

Dual Studies

Electrical Engineering Study Plan

1. University Requirements

Type	Course Number	Module Name	Credit Hours	Required Credits
Dual Study Requirements	1800001	Basics of Business Administration	2	14
	1800002	Low-Intermediate English	2	
	1800003	Intermediate English	2	
	1800004	Upper-Intermediate English	2	
	1800010	Advanced English	2	
	1800011	Entrepreneurship	2	
	1800012	Communications Skills	2	
Cultural Course Requirements	1800070	History of Jerusalem	2	6
	1800071	Nature and Environment of Palestine	2	
	1800072	Language and Logical Thinking	2	
	1800073	Islamic Culture	2	
	1800074	International Civilizations	2	
Elective courses	1810050	Quality Control	3	3
	1810051	Project Management	3	
	1800005	German I	3	
	1810053	Engineering Economy	3	
Total				23

2. Engineering Requirements

	Course Number	Module Name	Credit Hours	Pre-requisite / Co-requisite
Sciences (20)	1810101	Mathematics for Engineers I	3	-
	1810106	Mathematics for Engineers II	3	(1810101) Mathematics for Engineers I (Pre)
	1810201	Mathematics for Engineers III	3	(1810106) Mathematics for Engineers II (Pre)
	1810210	Complex Analysis and Engineering Transforms	3	(1810106) Mathematics for Engineers II (Pre)
	1810213	Probability and Engineering Statistics	2	(1810101) Mathematics for Engineers I (Pre)
	1810309	Numerical Engineering Analysis	2	(1810201) Mathematics for Engineers III (Pre), (1810204) Informatics II (Pre)
	1810102	Physics	3	-
	1810114	Physics Lab	1	(1810102) Physics (Co)
Engineering Requirements (19)	1810103	Fundamentals of Electrical Engineering I	3	-
	1810104	Fundamentals of Electrical Engineering I Lab	1	(1810103) Fundamentals of Electrical Engineering I (Co)
	1810111	Informatics I	2	-
	1810112	Informatics I Lab	1	(1810111) Informatics I (Co)
	1810204	Informatics II	2	(1810111) Informatics I (Pre)
	1810205	Informatics II Lab	1	(1810204) Informatics II (Co)
	1810211	Engineering Design and Drawing	2	-
	1810212	Engineering Materials	3	(1810102) Physics (Pre)
	1810113	Thermodynamics	2	(1810102) Physics (Pre) (1810106) Mathematics for Engineers II (Pre)
	1810105	Engineering Workshop and Safety	2	-
		Total	39	

3. Electrical Engineering General Courses

Course Number	Module Name	Credit Hours	Pre-requisite / Co-requisite
1810107	Fundamentals of Electrical Engineering II	3	(1810103) Fundamentals of Electrical Engineering I (Pre)
1810108	Fundamentals of Electrical Engineering II Lab	1	(1810107) Fundamentals of Electrical Engineering II (Co)
1810109	Electronics I	2	(1810103) Fundamentals of Electrical Engineering I (Pre)
1810202	Digital Logic Systems	3	(1810109) Electronics I (Pre)
1810203	Digital Logic Systems Lab	1	(1810202) Digital Logic Systems (Co)
1810206	Electronics II	2	(1810109) Electronics I (Pre)
1810207	Electronics Lab	1	(1810206) Electronics II (Co)
1810208	Instrumentation and Measurement	3	(1810109) Electronics I (Pre)
1810209	Instrumentation and Measurement Lab	1	(1810208) Instrumentation and Measurement (Co)
1810301	Electrical Workshop I	2	(1810107) Fundamentals of Electrical Engineering II (Pre), (1810211) Engineering Design and Drawing (Pre),
1810302	Electromagnetic Theory	3	(1810107) Fundamentals of Electrical Engineering II (Pre), (1810201) Math. for Engineers III (Pre),
1810303	Microprocessors and Microcontrollers	3	(1810202) Digital Logic Systems (Pre)
1810304	Microprocessors and Microcontrollers Lab	1	(1810303) Microprocessors & Microcontrollers (Co)
1810305	Electrical Workshop II	2	(1810301) Electrical Workshop I (Pre)
1810310	Communication Systems	2	(1810213) Probability and Engineering Statistics (Pre), (1810302) Electromagnetic Theory (Co)
1810306	Embedded Systems	3	(1810303) Microprocessor (Pre)
1810307	Electronic Interfacing and PCB Prototyping Workshop	2	(1810206) Electronics II (Pre),
1810401	Electrical Installation and Standards Workshop	2	(1810301) Electrical Workshop 1 (Pre)
1810402	Introduction to Project	3	Student must have successfully completed a minimum of 120 Credit Hours
1810490	Project I	3	(1810402) Introduction to Project (Pre)
1810491	Project II	4	(1810490) Project I (Pre)
	Total	47	

4. Specialization courses “Electric Power Engineering”

Course Number	Module Name	Credit Hours	<u>Pre-requisite</u> / <u>Co-requisite</u>
1810320	Electric Power Generation	2	(1810323) Electrical Machines (Pre)
1810321	Electric Power Engineering I	2	(1810323) Electrical Machines (Co)
1810322	Electric Power Engineering II	3	(1810321) Electric Power Engineering I (Pre)
1810323	Electrical Machines	3	(1810103) Fundamentals of Electrical Engineering II (Pre), (1810302) Electromagnetic Theory (Pre)
1810324	Electrical Machines Lab	1	(1810323) Electrical Machines (Pre)
1810325	Power Electronics	3	(1810206) Electronics II (Pre)
1810330	Control Systems	3	(1810210) Complex Analysis and Engineering Transforms
1810421	Electric Drive Engineering	3	(1810323) Electrical Machines (Pre), 1810325) Power Electronics (Pre)
1810422	Electric Drive Engineering Lab	1	(1810421) Electric Drive Engineering (Co)
1810423	Renewable Energy	3	(1810320) Electric Power Generation (Pre)
1810424	Power Systems and Transmissions	3	(1810322) Electric Power Engineering II (Pre)
1810420	Control and Automation Lab	1	(1810303) Microprocessors and Microcontrollers (Pre), (1810330) Control Systems (Pre)
1810425	Electric Power Lab	1	(1810322) Electric Power Engineering II (Co)
1810430	Power System Automation	3	(1810330) Control Systems I (Pre), (1810420) Control and Automation Lab (Co)
1810431	Special Topics in Electrical Power Engineering	2	-----
	Total	34	

5. Practice phases

Course Number	Module Name	Credit Hours	Prerequisite
1810190	Practice I	3	-
1810191	Practice II	3	Practice I
1810290	Practice III	3	Practice II
1810291	Practice IV	3	Practice III
1810390	Practice V	3	Practice IV
1810391	Practice VI	3	Practice V
Total		18	

أسماء المساقات باللغة العربية

المساق	#CrHs	Course	Course #	
رياضيات للمهندسين 1	3	Mathematics for Engineers I	1810101	1
الفيزياء	3	Physics	1810102	2
أساسيات الهندسة الكهربائية 1	3	Fundamentals of Electrical Engineering I	1810103	3
مختبر أساسيات الهندسة الكهربائية 1	1	Fundamentals of Electrical Engineering I Lab	1810104	4
ورشة الهندسة والسلامة	2	Engineering Workshop and Safety	1810105	5
رياضيات للمهندسين 2	3	Mathematics for Engineers II	1810106	6
أساسيات الهندسة الكهربائية 2	3	Fundamentals of Electrical Engineering II	1810107	7
مختبر أساسيات الهندسة الكهربائية 2	1	Fundamentals of Electrical Engineering II Lab	1810108	8
الالكترونيات 1	2	Electronics I	1810109	9
المعلوماتية 1	2	Informatics I	1810111	10
مختبر المعلوماتية 1	1	Informatics I Lab	1810112	11
الديناميكا الحرارية	2	Thermodynamics	1810113	12
مختبر الفيزياء	1	Physics Lab	1810114	13
تدريب عملي 1	3	Practice I	1810190	14
تدريب عملي 2	3	Practice II	1810191	15
رياضيات للمهندسين 3	3	Mathematics for Engineers III	1810201	16
أنظمة المنطق الرقمي	3	Digital Logic Systems	1810202	17
مختبر أنظمة المنطق الرقمي	1	Digital Logic Systems Lab	1810203	18
المعلوماتية 2	2	Informatics II	1810204	19
مختبر المعلوماتية 2	1	Informatics II Lab	1810205	20
الالكترونيات 2	2	Electronics II	1810206	21
مختبر الكترونيات	1	Electronics Lab	1810207	22
الأجهزة والقياس	3	Instrumentation and Measurement	1810208	23
مختبر الأجهزة والقياس	1	Instrumentation and Measurement Lab	1810209	24
التحليل المركب والتحويلات الهندسية	3	Complex Analysis and Engineering Transforms	1810210	25
التصميم والرسم الهندسي	2	Engineering Design and Drawing	1810211	26
المواد الهندسية	3	Engineering Materials	1810212	27
الإحتمالات والتحليل الإحصائي	2	Probability and Engineering Statistics	1810213	28
تدريب عملي 3	3	Practice III	1810290	29



تدريب عملي 4	3	Practice IV	1810291	30
ورشة كهرباء 1	2	Electrical Workshop I	1810301	31
نظرية الكهرومغناطيسية	3	Electromagnetic Theory	1810302	32
المعالجات والمتحكمات	3	Microprocessors and Microcontrollers	1810303	33
مختبر المعالجات والمتحكمات	1	Microprocessors and Microcontrollers Lab	1810304	34
ورشة كهرباء 2	2	Electrical Workshop II	1810305	35
الأنظمة المضمنة	3	Embedded Systems	1810306	36
ورشة الموائمة الإلكترونية واللوحات	2	Electronic Interfacing and PCB Prototyping Workshop	1810307	37
التحليل العددي للمهندسين	2	Numerical Engineering Analysis	1810309	38
أنظمة الاتصالات	2	Communication Systems	1810310	39
توليد الطاقة الكهربائية	2	Electric Power Generation	1810320	40
هندسة الطاقة 1	2	Electric Power Engineering I	1810321	41
هندسة الطاقة 2	3	Electric Power Engineering II	1810322	42
الآلات الكهربائية	3	Electrical Machines	1810323	43
مختبر الآلات الكهربائية	1	Electrical Machines Lab	1810324	44
إلكترونيات القوى	3	Power Electronics	1810325	45
أنظمة التحكم	3	Control Systems	1810330	46
تدريب عملي 5	3	Practice V	1810390	47
تدريب عملي 6	3	Practice VI	1810391	48
ورشة التركيبات الكهربائية والمعايرة	2	Electrical Installation and Standards Workshop	1810401	49
مقدمة مشروع التخرج	3	Introduction to Project	1810402	50
مختبر التحكم والأتمتة	1	Control and Automation Lab	1810420	51
هندسة القيادة الكهربائية	3	Electric Drive Engineering	1810421	52
مختبر هندسة القيادة	1	Electric Drive Engineering Lab	1810422	53
الطاقة المتجددة	3	Renewable Energy	1810423	54
أنظمة نقل الطاقة	3	Power Systems and Transmissions	1810424	55
مختبر الطاقة الكهربائية	1	Electric Power Lab	1810425	56
أتمتة أنظمة الطاقة	3	Power System Automation	1810430	57
مواضيع خاصة في الطاقة الكهربائية	2	Special Topics in Electrical Power Engineering	1810431	58
مشروع تخرج 1	3	Project I	1810490	59
مشروع تخرج 2	4	Project II	1810491	60

Course distribution

*Courses distribution in the **First** academic year*

	Course	Course Code	Credits		
			Theory	Lab	Practice
Semester 1	Mathematics for Engineers I	1810101	3		
	Physics	1810102	3		
	Fundamentals of Electrical Engineering I	1810103	3		
	Fundamentals of Electrical Engineering I Lab	1810104		1	
	Basics of Business Administration	1800001	2		
	Low-Intermediate English	1800002	2		
	Communications Skills	1800012	2		
	Engineering Workshop and Safety	1810105	1	1	
	Practice I	1810190			3
	Total (Semester)		16	2	3
Semester 2	Mathematics for Engineers II	1810106	3		
	Fundamentals of Electrical Engineering II	1810107	3		
	Fundamentals of Electrical Engineering II Lab	1810108		1	
	Physics Lab	1810114		1	
	Thermodynamics	1810113	2		
	Electronics I	1810109	2		
	Informatics I	1810111	2		
	Informatics I Lab	1810112		1	
	Intermediate English	1800003	2		
	Practice II	1810190			3
	Total (Semester)		14	3	3
	Total (Year)		41		

Courses distribution in the **Second** academic year

Course		Course Code	Credits		
			Theory	Lab	Practice
Semester 1	Mathematics for Engineers III	1810201	3		
	Digital Logic Systems	1810202	3		
	Digital Logic Systems Lab	1810203		1	
	Informatics II	1810204	2		
	Informatics II Lab	1810205		1	
	Complex Analysis and Engineering Transforms	1810210	3		
	Upper-Intermediate English	1800004	2		
	Engineering Design and Drawing	1810211	2		
	Practice III	1810290			3
	Total (Semester)		15	2	3
Semester 2	Electronics II	1810206	2		
	Electronics Lab	1810207		1	
	Instrumentation and Measurement	1810208	3		
	Instrumentation and Measurement Lab	1810209		1	
	Electromagnetic Theory	1810302	3		
	Entrepreneurship	1810011	2		
	Electrical Workshop I	1810301	1	1	
	University Requirement I	180007X	2		
	Advanced English	1800010	2		
	Practice IV	1810291			3
	Total (Semester)		15	3	3
Total (Year)		41			

Courses distribution in the **Third** academic year

Course		Course Code	Credits		
			Theory	Lab	Practice
Semester 1	Electrical Machines	1810323	3		
	Probability and Engineering Statistics	1810213	2		
	Electric Power Engineering I	1810321	2		
	Electronic Interfacing and PCB Prototyping Workshop	1810307	1	1	
	Control Systems	1810330	3		
	Microprocessor & Controllers	1810303	3		
	Microprocessor & Controllers Lab	1810304		1	
	University Requirement II	180007X	2		
	Practice V	1810390			3
	Total (Semester)		16	2	3
Semester 2	Engineering Materials	1810212	3		
	Electric Power Generation	1810320	2		
	Electrical Workshop II	1810305	1	1	
	Electric Power Engineering II	1810322	3		
	Communication Systems	1810310	2		
	Electrical Machines Lab	1810324		1	
	Power Electronics	1810325	3		
	Control and Automation Lab	1810420		1	
	Practice VI	1810391			3
	Total (Semester)		14	3	3
	Total (Year)		41		

Courses distribution in the **Fourth** academic year

	Course	Course Code	Credits		
			Theory	Lab	Practice
Semester 1	Numerical Engineering Analysis	1810309	2		
	Electrical Installation and Standards Workshop	1810401	1	1	
	Embedded Systems	1810306	3		
	Electric Drive Engineering	1810421	3		
	Power Electronics and Drive Technology Lab	1810422		1	
	Renewable Energy	1810423	3		
	Introduction to Graduation Project	1810402	3		
	Project I	1810490			3
	Total (Semester)		15	2	3
Semester 2	Power Systems and Transmissions	1810424	3		
	Power System Automation	1810430	3		
	Electric Power Lab	1810425		1	
	Elective – Electrical Engineering	181005X	3		
	University Requirement III	180007X	2		
	Special Topics in Electric Power Engineering	1810431	2		
	Project II	1810491			4
	Total (Semester)		13	1	4
	Total (Year)		38		