



جامعة الدلتا للعلوم والتكنولوجيا  
كلية الهندسة  
وحدة ضمان الجودة



# Program Specification

Electronics and Communications  
Engineering Program

2025-2026



Delta University for Science & Technology  
Faculty of Engineering  
Electronics and Communications Engineering Program



# Program Specification

**Electronics and Communications Engineering**

*Offered by*

**Electronics and Communications Engineering Department**

**Faculty of Engineering**

**Delta University for Science and Technology**

**2025 2026**



### 1. Basic Information:

Program Title (according to what is stated in the bylaw):	Electronics and Communications Engineering Program
Total number of credit hours/points of the program:	160 hr
Number of academic years/levels (expected program duration):	10 semesters (5-years) / 5 levels
Department (s) Participating (if any) in teaching the program:	Basic Science Department Electronics and Communications Department
Faculty/Institute:	Faculty of Engineering
University/Academy:	Delta University for Science and Technology
Program majors/divisions/tracks/specialties in the final year (if any):	N/A
Partnerships with other parties and the nature of each (if any):	N/A
Name of the program coordinator (attach the assignment decision):	Prof. Dr. Essam Hagra
Program Specification Approval Date:	20 July 2025
Council responsible for Program Specification Approval (Attach the Decision / Minutes):	Faculty Council No. (123) on 20 July 2025

### 2. Program Aims

By the end of the program, graduates will be able to

1. Acquire deep understanding of theoretical background in physics, mathematics, basic engineering, and related subjects to solve, analysis and interpret data related to a wide spectrum of electronics and communications engineering problems.
2. Behave professionally and adhere to engineering standards and work to develop the profession and community under realistic constraints.



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3. Become leading engineer by considering technologies for efficient "information" exchange; and configure communications technologies to help human society and achieve sustainability.
4. Demonstrate and utilize personal, leadership, and entrepreneurial skills and be able to work collaboratively in a multidisciplinary team.
5. Acquire the engineering practice skills by using contemporary tools, techniques, and resources.
6. Master self-learning and lifelong-learning strategies to communicate effectively using different modes, tools, and languages to deal with different challenges and Pursue postgraduate studies.
7. Manipulate with the electronic circuits, all the way from the discrete components level, circuits' analysis, and design to the troubleshooting with emphasis on electronic power devices.
8. Demonstrate the knowledge in fields of analogue and digital communications - communication networks - internet - optical communications - Wireless communication - satellite communication - microwaves and antennas.
9. Apply the knowledge and skills in fields of measurement systems-digital systems - control systems – signal processing - computer architecture - programming languages - system analysis and design.

### 3. Program Structure (Curriculum)

#### 3.1. Program Components

Requirement Category/Type		Number of Courses	Number of Credit Hours/Points	Percentage from the total number of hours/points
University Requirements		7	14	8.75%
Faculty/College Requirements (if applicable)		14	39	24.37%
Program's General Requirements		20	60	37.5%
Program's Specialized Requirements (including field training and graduation project)		17	47	29.38
Requirements of the majors/ divisions/ tracks/ specializations in the final year (if any)		--	--	--
Other requirements	Field Training	2	2	1.25%
	Graduation Project	2	7	4.37%
	Mandatory training year	--	--	--
	Other (to be mentioned)	--	--	--
Total Compulsory Courses		50	144	90%
Elective Courses		8	16	10%
Total		58	160	100%



### 3.2. Program courses according to the expected study plan

Academic Level	Semester (Fall / Spring)	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Practical training	Other
Zero	Fall	GEN 001	Introduction to Information and Communication technology	Compulsory	University	2	2	-	
Zero	Fall	GEN 002	English Language (1)	Compulsory	University	2	2	-	
Zero	Fall	BAS 011	Engineering Mathematics (1)	Compulsory	Faculty	3	2	2	
Zero	Fall	BAS 021	Engineering Physics (1)	Compulsory	Faculty	3	2	-/2	
Zero	Fall	MEC021	Engineering Mechanics (1)	Compulsory	Faculty	3	2	2	
Zero	Fall	MEC051	Engineering Drawing and Projection	Compulsory	Faculty	3	1	4	
Zero	Spring	BAS 012	Engineering Mathematics (2)	Compulsory	Faculty	3	2	2	
Zero	Spring	BAS 022	Engineering Physics (2)	Compulsory	Faculty	3	2	-/2	
Zero	Spring	BAS 031	Engineering Chemistry	Compulsory	Faculty	3	2	-/2	
Zero	Spring	ECE 001	Introduction to Computer Programming	Compulsory	Faculty	2	1	-/3	
Zero	Spring	MEC022	Engineering Mechanics (2)	Compulsory	Faculty	3	2	2	
Zero	Spring	MEC052	Fundamentals of Manufacture Engineering	Compulsory	Faculty	3	2	-/2	
One	Fall	GEN 101	English Language (2)	Compulsory	University	2	2	-	
One	Fall	BAS 111	Engineering Mathematics (3)	Compulsory	Faculty	3	2	2	
One	Fall	MEC151	Computer Aided Drawing	Compulsory	Faculty	2	1	-/3	
One	Fall	ECE 111	Electrical Circuits Analysis	Compulsory	Program	3	2	1/2	
One	Fall	ECE 112	Fundamentals of Electronics	Compulsory	Program	3	2	1/2	
One	Fall	ECE 171	Advanced Computer Programming	Compulsory	Program	3	2	-/2	
One	Spring	GEN XXX	Humanities Elective 1 From (List A)	Elective	University	2	2	-	
One	Spring	BAS 112	Engineering Mathematics (4)	Compulsory	Program	3	2	2	
One	Spring	BAS 113	Statistics & Operation Research	Compulsory	Faculty	3	2	2	
One	Spring	ECE 113	Advanced Electronics	Compulsory	Program	3	2	1/2	
One	Spring	ECE 114	Advanced Electrical Circuits Analysis	Compulsory	Program	3	2	1/2	
One	Spring	ECE 115	Measurements and Sensors	Compulsory	Program	3	2	1/2	
Two	Fall	GEN 201	Technical Report Writing	Compulsory	University	2	2	-	
Two	Fall	BAS 211	Applied Topics in Engineering Mathematics	Compulsory	Program	3	2	2	



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Academic Level	Semester (Fall / Spring)	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Practical training	Other
Two	Fall	CIV 280	Fundamentals of Projects Management	Compulsory	Faculty	2	2	1	
Two	Fall	ECE211	Digital and Logic Circuits	Compulsory	Program	3	2	1/2	
Two	Fall	ECE 212	Power Electronics	Compulsory	Program	3	2	2	
Two	Fall	ECE221	Signals and Systems	Compulsory	Program	3	2	1/2	
Two	Spring	GENXXX	Humanities Elective 2 From (List B)	Elective	University	2	2	-	
Two	Spring	ECE 222	Digital Signal Processing	Compulsory	Program	3	2	-/2	
Two	Spring	ECE231	Electromagnetic Theory	Compulsory	Program	3	2	2	
Two	Spring	ECE241	Analog Communications	Compulsory	Program	3	2	2/1	
Two	Spring	ECE 251	Computer Architecture	Compulsory	Program	3	2	2	
Two	Spring	ECE 252	Automatic Control Systems	Compulsory	Program	3	2	1/2	
Two	Summer	ECE 200	Practical Training-Communications Eng. (1) *	Compulsory	Program	1	-	-	Field training 4
Three	Fall	GEN XXX	Humanities Elective 3 From (List B)	Compulsory	University	2	2	-	
Three	Fall	ECE 331	Waves and Transmission Lines	Compulsory	Program	4	2	2/2	
Three	Fall	ECE 341	Digital Communications	Compulsory	Program	3	2	2/1	
Three	Fall	ECE 351	Microprocessors (1)	Compulsory	Program	3	2	1/2	
Three	Fall	ECE 3XX	Elective 1 from (List 1)	Elective	Program	2	*	*	
Three	Spring	ECE 311	VLSI Design	Compulsory	Program	3	2	2/1	
Three	Spring	ECE 342	Optical Communications systems	Compulsory	Program	4	2	2/2	
Three	Spring	ECE 343	Communications Networks	Compulsory	Program	3	2	2	
Three	Spring	ECE 361	Computer Networks	Compulsory	Program	3	2	-/2	
Three	Spring	ECE3XX	Elective 2 from (List 2)	Elective	Program	2	*	*	
Three	Summer	ECE 300	Practical Training-Communications Eng. (2) +	Compulsory	Program	1	-	-	Field training 4
Four	Fall	ECE 411	Optoelectronic Devices	Compulsory	Program	3	2	2	
Four	Fall	ECE 441	Wireless and Mobile Communications	Compulsory	Program	4	2	2/2	
Four	Fall	ECE 442	Satellite Communications	Compulsory	Program	3	2	2/1	
Four	Fall	ECE4XX	Elective 3 from (List 3)	Elective	Program	2	*	*	



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Academic Level	Semester (Fall / Spring)	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Practical training	Other
Four	Fall	ECE 400a	Graduation Project-Communications Eng. (1)	Compulsory	Program	3	1	4	
Four	Spring	ECE 431	Antennas and Wave Propagation	Compulsory	Program	4	2	2/2	
Four	Spring	ECE 443	Communications electronics	Compulsory	Program	3	2	2	
Four	Spring	ECE 4XX	Elective 4 from (List 4)+	Elective	Program	2	*	*	
Four	Spring	ECE 4XX	Elective 5 From (List 5)+	Elective	Program	2	*	*	
Four	Spring	ECE 400b	Graduation Project-Communications Eng. (2)	Compulsory	Program	4	1	6	

**Elective courses**

<b>University Requirements Elective Courses</b>				
<b>University Electives: Students should choose three courses from the following two lists (6 Credits)</b>				
List (A)-Select One Course				
No.	Course Code	Course Title	Number of Credit Hours	Number of Weekly Hours (Theoretical teaching)
1	GEN 003	Psychology and Organization Behavior	2	2
2	GEN 004	Egyptian Civilization	2	2
3	GEN 005	Introduction to Music	2	2
4	GEN 006	History of The Theatre	2	2
5	GEN 303	History and Contemporary Issues of Arab Media	2	2
6	GEN 304	An Introduction to Athletic Psychology	2	2
7	GEN 401	Marketing skills	2	2
8	GEN 402	Creativity and Critical Thinking	2	2
9	GEN 404	Public Administration	2	2
List (B)-Select two Courses				
1	GEN 102	Leadership, Team Approach and Construction Skills	2	2
2	GEN 203	Human Resources Management	2	2
3	GEN 302	General Risk Management	2	2
4	GEN 310	Industrial Safety and Environmental Management	2	2
5	GEN 103	Professional Ethics	2	2
6	GEN 202	Legislation, Contract and Procurement Management	2	2
7	GEN 403	Introduction to Economics	2	2



Program Elective Courses						
No.	Code	Course Title	No. of Credits	Number of Weekly Hours		
				Theoretical (Lecture)	Tutorial / Practical	Other
<b>List (1)- Select one Course</b>						
1	ECE 312	Principles of Nano electronics	2	2	1	
2	ECE 313	Analog Integrated Circuit Design	2	2	1	
3	ECE 314	Computer Aided Design for Digital Circuits	2	1	2	
4	ECE 315	Filter Design and Synthesis	2	2	1	
<b>List (2)- Select one Course</b>						
1	ECE 316	RF Circuits Design	2	2	1	
2	ECE 332	Acoustics	2	2	1	
3	ECE 333	Under Water Acoustics	2	2	1	
4	ECE 334	Radar Engineering	2	1	-/2	
<b>List (3)- Select one course</b>						
1	ECE 444	Data Communication	2	2	1	
2	ECE 445	Network Security	2	2	1	
3	ECE 446	Audio And Video Encoding	2	2	1	
<b>List (4)- Select one course</b>						
1	ECE 451	Microprocessors (2)	2	1	-/2	
2	ECE 452	Networks Administration	2	1	-/2	
3	ECE 454	Digital Image Processing	2	1	-/2	
<b>List (5)- Select one course</b>						
1	ECE 447	Advanced Communications Systems	2	2	1	
2	ECE 448	Radio Navigation and GPS Systems	2	2	1	
3	ECE 449	Space Communications Technology	2	2	1	

#### 4. Academic Standards

##### 4.1. Adopted Academic Standards (NARS/ARS): ARS

The reference for standards considered in the development of this program is Academic Reference Standard (ARS) for Electronics and Communications program derived from generic engineering standards of National Authority for Quality Assurance and Accreditation of Education (NAQAAE).

##### 4.2. Date of Adoption of Standards in the governing Council

Adopted and approved by department council on 5<sup>th</sup> of December 2021 meeting No. 4 and faculty council on 19<sup>th</sup> of December 2021 meeting No. 80.



#### 4.3. Program Competencies

##### **A. General Competencies of Engineering Graduate**

The engineering graduate must be able to:

1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
2. 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.
3. 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.
4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
5. Practice research techniques and methods of investigation as an inherent part of learning.
6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
7. Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.
8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
10. Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.

##### **B. Additional Competencies for All electrical Programs**

In addition to the above competencies for all engineering programmes, the Electronics and Communications Engineering graduate should have the competencies of Electrical Engineering graduate, thus must be able to:





1. 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.
2. Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.
3. Design and implement elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.
4. 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.
5. Adopt suitable national and international standards and codes to design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services.

**C. Additional Competencies for Electronics and Communications Engineering graduate:**

In addition to the above competencies, the Communications Engineering graduate must be able to:

1. Design, model and synthesize analog, digital, and intelligent computer-based systems for electronics and communications engineering.
2. Analyze and design elements, modules, systems for optical communications, wireless and mobile communications, and satellite communications.
3. Select appropriate and sustainable technologies for designing communications systems by applying concepts from signal processing, waves and antennas engineering, information theory and coding.
4. Test and measure the performance of electronic and communications systems and evaluate their suitability for a specific application.
5. Select, design and integrate electronic components and subsystems to create custom solutions for different engineering problems.



**Matrix Between NARS and ARS**

<b>National Academic Reference Standard (NARS)</b>		<b>Academic Reference Standard (ARS)</b>
<b>A. General Competencies of Engineering Graduate</b>	1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
	2. 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.	2. 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.
	3. 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.	3. 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.
	4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles	4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles
	5. Practice research techniques and methods of investigation as an inherent part of learning.	5. Practice research techniques and methods of investigation as an inherent part of learning.
	6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
	7. Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.	7. Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.
	8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
	9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
	10. Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.	10. Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.



National Academic Reference Standard (NARS)		Academic Reference Standard (ARS)
<b>B. Additional Competencies for All electrical Programs</b>	1. 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.	1. 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.
	2. Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.	2. Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.
	3. Design and implement elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.	3. Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.
	4. 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.	4. 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.
	5. Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/ electronic/ digital equipment, systems and services.	5. Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services.
<b>C. Additional Competencies for Electronics and Communications Engineering graduate</b>		1. Design, model and synthesize analog, digital, and intelligent computer-based systems for electronics and communications engineering.
		2. Analyze and design elements, modules, systems for optical communications, wireless and mobile communications, and satellite communications.
		3. Select appropriate and sustainable technologies for designing electronics and communications systems by applying concepts from signal processing, automatic control, waves and antennas engineering, information theory, and coding.
		4. Test and measure the performance of electronic and communications systems and evaluate their suitability for a specific application.
		5. Select, design and integrate electronic components and subsystems to create custom solutions for different engineering problems.



6. Matrix of Academic Standards (Program Outcomes POs) with Courses

Code	Name of course	A. General Engineering Graduate Competencies										B. ELECTRICAL Eng. Graduate Competencies					C. Elect. & Comm. Eng. Graduate Competencies					
		A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	B-1	B-2	B-3	B-4	B-5	C-1	C-2	C-3	C-4	C-5	
<b>Level: 0 Year: 1 Semester: 1</b>																						
GEN 001	Introduction to Information and Communication technology												✓									
GEN 002	English Language (1)											✓										
BAS 011	Engineering Mathematics (1)	✓																				
BAS 021	Engineering Physics (1)	✓																				
MEC021	Engineering Mechanics (1)	✓																				
MEC051	Engineering Drawing and Projection	✓																				
<b>Level: 0 Year: 1 Semester: 2</b>																						
BAS 012	Engineering Mathematics (2)	✓																				
BAS 022	Engineering Physics (2)	✓																				
BAS 031	Engineering Chemistry	✓																				
ECE 001	Introduction to Computer Programming		✓																			
MEC022	Engineering Mechanics (2)	✓																				
MEC052	Fundamentals of Manufacture Engineering	✓																				
<b>Level: 1 Year: 2 Semester: 1</b>																						
GEN 101	English Language (2)																					
BAS 111	Engineering Mathematics (3)	✓																				
MEC151	Computer Aided Drawing	✓																				







Code	Name of course	A. General Engineering Graduate Competencies										B. ELECTRICAL Eng. Graduate Competencies					C. Elect. & Comm. Eng. Graduate Competencies					
		A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	B-1	B-2	B-3	B-4	B-5	C-1	C-2	C-3	C-4	C-5	
ECE 411	Optoelectronic Devices					✓				✓					✓			✓				✓
ECE 441	Wireless and Mobile Communications			✓									✓			✓		✓				
ECE 442	Satellite Communications			✓									✓			✓		✓				
ECE4XX	Elective 3 from (List 3)			✓							✓											✓
ECE 400a	Graduation Project- Communications Eng. (1)			✓					✓								✓					✓

Level: 4 Year: 5 Semester: 2

ECE 431	Antennas and Wave Propagation								✓								✓					✓
ECE 443	Communications electronics						✓										✓					✓
ECE 4XX	Elective 4 from (List 4) +						✓						✓								✓	✓
ECE 4XX	Elective 5 From (List 5) +																	✓			✓	✓
ECE 400b	Graduation Project- Communications Eng. (2)			✓					✓													✓

Humanities Elective List (A)

GEN 003	Psychology and Organization Behavior																✓						
GEN 004	Egyptian Civilization																✓						
GEN 005	Introduction to Music																✓						
GEN 006	History of The Theatre																✓						





Code	Name of course	A. General Engineering Graduate Competencies										B. ELECTRICAL Eng. Graduate Competencies					C. Elect. & Comm. Eng. Graduate Competencies				
		A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	B-1	B-2	B-3	B-4	B-5	C-1	C-2	C-3	C-4	C-5
<b>Program Elective Courses List (2)</b>																					
ECE 316	RF Circuits Design		✓								✓						✓				
ECE 332	Acoustics		✓								✓						✓				
ECE 333	Under Water Acoustics		✓								✓						✓				
ECE 334	Radar Engineering		✓								✓						✓				
<b>Program Elective Courses List (3)</b>																					
ECE 444	Data Communication			✓					✓												✓
ECE 445	Network Security			✓					✓												✓
ECE 446	Audio And Video Encoding			✓					✓												✓
<b>Program Elective Courses List (4)</b>																					
ECE 451	Microprocessors (2)								✓								✓				✓
ECE 452	Networks Administration								✓								✓				✓
ECE 454	Digital Image Processing								✓								✓				✓
<b>Program Elective Courses List (5)</b>																					
ECE 447	Advanced Communications Systems		✓														✓				✓
ECE 448	Radio Navigation and GPS Systems		✓														✓				✓
ECE 449	Space Communications Technology		✓														✓				✓



**6. Teaching and Learning strategies/methods to achieve Program Outcomes:**

- ✓ Face to face lecture
- ✓ Site Visit
- ✓ Online education
- ✓ Presentation
- ✓ Tutorial / Exercise
- ✓ Mini Project
- ✓ Group Discussions
- ✓ Research and Reporting (Self Learning)
- ✓ Laboratory
- ✓ Brainstorming

Program competencies		Teaching and learning methods									
		Face to face lecture	Online education	Tutorial / Exercise	Group Discussions	Laboratory	Site Visit	Presentation	Mini Project	Research and Reporting (Self Learning)	Brainstorming
<b>Level A</b>	A1	✓	✓	✓							
	A2				✓	✓			✓	✓	
	A3	✓	✓	✓		✓					✓
	A4	✓	✓	✓		✓	✓				
	A5						✓			✓	✓
	A6				✓	✓			✓		✓
	A7				✓			✓		✓	✓
	A8				✓			✓			
	A9				✓					✓	✓
	A10									✓	✓
<b>Level B</b>	B1	✓	✓	✓	✓						
	B2	✓	✓	✓		✓			✓		
	B3	✓	✓	✓		✓			✓		
	B4	✓	✓	✓		✓					✓
	B5	✓	✓	✓			✓	✓			✓





<b>Level C</b>	<b>C1</b>	√	√	√	√						
	<b>C2</b>	√	√	√			√				
	<b>C3</b>	√	√	√						√	√
	<b>C4</b>					√		√	√		
	<b>C5</b>	√		√		√			√		

**7. Student Assessment strategies/methods to verify and ensure students' acquisition of Program**

**Outcomes:**

- ✓ Written exam
- ✓ Online exam
- ✓ Oral Exam
- ✓ Quizzes
- ✓ Lab Exam
- ✓ Research Assignments
- ✓ Reporting Assignments
- ✓ Project Assignments
- ✓ In-class Questions

<b>Program competencies</b>		<b>Assessment methods</b>								
		Written exam	Online exam	Oral Exam	Quizzes	Lab Exam	Research Assignments	Reporting Assignments	Project Assignments	In-class Questions (Formative Assessment)
<b>Level A</b>	<b>A1</b>	√	√		√		√	√		√
	<b>A2</b>			√		√	√	√		
	<b>A3</b>	√	√		√				√	
	<b>A4</b>	√	√		√	√	√			
	<b>A5</b>						√			√
	<b>A6</b>					√	√	√	√	√
	<b>A7</b>						√	√	√	
	<b>A8</b>			√			√	√	√	
	<b>A9</b>			√						√
	<b>A10</b>						√		√	√
<b>Level B</b>	<b>B1</b>	√	√	√	√		√			√
	<b>B2</b>	√	√		√	√		√		
	<b>B3</b>	√	√	√	√	√				√



Program competencies	Assessment methods									
	Written exam	Online exam	Oral Exam	Quizzes	Lab Exam	Research Assignments	Reporting Assignments	Project Assignments	In-class Questions (Formative Assessment)	
B4	√	√		√	√			√		
B5	√	√		√		√	√			
Level C	C1	√	√	√	√		√	√	√	
	C2	√	√	√	√	√				
	C3	√	√	√	√		√			
	C4			√		√		√	√	
	C5	√		√	√	√	√	√		

**8. Program Key Performance Indicators (if any)**

No.	Performance Indicator	Target Level	Method	Measurement
1.	Percentage of achieved objectives for program improvement and development plan	≥80%	Quality unit statics for data analysis	Annually
2.	Number of enrolled students	≥120	Student affairs and academic guidance unit statics	Annually
3.	Quality of program specification	≥85%	Questionnaires of leadership and staff members	Annually
4.	Quality of courses specification	≥85%	Questionnaires of student satisfaction on courses	Each semester and annually
5.	Quality of field training	≥80%	Questionnaires of students on field training	Annually
6.	Effectiveness of teaching, learning and assessment methods	≥85%	Questionnaires of student satisfaction on teaching, learning and assessment methods	Annually
7.	Efficiency of learning resources and material resources	≥80%	Questionnaires of students on learning resources and material resources	Annually
8.	Student satisfaction with services and effectiveness of student support	≥80%	Questionnaires of students on education services	Annually



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No.	Performance Indicator	Target Level	Method	Measurement
9.	Average research production of program members	$\geq 1$	Scientific research database for staff members- Postgraduate affairs	Annually

Name & Signature Program Coordinator

Prof. Dr. Essam Hagra

Name & Signature Vice Dean for Education  
and Student Affairs

Prof. Dr. Mazen Selim