BACHELOR OF ENGINEERING

PROGRAM IN ELECTRICAL ENGINEERING

GRADUATION REQUIREMENTS

Assumption University confers the degree of Bachelor of Engineering in Electrical and Electronics Engineering upon students who meet all of the following requirements:

1. Have completed the total number of credits of the curriculum
2. Have obtained a cumulative grade point average of at least 2.00
3. Have met the minimum English proficiency requirement specified in one of the following criteria:

(1) AU English Proficiency Assessment	70%	or
(2) TOEFL (iBT)	90	or
(3) TOEFL (P)	575	or
(4) IELTS	6.5	

4. Have participated in 16 sessions of the Professional Ethics Seminar
5. Have obtained library and financial clearance from the University
6. Have demonstrated good behavior and discipline

OBJECTIVES OF CURRICULUM

To produce graduates who have the characteristics, knowledge and skills as follows:

1. Have moral and professional ethics.
2. Have knowledge in electrical engineering and able to apply knowledge in the administration of building electrical systems, high-voltage systems, illumination systems, industrial electrical systems, and safety in electrical systems.
3. Capable of conducting research in both theoretical and practical aspects.
4. Have good personality, good social manners and able to appropriately work with people of all levels.
5. Have strong mathematical and computational skills.

CURRICULUM STRUCTURE

Total number of credits	141 Credits
A. General Education Courses	**31 Credits**
Language Courses	12 Credits
Social Science Courses	6 Credits
Humanities Course	3 Credits
Science and Mathematics Courses	10 Credits
B. Specialized Courses	**104 Credits**
Basic Engineering Courses	20 Credits
Core Courses	
Electrical and Electronics	17 Credits
Telecommunication and Electronics	17 Credits
Major Required Courses	
Electrical and Electronics	61 Credits
Telecommunication and Electronics	61 Credits
Major Elective Courses	
Electrical and Electronics	6 Credits
Telecommunication and Electronics	6 Credits
C. Free Elective Courses	**6 Credits**

COURSES

A. General Education Courses

Language Courses		**12 Credits**
BG 1001	English I	3 (2-3-6)
BG 1002	English II	3 (2-3-6)
BG 2000	English III	3 (2-3-6)
BG 2001	English IV	3 (2-3-6)
Social Science Courses		**6 Credits**
GE 2202	Ethics	3 (3-0-6)
MGT 1101	Introduction to Business	3 (3-0-6)
Humanities Course		**3 Credits**
GE 2101	World Civilization	3 (3-0-6)
Science and Mathematics Courses		**10 Credits**
BG 0008	General Chemistry Laboratory	1 (0-3-2)
BG 1108	General Chemistry	3 (3-0-6)
BG 2208	Discrete Mathematics	3 (3-0-6)
BG 2212	Applied Statistics	3 (3-0-6)

B. Specialized Courses

Basic Engineering Courses		20 Credits
BG 1204	Calculus I	3 (3-0-6)
BG 1205	Calculus II	3 (3-0-6)
BG 1211	Physics I	3 (3-0-6)
BG 1212	Physics Laboratory I	1 (0-3-2)
BG 1213	Physics II	3 (3-0-6)
BG 1214	Physics Laboratory II	1 (0-3-2)
BG 1221	Computer Programming	3 (3-0-6)
BG 2207	Engineering Mathematics	3 (3-0-6)

Core Courses		17 credits
Common Core Courses		**11 credits**
IE 1110	Engineering Materials	3 (3-0-6)
ME 1113	Engineering Drawing	3 (2-3-6)
ME 1114	Engineering workshop	2 (0-4-2)
ME 2211	Engineering Mechanics I	3 (3-0-6)
Core Courses for Electrical and Electronics		**6 credits**
EE 3301	Electromagnetic Fields	3 (3-0-6)
MCE 4102	Introduction to Industrial Automation	3 (3-0-6)
Core Courses for Telecommunication and Electronics		**6 credits**
EE 3406	Control Systems	3 (3-0-6)
EE 4305	Digital Signal Processing	3 (3-0-6)

Major Required Courses		61 credits
Common Major Required Courses		**28 credits**
CE 2704	Digital Logic Design	3 (3-0-6)
CE 2705	Digital Logic Design Laboratory	1 (0-3-2)
EE 2201	Electric Circuits	3 (3-0-6)
EE 2202	Electric Circuits Laboratory	1 (0-3-2)
EE 2203	Signals and systems	3 (3-0-6)
EE 2605	Engineering Electronics	3 (3-0-6)
EE 2606	Engineering Electronics Laboratory	1 (0-3-2)
EE 3601	Electronic Circuit Design	3 (3-0-6)
EE 3602	Electronic Circuit Design Laboratory	1 (0-3-2)
EE 3606	Electrical Instruments and Measurements	3 (3-0-6)
EE 3705	Microprocessors and Microcontrollers	3 (3-0-6)
TE 3000	Principles of Communications	3 (3-0-6)
Major Courses for Electrical and Electronics		**33 credits**
EE 2401	Electromechanical Energy Conversion	3 (3-0-6)
EE 2402	Electromechanical Energy Conversion Laboratory	1 (0-3-2)
EE 3402	Electrical Machines	3 (3-0-6)
EE 3403	Electrical Machines Laboratory	1 (0-3-2)
EE 3406	Control Systems	3 (3-0-6)
EE 4501	Power System Analysis	3 (3-0-6)
EE 4503	Electrical Systems Design	3 (3-0-6)
EE 4505	Power System Protection	3 (3-0-6)
EE 4506	High Voltage Engineering	3 (3-0-6)
EE 4518	Electrical Power Generation, Transmission and Distribution	3 (3-0-6)
EE 4705	Power Electronics	3 (3-0-6)
EE 4706	Power Electronics Laboratory	1 (0-3-2)
EE 4901	Electrical and Electronics Engineering Project I	1 (0-3-2)
EE 4902	Electrical and Electronics Engineering Project II	2 (0-6-3)

Major Courses for Telecommunication and Electronics **33 credits**

CE 4207	System and Network Programming	3 (3-0-6)
CE 4224	Telecommunication Networks Laboratory	1 (0-3-2)
CE 4228	Data Communication and Networking	3 (3-0-6)
EE 3301	Electromagnetic Fields	3 (3-0-6)
TE 3002	Communications Laboratory	1 (0-3-2)
TE 3102	Communication Networks and Transmission Lines	3 (3-0-6)
TE 3301	Radio Wave Propagation	3 (3-0-6)
TE 4113	Digital Communication	3 (3-0-6)
TE 4111	Antenna Engineering	3 (3-0-6)
TE 4112	Optical Communications	3 (3-0-6)
TE 4201	Communication Electronics	3 (3-0-6)
TE 4202	Communication Electronics Laboratory	
TE 4901	Telecommunication and Electronics Engineering Project I	1 (0-3-2)
TE 4902	Telecommunication and Electronics Engineering Project II	2 (0-6-3)

Major Elective Courses **6 credits**

Students can take major elective courses of 6 credits from the following courses.

CE 2102	Data Structures and Algorithms	3 (3-0-6)
CE 2103	Object-Oriented Programming	3 (3-0-6)
CE 4227	Mobile and Wireless Networks	3 (3-0-6)
CE 4229	Introduction to Cloud Computing	3 (3-0-6)
EE 3704	Embedded Systems	3 (3-0-6)
EE 4201	Network Theory	3 (3-0-6)
EE 4301	Introduction to Electromagnetic Compatibility	3 (3-0-6)
EE 4305	Digital Signal Processing (Only for major Electrical and Electronics)	3 (3-0-6)
EE 4401	Electric Drive	3 (3-0-6)
EE 4403	Basic Mechatronics	3 (3-0-6)
EE 4504	Illumination Engineering	3 (3-0-6)
EE 4600	IC Technology	3 (3-0-6)
EE 4603	Industrial Electronics	3 (3-0-6)
EE 4602	Industrial Instrumentation and Control	3 (3-0-6)
EE 4903	Advanced Topics in Electrical and/or Electronic Engineering	3 (3-0-6)
EE 4904	Special Problems in Electrical and/or Electronic Engineering	3 (3-0-6)
EE 4907	Electrical Engineering Industrial Training	3 (0-9-6)
IE 4201	Engineering Management	3 (3-0-6)
MCE 4801	Instrument for Aviation	6 (6-0-12)
ME 3310	Thermofluids	3 (3-0-6)
TE 4105	Microwave Engineering	3 (3-0-6)
TE 4204	Optoelectronics	3 (3-0-6)
TE 4301	Principle of Telecommunications Policies	3 (3-0-6)
TE 4903	Advanced Topics in Telecommunication and/or Electronic Engineering	3 (3-0-6)
TE 4904	Special Problems in Telecommunication and/or Electronic Engineering	3 (3-0-6)

C. Free Elective Course

Students can take free elective courses of 6 credits from any faculty in Assumption University upon completion of the prerequisites (if any).

STUDY PLAN

(1) ELECTRICAL AND ELECTRONICS ENGINEERING

FIRST YEAR

First Semester

Code	Subjects	Credits
BG 0008	General Chemistry Laboratory	1 (0-3-2)
BG 1001	English I	3 (2-3-6)
BG 1108	General Chemistry	3 (3-0-6)
BG 1204	Calculus I	3 (3-0-6)
BG 1211	Physics I	3 (3-0-6)
BG 1212	Physics Laboratory I	1 (0-3-2)
IE 1110	Engineering Materials	3 (3-0-6)
	Total	**17 (14-9-34)**

Second Semester

BG 1002	English II	3 (2-3-6)
BG 1205	Calculus II	3 (3-0-6)
BG 1213	Physics II	3 (3-0-6)
BG 1214	Physics Laboratory II	1 (0-3-2)
BG 1221	Computer Programming	3 (3-0-6)
ME 1113	Engineering Drawing	3 (2-3-6)
ME 1114	Engineering Workshop	2 (0-4-2)
	Total	**18 (13-13-34)**

SECOND YEAR

First Semester

BG 2000	English III	3 (2-3-6)
BG 2207	Engineering Mathematics	3 (3-0-6)
BG 2208	Discrete Mathematics	3 (3-0-6)
EE 2201	Electric Circuits	3 (3-0-6)
EE 2202	Electric Circuits Laboratory	1 (0-3-2)
EE 2605	Engineering Electronics	3 (3-0-6)
EE 2606	Engineering Electronics Laboratory	1 (0-3-2)
ME 2211	Engineering Mechanics I	3 (3-0-6)
	Total	**20 (17-9-40)**

Second Semester

BG 2001	English IV	3 (2-3-6)
BG 2212	Applied Statistics	3 (3-0-6)
CE 2704	Digital Logic Design	3 (3-0-6)
CE 2705	Digital Logic Design Laboratory	1 (0-3-2)
EE 2203	Signals and systems	3 (3-0-6)
EE 2401	Electromechanical Energy Conversion	3 (3-0-6)
EE 2402	Electromechanical Energy Conversion Laboratory	1 (0-3-2)
GE 2101	World Civilization	3 (3-0-6)
	Total	**20 (17-9-40)**

THIRD YEAR

First Semester

EE 3301	Electromagnetic Fields	3 (3-0-6)
EE 3402	Electrical Machines	3 (3-0-6)
EE 3403	Electrical Machines Laboratory	1 (0-3-2)
EE 3601	Electronic Circuit Design	3 (3-0-6)
EE 3602	Electronic Circuit Design Laboratory	1 (0-3-2)
EE 3606	Electrical Instruments and Measurements	3 (3-0-6)
MGT 1101	Introduction to Business	3 (3-0-6)
	Total	**17 (15-6-34)**

Second Semester

EE 3406	Control Systems	3 (3-0-6)
EE 3705	Microprocessors & Microcontrollers	3 (3-0-6)
GE 2202	Ethics	3 (3-0-6)
TE 3000	Principles of Communications	3 (3-0-6)
	One Major Elective Course	3 (3-0-6)
	One Free Elective Course	3 (3-0-6)
	Total	**18 (18-0-36)**

FOURTH YEAR

First Semester

EE 4501	Power System Analysis	3 (3-0-6)
EE 4503	Electrical Systems Design	3 (3-0-6)
EE 4506	High Voltage Engineering	3 (3-0-6)
EE 4901	Electrical and Electronic Engineering Project I	1 (0-3-2)
MCE 4102	Introduction to Industrial Automation	3 (3-0-6)
	One Major Elective Course	3 (3-0-6)
	Total	**16 (15-3-32)**

Second Semester

EE 4505	Power System Protection	3 (3-0-6)
EE 4518	Electrical Power Generation, Transmission and Distribution	3 (3-0-6)
EE 4705	Power Electronics	3 (3-0-6)
EE 4706	Power Electronics Laboratory	1 (0-3-2)
EE 4902	Electrical and Electronic Engineering Project II	2 (0-6-3)
	One Free Elective Course	3 (3-0-6)
	Total	**15 (12-9-29)**

STUDY PLAN

(2) TELECOMMUNICATION AND ELECTRONICS ENGINEERING

FIRST YEAR

First Semester

Code	Subjects	Credits
BG 0008	General Chemistry Laboratory	1 (0-3-2)
BG 1001	English I	3 (2-3-6)
BG 1108	General Chemistry	3 (3-0-6)
BG 1204	Calculus I	3 (3-0-6)
BG 1211	Physics I	3 (3-0-6)
BG 1212	Physics Laboratory I	1 (0-3-2)
IE 1110	Engineering Materials	3 (3-0-6)
	Total	**17 (14-9-34)**

Second Semester

BG 1002	English II	3 (2-3-6)
BG 1205	Calculus II	3 (3-0-6)
BG 1213	Physics II	3 (3-0-6)
BG 1214	Physics Laboratory II	1 (0-3-2)
BG 1221	Computer Programming	3 (3-0-6)
ME 1113	Engineering Drawing	3 (2-3-6)
ME 1114	Engineering Workshop	2 (0-4-2)
	Total	**18 (13-13-34)**

SECOND YEAR

First Semester

BG 2000	English III	3 (2-3-6)
BG 2207	Engineering Mathematics	3 (3-0-6)
BG 2208	Discrete Mathematics	3 (3-0-6)
EE 2201	Electric Circuits	3 (3-0-6)
EE 2202	Electric Circuits Laboratory	1 (0-3-2)
EE 2605	Engineering Electronics	3 (3-0-6)
EE 2606	Engineering Electronics Laboratory	1 (0-3-2)
ME 2211	Engineering Mechanics I	3 (3-0-6)
	Total	**20 (17-9-40)**

Second Semester

BG 2001	English IV	3 (2-3-6)
BG 2212	Applied Statistics	3 (3-0-6)
CE 2704	Digital Logic Design	3 (3-0-6)
CE 2705	Digital Logic Design Laboratory	1 (0-3-2)
EE 2203	Signals and systems	3 (3-0-6)
GE 2101	World Civilization	3 (3-0-6)
	Total	**16 (14-6-32)**

THIRD YEAR

First Semester

EE 3301	Electromagnetic Fields	3 (3-0-6)
EE 3601	Electronic Circuit Design	3 (3-0-6)
EE 3602	Electronic Circuit Design Laboratory	1 (0-3-2)
EE 3606	Electrical Instruments and Measurements	3 (3-0-6)
GE 2202	Ethics	3 (3-0-6)
MGT 1101	Introduction to Business	3 (3-0-6)
	One Free Elective Course	3 (3-0-6)
	Total	**19 (18-3-38)**

Second Semester

EE 3406	Control Systems	3 (3-0-6)
EE 3705	Microprocessors and Microcontrollers	3 (3-0-6)
TE 3000	Principles of Communications	3 (3-0-6)
TE 3002	Communications Laboratory	1 (0-3-2)
TE 3102	Communication Networks and Transmission Lines	3 (3-0-6)
TE 3301	Radio Wave Propagation	3 (3-0-6)
	One Free Elective Course	3 (3-0-6)
	Total	**19 (18-3-38)**

FOURTH YEAR

First Semester

CE 4207	System and Network Programming	3 (3-0-6)
CE 4224	Telecommunication Networks Laboratory	1 (0-3-2)
CE 4228	Data Communication and Networking	3 (3-0-6)
EE 4305	Digital Signal Processing	3 (3-0-6)
TE 4113	Digital Communication	3 (3-0-6)
TE 4901	Telecommunication and Electronic Engineering Project I	1 (0-3-2)
	One Major Elective Course	3 (3-0-6)
	Total	**17 (15-6-34)**

Second Semester

TE 4111	Antenna Engineering	3 (3-0-6)
TE 4112	Optical Communication	3 (3-0-6)
TE 4201	Communication Electronics	3 (3-0-6)
TE 4202	Communication Electronics Laboratory	1 (0-3-2)
TE 4902	Telecommunication and Electronic Engineering Project II	2 (0-6-3)
	One Major Elective Course	3 (3-0-6)
	Total	**15 (12-9-29)**