

Bachelor of Electrical Engineering Program

Edition 5 – Two Semesters

FIRST YEAR (PREPARATORY) - LEVEL 1

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
1	ENGL1210	Reading Skills	3	(3,3,0)		
2	ENGL1220	Writing Skills	3	(3,3,0)		
3	IC101	Entrance to Islamic Education	2	(2,0,0)		
4	MATH1050	Differential Calculus	3	(3,2,0)		
5	PHYS1010	General Physics I	4	(3,1,1)		

First Year (Preparatory) - Level 2

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
1	CT1400	Computer Skills	3	(2,0,1)		
2	ARAB101	Arabic Language Skills	2	(2,0,0)		
3	ENGL1604	English for Technical Purposes	3	(3,3,0)		
4	MC1400	Communication Skills	2	(2,0,0)		
5	MATH1060	Integral Calculus	3	(3,2,0)	MATH1050	
6	ENGL1230	Conversation and Listening Skills	3	(3,3,0)		

Second Year - Level 3

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
1	IC 102	Islam and Building of Society	2	(2,0,0)		
2	GEU1011	Introduction to Engineering	2	(2,1,0)		
3	GEU1090	Computer Programming in Engineering	3	(1,0,2)		
4	PHYS1040	General Physics II	4	(3,1,1)		
5	CHEM1010	General Chemistry I	4	(3,1,1)	PHYS1010	
6	MATH1070	Algebra and Analytical Geometry	3	(3,1,0)	MATH1050	

Second Year - Level 4

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
1	GEU 3201	Engineering Statistics	3	(3,1,0)	MATH1060	
2	EE 2440	Applied Linear Algebra	2	(2,1,0)	MATH1060 MATH1070	
3	GEU 2100	Engineering Mechanics	3	(3,1,0)	MATH1060 MATH1070 PHYS1040	
4	GEU 2610	Engineering Professional Communications	2	(2,0,1)	ENGL1210	
5	MATH2030	Differential and Integral Calculus	3	(3,1,0)	MATH1060 MATH1070	
6	EE 2010	Electric Circuits I	4	(3,1,1)	MATH1060	

Third Year - Level 5

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
1	IC 103	Economic System in Islam	2	(2,0,0)		
2	ARAB 103	Arabic Editing	2	(2,0,0)		
3	MATH2040	Differential Equations	3	(3,1,0)	MATH2030	
4	EE 2020	Electric Circuit II	4	(3,1,1)	EE 2010	
5	EE 2030	Electromagnetic I	3	(3,1,0)	MATH2030 PHYS1040	
6	EE 2111	Logic Design	4	(3,1,1)	GEU1090	

Third Year - Level 6

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
1	EE 3561	Computational Methods for Elec. Eng.	3	(2,1,1)	GEU1090 MATH2040	
2	EE 3350	Electromechanical Energy Conversion	3	(2,1,1)	EE 2020 EE 2030	
3	EE 2041	Electromagnetic II	3	(3,1,0)	EE 2030	
4	EE 3121	Electronic Circuits I	4	(3,1,1)	EE 2020	
5	EE 3010	Signals and Systems Analysis	3	(3,1,0)	EE 2020	
6	EE3570	Engineering Drawing and Standards	2	(1,1,1)	EE 2010	EE 2020

Fourth Year - Level 7

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
1	IC 104	Principles of Political System in Islam	2	(2,0,0)		
2	EE 3200	Communications Principles	4	(3,1,1)	EE 3010	
3	EE 3400	Fundamental of Power System	3	(3,1,0)	EE 2020	
4	EE 3171	Electronic Circuits II	4	(3,1,1)	EE 3121	
5	EE 3050	Electrical Material	2	(2,1,0)	EE 2020 EE 2030	
6	EE 3540	Microprocessors and Microcontrollers	3	(2,1,1)	EE 2111	

Fourth Year - Level 8

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
1	GEU 4010	Engineering Economy	2	(2,1,0)		
2	EE 3511	Automatic Control Systems	4	(3,1,1)	EE 3010	
3	EE 4191	Electronic Systems	2	(2,1,0)	EE 3171	
4	EE 4192	Electrical Engineering Design and Innovation	3	(2,1,1)	EE 3540 EE 3121	
5	EE 3240	Digital Signal Processing	3	(3,1,0)	EE 3010	
6	EE 4190	Industrial Instrumentation	2	(1,1,1)	EE 3171	
7	EE 9990	Practical Training	1	8 weeks	112 Cr. Hr.	

Fifth Year - Level 9

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
1	EE 3040	Introduction to Artificial Intelligence	2	(2,1,0)		
2	EE 4010	Seminars in Electrical Engineering	1	(0,0,1)	GEU 2610	
3	EE xxxx	Elective Course	3	(2,1,1)		
4	EE xxxx	Elective Course	3	(2,1,1)		
5	EE xxxx	Elective Course	3	(2,1,1)		
6	EE4980	Senior Design Project I	3	(1,0,2)	132 Cr. Hr.	

Fifth Year - Level 10

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
1	GEU 4020	Engineering Project Management	2	(2,1,0)	GEU 4010	
2	EE xxxx	Elective Course	3	(2,1,1)		
3	EE xxxx	Elective Course	3	(2,1,1)		
4	EE xxxx	Elective Course	3	(2,1,1)		
5	EE4990	Senior Design Project II	3	(1,0,2)	EE4980	

The Total Number of Credit Hours for EE Program: 166 Cr. Hr.

Details of Contact Hours Cell (L,T,P)

Contact Hours (L,T,P)	Contact Hours	Credit
Lecture (L)	1 (50 min)	1
Tutorial (T)	1 (50 min)	0
Practical Lab (P)	2 (100 min)	1

Elective Courses 18 Credit Hours
Elective Courses (18 Cr. Hr.): Electrical Power, Machines and Control Track
Each student is required to take: 18 Cr. Hr. (6 Courses)

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
	EE 4420	Power Electronics	3	(2,1,1)	EE 3171	
	EE 4430	Electrical Machines	3	(2,1,1)	EE 3350	
	EE 4410	Power Systems Analysis	3	(2,1,1)	EE 3400	
	EE 4440	Power System Protection	3	(2,1,1)	EE 4410	
	EE 4450	Renewable Energy Systems	3	(2,1,1)	EE 4410	
	EE 4460	Electric Drives and Control	3	(2,1,1)	EE 4430 EE 4420	
	EE 4470	Power Distribution Systems	3	(2,1,1)	EE 4410	
	EE 4480	Power System Operation and Control	3	(2,1,1)	EE 4410	
	EE 4490	Industrial Electronics	3	(2,1,1)	EE 4420	
	EE 4432	Power System Planning	3	(2,1,1)	EE 4410 GEU3201	
	EE 4433	High Voltage Engineering	3	(2,1,1)	EE 4410	
	EE 4435	Electricity Market and Energy Transactions	3	(2,1,1)	EE 4410	
	EE 4436	Power System Grounding	3	(2,1,1)	EE 4410	
	EE 4438	Utilization of Electric Energy	3	(2,1,1)	EE 4410 EE 4430	
	EE 4434	Power Quality	3	(2,1,1)	EE 4410	
	EE 4431	Electrical Machines Dynamics	3	(2,1,1)	EE 4430	
	EE 4437	Special Machines	3	(2,1,1)	EE 4430	
	EE 4551	Control System Design and Simulation	3	(2,1,1)	EE 4511	
	EE 4510	Advanced Control Systems	3	(2,1,1)	EE 4511	
	EE 4570	Real-time Embedded Systems	3	(2,1,1)	EE 4511	
	EE 4530	Embedded Control System Design	3	(2,1,1)	EE 4511	
	EE 4521	Industrial Control Systems	3	(2,1,1)	EE 4511	
	EE 4561	Mechatronics	3	(2,1,1)	EE 4430 EE 4420	
	EE 4541	Applications of AI in Power Systems	3	(2,1,1)	EE 4410	
	EE 4531	Energy Harvesting Circuits and Systems	3	(2,1,1)	EE 4450	
	EE 4610	Selected Topics in Electrical Machines	3	(2,1,1)	EE 4430	
	EE 4620	Selected Topics in Power Electronics	3	(2,1,1)	EE 4420	
	EE 4630	Selected Topics in Electrical Power Systems	3	(2,1,1)	EE 4410	
	EE 4640	Selected Topics in Renewable Energy	3	(2,1,1)	EE 4450	
	EE 4650	Selected Topics in Electric Drive Applications	3	(2,1,1)	EE 4460	
	EE 4660	Selected Topics in High Voltage Engineering	3	(2,1,1)	EE 4433	
	EE 4670	Selected Topics in Artificial Intelligence	3	(2,1,1)	EE 4541	
	EE 4680	Selected Topics in Control Engineering	3	(2,1,1)	EE 4511	
	EE 4511	Digital Control Systems	3	(2,1,1)	EE 3511	

Elective Courses 18 Credit Hours
Elective Courses (18 Cr. Hr.): Communications, Electromagnetics and Electronics Track
Each student is required to take: 18 Cr. Hr. (6 Courses)

#	Course Code	Title	Credit	Hours (L,T,P)	Prerequisite	Corequisite
	EE 4210	Digital Communications	3	(2,1,1)	EE 3200	
	EE 4310	Antennas Theory and Applications	3	(2,1,1)	EE 2030 EE 3200	
	EE 4320	Microwave Engineering	3	(2,1,1)	EE 2030 EE 2041	
	EE 4260	Wireless Communications	3	(2,1,1)	EE 4210 EE 2030	
	EE 4271	Optical Fiber Communications	3	(2,1,1)	EE 4210 EE 2030	
	EE 4220	Communications Systems	3	(2,1,1)	EE 4310 EE 2030	
	EE 4230	Wave Propagation and Antennas	3	(2,1,1)	EE 4310 EE 4260	
	EE 4240	Communications Networks	3	(2,1,1)	EE 4310 EE 3240	
	EE 4110	Introduction to Biomedical Engineering	3	(2,1,1)	EE 3121	
	EE 4250	Coding Theory and Applications	3	(2,1,1)	EE 4210	
	EE 4120	Digital Image Processing	3	(2,1,1)	EE 3240	
	EE 4270	Error Correcting Coding for Communication Systems	3	(2,1,1)	EE 4210	
	EE 4280	Information Theory	3	(2,1,1)	EE 4210	
	EE 4330	Introduction to Cybersecurity	3	(2,1,1)	EE 3040	
	EE 4130	Real-Time Signal Processing Systems	3	(2,1,1)	EE 3240	
	EE 4290	Satellite Communications	3	(2,1,1)	EE 4210	
	EE 4151	Communication Electronics	3	(2,1,1)	EE 3171	
	EE 4160	Microwave Circuits and Devices	3	(2,1,1)	EE 3171	
	EE 4170	Optoelectronic Devices and Systems	3	(2,1,1)	EE 3171	
	EE 4180	Low Power VLSI Design	3	(2,1,1)	EE 3171	
	EE 4390	Advanced Robotics	3	(2,1,1)	EE 4511 EE 3240	
	EE 4190	3D Imaging	3	(2,1,1)	EE 3240	
	EE 4380	Computing Systems for Engineering	3	(2,1,1)	EE 3561	
	EE 4382	Emerging Technologies in Electrical Engineering Applications	3	(2,1,1)	EE 3240	
	EE 4384	Electrical Engineering in Sustainability	3	(2,1,1)	EE 3240	
	EE 4386	Financial Engineering	3	(2,1,1)	EE 3240	
	EE 4388	Object-Oriented Modelling and Design	3	(2,1,1)	EE 3561	
	EE 4332	Virtual and Augmented Reality	3	(2,1,1)	EE 3240	
	EE 4334	Engineering Entrepreneurship	3	(2,1,1)	EE 3240	
	EE 4340	Selected Topics in Communications	3	(2,1,1)	EE 4210	
	EE 4350	Selected Topics in Engineering Electromagnetics	3	(2,1,1)	EE 4320	
	EE 4360	Selected Topics in Electronics	3	(2,1,1)	EE 4170	
	EE 4370	Selected Topics in Signal Processing	3	(2,1,1)	EE 3240	
	EE 4291	Electronic Warfare Systems	3	(2,1,1)	EE 4191	
	EE 4292	RF Electronics	3	(2,1,1)	EE 4191	
	EE 4293	Radar Systems	3	(2,1,1)	EE 2041	