



PROGRAM SPECIFICATIONS

B.Sc. IN COMMUNICATIONS AND COMPUTERS ENGINEERING

2020 BYLAW

FACULTY OF ENGINEERING NAHDA UNIVERSITY



Nahda University Faculty of Engineering Quality Assurance Unit Communications and Computers Engineering Program



Communication and Computer Engineering Program B.Sc. Program Specifications Academic Year 2024/2025

A. Basic Information

1.	Program Title:	B.Sc in Communications and Computers				
		Engineering Program,				
2.	Program Type:	\boxtimes Single \square Double \square Multiple				
3.	Faculty:	Faculty of Engineering – Nahda University				
4.	Department(s) Offering the Program:	Communication and Computer Engineering				
5.	Coordinator:	Prof. Dr. Ahmed Abdel Moneim				
6.	Internal Evaluator:					
7.	External Evaluator:					
8.	Date of program bylaw approval:	2020				
9.	Date of program specifications approval:	October 2024				

B. Professional Information

1. Program Mission

The mission of the communication and computer engineering program is developing the cognitive, skill and behavioral aspects of students studying in the program and encouraging scientific research and applying quality standards in all academic and service activities in a way that equips distinguished cadres of engineers capable of creativity, innovation and entrepreneurship, scientifically qualified in the fields of communications and computer engineering, so that they are able to compete in the labor market locally, regionally and internationally and occupy the scientific position to serve the community and develop the environment. The program is therefore based on the following intentions:

- PM 1. Develop students' cognitive, skill, and behavioral aspects.
- PM 2. Qualify students scientifically in communications and computer engineering.
- PM 3. Equip students with creativity, innovation, and entrepreneurship.
- PM 4. Enable students to compete globally and serve the community.
- PM 5. Encourage scientific research and apply quality standards



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Table [1] The relationshi p matrix of "Institute's Mission Vs Program's Mission" Institute's Mission (IM): The College of Engineering is committed to providing

The College of Engineering is committed to providing contemporary academic programs that develop the cognitive, affective, and psychomotor skills of our graduates in a manner that instills entrepreneurship and embrace superb standards in all academic aspects.

			Program	m's Missio	n (PM)		
			PM 1	PM 2	PM 3	PM 4	PM 5
	IM 1	Providing contemporary academic programs that develop cognitive, affective, and psychomotor skills					
Institute's Mission (IM)	IM 2	Qualifying to instill entrepreneurship on local, Arabic and international market.					
	IM 3	Apply the Quality Standards in all academic and services activities.					

2. Program Aims

The main goal of the "Communication and computer engineering program" is to prepare communication and computer engineering who are:

- PA 1. Leading a professional practice on a national and regional scale in Communication and Computer engineering.
- PA 2. Design, operate and maintain digital and analog communication, mobile communication, coding, and decoding systems.
- PA 3. Use contemporary Communication and computer Engineering tools, techniques, and skills for engineering practice and project management.
- PA 4. Manipulate with the electronic circuits, all the way from the discrete components level, circuits' analysis, and design to the troubleshooting.
- PA 5. Model, analyze, design, and build computer, database, Network security and cloud-based architectures.





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Table [2] The relationship matrix of "Program's Mission Vs Program Aims".

			PM 1	PM 2	PM 3	PM 4	PM 5
	PA 1	Leading a professional practice on a national and regional scale in Communication and Computer engineering.					
Program	PA 2	Design, operate and maintain digital and analog communication, mobile communication, coding, and decoding systems.					
Aims (PA)	PA 3	Use contemporary Communication and computer Engineering tools, techniques, and skills for engineering practice and project management.					
	PA 4	Manipulate with the electronic circuits, all the way from the discrete components level, circuits' analysis, and design to the troubleshooting.					
	PA5	Model, analyze, design, and build computer, database, Network security and cloud-based architectures					

3. Graduate attributes:

To achieve the program mission and aims, program graduates should be able to:

- GA 1- Master a wide spectrum of communication and computer engineering knowledge and specialized skills, specifically in the realm of environmental aspects and sustainability and can apply acquired knowledge using theories and abstract thinking in real life situations.
- GA 2- Apply analytic critical and systemic thinking to identify, diagnose and solve communication and computer engineering problems with a wide range of complexity and variation.
- GA 3- Behave professionally and adhere to communication and computer engineering and sustainability ethics and standards.
- GA 4- Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance.
- GA 5- Recognize his/her role in promoting the communication and computer engineering field and contribute in the development of the Communication and Computer profession and the community;
- GA 6- Value the importance of the environment, both physical and natural, and work to promote sustainability principles.
- GA 7- Use techniques, skills, and modern engineering tools necessary for communication and computer engineering practice. In addition to applying his/her own knowledge and practical skills to create and develop communication and computer designs starting from the briefing phase till beyond the construction and operating phase.



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- GA 8- 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.
- GA 9- Communicate effectively using different modes, tools and languages with various audiences; to deal with academic/professional challenges in a critical and creative manner;
- GA 10- Demonstrate leadership qualities, business and project administration and entrepreneurial skills.

Table [3] The relationship matrix of "Program's Mission Vs Graduate's attributes"

		Graduat	aduate's attributes (GA)								
		GA 1	GA 2	GA 3	GA 4	GA 5	GA 6	GA 7	GA 8	GA 9	GA 10
Prog	PM 1										
ram'	PM 2										
S Missi	PM 3										
on	PM 4										
(PM)	PM 5			_							

	Table [4] The relationship matrix of "Program Aims Vs Program Graduate's Attributes".										
	Program Graduate's Attributes (GA)										
		GA1	GA2	GA3	GA4	GA5	GA6	GA7	GA8	GA9	GA10
	PA 1										
Progra	PA 2										
m Aims	PA 3										
(PA)	PA 4										
	PA5										

4. Program Competencies of Communication and Computer Engineering Program:

Considering NARS 2018, any program competencies are classified into three categories: <u>General competencies</u>, <u>Speciality Competencies</u>, and either <u>Sub-Speciality</u> or <u>Inter-Disciplinary competencies</u>.

For Communication and computer Engineering Program, and in light of NARS 2018, the program competences are categorized into three categories:

- <u>The "A" level</u>: This category is planned to accommodate the general competencies that any engineering graduate should be characterized with,
- <u>The "B" level</u>: This category is planned to accommodate the specialty competencies that any Electrical Engineer graduate should be characterized with
- <u>The "C" level</u>: This category is planned to integrate the Electrical engineering competences with the specific theme of both; Communication and computer engineering minors. Based on that the program graduate must be able to:

A. General Competences (Level A)

- 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.



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- 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.
- A7- Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural 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.

B. Specialty (Discipline) Competences (Level B)

In addition to the Competencies for all Engineering Programs the Basic Electrical Engineering graduate must be able to (B-Level):

- 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.
- 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.

C. Sub-Specialty (Program) Competences (Level C)

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

C1. Identify the main concepts of communication and computer engineering systems

Minor								
Communication	1 Understanding of signal processing techniques, modulation / demodulation , and							
Engineering	wireless communication systems.							
Computer	C1.2 Knowledge of computer organization, assembly language programming, and							
Engineering	computer systems architecture.							





C2. Establish and analyze the designs models of communication and computer engineering systems and utilize the software tools required to optimize their performance.

Concentration	
Communication	C2.1 design, develop, and implement wired and wireless communication systems.
Engineering	
Computer	C2.2. Design digital logic, microprocessors, and embedded systems.
Engineering	

C3. Develop the knowledge about measurement equipment, calibration and the ability to use these tools to characterize communication and computer engineering components and systems.

Concentration	
Communication	C3.1. Skill in using specialized measurement equipment for communication
Engineering	systems and Ability to calibrate measurement instruments to ensure
	accuracy.
Computer	C3.2. Proficiency in using emulators and debuggers to test and debug
Engineering	computer-based systems., Ability to use measurement instruments to
	measure timing parameters and signal integrity.

C4. Acquire additional abilities related to the field of the concentration within communication and computer engineering as listed below:

Concentration	
Communication	C4.1. Develop practical skills in communication protocol design, network
Engineering	security configuration, and cybersecurity .
Computer	C4.2. Proficiency in multiple programming languages ,Knowledge of software
Engineering	development life cycles, software design patterns, and testing methodologies.

Table [5] The relationship matrix of " Program Mission Vs Program's Competences ".								
	Program Gra	duate's At	tributes (G	A)				
	PM1	PM2	PM3	PM4	PM5			
A1								
A2								
A3								
A4								
A5								
A6								
A7								
A8								
A9								



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A10			
B1			
B2			
B3			
B4			
B5			
C1.1			
C1.2			
C2.1			
C2.2			
C3.1			
C3.2			
C4.1			
C4.2			

Table [6] The relationship matrix of "Graduate's Attributes Vs Program's Competences ".										
	Program Graduate's Attributes (GA)									
	GA1	GA2	GA3	GA4	GA5	GA6	GA7	GA8	GA9	GA10
A1										
A2										
A3										
A4										
A5										
A6										
A7										
A8										
A9										
A10										
B1										
B2										
B3										
B4										
B5										
C1.1										
C1.2										
C2.1										
C2.2										
C3.1										
C3.2										
C4.1										
C4.2										

5. Academic Standards



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The "<u>Communication and computer Engineering</u>" program ADOPTS the National Academic Reference Standards (NARS) for Engineering 2nd edition, issued in 2018. The program was approved 2020.

6. Curriculum Structure and Contents

a. Program duration

9 semesters, - 160 credit hours

b. Program structure

1. No. of total credit hours = 115(compulsory, 45 courses) + 45(elective, 16 courses)

		Credits	C	Conta	ct Hou	rs
	course mie	СН	Lec	Tut	Lab	TT
Nahda University Requirement	nts	14	14	0	0	14
Faculty of Engineering Requir	41	32	18	11	61	
Major Requirements of Comr	60	44	29	27	100	
Common Courses between th	e two minor requirements	10	8	6	1	15
	Communications Engineering Division (21.8%)	35	23	17	22	62
Minor Requirements of	Total	160	121	70	61	252
Communications and Computers	Computers Engineering Division (21.8%)	35	22	18	22	62
	Total	160	120	71	61	252

a- <u>Program courses</u>



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Major Requirements of Communications and Computers Engineering Program

Codo	Course Title	Credits	C	ontac	t Hou	rs	
Code	Course Ittle	СН	Lec	Tut	Lab	TT	Pre- requisites
BAS111	Mathematics (3)	2	2	1	0	3	BAS021
CCE111	Electrical Circuits (1)	3	2	<mark>2</mark>	2	<mark>6</mark>	BAS022
CCE112	Computer Programming	3	2	0	<mark>3</mark>	<mark>5</mark>	CCE011
CCE121	Electrical Circuits (2)	3	2	0	<mark>3</mark>	<mark>5</mark>	CCE111
BAS121	Mathematics (4)	2	2	1	0	3	BAS111
CCE122	Electronic Devices	3	2	<mark>2</mark>	<mark>1</mark>	<mark>5</mark>	CCE111
CCE123	Computer Organization and Architecture	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE112
CCE211	Electromagnetic Fields	2	2	1	<mark>0</mark>	<mark>3</mark>	BAS111,CCE121



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CCE212	Electrical Measurements and Instrumentation	3	2	0	<mark>3</mark>	<mark>5</mark>	CCE111
CCE213	Signal Analysis	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE121,BAS121
CCE214	Electronics Engineering	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE122
CCE215	Logic Circuits Design	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE121,CCE122
CCE217	Field Training (1)	0	0	0	0	0	
CCE216	Industrial Electronics	2	2	0	1	3	CCE122
CCE223	Microprocessors and Applications	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE123
CCE224	Advanced Logic Circuits Design	2	2	1	1	4	CCE215
CCE225	Electrical Communications	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE213
CCE222	Digital Signal Processing	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE213
BAS211	Mathematics (5)	2	2	1	0	3	BAS121
CCE312	Computer Networks	3	2	<mark>2</mark>	1	5	CCE223
ERE316	Modelling and Simulation of Engineering Systems	3	2	<mark>2</mark>	<mark>1</mark>	<mark>5</mark>	BAS121
ERE324	Automatic Control Systems	3	2	0	<mark>3</mark>	<mark>5</mark>	ERE316
CCE311	Field Training (2)	0	0	0	0	0	CCE217
CCE323	Embedded Systems	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE313
	Total	60	44	29	27	100	

Common Courses between the two minor requirements (10 credit Hours)

Code	Course Title	Cr. Hr	Lec	Tut	Lab	тт	
CCE221	Data Structure and Algorithms	2	2	1	1	4	CCE112
CCE313	Digital Circuit design	3	2	2	0	4	CCE224
CCE412	Computer and Network Security	2	2	1	0	3	CCE312
CCE322	Computer Vision	3	2	2	0	4	CCE112,CCE222
	Total	10	8	6	1	15	





Minor Requirements of Communications and Computers Engineering Program

i. Minor Requirements of Communications Engineering Division (35 CHs (21.875%))

Codo	Course Title	Credits	Co	ontact	: Hour	S	Bro requisites	
Code	course ritie	СН	Lec	Tut	Lab	TT	Pre- requisites	
CCE314	Digital Communication Systems	3	2	1	<mark>3</mark>	<mark>6</mark>	CCE225	
CCE315	Antenna and Wave Propagation	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE211	
CCE415	Satellite Communication	2	2	1	1	4	CCE225	
CCE319	Communication Networks	3	2	1	<mark>3</mark>	<mark>6</mark>	CCE214	
	Communications Engineering Elective (A)	3	2	<mark>2</mark>	1	<mark>5</mark>		
CCE321	Communications and Computers Graduation Project (1)	3	<mark>2</mark>	0	<mark>3</mark>	<mark>5</mark>	115 Cr Hrs.	
CCE326	Optical communication Systems	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE225	
CCE324	Microwave Devices and Circuits	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE315,CCE214	
	Communications Engineering Elective (B)	3	2	<mark>2</mark>	1	<mark>5</mark>		
CCE411	Communications and Computers Graduation Project (2)	3	1	0	6	7	CCE321	
CCE413	Information and Coding Theory	3	2	2	0	4	CCE222	
CCE414	Mobile communications	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE314	
	Total	35	23	17	22	62		

ii. Minor Requirements of Computers Engineering Division (35 CHs (21.875%))

Minor Requirements of Communications and Computers Engineering (Computers Engineering Division)

Cada		Credits Contact Hours					
Code	Code Course little	СН	Lec	Tut	Lab	TT	Pre- requisites
CCE316	Operating Systems	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE223
CCE317	Data Base Systems	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE221



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CCE327	Cloud Computing	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE312
CCE318	Software Engineering	3	2	2	0	4	CCE112
CCE321	Communications and Computers Graduation Project (1)	3	1	0	<mark>6</mark>	7	115 Cr Hrs.
CCE328	Big-Data Analytics	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE317
CCE417	Computational Intelligence	3	2	0	<mark>0</mark>	<mark>5</mark>	BAS122,CCE112
CCE418	Internet Of Things	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE317,CCE327
CCE411	Communications and Computers Graduation Project (2)	3	<mark>1</mark>	0	6	7	CCE321
CCE416	Data Mining	2	2	<mark>2</mark>	1	<mark>5</mark>	CCE328
	Computers Engineering Elective (A)	3	2	<mark>2</mark>	1	<mark>5</mark>	
	Computers Engineering Elective (B)	3	2	2	0	4	
	Total	35	22	18	22	62	

Elective Courses Requirements of Communications and Computers Engineering

Codo	Course Title	Credits	Co	ontact	Hour	S	Pro roquisitos				
Code	course fille	СН	Lec	Tut	Lab	TT	Pre- requisites				
Pool of Co	Pool of Communications Engineering Elective Courses										
Pool A											
CCE171	VLSI Technology	3	2	<mark>2</mark>	1	5	CCE214				
CCE173	Acoustics	3	2	<mark>2</mark>	<mark>1</mark>	<mark>5</mark>	BAS022				
ERE224	Power Electronics (1)	3	2	<mark>2</mark>	<mark>1</mark>	<mark>5</mark>	CCE122				
MPE326	Quality Control	3	2	<mark>2</mark>	<mark>1</mark>	<mark>5</mark>	BAS122				
ERE121	Energy Conversion	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE111				
Pool B											
CCE271	Telephony Systems	3	2	2	1	<mark>5</mark>	CCE225				
CCE272	RADAR Systems	3	2	<mark>2</mark>	<mark>1</mark>	<mark>5</mark>	CCE211				
CCE273	Integrated Circuits Design	3	2	<mark>2</mark>	<mark>1</mark>	<mark>5</mark>	CCE214				
ERE221	Electrical Machines (1)	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE211				



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ERE222	Electrical Power Engineering	3	2	<mark>2</mark>	<mark>1</mark>	<mark>5</mark>	CCE211				
Pools of Computers Engineering Elective Courses											
Pool A											
CCE371	Object-Oriented Programming	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE112				
CCE372	Microcontrollers and Applications	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE223				
CCE373	Artificial Intelligence and its Applications	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE318				
Pool B											
CCE471	Selected Topics in Computer networks and Security	3	2	2	0	4					
CCE472	Selected Topics in Systems and Artificial Intelligence	3	2	2	0	4					
CCE473	Selected Topics in Data Bases	3	2	2	0	4					
CCE474	Selected Topics in Distributed and Mobile Computing	3	2	2	0	4					

Proposed Study Plan of Communications and Computers Engineering Program

a) Proposed Study Plan of Communications Engineering Division

		Credits	Co	ontac	t Hou	urs	Pro-roquisitos
Code	Course Title	СН	Lec	Tut	Lab	TT	Pre-requisites
Semest	er 1	-			-	-	
BAS011	Mathematics (1)	3	2	2	0	4	
BAS012	Vibration and Waves	3	2	<mark>2</mark>	1	<mark>5</mark>	
BAS013	Statics	3	2	2	0	4	
BAS014	Engineering Chemistry	3	2	<mark>2</mark>	1	<mark>5</mark>	
BAS015	Engineering Drawing (1)	3	2	3	0	5	
CCE011	Computing in Engineering	2	2	1	1	4	
NUB	Complete hours from NUB Compulsory	1	1	0	0	1	
	Total	18	13	12	3	28	
Semest	er 2						
BAS021	Mathematics (2)	3	2	2	0	4	BAS011
BAS022	Electricity and Magnetism	3	2	1	<mark>3</mark>	<mark>6</mark>	BAS012
BAS023	Dynamics	3	2	2	0	4	BAS013



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	Course Title	Credits	Co	ontac	t Hou	urs	Pre-requisites	
Code	Course Title	СН	Lec	Tut	Lab	ΤТ	Frequisites	
BAS024	Fundamentals of Engineering	2	2	0	0	2		
BAS025	Engineering Drawing (2)	1	0	0	3	3	BAS015	
MPE021	Production Engineering	2	2	0	2	4		
ENG111	English (1)	1	1	0	0	1		
NUB	Complete hours from NUB Compulsory	3	3	0	0	3		
	Total	18	14	5	8	27		
Semeste	r 3					1		
BAS111	Mathematics (3)	2	2	1	0	3	BAS021	
BAS112	Building Safety and Fire Protection	2	2	0	0	2		
CCE111	Electrical Circuits (1)	3	2	<mark>2</mark>	2	<mark>6</mark>	BAS022	
CCE112	Computer Programming	3	2	0	<mark>3</mark>	<mark>5</mark>	CCE011	
	Structures and Properties of Materials Elective	2	2	0	1	3		
NUB	Complete hours from NUB Compulsory	3	3	0	0	3		
NUB	Complete hours from NUB Compulsory	3	3	0	0	3		
	Total	18	16	3	6	25		
Semest	er 4							
BAS121	Mathematics (4)	2	2	1	0	3	BAS111	
BAS122	Probability and Statistics	2	2	1	0	3		
CCE121	Electrical Circuits (2)	3	2	0	<mark>3</mark>	<mark>5</mark>	CCE111	
CCE122	Electronic Devices	3	2	<mark>2</mark>	<mark>1</mark>	<mark>5</mark>	CCE111	
CCE123	Computer Organization and Architecture	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE112	
ENG112	English (2)	1	1	0	0	1	ENG111	
	Project Management Elective	2	2	1	0	3		
	Engineering Economy Elective	2	2	1	0	3		
	15	8	5	28				
Semest	er 5							
CCE211	Electromagnetic Fields	2	2	1	0	<mark>3</mark>	BAS111,CCE121	
CCE212	Electrical Measurements and Instrumentation	3	2	0	<mark>3</mark>	<mark>5</mark>	CCE111	



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	Credits Contact Ho		t Hou	ırs	Pro-roquisitos		
Code	Course Title	СН	Lec	Tut	Lab	тт	Pre-requisites
CCE213	Signal Analysis	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE121,BAS121
CCE214	Electronics Engineering	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE122
CCE215	Logic Circuits Design	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE121,CCE122
CCE216	Industrial Electronics	2	2	0	1	3	CCE122
CCE217	Field Training (1)	0	0	0	0	0	
BAS211	Mathematics (5)	2	2	1	0	3	BAS121
	Total	18	14	8	7	29	
Semest	er 6	-					
CCE221	Data Structure and Algorithms	2	2	1	1	4	CCE112
CCE222	Digital Signal Processing	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE213
CCE223	Microprocessors and Applications	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE123
CCE224	Advanced Logic Circuits Design	2	2	1	1	4	CCE215
CCE225	Electrical Communications	3	2	2	1	5	CCE213
ENG113	English (3)	2	2	0	0	2	ENG112
	Communications Engineering Elective (A)	3	2	<mark>2</mark>	1	5	
	Total	18	14	10	6	30	
Semest	er 7						
CCE311	Field Training (2)	0	0	0	0	0	CCE217
CCE312	Computer Networks	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE223
CCE313	Digital Circuit design	3	2	2	0	4	CCE224
CCE314	Digital Communication Systems	3	2	2	1	5	CCE225
CCE315	Antenna and Wave Propagation	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE211
CCE319	Communication Networks	3	2	<mark>2</mark>	<mark>1</mark>	<mark>5</mark>	CCE214
ERE316	Modelling and Simulation of Engineering Systems	3	2	2	1	<mark>5</mark>	BAS121



Faculty of Engineering



Quality Assurance Unit

Communications and Computers Engineering Program

		Credits	Co	ontac	t Hou	Hours Pro requisitor	
Code	Course Title	СН	Lec	Tut	Lab	тт	Pre-requisites
	Total	18	12	12	5	29	
Semest	er 8						
CCE321	Communications and Computers Graduation Project (1)	3	<mark>2</mark>	0	3	5	115 Cr Hrs.
CCE322	Computer Vision	3	2	2	0	4	CCE112,CCE222
CCE323	Embedded Systems	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE313
CCE324	Microwave Devices and Circuits	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE315,CCE214
CCE326	Optical communication Systems	3	2	<mark>2</mark>	1	5	CCE225
ERE324	Automatic Control Systems	3	2	0	<mark>3</mark>	5	ERE316
	Total	18	12	8	9	29	
Semest	er 9	-					
CCE411	Communications and Computers Graduation Project (2)	3	<mark>1</mark>	0	6	<mark>7</mark>	CCE321
CCE412	Computer and Network Security	2	2	1	0	3	CCE312
CCE413	Information and Coding Theory	3	2	2	0	4	CCE222
CCE414	Mobile communications	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE314
CCE415	Satellite Communication	2	2	1	1	4	CCE225
	Communications Engineering Elective (B)	3	2	2	1	5	
	Total	16	11	8	9	28	

b) Proposed Study Plan of Computers Engineering Division

		Credits	Contact Hours			urs	
Code	Course Title	СН	Lec	Tut	Lab	тт	Pre-requisites
Semester 1							
BAS011	Mathematics (1)	3	2	2	0	4	
BAS012	Vibration and Waves	3	2	<mark>2</mark>	1	<mark>5</mark>	
BAS013	Statics		2	2	0	4	
BAS014	Engineering Chemistry	3	2	<mark>2</mark>	1	<mark>5</mark>	
BAS015	Engineering Drawing (1)	3	2	3	0	5	



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Quality Assurance Unit

		Credits	Contac		t Hou	urs	Pre-requisites
Code	Course Title	СН	Lec	Tut	Lab	ТΤ	Fielequisites
CCE011	Computing in Engineering	2	2	1	1	4	
NUB	Complete hours from NUB Compulsory	1	1	0	0	1	
	Total	18	13	12	3	28	
Semest	er 2				1		
BAS021	Mathematics (2)	3	2	2	0	4	BAS011
BAS022	Electricity and Magnetism	3	2	1	3	6	BAS012
BAS023	Dynamics	3	2	2	0	4	BAS013
BAS024	Fundamentals of Engineering	2	2	0	0	2	
BAS025	Engineering Drawing (2)	1	0	0	3	3	BAS015
MPE021	Production Engineering	2	2	0	2	4	
ENG111	English (1)	1	1	0	0	1	
NUB	Complete hours from NUB Compulsory33003		3				
Total 18 14 5 8 27							
Semeste	r 3						
BAS111	Mathematics (3)	2	2	1	0	3	BAS021
BAS112	Building Safety and Fire Protection	2	2	0	0	2	
CCE111	Electrical Circuits (1)	3	2	<mark>2</mark>	2	<mark>6</mark>	BAS022
CCE112	Computer Programming	3	2	0	<mark>3</mark>	5	CCE011
	Structures and Properties of Materials Elective	2	2	0	1	3	
NUB	Complete hours from NUB Compulsory	3	3	0	0	3	
NUB	Complete hours from NUB Compulsory	3	3	0	0	3	
	Total	18	16	3	6	25	
Semest	er 4		1	1			
BAS121	Mathematics (4)	2	2	1	0	3	BAS111
BAS122	Probability and Statistics	2	2	1	0	3	
CCE121	Electrical Circuits (2)	3	2	0	<mark>3</mark>	<mark>5</mark>	CCE111
CCE122	Electronic Devices	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE111
CCE123	Computer Organization and Architecture	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE112
ENG112	English (2)	1	1	0	0	1	ENG111



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Quality Assurance Unit

		Credits	Co	ontac	t Hours		Pro roquisitos
Code	Course Title	СН	Lec	Tut	Lab	ΤТ	Fie-requisites
	Project Management Elective	2	2	1	0	3	
	Engineering Economy Elective	2	2	1	0	3	
	Total	18	15	8	5	28	
Semest	er 5	-					
CCE211	Electromagnetic Fields	2	2	1	<mark>0</mark>	<mark>3</mark>	BAS111,CCE121
CCE212	Electrical Measurements and Instrumentation	3	2	0	<mark>3</mark>	<mark>5</mark>	CCE111
CCE213	Signal Analysis	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE121,BAS121
CCE214	Electronics Engineering	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE122
CCE215	Logic Circuits Design	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE121,CCE122
CCE216	Industrial Electronics	2	2	0	1	3	CCE122
CCE217	Field Training (1)	0	0	0	0	0	
BAS211	Mathematics (5)	2	2	1	0	3	BAS121
	Total	18	14	8	7	29	
Semest	er 6						
CCE221	Data Structure and Algorithms	2	2	1	1	4	CCE112
CCE222	Digital Signal Processing	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE213
CCE223	Microprocessors and Applications	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE123
CCE224	Advanced Logic Circuits Design	2	2	1	1	4	CCE215
CCE225	Electrical Communications	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE213
ENG113	English (3)	2	2	0	0	2	ENG112
Computers Engineering Elective (A)		3	2	<mark>2</mark>	1	<mark>5</mark>	
	Total	18	14	10	6	30	
Semest	er 7						
CCE311	Field Training (2)	0	0	0	0	0	CCE217



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Quality Assurance Unit

		Credits	Co	Contact Hours		Pro-roquisitos	
Code		СН	Lec	Tut	Lab	ΤТ	
CCE312	Computer Networks	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE223
CCE313	Digital Circuit design	3	2	2	0	4	CCE224
CCE316	Operating Systems	3	2	<mark>2</mark>	1	5	CCE223
CCE317	Data Base Systems	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE221
CCE318	software Engineering	3	2	2	0	4	CCE112
ERE316	Modelling and Simulation of Engineering Systems	3	2	2	1	5	BAS121
	Total	18	12	12	4	28	
Semest	er 8						
CCE321	Communications and Computers Graduation Project (1)	3	<mark>2</mark>	0	<mark>3</mark>	<mark>5</mark>	115 Cr Hrs.
CCE322	Computer Vision	3	2	2	0	4	CCE112,CCE222
CCE323	Embedded Systems	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE313
CCE327	Cloud Computing	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE312
CCE328	Big-Data Analytics	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE317
ERE324	Automatic Control Systems	3	2	0	<mark>3</mark>	<mark>5</mark>	ERE316
	Total	18	12	8	9	29	
Semest	er 9						
CCE411	Communications and Computers Graduation Project (2)	3	<mark>1</mark>	0	6	7	CCE321
CCE412	Computer and Network Security	2	2	1	0	3	CCE312
CCE416	Data Mining	2	2	1	1	4	CCE328
CCE417	Computational Intelligence 3 2 0 3		<mark>3</mark>	<mark>5</mark>	BAS122,CCE112		
CCE418	Internet Of Things	3	2	<mark>2</mark>	1	<mark>5</mark>	CCE317,CCE327
	Computers Engineering Elective (B)	3	2	2	0	4	
	Total	16	11	6	11	28	



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Communications and Computers Engineering Program

7. Program Admission Requirements

See Bylaws and Study Regulations, Articles 14 -47.

Article (14): Admission Requirements:

The faculty accepts the certificate of the Egyptian General Secondary School (mathematics section) or its equivalent, in accordance with the rules established by the Supreme Council of Universities and approved by the Minister concerned with higher education and the medical examination shall prove the validity of the student to pursue the study.

Article (15): Academic Guidance:

Each student shall have an academic advisor who shall plan his / her academic program, supervise implementation, monitor the performance and assist in solving its academic problems, from the beginning of enrollment until graduation.

Article (16): The Student's Academic Level:

Students enrolled in the faculty are assigned to study levels (First level, Second level, Third level, Fourth level, and Fifth level) based on the total number of credit hours he/she completed successfully as follows:

Level Number	No. of Completed Credit Hours	
First level	up to 32 credit hours (20 % of total)	Freshman
Second level	is more than 32 credit hours (20 % of total) and up to 64 credit hours (40 % of total)	Sophomore
Third level	is more than 64 credit hours (40 % of total) and up to 96 credit hours (60 % of total)	Junio r
Fourth level	is more than 96 credit hours (60 % of total) and up to 128 credit hours (80 % of total)	Senior-1
Fifth level	is more than 128 credit hours (80 % of total) and up to 160 credit hours (100 % of total)	Senior-2

Article (17): The Study Load:

The study load is the total number of credit hours that a student is allowed to enroll in the semester so that:

1. The minimum number of credit hours received by the student in each semester is 12 credit hours, except for cases of graduation or stumbling, and with the approval of the academic council upon the recommendation of the academic advisor and the approval of the head of the department council and the dean of the faculty if he has an acceptable excuse.

2. Students are allowed to register 18 credit hours in the first and second semester.

3. The maximum number of credit hours received by students in the first or the second semesters is 21 credit hours for students who achieve a cumulative GPA of not less than 3.3.

4. The student may register three additional credit hours for the maximum in the following cases:

- If his/her CGPA is 3.30 or higher.
- The student must be at the second or higher level.
- If his graduation depends on that.

5. For the summer semester, the maximum number of hours a student is allowed to register is 9 credit hours and this limit is increased to 12 credit hours for graduation.

Article (18): Registration:

The student must register for the semester according to the academic calendar and with the approval of the academic advisor.



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The University prepares the annual calendar and announces it to the students and the various departments of the university as well as to the university's website. The annual calendar of the university determines the beginning of registration of students for the course before the end of the first week of the semester.

Article (19): Late Registration:

The Dean of the faculty may also approve the registration of the student before the end of the second week of the study if the student's excuse for delay and after the approval of the academic advisor. If the student submits the registration after the end of the first week of the semester, the student will sign the late registration fee determined by the University Council.

Article (20): Add Drop and Withdrawal from a Course:

1. After the approval of the academic advisor, the student may add one or more courses during the first two weeks of the study, taking into account the maximum academic load of the semester.

2. The student may cancel the registration of one or more courses after the approval of the academic advisor and the professor of the course within a period not exceeding the end of the fourth week of the start of the study, while not violating the minimum academic load of the semester.

3. The student may withdraw from the registration in one or more courses with an excuse accepted by the Faculty Council after the fourth week until the end of the tenth week, taking into account the minimum academic load of the semester. In this case, the courses that have been withdrawn are recorded in the student's academic record and with W (withdraw) grade

Article (21): Change / Transfer of Specialization:

A student can change his / her specialty upon his / her own request. Changing the speciality requires the approval of the two scientific sections and the approval of the Faculty Council. The student shall complete the requirements of the degree specified in the regulations in the year of approval of the change of specialization.

Article (22): Transfer of Students and Transfer of their Registration:

Students may be transferred to another equivalent faculty in the university or to a non-corresponding higher institutions provided that the minimum number of grades accepted by the faculty is obtained in the year of admission to the secondary school or equivalent or in the year of joining the faculty whichever is better for him, without violating the regulations approved by the University Council and the Supreme Council of Private and Private Universities.

Article (23): Transfer from a Corresponding or Non-Corresponding Faculty:

The student may be transferred to the faculty from corresponding or non-corresponding university faculties, provided that he has a minimum of the total grades accepted by the faculty in the year of obtaining the secondary school or equivalent or in the year of joining the faculty, whichever is better, with the approval of the dean of the faculty. The student is enrolled at the level of study which corresponds to the number of credit hours approved in his new study plan.

Article (24): Transfer from Military Faculties:

Without prejudice to the conditions of admission to the faculty, the registration of dismissed students may be transferred from the military faculty "Military Technical College" (MTC) for non-validity of the military life or dismissal for failure of repetition times, as a new student at the first level provided that the student has obtained the total grades accepted by the faculty in the year of The qualification or year of separation is better for the student.

Article (25): Accept depleted repetition times:

1. In case the student enrolled in other faculty / higher institute in the academic year preceding the year in which he is enrolled in the faculty.

2. In case the student obtained a secondary high school diploma or equivalent with grades accepted by the faculty in the year of obtaining the secondary high school or its equivalent or in the year of joining the faculty, whichever is lower.

3. The enrollment of the student on a certain level will be depending on the evaluation committee which will evaluate the studied courses. This shall be approved by the Academic Council upon the proposal of the Dean of the Faculty.

Article (26): Drop out of the study:



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1. A student status is considered to be discontinued if he does not register in a semester or withdraws from all the courses he has registered during the semester. The student may drop out of study for a period not exceeding three semesters with an excuse presented before or during the semester accepted by the Faculty Council to continue after the study.

2. If the student is absent for four semesters without an excuse accepted by the Faculty Council, he shall be dismissed from the Faculty upon the approval of the Faculty Council and the accreditation of the Rector. In all cases, the student shall pay a registration fee determined by the University Council.

Article (27): Withdrawal from the Faculty:

The student can leave the faculty for any accepted reason and withdraw his file from them, and the University Council sets rules for dealing with tuition and fees related to this matter. **Article (28): Academic Warning:**

- 1. A student who obtains CGPA of less than 2.00 in any semester is placed on the academic warning list. The first semester for joining the university and the summer semester is not counted in the classes that the student is warning of.
- 2. The student shall be notified by a registered letter to his registered residence address, indicating his academic position and what he must do in consultation with the Vice Dean of Student Affairs and his academic advisor.
- 3. The student must improve his CGPA to more than 2.0, in a maximum of two semesters from the date of the warning.
- 4. An academic student is allowed to register:
 - If the cumulative average is > 1.5 = (9 credit hours).
 - If the cumulative average = 1.5 to > 1.75 (12 credit hours).
 - If the cumulative average = 1.75 to> 2 (15 credit hours).
 - GPA = 2 to > 3.3 (18 credit hours).
 - Cumulative average = 3.3 and above (21 credit hours).
- 5. The Vice Dean for Student Affairs, in coordination with the academic advisor, shall determine the appropriate academic burden for the students on the academic warning list and organize the method of following up their academic progress during the semester and taking the necessary steps to instruct them to remove the effect of academic warning.
- 6. A student given an academic warning should finish the incomplete courses, before the end of the late registration period for the successive semester.

Article (29): Dismissal from Faculty or Specialization:

1. The student will be dismissed from the faculty or specialization if he / she fail to raise the academic warning during the specified period, except for the restricted student at the last level of his / her academic program.

2. A student who is dismissed from faculty or specialization may transfer to another faculty or specialization in the same faculty in accordance with the applicable conditions of transfer. If he is not accepted according to the conditions of transfer, he shall be dismissed from the university.

3. The faculty or the scientific department supervises the specialization in which he / she has transferred the credit hours he studied in his previous specialization, which is part of the study program in his new specialization and prepares a new academic record while maintaining the previous record.

Article (30): Re-Enrollment:

Article (30a):

1. Re-enrollment in the faculty with the approval of the faculty Council and the Academic Council after taking the opinion of the academic advisor and the Council of the department and the student's exhaustion academic warnings within the required period of time as a minimum of re-enrollment, which are four main semesters.

2. The student shall pay the re-entry fee determined by the University Council, upon becoming a regular student once the absence of the reason for his dismissal from the faculty has ceased.

3. The student shall register in the term of Re-enrollment a study load according to the last general cumulative rate before re-enrollment.



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Article (30b):

The student may be registered and re-enrolled in the following cases:

- 1. The new student who has not completed the registration procedures for an acceptable excuse.
- 2. The student who withdrew his papers and is restricted to the faculty and gave an acceptable excuse.
- 3. The student who did not apply to the Coordination Office in the year of obtaining the high school or its equivalent with acceptable excuse.

Article (31): Courses' Grade Evaluation for Repeated Courses:

- 1. The student may repeat the course in one of the following cases:
- If the student wants to improve the course grade.
- If the student wants to improve the CGPA ≥ 2 , to be able to graduate.
- 2. The maximum number of courses a student is allowed to repeat to improve GPA is only five courses during his or her studies.
- 3. In case of repeating the Course: The student's grade is updated with the higher grade.

Article (32): The Decision to Audit:

The student may, with the consent of the academic advisor and the dean of the faculty, study one or more listener courses. In this case, the credit hours of the course shall be included in the calculation of the study load and shall be awarded a "listener" grade. The course shall not be included in the calculation of its quarterly or cumulative average.

Article (33): Rules of attendance and absence:

The percentage of student attendance in any course should not be less than 75% of the theoretical, practical or applied hours of the course during the semester. If the student exceeds the percentage of the absence of 25% of the total hours of the course, he shall be considered a failure unless the absence is an excuse accepted by the Faculty Council after taking the opinion of the Council of the relevant scientific department. In this case, the student shall be failed in the course and shall re-register.

Article (34): Examination Procedures:

The tests shall be conducted in the faculty based on the general rules and procedures determined by the University Council for all stages of the test. The faculty shall prepare its procedures in accordance with the nature of the study.

Article (35): Exam Absence:

- In case the student absent in the mid-term exam with an excuse based on official documents on the same day of the exam. If the excuse has been accepted by the Faculty Dean, the student shall perform the makeup exam one week after the last exam in the mid-term.
- In case the student absent in the Final Exam with an excuse based on official documents on the same day of the exam. If the excuse has been accepted by the Faculty Dean, the regulation of Article (41) will be applied on the student.

Article (36): Field Training:

- The student must perform Field Training for 6 weeks in an industrial or service facility related to the student's program.
- The training follow-up will be handled by the academic advisor assigned by the Program Steering Committee.
- A committee of examiners shall be formed by the competent department approved by the dean of the Faculty to hold an oral exam for the student
- The student must submit a technical report to committee of examiners at the end of the training period.
- The company should submit a student's training evaluation form to the committee of examiners at the end of the training period.
- The student's score in the field training course is calculated on the basis of 50% of the student's activities (including the technical report + evaluation form from the company) and 50% for the oral exam by the examiners committee.
- The field training is evaluated and dose count in the cumulative GPA calculation. Article (37): Course Evaluation:



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- 1. The final grade for each course is the sum of students' grades in the semester including, practical tests, mid-term exams, and end-of-term testing, where the student's work is continuously evaluated during the semester.
- 2. The final grade of each course consists of the student evaluation in the class, the periodic tests, theoretical and practical exercises, research, while the final semester test grade range from 40% to 60% of the final course grade.
- 3. The student's Grade in the applied courses such as the project and the research courses may be evaluated without a written test at the end of the semester. An oral test will be held, including an assessment of the report submitted by the student and the scientific work carried out through a discussion committee consisting of two faculty members At least one of them from outside the university in addition to the project supervisor.
- 4. The student must obtain at least 60% of the total grades to pass the course and provided that he is successful in the final exam by obtaining 40% of the final exam score as a minimum of success in the course.

Article (38): Grading System:

1. The system of calculating the percentage of courses and percentage points shall be calculated according to the following table:

Grade	Percentage	GPA	Grade	Percentage	GPA
A +	97% and higher	4.0	C +	73% to less than 76%	2.3
А	93% to less than 97%	4.0	С	70% to less than 73%	2.0
A-	89% to less than 93%	3.7	C-	67% to less than 70%	1.7
B +	84% to less than 89%	3.3	D +	64% to less than 67%	1.3
В	80% to less than 84%	3.0	D	60% to less than 64%	1.0
В-	76% to less than 80%	2.7	F	Less than 60%	0.0

2. Grad Point Average: GPA

a. The Cumulative GPA score for a semester is calculated by obtaining the GPA score multiplied by the number of credit hours for each course to produce the so-called quality points. The sum of the quality points is then divided by the total number of credit hours in which the Cumulative GPA score is calculated.

CGPA score = Total number of quality points divided on Total credit hours

b. To obtain CGPA, the total qualitative score is divided by the total credit hours of the courses whose points are included in the calculation of the average CGPA for all semesters. The student's academic load in any semester (excluding the summer semester) is determined by the CGPA and not by the GPA of the previous semester.

Note: The third decimal point of the average cumulative score is rounded to only two decimal places in accordance with the accepted accounting rules or as determined by the approved university regulations. **Article (39): Estimates not included in the calculation of the student's GPA:**

Rating	Description
Р	Pass
F	Fail



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Ι	Incomplete
W	Withdraw
AU	Audit
FW	Forbidden
FX	absence without excuse

Article (40): The university requirement course grades:

The university requirement course grades are calculated according to the applicable university regulations.

Article (41): Incomplete (I):

- If the student cannot complete the study requirements of a specific course at the end of the semester, the student will be given an "Incomplete" grade. The instructor will fill in an incomplete form specifying the reasons and specify the assignments that the student did not complete. The student shall perform the makeup exam one week after the last exam in the Final Term Exam.
- The student must complete all the course requirements within one week after the last exam in the Final • Term Exam in the same semester; otherwise he/she will receive a failed assessment in the course.

Article (42): Prerequisite:

The prerequisite is a course which must be completed for the study of a subsequent course and the following conditions apply:

1. A student may not take a course before successfully completing the prerequisite.

2. A student may register one course in parallel with its prerequiste upon the approval of the lecturer or the department, if he is in the final term for graduation.

Article (43): The Approval of the Final Examination Results:

Council of the University shall approve the results of the final examinations to obtain a bachelor's degree or a bachelor's degree or a higher degree at the suggestion of the Faculty Council.

Article (44): List of Honor:

• The name of the student is placed in the Dean's honors List if the CGPA of the previous semester is not less than 3.3 and the maximum academic load has been recorded and not failed in any course.

• The student receives the honors degree if he graduated with a general cumulative average of not less than 3 points.

Article (45): Scholarships:

The University offers scholarships to outstanding students and students who face special emergency circumstances in accordance with the system established by the University Council and approved by the Board of Trustees.

Article (46): Discipline of Students:

The provisions of Law No. 12 of 2009 for Private and Private Universities and the Law of Organizing Universities No. 49 of 1972, its Executive Regulations and the decisions of the University Council apply to student discipline.

Article (47): General Provisions:

1. No student may declare being unaware of any contents of the above-mentioned articles or of not being informed of the publications issued by the University.

2. These regulations shall be applied on newly admitted students, where these regulations might be applied on old students if they were subject to clearing procedure, and then approved by the Faculty Council.

3. Law No. 12 of 2009 for private and private universities and the Law of Organizing Universities No. 49 of 1972 and its executive regulations and its amendments and the resolutions of the University Council.

8. Regulations for Progression and Program Completion

Communications and computers Engineering Program Specifications



Nahda University Faculty of Engineering Quality Assurance Unit Communications and Computers Engineering Program



See Bylaws and Study Regulations, Articles; 5-13.

Article (5): Scientific Departments / Specializations:

The faculty includes the following scientific Departments.

- 1. Department of Basic Sciences (Non Student Department)
- 2. Civil Engineering
- 3. Architectural Engineering
- 4. Communications & Computer Engineering
- 5. Mechatronics Engineering
- 6. Mechanical Engineering (Mechanical Production Division)
- 7. Electrical and Renewable Energy Engineering

Other Department Specializations that may be introduced by the faculty in the future.

Each department of the faculty shall teach the courses and conduct the researches that fall within its field of specialization. The faculty council shall determine the departments that teach the shared courses, if any, so that the engineering, humanities, general social and cultural courses that fall outside the scientific departments of the faculty will be taught by specialized members from of recognized universities and research centers.

Article (6): The General Structure of Studying Program:

Item	Courses	Credit hours	The percentage of the hours
Ι	University Requirements	14	8.75 %
Specia	alization requirements		
	Faculty Requirements	41	25.625 %
	Civil Engineering	105	65.625 %
	Communication and Computer Engineering	105	65.625 %
II	Mechatronics Engineering	105	65.625 %
	Mechanical Engineering (Mechanical Production Division)	105	65.625 %
	Electrical and Renewable Energy Engineering	105	65.625 %
ш	Faculty Requirements of Architectural Engineering	39	24.375 %
111	Architectural Engineering	107	66.875 %
Total	credit hours	160	100 %

Article (7): Degree Awarded by the Faculty:

• Upon the recommendation of the faculty Council and the approval of the University Council, the University grants a bachelor's degree in one of the following specializations:

- Civil Engineering.
- Architectural Engineering.
- <u>Communications & Computer Engineering.</u>
- Mechatronics Engineering.
- Mechanical engineering (Mechanical Production Division).
- Electrical and Renewable Energy Engineering.

Article (8): Competence of scientific departments:

The scientific departments are specialized in teaching the courses within their competencies according to the regulations. The engineering courses that fall outside these departments and the Humanities and Social Sciences courses should be taught by specialized faculty members from outside the university from the recognized universities, higher institutes and research centers. The code of the course indicates the department responsible for this course.





The Faculty has seven scientific Departments as follows:

Scientific Departments	Description
Basic Sciences Department	Basic Sciences Department is Non Student Department and specializes in teaching courses in mathematics, physics, engineering chemistry, mechanics and english language.
Program	 Civil Engineering Program is concerned with teaching all courses related to the field of civil engineering, and includes structural engineering courses such as (structural analysis and mechanics, design of reinforced and precast concrete structures, design of metal structures, design of high buildings and walls of load walls, properties and testing of materials, materials resistance and quality control, geology, soil mechanics and engineering. Construction and project management, construction dynamics and seismic engineering, bridges design, restoration and consolidation of buildings, construction of buildings), as well as general works courses (fluid mechanics, geodetic and imaging space, Hydraulics, Transport Planning and Traffic Engineering, Hydroponic Engineering, Hydrology, Maps and Information Systems, Engineering Area, Irrigation and Drainage Engineering, Geographical Information Systems, Environmental and Health Engineering, tunnel engineering and underground structures, irrigation facilities design) and graduation project. The department is also specialized in the work of specialized researches and studies in the field of civil engineering with its various disciplines. After completing the study of the courses listed in the list (160 credit hours), the student receives a bachelor's degree in civil engineering (General Civil) and within the following three specific specializations. Structural engineering field is based on (structural analysis - design of reinforced concrete structures and foundations - soil mechanics and foundations - reinforcement and restoration of concrete structures - properties and resistance of materials - project management).
ngineerin	Public works engineering field is based on (geodesy area - road and airport engineering - transport and traffic engineering - railway engineering - health engineering - environmental engineering).
Civil E	Water resources engineering field is based on (Hydrology - Design of Irrigation - Harbor Engineering - Irrigation and Drainage Systems - Water Resources Management - Hydraulic Machines)
Architectural Engineering Program	Specializes in teaching all courses related to Architectural Engineering including: Architectural Design, History and Theory of Architecture, Building Science and Technology, Construction and Architectural Sciences, Urban Planning and Design, Site Coordination, Graduation Project. The department also specializes in the field of architectural research and studies. After completing the study of the courses listed in the list (equivalent to 160 credit hours), the student receives a bachelor's degree in architectural engineering.



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Communications and Computers Engineering Program

	Specializes in teaching all the courses related to (Communications and
	Computer Engineering Program), including:
ter	1. Communications engineering courses (electrical engineering basics,
put	electronic circuits and measurements, electronic engineering, integrated
[mo	circuits, microprocessors and their applications, electromagnetic waves,
C	electrical communication, power electronics, signal processing) and
nd	graduation project.
s al gr:	2. Computer engineering courses (computer organization, computer software,
ons	computer networks, databases and applications, systems engineering, control,
ati g I	industrial intelligence and applications) and graduation project.
nic	The Program is also specialized in research and specialized studies in the
nul	field of communications engineering and computers. After finishing the
mn gin	study of the courses listed in the list (160 credit hours), the student
En	receives a bachelor's degree in communications and computer
• 「	engineering.
g	Specializing in teaching all courses related to Mechatronics Engineering,
rii	including Mechatronics Engineering, Robotics Control, Modern Control,
nee	Hydraulic Circuits, Robot Dynamics, Numerical and Hydraulic Control,
igi	Numerical and Hydraulic Control, Electrical Engineering Basics,
E	Electronic Circuits and Measurements, Electronic Engineering, Integrated
ics	Circuits, Microprocessors and Applications, Computer software, systems
on	engineering, automatic control, industrial intelligence and applications,
atr am	and graduation project. The department also specializes in research and
sch	specialized studies in the field of mechatronics engineering. After
Pro	completion of studying the courses listed in the list (160 credit hours), the
	student receives a bachelor's degree in Mechatronics Engineering.
	Industrial furnaces, properties and selection of materials, product design
	using computer, factory planning and planning, quality control and
cal rin ica ica	graduation project. The department also specializes in research and
ani ee an an icti	specialized studies in the field of design and production engineering. After
ch gin gin du visi	completion of the study of the courses listed in the list (160 credit hours),
Pro Pro Div	the student receives a bachelor's degree in mechanical engineering
	(Mechanical Production Division).
	Specialized in teaching all the courses related to electrical and renewable
E E	energy engineering, including courses for renewable energy systems,
gy gr:	photovoltaic energy, solar energy, wind energy, energy transmission and
ro	distribution systems, energy systems analysis, generation and operation
En En g P	economics, power system protection and graduation project. The
al a ble rin	department is also specialized in research and specialized studies in the
ic: val eei	field of electrical and renewable energy engineering. After completing the
ctr nev gin	study of the courses mentioned in the list (160 credit hours), the student
Ele Rei Enș	receives a bachelor's degree in electrical and renewable energy
	engineering.

Article (9): The System of Study:

1. The study system is a credit hours system. The curriculum shows list of courses distributed on different levels with number of credit hours for each course, as well as the distribution of courses at the different levels of study as well as the short description of the content of each course.

2. The Councils of Scientific Departments shall determine the scientific content of each course and shall issue a decision by the Faculty Council in the light of the continuous development of the syllabuses



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Communications and Computers Engineering Program

according to the new scientific and technological additions. The scientific content shall be reviewed by specialized committees at intervals determined by the Faculty Council.

Article (10): Program Study Duration:

The duration of the study is five years, divided into nine semesters, in order to obtain a bachelor's degree in accordance with the credit hours system.

- The minimum allowed study duration is seven main semesters.
- The maximum allowed study duration is twenty main semesters (ten years), which does not include

frozen semesters for reasons acceptable by the Faculty of Engineering, after which the student is expelled from the programs.

Article (11): Graduation Times:

A Student may graduate upon completion of all grauation requirements by the end of any of the first, second or summer semesters.

Article (12): The Language of the Study:

The official language of study and instruction is English.

Article (13): The Academic Year and the Semester:

1. The academic year consists of the first semester, the second semester, and the summer semester (third), which is optional for both the student and the faculty.

2. The duration of each of the first and second semester (15) academic weeks, including the exams, and the summer semester will be a period of (8) weeks, including examinations.

9. Program Assessment Methods

Considering that the program competences illustrate a holistic status that would be achieved through a journey involves many different courses within different levels, and the final competence achievement can only be assessed at the end of its journey, each single competence is broken-down into measurable Learning Outcomes LOs that should be achieved in different courses. Thus, the program graduate competence may be considered as the final goal, while the courses LOs may be considered as the procedural aims/objectives.

Hence, different assessment methods are applied in program courses to assess these procedural aims/objectives. For further detail, refer to the courses' specifications and the assessment topologies can be listed as follows:

- Written Exams.
- Practical Exams.
- Oral Exams.
- Projects.
- Research.

10. Evaluation of program

Evaluator	Tool	Sample
1-Senior students	Evaluation sheet	50%
2-Alumni	Evaluation sheet & interview	10%
3-Stakeholders (Employers)	Evaluation sheet & interview	25%
4-External and internal Evaluators	Evaluation report	1 for each
5- Other: Program Members	Evaluation sheet	50%

11. Teaching and Learning Methods



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Communications and Computers Engineering Program

A booklet has been prepared for the teaching strategies used in the college to explain and clarify these strategies, and it was approved by one of the college councils.

The Department of Communications and Computer Engineering followed the following patterns and strategies to achieve the vision and mission of the department:

- 1 Teaching and learning strategies in traditional education
 - 1-1 Teaching strategies (where the faculty member is the focus)
 - 1-1.1 Lectures
 - 1-1-2 Field visit
 - 1-2 Learning strategies (where the student is the focus)
 - 1-2-1 Cooperative education
 - a) Education based on group projects
 - b) Education based on collective research
 - c) Brainstorming
 - 1-2-2 Interactive education strategies
 - a) Self-study
 - b) Reporting and research
 - c) Problem solving
 - d) Individual projects
 - e) Education in experimental discovery
- 2 Distance teaching and learning strategies (e-learning)
- 3 Blended Learning strategies
 - 3-1 Blended learning patterns
 - 3-1-1 Rotation
 - a) Station Rotation
 - b) Lab Rotation
 - c) Self Rotation
 - d) Flipped Classroom
 - 3-1-2 Flex Mode.
 - 3-1-3 À la carte
 - 3-1-4 Enriched virtual model



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Communication and Computer Engineering Program

Code	Course Title	СН	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	В5	C1.1	C1.2	C2.1	C2.2	C3.1	C3.2	C4.1	C4.2
							Na	hda	Univ	versi	ty Re	equir	emer	nts Co	ourses	5									
HUM101	Human Rights	3																							
REM101	Scientific Thinking	3																							
MGT101	Principles of General Management	3																							
ETS401	Professional Ethics	1																							
ENG111A	English (1)	1																							
ENG112A	English (2)	1																							
ENG113A	English (3)	2																							
									I	Faculty	of En	gineerin	ıg Requ	uirement	ts Cours	ses									
BAS011	Mathematics (1)	3																							
BAS021	Mathematics (2)	3																							
BAS112	Building Safety and Fire Protection	2																							
BAS012	Vibration and Waves	3																							
BAS022	Electricity and Magnetism	3																							

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BAS013	Statics	3																							
BAS023	Dynamics	3																							
BAS014	Engineering Chemistry	3																							
MPE021	Production Engineering	2																							
BAS015	Engineering Drawing (1)	2																							
BAS025	Engineering Drawing (2)	3																							
CCE011	Computing in Engineering	1																							
BAS024	Fundamental s of Engineering	2																							
CCE172	Properties of Electrical Materials Elective	2																							
ERE273	Renewable Energy Systems and Economics Elective	2																							
CCE374	Software project management	2																							

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	Elective																								
									Со	mm. &	: Comp	o. Eng.	Major	REQ. (0	Compuls	ory)									
BAS111	Mathematics (3)	2																							
CCE111	Electrical Circuits (1)	3																							
CCE112	Computer Programming	3																							
CCE121	Electrical Circuits (2)	3																							
BAS121	Mathematics (4)	2																							
CCE122	Electronic Devices	3																							
CCE123	Computer Organization and Architecture	3																							
CCE211	Electromagnet ic Fields	2																							
CCE212	Electrical Measurement s and Instrumentatio n	3																							
CCE213	Signal Analysis	3																							
CCE214	Electronics	3																							

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	Engineering																								
CCE215	Logic Circuits Design	3																							
CCE217	Field Training (1)	0																							
CCE216	Industrial Electronics	2																							
CCE223	Microprocesso rs and Applications	3																							
CCE224	Advanced Logic Circuits Design	2																							
CCE225	Electrical Communicatio ns	3																							
CCE222	Digital Signal Processing	3																							
BAS211	Mathematics (5)	2																							
CCE312	Computer Networks	3																							
ERE316	Modeling and Simulation of Engineering Systems	3																							
ERE324	Automatic	3																							

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	Control Systems																								
CCE311	Field Training (2)	0																							
CCE323	Embedded Systems	3																							
											Comp	outer. E	ng. Mi	nor RE() .										
CCE221	Data Structure and Algorithms	2																							
CCE313	Digital Circuit design	3																							
CCE316	Operating Systems	3																							
CCE317	Data Base Systems	3																							
CCE327	Cloud Computing	3																							
CCE318	Software Engineering	3																							
CCE321	Communicatio ns and Computers Graduation Project (1)	3																							
CCE412	Computer and Network Security	2																							

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CCE328	Big-Data Analytics	3																							
CCE417	Computational Intelligence	3																							
CCE418	Internet Of Things	3																							
CCE411	Communicatio ns and Computers Graduation Project (2)	3																							
CCE322	Computer Vision	3																							
CCE416	Data Mining	3																							
	Computers Engineering Elective (A)	3																							
	Computers Engineering Elective (B)	3																							
										С	omput	er Engiı	neering	Electiv	e (A)										
CCE371	Object- Oriented Programming	3																							
CCE372	Microcontrolle rs and Applications	3																							

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CCE373	Artificial Intelligence and its Applications	3																							
										С	omput	er Engi	neering	g Electiv	e (B)										
CCE471	Selected Topics in Computer networks and Security	3																							
CCE472	Selected Topics in Systems and Artificial Intelligence	3																							
CCE473	Selected Topics in Data Bases	3																							
CCE474	Selected Topics in Distributed and Mobile Computing	3																							
										Co	ommu	nication	s. Eng.	Minor I	REQ.										
CCE221	Data Structure and Algorithms	2																							



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Code	Course Title	СН	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	C1.1	C1.2	C2.1	C2.2	C3.1	C3.2	C4.1	C4.2
CCE313	Digital Circuit design	3																							
CCE314	Digital Communicatio n Systems	3																							
CCE315	Antenna and Wave Propagation	3																							
CCE415	Satellite Communicatio n	2																							
CCE319	Communicatio n Networks	3																							
	Communicatio ns Engineering Elective (A)	3																							
CCE321	Communicatio ns and Computers Graduation Project (1)	3																							
CCE412	Computer and Network Security	2																							
CCE326	Optical communicatio n Systems	3																							



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Code	Course Title	СН	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	C1.1	C1.2	C2.1	C2.2	C3.1	C3.2	C4.1	C4.2
CCE324	Microwave Devices and Circuits	3																							
	Communicatio ns Engineering Elective (B)	3																							
CCE411	Communicatio ns and Computers Graduation Project (2)	3																							
CCE322	Computer Vision	3																							
CCE413	Information and Coding Theory	3																							
CCE414	Mobile communicatio ns	3																							
									Co	omm	unic	ation	s En	ginee	ring H	Elect	ive (.	A)							
CCE171	VLSI Technology	3																							
CCE173	Acoustics	3																							
ERE224	Power Electronics (1)	3																							
MPE326	Quality Control	3																							

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Code	Course Title	СН	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	C1.1	C1.2	C2.1	C2.2	C3.1	C3.2	C4.1	C4.2
ERE121	Energy Conversion	3																							
									C	omm	unic	ation	s En	ginee	ring I	Elect	ive (B)							
CCE271	Telephony Systems	3																							
CCE272	RADAR Systems	3																							
CCE273	Integrated Circuits Design	3																							
ERE221	Electrical Machines (1)	3																							
ERE222	Electrical Power Engineering	3																							

منسق برنامج هندسة الاتصالات والحاسبات المحمد المعمم أ. د احمد عبد المنعم