



**International Academy for Engineering and
Media Science**

Engineering Division

**Communications and Electronics Engineering
Department**

Program Specification

For

Communication Engineering Program

Bylaw 2021

Program Specification

International Academy for Engineering and Media Science Engineering Division

A- Basic Information

- 1 **Program title** : Communication Engineering
- 2 **Program type** : Single
- 3 **Department** : Communication and Electronics Engineering
- 4 **Program coordinator** : Dr. Ehab Khaled EL-Rafey
- 5 **Internal Evaluators** : Prof. Dr. Said Mohamed El-Halafawy
- 6 **Date of program Bylaw approval** : Ministerial decision No. 921 dated 13/03/2022
- 7 **Date of program specification approval** : 12/2023

B- Professional Information

1. Communication Engineering Program Mission

In the Framework of the Media Engineering Division Mission of the International Academy of Engineering and Media Science, the Communications and Electrical Electronics Engineering program contributes in preparing distinguished graduates capable of innovation and development, competition and scientific research, which meets the needs of the labor market locally and regionally and keep up technological, and applied techniques according to the national academic reference standards to meet the goals of sustainable development within a framework of societal and ethical values.

2. Program Aims

The graduate from Communications Engineering Program will be able to:

- Obj1. Employ the knowledge of the principles of mathematical and engineering sciences to identify, formulate, and solve real communication and electrical electronics engineering problems in a systematic scientific thinking manner.
- Obj2. Participate in the development of society by creating a strong relationship with the local and regional industry.
- Obj3. Communicate effectively and work in a multidisciplinary team of engineers and technicians in different specialties, and display professional leadership, business administration, ethical responsibility and entrepreneurial skills.
- Obj4. Master self- and long-life learning strategies using various techniques, languages, and software through participation in communications and electrical electronics engineering projects.
- Obj5. Demonstrate creative and effective research to develop, promote, and face the challenges in the contemporary engineering issues with high quality and technical excellency.
- Obj6. Design and conduct experiments using computer-aided tools and available simulation software to solve problems in Electrical communication systems, as well as ability to formulate, analyze and interpret results through preparing technical reports.
- Obj7. Design, operate and maintain digital and analog communication, mobile communication, satellite communication, microwave systems, signal processing systems, coding, and decoding systems.
- Obj8. Deal with electronic circuits, from discrete component level, circuit analysis and design, to troubleshooting with a focus on electronic circuits and devices.
- Obj9. Apply the new emerging techniques in the design, management, and maintenance of computer networks, wireless communication, Antennas, optical communication and digital signal processing systems.

3. Graduate Attributes of Communication Engineering Program

The Communications Engineering program aims for preparing distinguished and capable graduates with skills of scientific research, and development, which satisfies labor market requirements at the local and international levels while keep framework of societal and ethical values.

The graduate of Communications Engineering program will be able to:

- GA1. Master a wide spectrum of engineering knowledge and specialized skills and can apply acquired knowledge using theories and abstract thinking in real life situations.
- GA2. Apply analytic critical and systemic thinking to identify, diagnose and solve engineering problems with a wide range of complexity and variation.
- GA3. Behave professionally and adhere to engineering ethics and standards.
- GA4. Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance.
- GA5. Recognize his/her role in promoting the engineering field and contribute in the development of the profession and the community.
- GA6. Value the importance of the environment, both physical and natural, and work to promote sustainability principles.
- GA7. Use techniques, skills, and modern engineering tools necessary for engineering practice.
- GA8. Assume full responsibility for own learning and self-development, engage in lifelong learning and demonstrate the capacity to engage in post- graduate and research studies.
- GA9. Communicate effectively using different modes, tools and languages with various audiences; to deal with academic/professional challenges in a critical and creative manner.
- GA10. Demonstrate leadership qualities, business administration and entrepreneurial skills.
- GA11. Understand and adopt the new technologies in design, management, and maintenance networks, wireless and mobile communications, antennas, microwave systems, optical communication and digital signal processing systems.
- GA12. Apply the principles of mathematical and engineering sciences to identify, formulate, and solve real electronics and electrical communication engineering problems in a systematic scientific thinking with a wide range of complexity and variation.
- GA13. Manage projects related to electrical communication systems in wide range of applications subjected to industrial, economic, environmental, and social developments.
- GA14. Implement and integrate the new technologies of electronic and electrical communication systems for emerging engineering applications.

4. Relationship of Graduate Attributes with Program Aims

Table 1 shows the relationship between the program aims and graduate attributes

		Graduate Attribute 1	Graduate Attribute 2	Graduate Attribute 3	Graduate Attribute 4	Graduate Attribute 5	Graduate Attribute 6	Graduate Attribute 7	Graduate Attribute 8	Graduate Attribute 9	Graduate Attribute 10	Graduate Attribute 11	Graduate Attribute 12	Graduate Attribute 13	Graduate Attribute 14
Program Aims	Program Aim #1	*						*							
	Program Aim #2		*					*							
	Program Aim #3			*	*				*	*	*				
	Program Aim #4			*		*			*						
	Program Aim #5						*							*	
	Program Aim #6										*			*	*
	Program Aim #7											*		*	*
	Program Aim #8												*		*
	Program Aim #9											*	*		

5. The Academic Reference for the Program

In the Framework of the National Academic Reference Standards for the Engineering Sector 2018 (NARS 2018), the program competencies are classified into three levels:

- Level A: This level reflects the general competencies that any graduate from the College of Engineering should have gained.
- Level B: This level reflects the general specialized competencies that any graduate in the field of electrical engineering should possess.
- Level C: This level reflects the specialized competencies that a graduate of the electrical power and machines engineering program should acquire.

5.1 Competencies of Engineering Graduate (Level A)

The Engineering Graduate must be able to:

- A1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
- A2. Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
- A3. Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
- A4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
- A5. Practice research techniques and methods of investigation as an inherent part of learning.
- A6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
- A7. Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
- A8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
- A9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
- A10. Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.

5.2 Competencies of Electrical Engineering Graduate (Level B)

In addition to the Competencies for All Engineering Programs the basic Electrical Engineering graduate must be able to:

- B1. Select, model and analyze electrical power systems applicable to the specific discipline by applying the concepts of: generation, transmission and distribution of electrical power systems.
- B2. Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.

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- B3.** Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.
-
- B4.** Estimate and measure the performance of an electrical/electronic/digital system and circuit under specific input excitation, and evaluate its suitability for a specific application.
-
- B5.** Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services.
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5.3 Competencies of Electrical Power and Machines Engineering Graduate (Level C)

In addition to the competences for all Engineering Programs (A-Level) and the competencies for the Electrical Engineering Discipline (B-Level), the Electrical Power and Machines Engineering Program graduate must be able to:

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- C1.** Identify and formulate engineering problems to solve problems in the field of communication engineering.
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- C2.** Understand the underlying physical phenomena and limitations of the performance of components and systems in communication engineering.
-
- C3.** Model and analyse components and systems in communication engineering and identify the software tools required to optimize their performance.
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- C4.** Design and compare between alternative components and systems in communication engineering
-
- C5.** Model, analyse, design, and build communication engineering systems and networks.
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6. Benchmarks and Academic Reference Standards

The external references for standards considered in the development of this program were the National Academic Reference Standards for Engineering (NARS 2018) and for Electrical Engineering graduate.

7. The Academic Reference and Program Aims

Table (2) explains how the competencies of the current program achieve the program aims:

Table (2): The Relation Between Program Aims and Academic Reference

		Academic Reference																			
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5
Program Aims	1	*	*																		
	2	*								*							*				
	3						*	*	*												
	4					*					*										
	5				*									*							
	6			*									*	*		*					
	7											*						*			*
	8														*						
	9												*	*		*			*	*	*

8. Learning Outcomes:

The program learning outcomes are divided into three domains cognitive, psychomotor and affective:

1. Cognitive Domain:

- A1.1** Identify and formulate complex engineering problems by applying engineering fundamentals, basic science, and mathematics.
- A2.1** Analyze and interpret data, assess and evaluate findings to draw conclusions
- A3.1** Formulate a design process to meet specified needs.
- A4.1** Identify technologies, codes of practice and standards related to the discipline.
- A5.1** Investigate research techniques and methods of investigation.
- A6.1** Plan the implementation of engineering projects taking into consideration other trades requirements.
- A7.1** Identify his/her role as an individual and as a member of multi-disciplinary and multi-cultural teams.
- A8.1** Recognize methods of communications (verbally/written) with a range of audiences using contemporary tools.
- A9.1** Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations
- A10.1** Acquire new knowledge using and self-practice lifelong and other learning strategies.
- B1.1** Choose and analyze electrical power systems applicable to the specific discipline by applying the concepts of: generation, transmission and distribution of electrical power systems.
- B2.1** Design and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.
- B3.1** Design elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.
- B4.1** Estimate the performance of an electrical/electronic/digital system and circuit under specific input excitation, and evaluate its suitability for a specific application.
- B5.1** Choose suitable national and international standards and codes to: design, build, operate,

inspect and maintain electrical/electronic/digital equipment, systems and services.

C1.1 Identify and formulate engineering problems in the field of communication engineering.

C2.2 Explain the performance of components and systems in communication engineering.

C3.1 Analyze components and systems in communication engineering

C4.1 Design components and systems in communication engineering

C5.1 Analyze/design communication engineering systems and networks.

2. Psychomotor Domain:

A1.2 Solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics and on basis of limited or contradicting information.

A2.2 Develop and conduct appropriate experimentation and/or simulation and use statistical analyses and objective engineering judgment to draw conclusions.

A3.2 Apply engineering design processes and knowledge of mathematics, science, information technology, to produce cost-effective solutions that meet specified needs and to solve engineering problems.

A4.2 Utilize and incorporate contemporary technologies, codes of practice and standards related to the discipline economic, societal, environmental dimensions and risk management in design.

A5.2 Practice research techniques and methods of investigation.

A6.2 Supervise, monitor and Judge engineering decisions, implementation of engineering projects taking into consideration other trades requirements, costs, benefits, safety, quality, reliability, and environmental impact.

A7.2 Perform efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.

A8.2 Communicate (verbally/written) and Exchange knowledge and skills with a range of audiences using contemporary tools with engineering community and industry.

A9.2 Apply entrepreneurial and leadership skills to anticipate and respond to new situations.

A10.2 Apply new knowledge; and practice self, lifelong and other learning strategies.

B 1.2 Model electrical power systems by applying the concepts of generation, transmission, and distribution of electrical power systems.

- B2.2** Model an electrical/electronic/digital system and develop the tools to optimize this design.
- B3.2** Implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.
- B4.2** Measure the performance of an electrical/electronic/digital system and circuit under specific input excitation, and show its suitability for a specific application.
- B5.2** Build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services following suitable national and international standards and codes.
- C1.2** Solve problems in the field of communication engineering.
- C2.2** Measure the performance of components and systems in communication engineering.
- C3.2** Use software tools to model and optimize the performance of components and systems in communication engineering
- C4.2** Implement components and systems in communication engineering
- C5.2** Build communication engineering networks.

3. Affective Domain:

- A1.3** Acknowledge the importance of engineering fundamentals, basic science and mathematics in solving complex engineering Problems.
- A2.3** Praise critical thinking to draw conclusions.
- A3.3** Consider social, environmental, ethical and other aspects while applying a design process to achieve solutions.
- A4.3** Follow quality guidelines, health and safety requirements, environmental issues and risk management principles.
- A5.3** Adopt researching techniques and methods of investigation as an inherent part of learning.
- A6.3** Encourage the staff and facilitate the required needs
- A7.3** Express appreciation for the contributions of all team members
- A8.3** Follow communications ethics guided by community morals and values.
- A9.3** Act effectively under difficult and new situation.
- A10.3** Adopt learning strategies as an effective lifelong learning strategy.

- B1.3** Respect and follow adopted national/international specifications to select the suitable electrical powers system.
- B2.3** Seek optimization techniques in the design process electrical/electronic/digital system or component.
- B3.3** Recommend using technological and professional tools in the design and implementation of electrical/electronic/digital engineering.
- B4.3** Empathize the important of measuring, testing and commissioning any electrical/electronic/digital system equipment before usage.
- B5.3** Adopt suitable national and international standards and codes while design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems.
- C1.3** Suggest appropriate solution/techniques to solve problems in the field of communication engineering.
- C2.3** Follow related regulations while testing/measuring components and systems in communication engineering.
- C3.3** Suggest appropriate software and techniques to optimize the performance of components and systems in communication engineering
- C4.3** Organize the required components and tool required to implement the required system
- C5.3** Mange the implantation process of communication engineering networks.

9. Program Structure

Program Duration: 9 Semester

Program Structure

Program Hours: 144 Hrs.

Compulsory hours: 129 Hrs.

Elective hours: 15 Hrs.

Table (3): Courses Classification According to reference framework for preparing study programs

	Minimum %	Maximum%
Academy Requirements	8%	--
Engineering Major	20%	--
General Electrical Requirement	35%	--
Minor (Electrical Power and Machines) Requirements	---	30%

➤ Academy Requirements Study Plan

The Academy requirements study plan contains 15 mandatory credits and 3 elective credits. All Academy students must take the 15 mandatory credits. Each student can choose 3 elective credits from the available elective course list. The Academy council assigns a committee for each course to develop its specs, and to follow up its reports and files according to the academy internal quality assurance system.

• Mandatory Courses

Code	Course Title	Cr.	Lec	Ex	Lab
ENG 0101	English Language	3	2	2	0
ARA 0102	Arabic Language	3	3	0	0
HUR 0110	Human Rights	3	3	0	0
COM 0200	Computer Skills	3	2	0	2
EGY 0300	Egyptology	3	3	0	0
Total		15 Cred			

• Elective Courses

Code	Course Title	Cr.	Lec	Ex	Lab
BUS 0310	Business Administration Fundamentals	3	3	0	0
PSY 0320	Thinking Philosophy	3	3	0	0
EGY 0330	Egyptian History	3	3	0	0
MDA 0400	Media Ethics	3	3	0	0
MDA 0410	Media and Politics	3	3	0	0
MDA 0420	Media and Society	3	3	0	0

RTV 0430	International Media	3	3	0	0
ART 0500	Basics of Arts	3	3	0	0

➤ Engineering Major

The Major requirements study plan contains mandatory courses. These courses represent the essential and general scientific background for all students in the Major to help them choose the suitable academic program. The following are the data of the Major requirements courses.

- Mandatory Courses

Code	Course Title	Cr.	Lec	Ex	Lab
BAS 2102	Mathematics 1	3	2	2	0
BAS 2103	Physics 1	3	2	1	2
BAS 2104	Mechanics	3	2	2	0
MED 2105	Engineering Drawing	3	1	4	0
MED 2106	History of Engineering & Tech	3	2	2	0
MED 2107	Technical Workshop	3	1	2	2
BAS 2110	Mathematics 2	3	2	2	0
BAS 2111	Physics 2	3	2	1	2
BAS 2112	Engineering Chemistry	3	2	1	2
BAS 2123	Statistics & Probability Theory	3	2	2	0

- Elective Courses

Code	Course Title	Cr.	Lec	Ex	Lab
CAI 2601	Principles of Computer Engin	3	2	0	2
ELE 2531	Principles of Mechatronics	3	2	2	0
ARC 2532	Principles of Architecture Eng	3	2	2	0
ELE 2533	Principles of Electronic Engin	3	2	2	0
CEN 2366	Principles of Civil Engineering	3	2	2	0
ELP 2444	Principles of Electrical Engine	3	2	2	0

➤ Major (Electrical Engineering) Requirement

Major (Electrical Engineering) requirements courses which represent 51 credit hours representing 35% of the degree requirements

Code	Course Title	Cr.	Lec	Ex	Lab
BAS 2115	Mathematics 3	3	2	2	0
ELP 2403	Electrical Circuits 1	3	2	1	2

ELP 2404	Electrical Measurements & Testing	3	2	1	2
ELP 2409	Electrical Materials	3	2	2	0
ELE 2504	Electromagnetic Fields	3	2	2	0
ELP 2406	Electrical Circuits 2	3	2	1	2
ELE 2511	Logic Design 1	3	2	1	2
CAI 2509	Computer Programming	3	1	2	2
ELE 2512	Microprocessor & Applications	3	2	1	2
CAI 2401	Automatic Control	3	2	1	2
ELE 2514	Signal Analysis	3	2	2	0
ELE 2519	Electronics	3	2	1	2
CAI 2520	Computer Organization & Arch.	3	2	1	2
BAS 2118	Mathematics 4	3	2	2	0
ELP 2433	Technology of renewable energy	3	2	2	1
CAI 2603	Artificial Intelligence 1	3	2	1	1
ELE 2515	Communication 1	3	2	1	2
Total		51 credit			

➤ Minor (Electrical Power and Machines) Requirements

- Mandatory Courses

Code	Course Title	Cr.	Lec	Ex	Lab
ELE 2507	Acoustics	3	2	2	0
ELE 2521	Antenna & Wave Propagation	3	2	1	2
ELE 2522	Communications 2	3	2	1	2
ELE 2523	Digital Signal Processing	3	2	2	0
ELE 2526	Mobile Communications	3	2	2	0
ELE 2501	Information & Coding Theory	3	2	2	0
ELE 2530	Electronic Circuits	3	2	1	2
ELE 2532	Field Training	3	0	0	6
ELE 2536	Microwave Engineering	3	2	1	2
ELE 2503	Optical Communications	3	2	2	0
ELE 2560	Graduation Project	3	0	0	6
Total		33 Credit			

- Elective Course (Select 9 credit hours)

Code	Course Title	Cr.	Lec	Ex	Lab
ELE 2502	Information Security	3	2	2	0
ELE 2505	Optoelectronics	3	2	2	0
ELE 2506	VLSI Technology	3	2	2	0
ELE 2524	Satellite Communication	3	2	2	0
ELE 2537	Logic Design 2	3	2	1	2
ELP 2415	Microcontrollers & Applications	3	2	0	2
CAI 2609	Computer Networks	3	2	1	2

10. Suggested Study Plan for Electrical Power and Machines Engineering Program

Preparatory (1st Semester)

Course Code	Course Title	Weekly Hours				Grading (Marks)						Final Exam Time
		Lecture	Tutorial	Practical Application (Lab)	Total	Midterm Exam	Quizzes	Punctuality and Participation	Oral or Practical Test	Final Exam	Total	
BAS 2102	Mathematics (1)	2	2	-	4	25	25	10	0	40	100	3
BAS2104	Mechanics	2	2	-	4	25	25	10	0	40	100	3
BAS 2103	Physics (1)	2	1	2	5	15	15	10	20	40	100	3
MED 2105	Engineering Drawing	1	-	4	5	15	15	10	20	40	100	3
ARA 0102	Arabic Language	3	-	-	3	25	25	10	0	40	100	3
MED 2106	History of Engineering & Technology	2	2	-	4	25	25	10	0	40	100	3
Total		12	7	6	25						600	

Preparatory (2nd Semester)

Course Code	Course Title	Weekly Hours				Grading (Marks)						Final Exam Time
		Lecture	Tutorial	Practical Application (Lab)	Total	Midterm Exam	Quizzes	Punctuality and Participation	Oral or Practical Test	Final Exam	Total	
BAS 2110	Mathematics (2)	2	2	-	4	25	25	10	0	40	100	3
BAS 2112	Engineering Chemistry	2	1	2	5	15	15	10	0	40	100	3
BAS 2111	Physics (2)	2	1	2	5	15	15	10	20	40	100	3
MED 2107	Technical Workshop	1	2	2	5	15	15	10	20	40	100	3
ENG 0101	English Language	3	-	-	3	25	25	10	0	40	100	3
COM 0200	Computer Skills	2	-	2	4	15	15	10	20	40	100	3
Total		12	6	8	26						600	

First Year (1st Semester)

Course Code	Course Title	Weekly Hours				Grading (Marks)						Final Exam Time
		Lecture	Tutorial	Practical Application (Lab)	Total	Midterm Exam	Quizzes	Punctuality and Participation	Oral or Practical Test	Final Exam	Total	
BAS 2115	Mathematics 3	2	2	-	4	25	25	10	0	40	100	3
HUR 0110	Human Rights	3	-	-	3	25	25	10	0	40	100	3
ELP 2403	Electrical Circuits 1	2	1	2	5	15	15	10	20	40	100	3
ELP 2404	Electrical Measurements & Testing	2	1	2	5	15	15	10	20	40	100	3
ELE 2504	Electromagnetic Fields	2	2	-	4	25	25	10	0	40	100	3
Total		11	6	4	21						500	

First Year (2nd Semester)

Course Code	Course Title	Weekly Hours				Grading (Marks)						Final Exam Time
		Lecture	Tutorial	Practical Application (Lab)	Total	Midterm Exam	Quizzes	Punctuality and Participation	Oral or Practical Test	Final Exam	Total	
EGY 0300	Egyptology	3	-	-	3	25	25	10	0	40	100	3
-----	Engineering Major Elective Course	2	---	--	--	15	15	10	20	40	100	3
BAS 2123	Statistics & Probability Theory	2	2	-	4	25	25	10	0	40	100	3
ELP 2406	Electrical Circuits 2	2	1	2	5	15	15	10	20	40	100	3
ELP 2409	Electrical Materials	2	2	-	4	25	25	10	0	40	100	3
Total		11	5	2	16						500	

Second Year (1st Semester)

Course Code	Course Title	Weekly Hours				Grading (Marks)						Final Exam Time
		Lecture	Tutorial	Practical Application (Lab)	Total	Midterm Exam	Quizzes	Punctuality and Participation	Oral or Practical Test	Final Exam	Total	
	Academy Elective	3	-	-	3	25	25	10	0	40	100	3
ELE 2511	Logic Design 1	2	1	2	5	15	15	10	20	40	100	3
CAI 2509	Computer Programming	1	2	2	5	15	15	10	20	40	100	3
ELP 2433	Technology of Renewable Energy	2	1	2	5	15	15	10	20	40	100	3
ELE 2519	Electronics	2	1	2	5	15	15	10	20	40	100	3
Total		10	5	8	23						500	

Second Year (2nd Semester)

Course Code	Course Title	Weekly Hours				Grading (Marks)						Final Exam Time
		Lecture	Tutorial	Practical Application (Lab)	Total	Midterm Exam	Quizzes	Punctuality and Participation	Oral or Practical Test	Final Exam	Total	
ELE 2515	Communication 1	2	1	2	5	15	15	10	20	40	100	3
ELE 2512	Microprocessor & Applications	2	1	2	5	15	15	10	20	40	100	3
CAI 2401	Automatic Control	2	1	2	5	15	15	10	20	40	100	3
BAS 2118	Mathematics 4	2	2	-	4	25	25	10	0	40	100	3
CAI 2520	Computer Organization & Arch	2	1	2	5	15	15	10	20	40	100	3
Total		10	6	8	24						500	

Third Year (1st Semester)

Course Code	Course Title	Weekly Hours				Grading (Marks)						Final Exam Time
		Lecture	Tutorial	Practical Application (Lab)	Total	Midterm Exam	Quizzes	Punctuality and Participation	Oral or Practical Test	Final Exam	Total	
ELE 2514	Signal Analysis	2	2	-	4	25	25	10	0	40	100	3
ELE 2507	Acoustics	2	2	-	4	25	25	10	0	40	100	3
ELE 2521	Antenna & Wave	2	1	2	5	15	15	10	20	40	100	3
ELE 2522	Communications 2	2	1	2	5	15	15	10	20	40	100	3
ELE 2530	Electronic Circuits	2	1	2	5	15	15	10	20	40	100	3
Total		10	7	6	23						500	

Third Year (2nd Semester)

Course Code	Course Title	Weekly Hours				Grading (Marks)							Final Exam Time
		Lecture	Tutorial	Practical Application (Lab)	Total	Midterm Exam	Quizzes	Punctuality and Participation	Oral or Practical Test	Final Exam	WS	Total	
ELE 2523	Digital Signal Processing	2	2	0	4	25	25	10	0	40	0	100	3
ELE 2526	Mobile Communications	2	2	0	4	25	25	10	0	40	0	100	3
ELE 2532	Field Training	0	0	6	6	-	-	-	-	-	6	100	3
CAI 2603	Artificial Intelligence 1	2	1	1	4	15	15	10	20	40	0	100	3
----	Communication Elective (1)	2	1	2	5	15	15	10	20	40	0	100	3
Total		8	5	5	18						500		

Fourth Year (1st Semester)

Course Code	Course Title	Weekly Hours				Grading (Marks)						Final Exam Time
		Lecture	Tutorial	Practical Application (Lab)	Total	Midterm Exam	Quizzes	Punctuality and Participation	Oral or Practical Test	Final Exam	Total	
ELE 2560	Graduation Project	0	0	6	6				100		100	3
ELE 2501	Information & Coding Theory	2	2	0	4	25	25	10	0	40	100	3
ELE 2536	Microwave Engineering	2	1	2	5	15	15	10	20	40	100	3
ELE 2503	Optical Communications	2	2	0	4	15	15	10	20	40	100	3
----	Communication Elective (2)	2	1	2		15	15	10	20	40	100	3
----	Communication Elective (3)	2	1	2		15	15	10	20	40	100	3
Total		10	3	12	30						600	

11. Program Admission Requirements:

The Academy fully complies with the admission regulations of the Private Institutions of the Ministry of Higher Education. Students applying for admission at an Academy Major must meet the following requirements:

- 1- Should be Egyptian. Non-Egyptian students can also accepted according to the related rules organized by the ministry of higher education.
- 2- Must graduate from the general secondary school or equivalent. Students join Majors through a competitive process, based mainly on the results of the secondary school Final Exam (Thanaweya Amma).
- 3- Should pass the Admission Exam.
- 4- Should be healthy.
- 5- Must enroll as a full-time student.
- 6- All kinds of required fees must paid in full

12. Regulations for progression and program completion:

- The minimum number of credit hours required for graduation is 144 Cr. These credits distributed among the academy requirements, the major requirement and the program requirements.
- The student is responsible for the study load that is adequate to his/her abilities and study level. The Academic Advisor examines the student's records to advise him/her to take a number of courses appropriate to his academic achievement at the Major with consideration to the following:
 1. The maximum number of credit hours is 18 per week during the fall and spring semesters. This number of credit hours may however reach 21 if the Student's GPA is 3 or more. This may change if the student expected to graduate in the semester and advised by the student's academic advisor.
 2. The minimum number of credit hours is 12 per week during the fall and spring semesters except for graduating students where the student can register for a number of credit hours less than 12 depending on the remaining credit hours in his/her last semester.
 3. In the summer semester, the maximum number of credit hours is 6. This number may be increased to 9 credits if this will allow the student to be graduated. Each course group should not be less than 10 students.
 4. The Major council must approve other cases of violating the maximum and minimum limits.
- The applied study system allows the students to complete their study program in the minimum time (4 years). However, the following restrictions should consider:
 1. The maximum period of the study program is 16 main semesters, including the withdrawn semesters without counting the summer semesters.
 2. The Academy council may allow a student to exceed these maximum specified periods in justifiable cases subject to a recommendation from the Major council.

The Grades of Success:

Table (4) shows the program grades of success.

Table (4): The Grades of Success

Symbol	Points	Percentage
A+	4.0	more than 97%
A	4.0	More than 93% and less than 97%
A-	3.7	More than 89% and less than 93%
B+	3.3	More than 84% and less than 89%
B	3.0	More than 80% and less than 84%
B-	2.7	More than 76% and less than 80%
C+	2.3	More than 73% and less than 76%
C	2.0	More than 70% and less than 73%
C-	1.7	More than 67% and less than 70%
D+	1.3	More than 64% and less than 67%
D	1.0	More than 60% and less than 64%
F	0.0	Less than 60%

13. Assessment Methods:

Table (5) illustrates how the program assessment methods achieve the program competencies.

Table (5): The Relation Between Program Competencies and Assessment Methods

		Assessment Methods							
		Written Exam	Oral Exam	Quizzes	Lab Exam	Research Assignments	Reporting Assignments	Project Assignment	In-Class Questions
Program Competencies	A1	*		*		*	*		*
	A2		*		*	*	*		*
	A3	*		*			*	*	
	A4	*		*			*		
	A5					*			*
	A6				*	*	*	*	*
	A7					*	*	*	
	A8		*			*	*	*	
	A9		*			*	*		
	A10						*	*	*
	B1	*	*	*		*	*		
	B2	*		*	*	*	*		
	B3	*	*	*		*	*		
	B4	*		*	*	*	*		
	B5	*		*		*	*		
	C1	*		*			*		
	C2	*			*		*		
	C3	*			*		*		
	C4	*			*		*		
	C5				*		*		

14. Teaching and Learning Methods:

Table (6) clarify the relation between program teaching & learning methods and the program competencies

Table (6): The Relation Between Program Competencies and Teaching & Learning Methods

		Teaching and Learning Methods									
		Face-to-face Lecture	Online Education	Tutorial / Exercise	Group Discussions	Laboratory	Site Visit	Presentation	Mini Project	Research and Reporting	Brain Storming
Program Competencies	A1	*	*	*							
	A2				*	*			*	*	
	A3	*	*	*							*
	A4	*	*	*				*			
	A5									*	*
	A6				*	*	*		*		
	A7							*		*	*
	A8				*			*			
	A9				*			*		*	
	A10				*					*	*
	B1	*	*	*						*	*
	B2	*	*	*					*		
	B3	*	*	*		*		*			
	B4	*	*	*					*		
	B5	*	*	*				*			
	C1	*	*	*						*	
	C2	*	*			*			*		
	C3	*	*			*			*		
	C4	*	*			*			*		
	C5	*	*			*			*		

15. Evaluation of program learning outcomes

Evaluator	Tool	Sample
1- Senior students	Meeting+ questioner	20%
2- Alumni	questioner	20%
3- Stakeholders (Employers)	Site visits	NA
4-External Evaluator, and/or, External Examiner(s)	External members	NA
5- Others		NA

Program Coordinator: Dr. Ehab K Elrafie
Signature:

Division Dean: Prof. Dr. Said M. El-Halafawy
Signature:

Date: 12/2023

Date: 12/2023

