

Course Plan for Bachelor program - Course Plan Development and Updating Procedures/ Electrical Engineering/Power and Control Department	QF09/0407-3.0E
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Course Plan for Electrical Engineering/Power and Control (Bachelor Program)

No.: (20171)

Approved by Deans Council by decision (2017-2016/72/07) dated (30/08/2017)

(160) Credit Hours

No.	Goals and learning outcomes
PEO 1	Implement technical, collaborative, and communication skills with leadership principles, to pursue careers in Power and Control Engineering.
SO	
(1)	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
(2)	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
(5)	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
(6)	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
PEO 2	Seek higher degrees in Power and Control Engineering and embark on continuing education.
SO	
(1)	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
(2)	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
(3)	An ability to communicate effectively with a range of audiences
(6)	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
(7)	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies
PEO 3	Seek professional membership, discharge their professional skills ethically, and being conscious of the impact of Power and Control Engineering projects on society as well as environment.
SO	
(3)	An ability to communicate effectively with a range of audiences
(4)	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
(7)	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Note: PEO= Program Educational Objective, SO= Student Outcome

Course Plan for Bachelor program - Course Plan Development and Updating Procedures/ Electrical Engineering/Power and Control Department	QF09/0407-3.0E
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Student's information		Course number	Course title	Credit Hours	Theory Hours	Practical Hours	Prerequisite Co-requisite	Advertisement Plan
Registered	passed							Semester/year
First: University Requirements (27) Credit Hours								
a. Mandatory requirement (15 credit hour)								
<input type="checkbox"/>	<input type="checkbox"/>	0420101	Military Sciences	3	3	0		1/2
<input type="checkbox"/>	<input type="checkbox"/>	0420111	Arabic Language (1)	3	3	0	Remedial Arabic Language	1/1
<input type="checkbox"/>	<input type="checkbox"/>	0420121	English Language (1)	3	3	0	Remedial English Language	1/2
<input type="checkbox"/>	<input type="checkbox"/>	0420151	National Education	3	3	0		1/1
<input type="checkbox"/>	<input type="checkbox"/>	0420171	Life Skills	3	3	0		1/1
b. Electives (12 credit hours, minimum 3 credits from each field)								
Field I. Humanitarian courses								
<input type="checkbox"/>	<input type="checkbox"/>	0420103	History of Jerusalem	3	3	0		1/2
<input type="checkbox"/>	<input type="checkbox"/>	0420112	Islamic Culture	3	3	0		2/2
<input type="checkbox"/>	<input type="checkbox"/>	0420131	Principles of Education	3	3	0		1/2
<input type="checkbox"/>	<input type="checkbox"/>	0420134	Sport and Health	3	2	2		2/2
<input type="checkbox"/>	<input type="checkbox"/>	0420142	Human Civilization	3	3	0		1/2
<input type="checkbox"/>	<input type="checkbox"/>	0420152	Introduction to Sociology	3	3			2/2
<input type="checkbox"/>	<input type="checkbox"/>	0501100	Innovation and Entrepreneurship in Business	3	3	0		2/2
<input type="checkbox"/>	<input type="checkbox"/>	0601102	Law in Our Life	3	3	0		1/2
Field II. Scientific course								
<input type="checkbox"/>	<input type="checkbox"/>	0120111	Information Technology and Society	3	3	0	Remedial Computer Skills	1/2
<input type="checkbox"/>	<input type="checkbox"/>	0120153	Medicinal Plants	3	3	0		1/2
<input type="checkbox"/>	<input type="checkbox"/>	0301101	First Aid	3	3	0		1/2
<input type="checkbox"/>	<input type="checkbox"/>	0301102	Fundamental of Nutrition	3	3	0		2/2
<input type="checkbox"/>	<input type="checkbox"/>	0906100	Principles of Energy Science	3	3	0		2/2

Course Plan for Bachelor program - Course Plan Development and Updating Procedures/ Electrical Engineering/Power and Control Department	QF09/0407-3.0E
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Second: Faculty Requirements (26) credit hours

Student's information		Course number	Course title	Credit Hours	Theory Hours	Practical Hours	Prerequisite Co-requisite	Advertisement Plan
Registered	passed							Semester/year
<input type="checkbox"/>	<input type="checkbox"/>	0120132	General Physics Lab I	1	0	3	Co. General Physics	1/1
<input type="checkbox"/>	<input type="checkbox"/>	0911101	Engineering Workshops	2	1	3	-	1/1
<input type="checkbox"/>	<input type="checkbox"/>	0905111	Principles of Electrical Circuits	3	3	0	General Physics I	2/1
<input type="checkbox"/>	<input type="checkbox"/>	0909101	Computer Engineering Applications	3	3	0	Remedial computer Skills (0120001)	2/1
<input type="checkbox"/>	<input type="checkbox"/>	0911102	Engineering Drawing	3	0	6	-	2/1
<input type="checkbox"/>	<input type="checkbox"/>	0908201	Technical Writing and Profession Ethics	2	2	0	English Language I	2/2
<input type="checkbox"/>	<input type="checkbox"/>	0909404	Engineering Economy	3	3	0	4 th Year Level	1/4
<input type="checkbox"/>	<input type="checkbox"/>	0908461	Projects Management and Value Engineering	3	3	0	Engineering Economy	1/5
<input type="checkbox"/>	<input type="checkbox"/>	0120132	General Physics Lab I	1	0	3	Co. General Physics	1/1

Third: Major requirements (107credit hours)

a. Mandatory Major requirements (68) credit hours

<input type="checkbox"/>	<input type="checkbox"/>	0905212	Electrical Circuits Lab	1	0	3	Principles of Electrical Circuits	(1/2)
<input type="checkbox"/>	<input type="checkbox"/>	0905213	Advanced Electrical Circuits	3	3	0	Principles of Electrical Circuits	(1/2)
<input type="checkbox"/>	<input type="checkbox"/>	0905214	Electromagnetics	3	3	0	General Physics I	(2/2)
<input type="checkbox"/>	<input type="checkbox"/>	0905331	Electrical Machines	3	3	0	Advanced Electrical Circuits Electromagnetics	(1/3)
<input type="checkbox"/>	<input type="checkbox"/>	0905342	Control Systems	3	3	0	Signals and Systems Analysis	(1/3)
<input type="checkbox"/>	<input type="checkbox"/>	0905364	Power Electronics	3	3	0	Principles of Electronics	(1/3)
<input type="checkbox"/>	<input type="checkbox"/>	0905316	Instrumentation & Sensors	2	2	0	Principles of Electrical Circuits	(2/3)
<input type="checkbox"/>	<input type="checkbox"/>	0905324	Power systems Analysis I	3	3	0	Electrical Machines	(2/3)
<input type="checkbox"/>	<input type="checkbox"/>	0905343	Automated Control	3	3	0	Control	(2/3)

Course Plan for Bachelor program - Course Plan Development and Updating Procedures/ Electrical Engineering/Power and Control Department	QF09/0407-3.0E
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			Systems				Systems	
<input type="checkbox"/>	<input type="checkbox"/>	0905371	Engineering Analysis	3	3	0	Ordinary Differential Equations	(2/3)
<input type="checkbox"/>	<input type="checkbox"/>	0905401	Engineering Training	3	0	9	Passing (90) Credit Hours (8 weeks)	(1/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905416	Instrumentation & Sensors Lab	1	0	3	Co-Instrumentation & Sensors	(1/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905423	High Voltage Engineering	3	3	0	Power systems Analysis I	(1/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905425	Power systems Analysis II	3	3	0	Power systems Analysis I	(1/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905426	Power Systems Lab	1	0	3	Co-Power systems Analysis I	(1/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905427	Electrical Power Distribution Systems	3	3	0	Power systems Analysis I	(1/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905448	Advanced Control Systems	3	3	0	Automated Control Systems	(1/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905428	Power Systems Protection	3	3	0	Power systems Analysis II	(2/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905432	Electrical Machines lab	1	0	3	Electrical Machines	(2/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905415	Applied Electromagnetics	3	3	0	Electromagnetics	(2/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905445	Digital Control Systems	3	3	0	Automated Control Systems	(2/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905449	Drive Systems	3	3	0	Power Electronics Electrical Machines	(2/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905465	Power Electronics & Drive Systems Lab	1	0	3	Co-Drive Systems	(2/4)
<input type="checkbox"/>	<input type="checkbox"/>	0905501	Graduation Project I	1	0	3	Passing (120) Credit Hours	(1/5)
<input type="checkbox"/>	<input type="checkbox"/>	0905529	Renewable Energy Systems	3	3	0	Electrical Machine	(1/5)
<input type="checkbox"/>	<input type="checkbox"/>	0905542	Control Systems Lab	1	0	3	Co-Automated Control Systems	(1/5)
<input type="checkbox"/>	<input type="checkbox"/>	0905502	Graduation Project II	2	0	6	Graduation Project I	(2/5)
<input type="checkbox"/>	<input type="checkbox"/>	0905541	Power Systems Control	3	3	0	Power Systems Analysis II	(2/5)
b. Major supporting requirements (36) credit hours								
<input type="checkbox"/>	<input type="checkbox"/>	0101104	Calculus II for Engineering Students	3	3	0	Calculus I	(2/1)
<input type="checkbox"/>	<input type="checkbox"/>	0101205	Calculus III for Engineering Students	3	3	0	Calculus II for	(1/2)

Course Plan for Bachelor program - Course Plan Development and Updating Procedures/ Electrical Engineering/Power and Control Department	QF09/0407-3.0E
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							Engineering Students	
<input type="checkbox"/>	<input type="checkbox"/>	0909211	Applied Physics	3	3	0	General Physics I	(1/2)
<input type="checkbox"/>	<input type="checkbox"/>	0909242	Digital Logic Design	3	3	0	Calculus I	(1/2)
<input type="checkbox"/>	<input type="checkbox"/>	0909214	Principles of Electronics	3	3	0	Principles of Electrical Circuits	(2/2)
<input type="checkbox"/>	<input type="checkbox"/>	0909215	Electronics Lab	1	0	3	Principles of Electronics	(2/2)
<input type="checkbox"/>	<input type="checkbox"/>	0101273	Ordinary Differential Equations	3	3	0	Calculus II for Engineering Students	(2/2)
<input type="checkbox"/>	<input type="checkbox"/>	0909212	Applied Physics Lab.	1	0	3	Applied Physics	(2/2)
<input type="checkbox"/>	<input type="checkbox"/>	0909221	Introduction To Linear Systems	3	3	0	Calculus II for Engineering Students	(1/3)
<input type="checkbox"/>	<input type="checkbox"/>	0909447	Embedded Systems	3	3	0	Digital Logic Design	(1/3)
<input type="checkbox"/>	<input type="checkbox"/>	0909223	Signals and Systems Analysis	3	3	0	Introduction To Linear Systems	(2/3)
<input type="checkbox"/>	<input type="checkbox"/>	0909243	Digital Logic Design Lab.	1	0	3	Digital Logic Design	(2/3)
<input type="checkbox"/>	<input type="checkbox"/>	0909324	Probability and Random Signals Analysis	3	3	0	Signals and Systems Analysis	(1/4)
<input type="checkbox"/>	<input type="checkbox"/>	0911361	Engineering Numerical Methods	3	3	0	Calculus II for Engineering Students	(1/5)
c. Major electives (3) credit hours								
<input type="checkbox"/>	<input type="checkbox"/>	0905503	Special Topics in Electrical Engineering	3	3	0	5th year level	5th year level
<input type="checkbox"/>	<input type="checkbox"/>	0905525	Power Generation Stations	3	3	0	Probability and Random Signal Analysis	5th year level
<input type="checkbox"/>	<input type="checkbox"/>	0905533	Overhead Electrical Distribution Lines	3	3	0	Electrical Power Distribution Systems	5th year level
<input type="checkbox"/>	<input type="checkbox"/>	0905535	Underground Electrical Distribution systems	3	3	0	Electrical Power Distribution Systems	5th year level
<input type="checkbox"/>	<input type="checkbox"/>	0905548	SCADA & DCS Systems	3	3	0	Control Systems	5th year level
<input type="checkbox"/>	<input type="checkbox"/>	0905549	Programmable Logic Controllers PLC	3	3	0	Embedded Systems	5th year level
Fourth: free electives (0) Credit Hours								
None								

Courses Given to Other Majors)

Course number	Course title	Credit hours	Type of requirement (University Requirements, Faculty Requirements, Supporting Requirements)
0905111	Principles of Electrical Circuits	3	Faculty Requirement
0905212	Electrical Circuits Lab	1	Supporting Requirement /Communications and Computer
0905213	Advanced Electrical Circuits	3	Supporting Requirement /Communications and Computer
0905364	Power Electronics	3	Supporting Requirement /Communications and Computer
0905342	Control Systems	3	Supporting Requirement /Communications and Computer
0905331	Electrical Machines	3	Supporting Requirement /Mechanical Engineering
0905432	Electrical Machines lab	1	Supporting Requirement /Mechanical Engineering
0905325	Principles of Electrical Power Systems	3	Supporting Requirement /Civil Engineering & Infrastructure