engineering

Bachelor of Electrical Engineering

Study Plan and Degree Plan
2023-2024

BSc in Electrical Engineering
Study Plan 2023 2024

C – Credit Hours, L – Credit Lecture, P – Credit Practical

YEAR 1

Summer Semester	CODE	COURSE	C	L	P
	MATH116/L	Pre- Calculus	4	3	2
	ARAB100	Arabic Language I	3	3	0
			7	**6**	**2**

FALL

CODE	COURSE	C	L	P
PHYS101/L	General Physics I	4	3	2
MATH 211/L	Calculus I	4	3	2
ENGL150	English Language I	3	3	0
COMP101/L	Computer Skill	3	2	2
ENGN101	Introduction to Engineering	2	2	0
		16	**13**	**6**

SPRING

CODE	COURSE	C	L	P
MATH212/L	Calculus II	3	3	0
ENGN103	Engineering Drawing	2	1	2
PHYS150/L	General Physics II	4	3	2
ELEC212	Circuit Analysis I	3	3	0
ENGL152	English Language II	3	3	0
		15	**13**	**4**

Summer Semester	CODE	COURSE	C	L	P
	ARAB101	Arabic Language II	3	3	0
	ENGL155	Communication Skill	3	3	0
			6	**6**	**0**

YEAR 2

FALL

CODE	COURSE	C	L	P
MATH312/L	Differential Equations for Engineers	3	3	0
ELEC213	Circuit Analysis II	3	3	0
ELEC221	Electronics I	3	3	0
ELEC241	Digital Logic Design	3	3	0
HIST150	Islamic Civilization	3	3	0
ELEC291	Electrical Circuits Lab	1	0	2
		16	**15**	**2**

SPRING

CODE	COURSE	C	L	P
MATH325/L	Linear & Multi Variant Calculus	3	3	0
COMP151/L	Introduction to Algorithm & Programming	4	3	2
ELEC312	Electromagnetic Theory	3	3	0
ELEC321	Electronics II	3	3	0
ELEC331	Signals & Systems	3	3	0
ELEC292	Analog Electronics Lab	1	0	2
		17	**15**	**4**

Summer Semester	CODE	COURSE	C	L	P
	MNGT100/L	Entrepreneurship Creativity And Innovation	3	2	1
	STAT105/L	Statistics for Engineers	3	3	0
			6	**6**	**0**

YEAR 3

FALL

CODE	COURSE	C	L	P
ELEC410	**Electrical Machines**	**3**	**3**	**0**
ELEC322	Digital Electronics	3	3	0
ELEC311	Measurements and Instrumentation	3	3	0
ELEC341	Microprocessors and Microcontrollers	3	3	0
ELEC412	Control Systems	3	3	0
ELEC281	Digital Logic Design Lab	1	0	2
		16	**15**	**2**

SPRING

CODE	COURSE	C	L	P
ELEC432	Digital Signal Processing	3	3	0
ELEC431	Communication Systems	3	3	0
ELEC490	Complex analysis	3	3	0
ELEC414	Power Electronics	3	3	0
ELEC491	Control Lab	1	0	2
ELEC382	Microprocessor and Microcontroller Lab	1	0	2
ELEC393	Measurement and Instrumentation Lab	1	0	2
		15	**12**	**6**

Summer Semester	CODE	COURSE	C	L	P
	ENGN333	Industrial training	2	0	2
			2	**0**	**2**

YEAR 4

FALL

CODE	COURSE	C	L	P
ELEC512	**Electric Drives**	**3**	**3**	**0**
ELEC5**	Elective – I	3	3	0
ELEC5**	Elective - II	3	3	0
ELEC511	Power Systems Analysis	**3**	**3**	**0**
ELEC570	Graduation Project	6	0	6
		18	**12**	**6**

SPRING

CODE	COURSE	C	L	P
ELEC5**	Elective - III	3	3	0
ELEC5**	Elective - IV	3	3	0
ELEC5**	Elective - V	3	3	0
ELEC59*	Lab Elective	1	0	2
ELEC492	Electrical Machines and Power Electronics Lab	1	0	2
		11	**9**	**4**

Summer Semester	CODE	COURSE	C	L	P
		College Elective	3	3	0
			3	**3**	**0**

Total No. of Credit	148

Degree Plan for BSc in Electrical Engineering 2024

Minimum No. of Credits for the Degree Plan = 148 Credits

University requirements = 21 Credits

Course Code	Course Name	Credit Hours	Contact Hours		Pre-requisites/Co-requisites
			Theory	**Practical**	
ARAB100	Arabic Language-I	3	3	0	-
ARAB101	Arabic Language-II	3	3	0	ARAB100
COMP101/L	Computer Skill	3	3	0	Comp-A, Comp-B (Digital Literacy)
ENGL150	English Language-I	3	3	0	-
ENGL152	English Language-II	3	3	0	ENGL150
ENGL155	Communication Skill	3	3	0	ENGL152
HIST150	Islamic Civilization	3	3	0	-

University elective = 3 Credits (MNGT100/L)

College requirements = 18 Credits

Course Code	Course Name	Credit Hours	Theory	Practical	Pre-requisites/Co-requisites
COMP151/L	Introduction to Algorithm & Programming	4	3	2	COMP101/L
ENGN101	Introduction to Engineering	2	2	0	MATH116/L
ENGN103	Engineering Drawings	2	1	2	-
ENGN333	Industrial Training	2	0	4	110 credits
MATH116	Pre-Calculus	4	4	0	-
MATH211	Calculus-I	4	3	2	MATH116/L

College elective = 3 Credits (ENGN201)

Department Requirement: Core Course= 87 Credits

Course Code	Course Name	Credit Hours	Theory	Practical	Pre-requisites/Co-requisites
PHYS101/L	General Physics I	4	3	2	MATH116/L
PHYS150/L	General Physics II	4	3	2	PHYS101/L
MATH212/L	Calculus II	3	3	0	MATH211/L
MATH312/L	Differential Equations for Engineers	3	3	0	MATH212/L
MATH325/L	Linear & Multi Variant Calculus	3	3	0	MATH312/L
STAT105/L	Statistics for Engineers	3	3	0	MATH211/L
ELEC212	Circuit Analysis I	3	3	0	PHYS101/L – Co PHY150/L
ELEC213	Circuit Analysis II	3	3	0	ELEC212 & Co – MATH312/L
ELEC221	Electronics I	3	3	0	ELEC212
ELEC241	Digital Logic Design	3	3	0	ELEC212
ELEC291	Electrical Circuits Lab	1*	0	2	ELEC212
ELEC281	Digital Logic Design Lab	1*	0	2	ELEC241
ELEC292	Analog Electronics Lab	1*	0	2	ELEC221
ELEC331	Signals & Systems	**3**	**3**	**0**	ELEC213
ELEC321	Electronics II	3	3	0	ELEC221
ELEC312	Electromagnetic Theory	3	3	0	ELEC213, Co-MATH312/L
ELEC311	Measurements and Instrumentation	3	3	0	ELEC221
ELEC341	Microprocessors & Microcontrollers	3	3	0	ELEC241
ELEC393	Measurement and Instrumentation Lab	1*	0	2	ELEC311

ELEC382	Microprocessor and Microcontroller Lab	1*	0	2	ELEC341
ELEC322	Digital Electronics	3	3	0	ELEC221
ELEC431	Communication Systems	3	3	0	ELEC331
ELEC414	Power Electronics	3	3	0	ELEC321
ELEC491	Control Lab	1*	0	1	ELEC412
ELEC432	Digital Signal Processing	3	3	0	ELEC331
ELEC490	Complex Analysis and discrete Mathematics	3	3	0	MATH325/L
ELEC412	Control Systems	**3**	**3**	**0**	ELEC331
ELEC410	Electrical Machines	**3**	**3**	**0**	ELEC312
ELEC492	Electrical Machines and Power Electronics Lab	1*	0	2	ELEC414 ELEC410
ELEC511	Power System Analysis	**3**	**3**	**0**	ELEC410
ELEC512	Electric Drives	**3**	**3**	**0**	ELEC410, ELEC414
ELEC575	Graduation Project	6	0	6	120 credits

Department Electives: Core Course= 16 Credits					
Course Code	Course Name	Credit Hours	Contact Hours		Pre-requisites/Co-requisites
			Theory	Practical	
ELEC510	Special Topics in Power Engineering	3	3	0	ELEC414
ELEC519	Electrical Machine Design	3	3	0	ELEC410
ELEC513	Advanced Power Systems	3	3	0	ELEC511
ELEC514	High Voltage Engineering	3	3	0	ELEC511
ELEC515	Advanced Control Systems	3	3	0	ELEC412
ELEC516	Sustainable & Renewable Energy sources	3	3	0	ELEC511
ELEC518	Power System Protection	3	3	0	ELEC511
ELEC521	Microelectronics	3	3	0	ELEC322
ELEC522	Electronic Communication Circuits	3	3	0	ELEC431
ELEC523	Digital System Design	3	3	0	ELEC322
ELEC442	Embedded Systems	3	3	0	ELEC341
ELEC532	Digital Communication	3	3	0	ELEC431
ELEC533	Mobile Communication	3	3	0	ELEC532
ELEC534	Microwave Engineering	3	3	0	ELEC312
ELEC535	Optical Fiber Communication	3	3	0	ELEC532
ELEC536	Special Topics in Electronics and Communication Engineering	3	3	0	ELEC431
ELEC461	Computer Networks	3	3	0	ELEC431
ELEC571	Industrial Automation	3	3	0	ELEC512
ELEC572	Robotics	3	3	0	ELEC442
ELEC573	Engineering Economics and Management	3	3	0	Final year
ELEC591	Communication Engineering Lab	1*	0	2	ELEC431
ELEC592	Power System Lab	1*	0	2	ELEC511