

**BACHELOR PROGRAM**  
**ELECTRICAL ENGINEERING**  
**2014-2015**

## Study Plan for Bachelor of Electrical Engineering

UNIVERSITY OF NIZWA BACHELOR IN ELECTRICAL ENGINEERING													
C – Credit Hours, L – Credit Lecture, P – Credit Practical													
Y E A R  1	Summer Semester		CODE		COURSE			C		L		P	
			MATH116/L		Pre- Calculus			4		3		1	
			ARAB100		Arabic Language I			3		3		0	
								7		6		1	
	FALL		CODE		COURSE			C		L		P	
			PHYS101/L		General Physics I			4		3		1	
			MATH 211/L		Calculus I			4		3		1	
			ENGL150		English Language I			3		3		0	
			COMP101/L		Computer Skill			3		2		1	
			ENGN101		Introduction to Engineering			2		2		0	
							16		13		3		
SPRING		CODE		COURSE			C		L		P		
		MATH212/L		Calculus II			3		3		0		
		ENGN103		Engineering Drawing			2		1		1		
		PHYS150/L		General Physics II			4		3		1		
		ELEC212		Circuit Analysis I			3		3		0		
		ENGL152		English Language II			3		3		0		
							15		13		2		
Summer Semester		CODE		COURSE			C		L		P		
		ARAB101		Arabic Language II			3		3		0		
		ENGL155		Communication Skill			3		3		0		
							6		6		0		
Y E A R  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		1			
								16		15		1	
	SPRING		CODE		COURSE			C		L		P	
			MATH325/L		Linear & Multi Variant Calculus			3		3		0	
COMP151/L			Introduction to Algorithm & Programming			4		3		1			
ELEC312			Electromagnetic Theory			3		3		0			
ELEC321			Electronics II			3		3		0			
ELEC331			Signals & Systems			3		3		0			
ELEC292		Analog Electronics Lab			1		0		1				
							17		15		2		
Summer Semester		CODE		COURSE			C		L		P		
				University Elective			3		3		0		
		STAT105/L		Statistics for Engineers			3		3		0		
							6		6		0		
Y E A R  3	FALL		CODE		COURSE			C		L		P	
			ELEC411		Electrical Machines I			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		1			
								16		15		1	
	SPRING		CODE		COURSE			C		L		P	
			ELEC413		Electrical Machines II			3		3		0	
ELEC431			Communication Systems			3		3		0			
MATH490			Introduction to Complex Variables			3		3		0			
ELEC414			Power Electronics			3		3		0			
ELEC491			Control Lab			1		0		1			
ELEC382		Microprocessor and Microcontroller Lab			1		0		1				
ELEC311		Measurement and Instrumentation Lab			1		0		1				
							15		12		3		
Summer Semester		CODE		COURSE			C		L		P		
		ENGN333		Industrial training			2		0		2		
							2		0		2		
							2		0		2		
Y E A R  4	FALL		CODE		COURSE			C		L		P	
			ELEC432		Digital Signal Processing			3		3		0	
			ELEC5**		Elective – I			3		3		0	
			ELEC5**		Elective - II			3		3		0	
			ELEC511		Power Systems Analysis			3		3		0	
			ELEC492		Electrical Machines and Power Electronics Lab			1		0		1	
	ELEC501		Final Year Project (Part I)			2		0		2			
								15		12		3	
	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		1			
ELEC502			Final Year Project (Part II)			4		0		4			
							14		9		5		
Summer Semester		CODE		COURSE			C		L		P		
				College Elective			3		3		0		
							3		3		0		
							3		3		0		

Total No. of Credit

148

Curriculum for Bachelor in Electrical Engineering

**Minimum Number of Credits for Graduation in this degree plan = 148**

No.	Course Code	Course	Credit	Pre-Requisite	Co-Requisite
<b>University Requirements = 21 Credits</b>					
1	ARAB100	Arabic Language I	3(3+0)	None	None
2	ARAB101	Arabic Language II	3(3+0)	ARAB100	None
3	COMP101/L	Computer Skill	3(2+1)	COMP A & COMP B	None
4	ENGL150	English Language I	3(3+0)	None	None
5	ENGL152	English Language II	3(3+0)	ENGL150	None
6	ENGL155	Communication Skill	3(3+0)	ENGL152	None
7	HIST150	Islamic Civilization	3(3+0)	None	None
<b>University Elective = 3 Credits</b>					
<b>College Requirements = 18 Credits</b>					
1	COMP151/L	Introduction to Algorithm & Programming	4(3+1)	COMP101/L	None
2	ENGN101	Introduction to Engineering	2(2+0)	MATH116/L	None
3	ENGN103	Engineering Drawings	2(1+1)	None	None
4	ENGN333	Industrial Training	2(0+2)	110 credits	None
5	MATH116/L	Pre-Calculus	4(3+1)	None	None
6	MATH211/L	Calculus I	4(3+1)	MATH116/L	None
<b>College Elective = 3 Credits</b>					
<b>Department Requirement: Core Courses = 87 Credits</b>					
No.	Code	Course	Credit	Pre-Requisite	Co-Requisite
1.	PHYS101/L	General Physics I	4(3+1)	MATH116/L	None
2.	PHYS150/L	General Physics II	4(3+1)	PHYS101/L	None
3.	MATH212/L	Calculus II	3(3+0)	MATH211/L	None
4.	MATH312/L	Differential Equations for Engineers	3(3+0)	MATH212/L	None
5.	MATH325/L	Linear & Multi Variant Calculus	3(3+0)	MATH312/L	None
6.	MATH490/L	Complex Analysis and Discrete Mathematics	3(3+0)	MATH325/L	None
7.	STAT105/L	Statistics for Engineers	3(3+0)	MATH211/L	None
8.	ELEC212	Circuit Analysis I	3(3+0)	PHYS101/L	PHYS150/L
9.	ELEC213	Circuit Analysis II	3(3+0)	ELEC212	None
10.	ELEC221	Electronics I	3(3+0)	ELEC212	None
11.	ELEC241	Digital Logic Design	3(3+0)	ELEC212	None

12.	ELEC291	Electrical Circuits Lab	1(0+1)*	ELEC212	None
13.	ELEC281	Digital Logic Design Lab	1(0+1)*	ELEC241	None
14.	ELEC292	Analog Electronics Lab	1(0+1)*	ELEC221	None
15.	ELEC331	Signals & Systems	3(3+0)	ELEC212	None
16.	ELEC321	Electronics II	3(3+0)	ELEC221	None
17.	ELEC312	Electromagnetic Theory	3(3+0)	ELEC213, MATH312/L	Non
18.	ELEC311	Measurements and Instrumentation	3(3+0)	ELEC221	None
19.	ELEC341	Microprocessors & Microcontrollers	3(3+0)	ELEC241	None
20.	ELEC393	Measurement and Instrumentation Lab	1(0+1)*	ELEC311	None
21.	ELEC382	Microprocessor and Microcontroller Lab	1(0+1)*	ELEC341	None
22.	ELEC322	Digital Electronics	3(3+0)	ELEC221	None
23.	ELEC411	Electrical Machines I	3(3+0)	ELEC312	None
24.	ELEC412	Control Systems	3(3+0)	ELEC331, MATH312/L	None
25.	ELEC431	Communication Systems	3(3+0)	ELEC331	None
26.	ELEC413	Electrical Machines II	3(3+0)	ELEC411	None
27.	ELEC414	Power Electronics	3(3+0)	ELEC321	None
28.	ELEC491	Control Lab	1(0+1)*	ELEC412	None
29.	ELEC511	Power System Analysis	3(3+0)	ELEC413	None
30.	ELEC492	Electrical Machines and Power Electronics Lab	1(0+1)*	ELEC413 ELEC414	None
23.	ELEC432	Digital Signal Processing	3(3+0)	ELEC331	None
32.	ELEC501	Final Year Project (Part I)	2(0+2)	Final Year	None
33.	ELEC502	Final Year Project (Part II)	4(0+4)	ELEC501	None

**Department Technical Electives: Minor Specialization = 16 Credits**

1	ELEC510	Special Topics in Power Engineering	3(3+0)	Department Approval	None
2	ELEC519	Electrical Machine Design	3(3+0)	ELEC413	None
3	ELEC513	Advanced Power Systems	3(3+0)	ELEC511	None
4	ELEC514	High Voltage Engineering	3(3+0)	ELEC511	None
5	ELEC515	Advanced Control Systems	3(3+0)	ELEC412	None
6	ELEC516	Non-Conventional Energy Sources	3(3+0)	ELEC413	None
7	ELEC518	Power System Protection	3(3+0)	ELEC511	None
8	ELEC521	Microelectronics	3(3+0)	ELEC322	None
9	ELEC522	Electronic Communication Circuits	3(3+0)	ELEC431	None
10	ELEC523	Digital System Design	3(3+0)	ELEC322	None

11	ELEC512	Electric Drives	3(3+0)	ELEC413, ELEC414	None
12	ELEC442	Embedded Systems	3(3+0)	ELEC341	None
13	ELEC532	Digital Communication	3(3+0)	ELEC431	None
14	ELEC533	Mobile Communication	3(3+0)	ELEC532	None
15	ELEC534	Microwave Engineering	3(3+0)	ELEC312	None
16	ELEC535	Optical Fiber Communication	3(3+0)	ELEC532	None
17	ELEC536	Special Topics in Electronics and Communication Engineering	3(3+0)	Final Year	None
18	ELEC461	Computer Networks	3(3+0)	ELEC431	None
19	ELEC571	Industrial Automation	3(3+0)	ELEC341	None
20	ELEC572	Robotics	3(3+0)	ELEC442	None
21	ELEC573	Engineering Economics and Management	3(3+0)	Final Year	None
22	ELEC591	Communication Engineering Lab	1(0+1)*	ELEC431	None
23	ELEC592	Power System Lab	1(0+1)	ELEC511	None

Table 4: Elective Courses (Minor Specialization) Bachelor of Electrical Engineering

ELECTRONIC & COMMUNICATION ENGINEERING ELECTIVE					POWER ENGINEERING ELECTIVE				
CODE	COURSE	C	L	P	CODE	COURSE	C	L	P
ELEC521	Microelectronics	3	3	0	ELEC519	Electrical Machine Design	3	3	0
ELEC522	Electronic Communication Circuits	3	3	0	ELEC513	Advanced Power Systems	3	3	0
ELEC523	Digital System Design	3	3	0	ELEC514	High Voltage Engineering	3	3	0
ELEC532	Digital Communication	3	3	0	ELEC515	Advanced Control Systems	3	3	0
ELEC533	Mobile Communication	3	3	0	ELEC516	Non-Conventional Energy Sources	3	3	0
ELEC534	Microwave Engineering	3	3	0	ELEC518	Power System Protection	3	3	0
ELEC535	Optical Fiber Communication	3	3	0	ELEC571	Industrial Automation	3	3	0
ELEC572	Robotics	3	3	0	ELEC512	Electric Drives	3	3	0
ELEC461	Computer Networks	3	3	0	ELEC442	Embedded Systems	3	3	0
ELEC573	Engineering Economics and Management	3	3	0	ELEC573	Engineering Economics and Management	3	3	0

ELEC536	Special Topics in Electronics and Communication Engineering	3	3	0	ELEC510	Special Topics in Power Engineering	3	3	0
<b>LAB ELECTIVE</b>									
ELEC591	Communication Engineering Lab	1	0	1	ELEC592	Power System Lab	1(0+1)	0	1

Note: \* 1 credit in department Lab courses = 3 contact hours