Ministry of higher education
Valley institute for engineering and technology
Electrical power engineering program

Electrical power engineering

Program Specification

Academic year: 2025-2026

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Program Specification

1. Basic Information

ProgramTitle (according to what is stated in the bylaw):	Electrical power engineering
Total number of credit hours/points of the program:	179 credit hours
Number of academic years/levels (expected program duration):	five academic years/10 Semester
Department (s) Participating (if any) in teaching the program:	Department of Electrical and communication
Faculty/Institute:	Valley institute for engineering and technology
University/Academy:	Higher valley institutes
Program majors/divisions/tracks/specialties in the final year (if any):	Electrical power engineering program
Partnerships with other parties and the nature of each (if any):	non
Name of the program coordinator (attach the assignment decision):	
Program Specification Approval Date:	7/19/2025
Council responsible for Program Specification Approval (Attach the Decision / Minutes):	Department Committee Counsel (Appendix 1) Prof. Dr. Hussein Hamed Al-Ghaz

2. Program Aims (Brief description of the overall purpose of the program)

The Electrical Power Engineering program aims to prepare qualified students in the generation, transmission, distribution, and efficient utilization of electrical energy, with a strong focus on both fundamental and advanced concepts of electrical power systems, including their analysis, design, operation, and maintenance using state-of-the-art technologies. The program provides students with a solid foundation in engineering through essential theoretical knowledge, practical skills, and analytical tools necessary to understand and apply principles of electrical power engineering. It offers a balanced mix of theoretical and applied learning that fosters innovation and equips students to address local and regional energy challenges, particularly those related to sustainable and reliable power supply.

The program also focuses on developing students' communication, teamwork, and leadership skills, while instilling ethical and social responsibility in their professional conduct. Additionally, it enables students to stay abreast of technological advancements in the field of electrical power in alignment with labor market demands.

3. Program Structure (Curriculum)

• Program Components

- The program components are classified into (Institute requirements - Department core requirements- Majoring in power engineering) and explained in detail in appendix 2.

Requirement Category/Type		Number of Courses	Number of Credit Hours/Points	Percentage from the total number of hours/points
University Requirements		Non	Non	Non
Faculty/College Requirements (if applicable)		25 courses (21 Compulsory+4 elective)	76 credit hours (64 Compulsory + 12 elective)	76/179=42.46%
Program Requirements		23 courses	54 credit hours = 48Compulsory + field training (3credit hours) + graduation project (3credit hours)	48/179=26.82%
Requirements of the majors/ divisions/ tracks/ specializations in the final year (if any)		17 courses (14 Compulsory+3 elective)	49 credit hours (40Compulsory + 9 elective)	49/179=27.37%
Other requirements	**Field Training**		(3 credit hours)	3/179=1.68
	Graduation Project		3 credit hours	3/179= 1.68%
	Mandatory training year	**Non**	Non	Non
	Other (to be mentioned)			
Total Compulsory Courses		58 courses	158 credit hours	158/179=88.27%
Elective Courses		7 courses	21 credit hours	21/179=11.73%
Total		65 courses	179	100%

- The program is Classified according to the relevant sector NARS 2009 requirements for the Engineering sector, as follows and shown in appendix 3.

• Programming courses according to the expected study plan

First level (preparatory)

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Other (Tutorial)	Practical training
الاول	خريف	PHYS101	Classical mechanical, sound, heat	اجباري	كلية	3Credit hours	2	2	0
الاول	خريف	PHYS111	General physics	اجباري	كلية	1 Credit hours	0	0	3

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Other (Tutorial)	Practical training
			laboratory (1)						
الاول	خريف	CHEM 101	General Chemistry 1 for engineers	اجباري	كلية	3 Credit hours	2	2	0
الاول	خريف	CHEM 111	General chemistry lab	اجباري	كلية	1 Credit hours	0	0	3
الاول	خريف	MATH 101	Calculus 1	اجباري	كلية	3 Credit hours	2	2	0
الاول	خريف	ENGR 101	Introduction to engineering	اجباري	كلية	1Credit hours	0	0	0
الاول	خريف	ENGR 102	Engineering Drawing and projection	اجباري	كلية	2 Credit hours	1	0	3
الاول	خريف	ENGR 103	Engineering Mechanics 1 (statics)	اجباري	كلية	3Credit hours	2	2	0
الاول	ربيع	PHYS102	Electricity and magnetism	اجباري	كلية	3 Credit hours	2	2`	0
الاول	ربيع	PHYS112	General physics laboratory (2)	اجباري	كلية	1 Credit hours	0	0	3
الاول	ربيع	MATH 102	Calculus 2	اجباري	كلية	3 Credit hours	2	2	0
الاول	ربيع	CECE 101	Fundamental to computer programming	اجباري	كلية	3 Credit hours	2	0	3
الاول	ربيع	ENGR 105	Production engineering	اجباري	كلية	1 Credit hours	1	1	0
الاول	ربيع	ENGR 104	Engineering Mechanics 2 (Dynamics)	اجباري	كلية	3 Credit hours	2	2	0
الاول	ربيع	ENGL 101	Elementary English	اجباري	كلية	3 Credit hours	2	2	0

Second level (Sophomore)

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Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Other (Tutorial)	Practical training
الثاني	خريف	CECE 102	Fundamental of structured programming	اجباري	كلية	3 Credit hours	2	2	0
الثاني	خريف	CECE 201	Digital Logic Design I	اجباري	تخصص	3 Credit hours	2	2	0
الثاني	خريف	CECE 202	Electric Circuits I	اجباري	تخصص	3 Credit hours	2	2	0
الثاني	خريف	MATH 201	Calculus III	اجباري	كلية	3 Credit hours	2	2	0
الثاني	خريف	ENGR 206	Strength and Testing of Materials	اجباري	كلية	3 Credit hours	2	2	0
الثاني	خريف	ENGL 102	Lower intermediate English	اجباري	كلية	3 Credit hours	2	2	0
الثاني	خريف	BASE309	Human Rights	اجباري	كلية	0 Credit hours	0	2	0
الثاني	ربيع	CECE 203	Electric Circuits II	اجباري	تخصص	3 Credit hours	2	2	0
الثاني	ربيع	CECE 213	Electric Circuits Lab	اجباري	تخصص	1 Credit hours	0	0	3
الثاني	ربيع	CECE 209	Digital Logic Design II	اجباري	تخصص	3 Credit hours	2	2	0
الثاني	ربيع	CECE 211	Digital Logic Lab	اجباري	تخصص	1 Credit hours	0	0	3
الثاني	ربيع	PHYS 301	Waves, Optics & Atomic Physics	اجباري	كلية	3 Credit hours	2	2	0
الثاني	ربيع	PHYS 311	Optics Lab	اجباري	كلية	1 Credit hours	0	0	3
الثاني	ربيع	MATH 202	Differential Equations	اجباري	كلية	3 Credit hours	2	2	0
الثاني	ربيع	BASE 303	Engineering Economics	اجباري	كلية	3 Credit hours	2	2	0

Third level Course (Junior)

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Other (Tutorial)	Practical training
الثالث	خريف	CECE 301	Electronics I	اجباري	تخصص	3 Credit hours	2	2	0
الثالث	خريف	CECE 330	Electrical and Electronic Measurements	اجباري	تخصص	3 Credit hours	2	2	0
الثالث	خريف	CECE 313	Measurements & Instrumentation Lab	اجباري	تخصص	1 Credit hours	0	0	3

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Other (Tutorial)	Practical training
الثالث	خريف	CECE 303	Signals and Systems	اجباري	تخصص	3 Credit hours	2	2	0
الثالث	خريف	CECE 204	Computer Organization	اجباري	تخصص	3 Credit hours	2	0	3
الثالث	خريف	BASE XXX	General Requirements (Humanities – Social Sciences – General Culture	اختياري	كلية	3 Credit hours	2	2	0
الثالث	خريف	MATH 301	Probability & Statistic	اجباري	كلية	3 Credit hours	2	2	0
الثالث	ربيع	CECE 305	Automatic Control	اجباري	تخصص	3 Credit hours	2	2	0
الثالث	ربيع	CECE 315	Control Lab	اجباري	تخصص	1 Credit hours	0	0	3
الثالث	ربيع	CECE 302	Electronics II	اجباري	تخصص	3 Credit hours	2	2	0
الثالث	ربيع	CECE 312	Electronics Lab	اجباري	تخصص	1 Credit hours	0	0	3
الثالث	ربيع	CECE 306	Electromagnetic Theory	اجباري	تخصص	3 Credit hours	2	2	0
الثالث	ربيع	CECE 325	Fundamentals of Communication I	اجباري	تخصص	3 Credit hours	2	2	0
الثالث	ربيع	CECE 326	Communication Lab	اجباري	تخصص	1 Credit hours	0	0	3
الثالث	ربيع	MATH 302	Linear Algebra and Matrices	اجباري	كلية	3 Credit hours	2	2	0

Fourth level courses (Senior-1)

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Other (Tutorial)	Practical training
الرابع	خريف	CECE 317	Electric Machine I	اجباري	تخصص	3 Credit hours	2	2	2
الرابع	خريف	CECE 431	Digital Control	اجباري	تخصص	3 Credit hours	2	2	0
الرابع	خريف	CECE 319	Power Electronics I	اجباري	تخصص	3 Credit hours	2	2	2
الرابع	خريف	CECE 309	Electrical Energy Conversions	اجباري	تخصص	3 Credit hours	2	2	2
الرابع	خريف	BASE XXX	General Requirements (Humanities – Social Sciences – General Culture	اختياري	كلية	3 Credit hours	2	2	0

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Other (Tutorial)	Practical training
الرابع	خريف	BASE XXX	General Requirements (Humanities – Social Sciences – General Culture	اختياري	كلية	3 Credit hours	3	0	0
الرابع	ربيع	CECE 318	Electric Machine II	اجباري	تخصص	3 Credit hours	2	2	2
الرابع	ربيع	CECE 320	Power Electronics II	اجباري	تخصص	3 Credit hours	2	2	2
الرابع	ربيع	CECE 430	Transmission & Distribution of Electrical Energy	اجباري	تخصص	3 Credit hours	2	2	0
الرابع	ربيع	CECE 322	Power System Analysis I	اجباري	تخصص	3 Credit hours	2	2	2
الرابع	ربيع	ENGR 303	General Mechanical Engineering- Applied Thermodynamics	اجباري	كلية	3 Credit hours	2	2	0
الرابع	ربيع	BASE XXX	General Requirements (Humanities – Social Sciences – General Culture)	اختياري	كلية	3 Credit hours	3	0	0

Fifth level courses (Senior -2)

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Other (Tutorial)	Practical training
الخامس	خريف	CECE 436	Electrical Machines III	اجباري	تخصص	3 Credit hours	2	2	2
الخامس	خريف	CECE 489	Professional Training	اجباري	تخصص	3 Credit hours	0	0	3
الخامس	خريف	CECE 323	Power System Analysis II	اجباري	تخصص	3 Credit hours	2	2	2
الخامس	خريف	CECE 439	Protection & Switchgear in Electrical Power	اجباري	تخصص	3 Credit hours	2	2	2
الخامس	خريف	CECE 494	High Voltage Engineering	اجباري	تخصص	3 Credit hours	2	2	0

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Other (Tutorial)	Practical training
الخامس	خريف	CECE 496	High Voltage Engineering Lab	اجباري	تخصص	1 Credit hours	0	0	3
الخامس	خريف	CECE 490	Senior project I	اجباري	تخصص	1 Credit hours	3	0	0
الخامس	خريف	BASE 307	Contracts, Bids & Liabilities	اجباري	كلية	2 Credit hours	2	0	0
الخامس	خريف	BASE 308	Seminar	اجباري	تخصص	0 Credit hours	2	0	0
الخامس	ربيع	CECE 437	Electrical Machines IV	اجباري	تخصص	3 Credit hours	2	2	2
الخامس	ربيع	CECE XXX	Electrical Power Engineering Program Requirements	اختياري	تخصص	3 Credit hours	2	2	2
الخامس	ربيع	CECE 428	Power System Protection	اجباري	تخصص	3 Credit hours	2	2	2
الخامس	ربيع	CECE XXX	Electrical Power Engineering Program Requirements	اختياري	تخصص	3 Credit hours	2	2	2
الخامس	ربيع	CECE 491	Senior Project II	اجباري	تخصص	2 Credit hours	1	0	3
الخامس	ربيع	CECE XXX	Electrical Power Engineering Program Requirements	اختياري	تخصص	3 Credit hours	2	2	0

* **A separate schedule of elective courses can be added if they are not related to a specific level of study, or according to the nature of the program**

Elective courses

- **Elective courses of Basic science:**

Students must select 6 credit hours from Table (1) and 6 credit hours from Table (2), adhering to the specified elective course lists

Table (1)

Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
					Theoretical teaching	Other (Tutorial)	Practical training
BASE 102	Development of Personal Skills	اختياري	كلية	3 Credit hours	3	0	0
BASE 302	Art of Etiquette & protocol	اختياري	كلية	3 Credit hours	3	0	0
BASE 401	Communication Skills	اختياري	كلية	3 Credit hours	3	0	0
BASE 404	Negotiation Skills	اختياري	كلية	3 Credit hours	3	0	0

Table (2)

Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
					Theoretical teaching	Other (Tutorial)	Practical training
BASE 109	Project Management Organization Development	اختياري	كلية	3 Credit hours	3	0	0
BASE 201	Principles of Business Administration	اختياري	كلية	3 Credit hours	3	0	0
BASE 202	Principles of Public Relations	اختياري	كلية	3 Credit hours	3	0	0
BASE 203	Production Management	اختياري	كلية	3 Credit hours	3	0	0
BASE 206	Society & Individual Science	اختياري	كلية	3 Credit hours	3	0	0
BASE 207	Fundamentals of Management	اختياري	كلية	3 Credit hours	3	0	0
BASE 301	Principles of Financial & Managerial Accounting	اختياري	كلية	3 Credit hours	3	0	0
BASE 305	Principles of Organizational Behavior	اختياري	كلية	3 Credit hours	3	0	0

Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
					Theoretical teaching	Other (Tutorial)	Practical training
BASE 306	Research Methods	اختياري	كلية	3 Credit hours	3	0	0
BASE 402	Feasibility Studies	اختياري	كلية	3 Credit hours	3	0	0

- **Mandatory (^) and elective English Core Requirements:**

  - Students are required to undertake an evaluation test to determine their appropriate language proficiency level. A minimum of 6 credit hours of English language study is mandatory **(^)**. Any additional hours beyond this threshold will not be counted towards the accredited hours.

Course Code	Semester	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
						Theoretical teaching	Other (Tutorial)	Practical training
ENGL 101	ربيع	Elementary English **(^)**	اجباري	كلية	3 Credit hours	3	0	0
ENGL 102	خريف	Lower Intermediate English **(^)**	اجباري	كلية	3 Credit hours	3	0	0
ENGL 201		Intermediate English	اختياري	كلية	0 Credit hours	3	0	0
ENGL 202		Upper Intermediate English	اختياري	كلية	0 Credit hours	3	0	0
ENGL 301		Advanced English	اختياري	كلية	0 Credit hours	3	0	0
ENGL 302		Research Writing and Correspondence	اختياري	كلية	0 Credit hours	3	0	0

- Students are required to undertake an evaluation test to determine their appropriate language proficiency level. A minimum of 6 credit hours of English language study is mandatory. Any additional hours beyond this threshold will not be counted towards the accredited hours.

Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
					Theoretical teaching	Other (Tutorial)	Practical training
ENGL 101	Elementary English	اختياري	كلية	3 Credit hours	3	0	0
ENGL 102	Lower Intermediate English	اختياري	كلية	3 Credit hours	3	0	0
ENGL 201	Intermediate English	اختياري	كلية	3 Credit hours	3	0	0
ENGL 202	Upper Intermediate English	اختياري	كلية	3 Credit hours	3	0	0
ENGL 301	Advanced English	اختياري	كلية	3 Credit hours	3	0	0
ENGL 302	Research Writing and Correspondence	اختياري	كلية	3 Credit hours	3	0	0

- **Elective Requirements for Electrical power engineering program**

Students are required to complete **9 credit hours** of elective courses, selected from the department-approved list, ensuring alignment with the learning objectives of the Electrical Power Engineering program.

Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
					Theoretical teaching	Other (Tutorial)	Practical training
CECE 324	Special electrical machine	اختياري	تخصص	3 Credit hours	3	0	0
CECE 327	Utilization of electrical machines	اختياري	تخصص	3 Credit hours	3	0	0
CECE 410	Fundamentals of distributed systems	اختياري	تخصص	3 Credit hours	3	0	0
CECE 455	Selected topics in Electrical Power Engineering	اختياري	تخصص	3 Credit hours	3	0	0
CECE 446	Planning of Electrical Networks	اختياري	تخصص	3 Credit hours	3	0	0

Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
					Theoretical teaching	Other (Tutorial)	Practical training
CECE 424	Control System	اختياري	تخصص	3 Credit hours	3	0	0
CECE 321	Integrated Circuits Applications	اختياري	تخصص	3 Credit hours	3	0	0
CECE 407	Embedded	اختياري	تخصص	3 Credit hours	3	0	0
CECE 421	Fiber Optics	اختياري	تخصص	3 Credit hours	3	0	0
CECE 427#	Power System Operation	اختياري	تخصص	3 Credit hours	3	0	0
CECE 429#	Electric Power Distribution	اختياري	تخصص	3 Credit hours	3	0	0
CECE 452 *	Artificial intelligence	اختياري	تخصص	3 Credit hours	3	0	0
CECE 495	Feedback Control	اختياري	تخصص	3 Credit hours	3	0	0

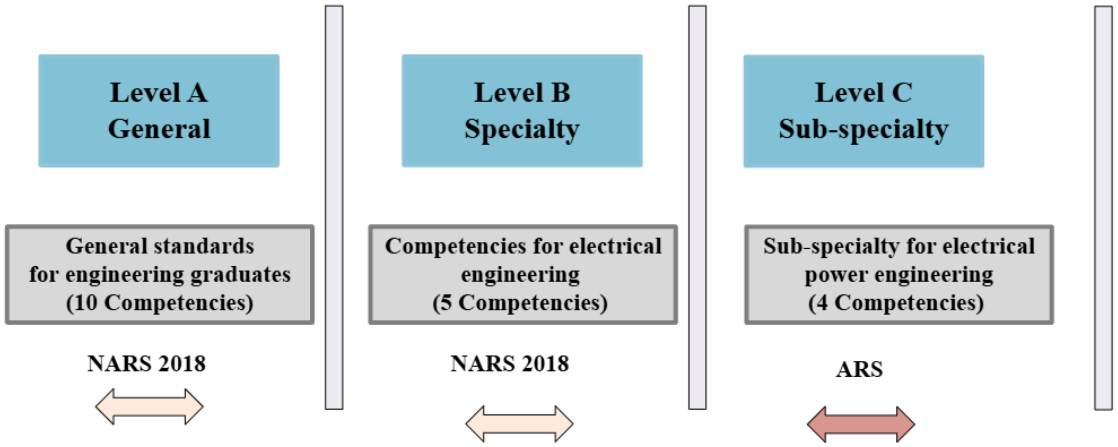
Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Other (Tutorial)	Practical training
الخامس	ربيع	CECE 446	Planning of Electrical Networks	اختياري	تخصص	3 Credit hours	2	2	2
الخامس	ربيع	CECE 455	Selected topics in Electrical Power Engineering	اختياري	تخصص	3 Credit hours	2	2	2
الخامس	ربيع	CECE 424	Control System	اختياري	تخصص	3 Credit hours	2	2	0

4. Academic Standards

- **Adopted Academic Standards (NARS/ARS): NARS**

*** When adopting ARS: <u>The matrix of the academic reference standards (ARS) with the national academic reference standards (NARS) must be attached</u>**

According to the National Academic Reference Standard – engineering NARS 2018 which be divided into, into three categories: competencies for general engineering graduates (Level A) which included 10 competencies, and specialty competencies for electrical engineering (Level B) which included 5 competencies.



- **Date of Adoption of Standards in the governing Council: 7/31/2024**

*** Decision/Minutes of the governing Council to be attached in Appendix 4**

The Compatibility matrix between the National Academic Reference Standards – Engineering 2018 (NARS 2018) and the academic reference standard (ARS) for telecommunication engineering program is shown in Appendix. 4.

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

Competencies for general engineering of the institute (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.

A4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
A5. Practice research techniques and methods of investigation as an inherent part of learning.
A6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
A7. Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
A8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
A9. Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
A10. Acquire and apply new knowledge, and practice self, lifelong, and other learning strategies.

Specialty competencies for electrical engineering (Level B)

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.
B 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.
B 3. Design and implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools.
B 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.
B 5. Adopt suitable national and international standards and codes to design, build, operate, inspect, and maintain electrical/electronic/digital equipment, systems, and services.

Sub-specialty for the electrical power engineering program (Level CP)

CP1. Design and analyze power generation, transmission, control, and distribution systems, while developing and simulating heavy equipment such as generators, motors, and transmission lines to ensure effective construction, performance, and accurate interpretation of experimental results.
CP2. Determine technical and operational issues and formulate engineering solutions to effectively oversee the engineering activities across the varied phases of electric power generation, transmission, control, and distribution systems.
CP3. Test and examine components, create and assess sketches, specifications, and datasheets for power system components to guarantee precision and compliance.
CP4. Integrate electrical, electronic, and mechanical components and equipment with transducers, actuators, and controllers in creatively computer-controlled systems.

- The compatibility matrix between the courses and the competence of the Program as the following:

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Compulsory Courses (Name and code)		Academic Standards (Mention code only)																			
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP4	N. of C
First level (preparatory)																					
PHYS101	Classical mechanical, sound, heat	1				1															2
PHYS111	General physics laboratory (1)		1						1												2
CHEM 101	General Chemistry 1 for engineers	1			1				1												3
CHEM 111	General chemistry lab		1						1												2
MATH 101	Calculus 1	1									1										2
ENGR 101	Introduction to engineering	1			1			1			1										4
ENGR 102	Engineering Drawing and projection								1	1	1										3
ENGR 103	Engineering Mechanics 1 (statics)	1			1			1													3
PHYS102	Electricity and magnetism	1			1																2
PHYS112	General physics laboratory (2)		1		1			1													3
MATH 102	Calculus 2	1									1										2
CECE 101	Fundamental to computer programming		1		1			1	1												4
ENGR 105	Production engineering							1	1	1	1										3
ENGR 104	Engineering Mechanics 2 (Dynamics)	1									1										2
ENGL 101	Elementary English								1		1										3

Ministry of higher education
Valley institute for engineering and technology
Electrical power engineering program

Compulsory Courses (Name and code)		Academic Standards (Mention code only)																		
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP4	N. of C
Second level (Sophomore)																					
CECE 102	Fundamental of programming												1	1	1						3
CECE 201	Digital Logic Design I												1	1	1						3
CECE 202	Electric Circuits I											1			1						2
MATH 201	Calculus III	1									1										2
ENGR 206	Strength and Testing of Materials		1		1																2
ENGL 102	Lower intermediate English								1		1										2
BASE 309	Human Rights			1	1					1											3
CECE 203	Electric Circuits II											1	1		1						3
CECE 213	Electric Circuits Lab			1								1	1		1						4
CECE 209	Digital Logic Design II												1	1							2
CECE 211	Digital Logic Lab			1										1	1						3
PHYS 301	Waves, Optics & Atomic Physics	1		1																	2
PHYS 311	Optics Lab		1		1																2

Ministry of higher education
Valley institute for engineering and technology
Electrical power engineering program

Compulsory Courses (Name and code)		Academic Standards (Mention code only)																			
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP4	N. of C
MATH 202	Differential Equations	1				1															2
BASE 303	Engineering Economics				1					1	1										3
Third level Course (Junior)																					
CECE 301	Electronics I											1			1						2
CECE 330	Electrical and Electronic Measurements											1			1	1					3
CECE 313	Measurements & Instrumentation Lab												1		1	1					3
CECE 303	Signals and Systems											1			1						2
CECE 204	Computer Organization												1	1							2
MATH 301	Probability & Statistic	1				1					1										3
CECE 305	Automatic Control											1		1		1					3
CECE 315	Control Lab													1	1						2
CECE 302	Electronics II												1			1					2
CECE 312	Electronics Lab												1		1						2
CECE 306	Electromagnetic Theory										1	1									2

Ministry of higher education
Valley institute for engineering and technology
Electrical power engineering program

Compulsory Courses (Name and code)		Academic Standards (Mention code only)																			
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP4	N. of C
CECE 325	Fundamentals of Communication I											1			1						2
CECE 326	Communication Lab													1	1						2
MATH 302	Linear Algebra and Matrices	1				1					1										3
Fourth level courses (Senior-1)																					
CECE 317	Electric Machine I																	1	1		2
CECE 431	Digital Control																1	1		1	3
CECE 319	Power Electronics I																		1	1	2
CECE 309	Electrical Energy Conversions																	1	1	1	3
CECE 318	Electric Machine II																	1	1		2
CECE 320	Power Electronics II																1		1	1	3
CECE 430	Transmission & Distribution of Electrical Energy																1	1			2

Ministry of higher education
Valley institute for engineering and technology
Electrical power engineering program

Compulsory Courses (Name and code)		Academic Standards (Mention code only)																			
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP4	N. of C
CECE 322	Power System Analysis I																1	1	1		3
ENGR 303	General Mechanical Engineering- Applied Thermodynamics												1	1							2
Fifth level courses (Senior -2)																					
CECE 436	Electrical Machines III																1		1		2
CECE 489	Professional Training			1			1									1		1	1	1	6
CECE 323	Power System Analysis II																1	1			2
CECE 439	Protection & Switchgear in Electrical Power																1		1		2
CECE 494	High Voltage Engineering																1		1	1	3
CECE 496	High Voltage Engineering Lab																1		1	1	3

Ministry of higher education
Valley institute for engineering and technology
Electrical power engineering program

Compulsory Courses (Name and code)		Academic Standards (Mention code only)																			
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP4	N. of C
CECE 490	Senior project I			1			1									1		1		1	5
BASE 307	Contracts, Bids & Liabilities					1	1														2
BASE 308	Seminar						1	1									1	1			4
CECE 437	Electrical Machines IV																1		1		2
CECE 428	Power System Protection																1	1			2
CECE 491	Senior Project II			1			1									1	1	1			5
N. of courses in each Competence		13	6	7	10	5	5	6	8	4	13	9	10	9	14	6	13	12	12	6	-

- **Attach a separate matrix of elective courses (if any)**

Elective Courses (Name and code)		Academic Standards (Mention code only)																			
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP 4	N. of C
BASE 402	Feasibility Studies			1			1														2
BASE 306	Research Methods					1		1			1										3
BASE 404	Negotiation Skills					1			1	1	1										4
BASE 401	Communication Skills					1		1	1	1											4
CECE 446	Planning of Electrical Networks																1	1		1	3
CECE 455	Selected topics in Electrical Power Engineering																	1	1	1	3
CECE 424	Control System																		1	1	2
CECE 410	Fundamentals of distributed systems																1	1		1	3
CECE 324	Special electrical machine														1		1				2
CECE 327	Utilization of electrical machines																1		1	1	3

6. Teaching and Learning methods:

1. Online / face to face lectures
2. Tutorials: sheets/ sketches
3. Projects
4. Problem solving
5. Brainstorming
6. Practical: lab
7. Discovering
8. Reports / research
9. Cooperative work
10. Presentation
11. Discussion
12. Modelling

- All the teaching and learning methods used in the program relate to the teaching and learning strategy approved by the Academic Council.

The matrix between the teaching and Learning methods of the program and the program outcomes (POC's) as in appendix 5.

7. Student Assessment methods:

1. Quizzes
2. Mid-term exam
3. Final exam
4. sheets/ sketches
5. projects
6. Practical: lab
7. Oral exam
8. Discussions
9. Reports/ research
10. Modelling

- The matrix between the assessment methods of the program and the program outcomes (POC's) as in appendix 6.

8. Program Key Performance Indicators (if any)

No.	Performance Indicator	Target Level	Method	Measurement
1.	non			
2.				
3.				

يعتمد ،،،

المشرف علي البرنامج

أ.د/ عابد محمود أحمد جاد

Appendices

Appendix (1)

Appendix (2)

Classification according to the institute's regulations:

- For the electrical power engineering program, courses are classified into the following categories as follows:

First. Institute Requirements 76CHR

i. **General Requirements (Humanities – Social Sciences – General Culture)17 CHR**
   - A. **Mandatory Credit Hours 5 CHR**
   - B. **Restricted Elective Credit Hours 12 CHR**

ii. **Basic Science Requirements (Applicable to All Majors) (18+12+4+3=) 37CHR**
   - A. **Mathematics Courses: 18 CHR**
   - B. **Physics Courses: 12 CHR**
   - C. **Chemistry Course: 4 CHR**
   - D. **Computer Science Courses: 3 CHR**

iii. **Mandatory English Language Requirements6 CHR**

iv. **Mandatory Engineering Requirements 16 CHR**

Second. Department-Specific Requirements for Electrical Power Engineering program

(54+40+9=) 103CHR

1. **Compulsory Departmental Requirements: (54CHR=** 48Compulsory+ field training (3credit hours) +graduation project (3credit hours))
2. **Electrical Power Engineering Program Requirements: 49 CHR**
   - A- **Compulsory Requirements 40CHR**
   - B- **Elective Requirements 9CHR**

The courses classification according to the institute's regulations

First. Institute Requirements 76CHR

متطلبات المعهد

- Students across various disciplines are required to successfully complete the following courses as an essential component for fulfilling graduation requirements.

i. **General Requirements (Humanities – Social Sciences – General Culture)17 CHR** (=5Mandatory+12Restricted Elective)

متطلبات (انسانيات – علوم اجتماعية – ثقافه عامة)

A. Mandatory Credit Hours 5 CHR

ساعات معتمدة اجبارية

- Students must select 5 credit hours.

Course no.	Course Name	Credit hours	Prerequisite
BASE 303	Engineering Economics	3	Math102
BASE 307	Contracts, Bids & Liabilities	2	-
BASE 308	Seminar	0	-

B. Restricted Elective Credit Hours12 CHR

ساعات معتمدة اختيارية مقيده

- Students must select 6 credit hours from Table (1) and 6 credit hours from Table (2), adhering to the specified elective course lists.

Table 1

Course no.	Course Name	Credit hours	Prerequisite

BASE 102	Development of Personal Skills	3	-
BASE 302	Art of Etiquette & protocol	3	-
BASE 401	Communication Skills	3	-
BASE 404	Negotiation Skills	3	-

Table 2

Course no.	Course Name	Credit hours	Prerequisite
BASE 109	Project Management Organization Development	3	-
BASE 201	Principles of Business Administration	3	-
BASE 202	Principles of Public Relations	3	-
BASE 203	Production Management	3	-
BASE 206	Society & Individual Science	3	-
BASE 207	Fundamentals of Management	3	-
BASE 301	Principles of Financial & Managerial Accounting	3	-
BASE 305	Principles of Organizational Behavior	3	-
BASE 306	Research Methods	3	-
BASE 402	Feasibility Studies	3	-

ii. Basic Science Requirements (Applicable to All Majors) 37CHR (= 18Mathematics Courses+12Physics Courses+ 4Chemistry Course+3 Computer Science Courses)

متطلبات العلوم الأساسية

A. Mathematics Courses: 18CHR

مقررات الرياضيات

- Six courses **(18 credit hours)**

Course no.	Course Name	Credit hours	Prerequisite
Math101	Calculus I	3	–
Math102	Calculus II	3	Math101 or exam
Math 201	Calculus III	3	Math102
Math 202	Differential Equations	3	Math201
Math 301	Probability & Statistics	3	Math 102
Math 302	Linear Algebra and Matrices		Math202

B. Physics Courses: 12CHR

مقررات الفيزياء

- Three courses **(12 credit hours)**

Course no.	Course Name	Credit hours	Prerequisite

PHYS101	Classical Mechanics, Sound, Heat	3	_
PHYS111	General Physics Laboratory I	3	-
PHYS 102	Electricity and Magnetism	3	PHYS 101
PHYS 112	General Physics Laboratory II	3	-
PHYS 301	Waves, Optics & Atomic Physics	3	PHYS 102
PHYS 311	Optics Lab	3	PHYS 301

C. Chemistry Course: 4CHR

مقررات الكيمياء

- One course **(4 credit hours)**

Course no.	Course Name	Credit hours	Prerequisite
CHEM 101	General Chemistry I for Engineers	3	-
CHEM 111	General Chemistry Lab	1	Concurrent with CHEM 101

D. Computer Science Courses: 3CHR

مقررات علوم الحاسب الآلي

- The student is required to complete **(3 credit hours)** in Computer Science.

Course no.	Course Name	Credit hours	Prerequisite
CECE 101	Fundamental to Computer Programming	3	-

iii. Mandatory English Language Requirements6CHR

متطلبات اجبارية لدراسة اللغة الإنجليزية

- Students are required to undertake an evaluation test to determine their appropriate language proficiency level.
- A minimum of 6 credit hours of English language study is mandatory. Any additional hours beyond this threshold will not be counted towards the accredited hours.

Course no.	Course Name	Credit hours	Prerequisite
ENGL 101	Elementary English	3	-
ENGL 102	Lower Intermediate English	3	ENGL 101 or exam
ENGL 201	Intermediate English	3	ENGL 102
ENGL 202	Upper Intermediate English	3	ENGL 201
ENGL 301	Advanced English	3	ENGL 202
ENGL 302	Research Writing and Correspondence	3	ENGL 301

iv. Mandatory Engineering Requirements 16CHR

متطلبات اجبارية للهندسة

Course no.	Course Name	Credit hours	Prerequisite
ENGR 101	Introduction to Engineering	1	-

ENGR 105	Production Engineering	1	-
ENGR 102	Engineering Drawing and Projection	2	-
ENGR 103	Engineering Mechanics I (Static)	3	-
ENGR 104	Engineering Mechanics II (Dynamics)	3	MATH 101, ENGR 103
ENGR 206	Strength and Testing of Materials	3	ENGR 103
ENGR 303	General Mechanical Engineering-Applied Thermodynamics	3	PHYS 102

Second. Department Requirements **54CHR**

(= 48Compulsory+ 6 other requirements [involved field training (3credit hours) +graduation project (3credit hours)])

متطلبات إجبارية لقسم هندسه القوي الكهربية والاتصالات

- Students must complete a minimum of **54 credit hours** covering core topics essential to electrical power engineering.

Course no.	Course Name	Credit hours	Prerequisite
CECE 102	Fundamentals of Programming	3	CECE 101
CECE 201	Digital Logic Design I	3	CECE 101
CECE 202	Electric Circuits I	3	PHYS 102
CECE 203	Electric Circuits II	3	CECE 202
CECE 204	Computer Organization	3	CECE 102, CECE 209
CECE 209	Digital Logic Design II	3	CECE 201
CECE 211	Digital Logic Lab	1	Concurrent CECE 209
CECE 213	Electric Circuits Lab	1	Concurrent CECE 203
CECE 301	Electronics I	3	CECE 203
CECE 302	Electronics II	3	CECE 301
CECE 303	Signals and Systems	3	CECE 203
CECE 305	Automatic Control	3	CECE 303
CECE 306	Electromagnetic Theory	3	PHYS 102. Math 201
CECE 312	Electronics Lab	1	Con CECE 302
CECE 330	Electrical and Electronic Measurements	3	-
CECE 313	Measurements & Instrumentation Lab	1	Concurrent CECE 330

CECE 315	Control Lab	1	Con CECE 305
CECE 325	Fundamentals of Communication I	3	CECE 303, MATH 301
CECE 326	Communication Lab	1	Concurrent CECE 325
CECE 431	Digital Control	3	CECE 305

- **Other requirements 6CHR**
  [involved field training (3credit hours) +graduation project (3credit hours)])

متطلبات آخري 6 ساعات معتمده

CECE 489	Professional Training	3	Senior Standing
CECE 490	Senior project I	1	Senior Standing
CECE 491	Senior Project II	2	CECE 490

Third: Electrical Power Engineering Program Requirements: 49 CHR (40 Compulsory Requirements +9 Elective Requirements)

متطلبات لبرنامج هندسة القوي الكهربية

- An additional **40 credit hours** are required to deepen specialization within the field.

A. Compulsory Requirements 40CHR

متطلبات إجباريه لبرنامج هندسة القوي الكهربية

Course no.	Course Name	Credit hours	Prerequisite
CECE 309	Electrical Energy Conversions	3	CECE 301
CECE 317	Electric Machine I	3	-
CECE 318	Electric Machine II	3	CECE 317
CECE 319	Power Electronics	3	CECE 302
CECE 320	Power Electronics II	3	CECE 319
CECE 322	Power System Analysis	3	CECE 317
CECE 323	Power System Analysis II	3	CECE 322
CECE 428	Power System Protection^	3	CECE 323
CECE 430	Transmission & Distribution of Electrical Energy	3	CECE 309
CECE 436	Electrical Machines III	3	CECE 318
CECE 437	Electrical Machines IV	3	CECE 436
CECE 439	Protection & Switchgear in Electrical Power	3	-
CECE 494	High Voltage Engineering	3	-
CECE 496	High Voltage Engineering Lab	1	Concurrent with CECE 494

B. Elective Requirements 9CHR

متطلبات اختيارية لبرنامج هندسة القوي الكهربية

- Students are required to complete **9 credit hours** of elective courses, selected from the department-approved list, ensuring alignment with the learning objectives of the Electrical Power Engineering program.

Course no.	Course Name	Credit hours	Prerequisite
CECE 324	Special Electrical Machines	3	CECE 436
CECE 327	Utilization of Electrical Energy	3	CECE 428
CECE 410	Fundamentals of Distributed Systems	3	CECE 316, CECE 403
CECE 424	Control System	3	CECE 305
CECE 425	Non-Linear Control	3	CECE 305
CECE 427	Power System Operation	3	CECE 307
CECE 429	Electric Power Distribution	3	CECE 307
CECE 446	Planning of Electrical Networks	3	CECE 494
CECE 455	Selected topics in Electrical Power Engineering	3	CECE 318
CECE 492	Electrical Machine Theory	3	CECE 437
CECE 495	Feedback Control	3	CECE 318

Appendix (3)

Classification according to the relevant sector NARS 2009 requirements:

- For the Engineering sector, as follows and shown in the following Table (1):

Humanities and social science
Mathematics and basic sciences
Basic engineering
Applied engineering and design
Computer Applications and ICT
Projects & training
Discretionary

Table (1) : The courses classification according to the relevant sector NARS 2009 requirements

1. Humanities and social science (Hum. & Soc. Sc.) - (17 credit hours) represents 9.497%		
Course no.	**Course Name**	**Credit hours**
ENGL 102	Lower intermediate English	3
BASE 402	Feasibility Studies	3
BASE 306	Research Methods	3
BASE 404	Negotiation Skills	3
BASE 401	Communication Skills	3
BASE 307	Contracts, Bids & Liabilities	2
2. Mathematics and basic sciences (Math. & B. Sc.) - (40 credit hours) represents 22.346%		
Course no.	**Course Name**	**Credit hours**
PHYS101	Classical mechanical, sound, heat	3
PHYS111	General physics laboratory (1)	1
CHEM 101	General Chemistry 1 for engineers	3
CHEM 111	General chemistry lab	1
MATH 101	Calculus 1	3
ENGR 103	Engineering Mechanics 1 (statics)	3
PHYS102	Electricity and magnetism	3
PHYS112	General physics laboratory (2)	1
MATH 102	Calculus 2	3

ENGR 104	Engineering Mechanics 2 (Dynamics)	3
MATH 201	Calculus III	3
PHYS 301	Waves, Optics & Atomic Physics	3
PHYS 311	Optics Lab	1
MATH 202	Differential Equations	3
MATH 301	Probability & Statistic	3
MATH 302	Linear Algebra and Matrices	3

3. Basic engineering (B. Eng. Sc.)

- (36 credit hours) represents 20.11%

Course no.	Course Name	Credit hours calculated
ENGR 101	Introduction to engineering	1
ENGR 102	Engineering Drawing and projection	2
ENGR 105	Production engineering	1
CECE 201	Digital Logic Design I	3
CECE 202	Electric Circuits I	2
ENGR 206	Strength and Testing of Materials	3
CECE 203	Electric Circuits II	2
CECE 209	Digital Logic Design II	2
CECE 330	Electrical and Electronic Measurements	3
CECE 313	Measurements & Instrumentation Lab	1
CECE 303	Signals and Systems	3
CECE 305	Automatic Control	3
CECE 315	Control Lab	1
CECE 302	Electronics II	1
CECE 306	Electromagnetic Theory	3
CECE 325	Fundamentals of Communication I	2
ENGR 303	General Mechanical Engineering- Applied Thermodynamics	3

4. Applied engineering and design (App. Eng. & Des)

- (39 credit hours) represents 21.788%

Course no.	Course Name	Credit hours calculated
CECE 301	Electronics I	1
CECE 317	Electric Machine I	3
CECE 431	Digital Control	3
CECE 319	Power Electronics I	2
CECE 309	Electrical Energy Conversions	3
CECE 318	Electric Machine II	2
CECE 320	Power Electronics II	2
CECE 430	Transmission & Distribution of Electrical Energy	2
CECE 322	Power System Analysis I	2
CECE 436	Electrical Machines III	1
CECE 323	Power System Analysis II	3
CECE 439	Protection & Switchgear in Electrical Power	2
CECE 494	High Voltage Engineering	2
CECE 496	High Voltage Engineering Lab	1
CECE 437	Electrical Machines IV	1
CECE 446	Planning of Electrical Networks	3
CECE 428	Power System Protection	3
CECE 424	Control System	3

5. Computer Applications and ICT

- (18 credit hours) represents 10.055%

Course no.	Course Name	Credit hours calculated
CECE 101	Fundamental to computer programming	3
CECE 213	Electric Circuits Lab	1
CECE 209	Digital Logic Design II	1
CECE 211	Digital Logic Lab	1
CECE 204	Computer Organization	3
CECE 312	Electronics Lab	1

CECE 325	Fundamentals of Communication I	1
CECE 326	Communication Lab	1
CECE 318	Electric Machine II	1
CECE 436	Electrical Machines III	1
CECE 437	Electrical Machines IV	1
CECE 102	Fundamental of structured programming	3

6. Projects & training

- (18 credit hours) represents 10.055%

Course no.	Course Name	Credit hours calculated
CECE 202	Electric Circuits I	1
CECE 203	Electric Circuits II	1
CECE 301	Electronics I	2
CECE 302	Electronics II	2
CECE 319	Power Electronics I	1
CECE 320	Power Electronics II	1
CECE 430	Transmission & Distribution of Electrical Energy	1
CECE 322	Power System Analysis I	1
CECE 436	Electrical Machines III	1
CECE 489	Professional Training	3
CECE 490	Senior Project I	1
CECE 437	Electrical Machines IV	1
CECE 491	Senior Project II	2

7. Discretionary

- (11 credit hours) represents 6.145%

Course no.	Course no.	Course no.
ENGL 101	Elementary English	3
BASE 303	Engineering Economics	3
CECE 439	Protection & Switchgear in Electrical Power	1
CECE 494	High Voltage Engineering	1

CECE 455	Selected topics in Electrical Power Engineering	3

The program duration is five years, 10 semesters. There are two study levels for preparatory year and four study levels in electrical power engineering program. The following are the subjects taught during this program for each semester as following in Table (2).

Table (2): Classical study program; two semesters per study level

1st Year/ 1st Semester													
Code	Course Name	Teaching Hours					Subject Area						
		Credit	Lectures	Exercises	Practical	Total hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des	Comp. App. & ICT	proj.& Practice	Discretionary
PHYS 101	Classical mechanical, sound, heat	3	2	2	0	4	-	3	-	-	-	-	-
PHYS 111	General physics laboratory (1)	1	0	0	3	3	-	1	-	-	-	-	-
CHEM 101	General Chemistry 1 for engineers	3	2	2	0	4	-	3	-	-	-	-	-
CHEM 111	General chemistry lab	1	0	0	3	3	-	1	-	-	-	-	-
MATH 101	Calculus 1	3	2	2	0	4	-	3	-	-	-	-	-
ENGR 101	Introduction to engineering	1	0	0	0	0	-	-	1	-	-	-	-
ENGR 102	Engineering Drawing and projection	2	1	0	3	4	-	-	2	-	-	-	-
ENGR 103	Engineering Mechanics 1 (statics)	3	2	2	0	4	-	3	-	-	-	-	-
total		17	9	8	9	26	0	14	3	0	0	0	0
1st Year/ 2nd Semester													
Code	Course Name	Teaching Hours					Subject Area						
		Credit	Lectures	Exercises	Practical	Total hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des	Comp. App. & ICT	proj.& Practice	Discretionary
PHYS 102	Electricity and magnetism	3	2	2	0	4	-	3	-	-	-	-	-
PHYS 112	General physics laboratory (2)	1	0	0	3	3	-	1	-	-	-	-	-
MATH 102	Calculus 2	3	2	2	0	4	-	3	-	-	-	-	-

CECE 101	Fundamental to computer programming	3	2	0	3	5	-	-	-	-	3	-	-
ENG R 105	Production engineering	1	1	1	0	2	-	-	1	-	-	-	-
ENG R 104	Engineering Mechanics 2 (Dynamics)	3	2	2	0	4	-	3	-	-	-	-	-
ENG L 101	Elementary English	3	2	2	0	4	-		-	-	-	-	3
Total		**17**	**11**	**9**	**6**	**26**	**0**	**10**	**1**	**0**	**3**	**0**	**3**

2st Year/ 1st Semester

Code	Course Name	Teaching Hours					Subject Area						
		Credit	Lectures	Exercises	Practical	Total hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des	Comp. App. & ICT	proj.& Practice	Discretionary
CECE 102	Fundamental of structured programming	3	2	2	0	4	-	-	-	-	3	-	-
CECE 201	Digital Logic Design I	3	2	2	0	4	-	-	3	-	-	-	-
CECE 202	Electric Circuits I	3	2	2	0	4	-	-	2	-	-	1	-
MATH 201	Calculus III	3	2	2	0	4	-	3	-	-	-	-	-
ENG R 206	Strength and Testing of Materials	3	2	2	0	4		-	3	-	-	-	-
ENG L 102	Lower intermediate English	3	2	2	0	4	3	-	-	-	-	-	-
BASE 309	Human Rights	0	0	2	0	2	-	-	-	-	-	-	-
total		**18**	**12**	**14**	**0**	**26**	**3**	**3**	**7**	**0**	**3**	**1**	**0**

2st Year/ 2nd Semester

Code	Course Name	Teaching Hours					Subject Area						
		Credit	Lectures	Exercises	Practical	Total hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des	Comp. App. & ICT	proj. & Practice	Discretionary
CECE 203	Electric Circuits II	3	2	2	0	4	-	-	2	-	-	1	-
CECE 213	Electric Circuits Lab	1	0	0	3	3	-	-	-	-	1	-	-

CECE 209	Digital Logic Design II	3	2	2	0	4	-	-	2	-	1	-	-
CECE 211	Digital Logic Lab	1	0	0	3	3	-	-	-	-	1	-	-
PHYS 301	Waves, Optics & Atomic Physics	3	2	2	0	4	-	3	-	-	-	-	-
PHYS 311	Optics Lab	1	0	0	3	3	-	1	-	-	-	-	-
MATH 202	Differential Equations	3	2	2	0	4	-	3	-	-	-	-	-
BASE 303	Engineering Economics	3	2	2	0	4	-	-	-	-	-	-	3
Total		18	10	10	9	29	0	7	4	0	3	1	3

3rd Year/ 1st Semester

Code	Course Name	Teaching Hours					Subject Area						
		Credit	Lectures	Exercises	Practical	Total hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des	Comp. App. & ICT	proj. & Practice	Discretionary
CECE 301	Electronics I	3	2	0	3	5	-	-	-	1	-	2	-
CECE 330	Electrical and Electronic Measurements	3	2	2	0	4	-	-	3	-	-	-	-
CECE 313	Measurements & Instrumentation Lab	1	0	0	3	3	-	-	1	-	-	-	-
CECE 303	Signals and Systems	3	2	2	0	4	-	-	3	-	-	-	-
CECE 204	Computer Organization	3	2	0	3	5	-	-	-	-	3	-	-
BASE 402	Feasibility Studies	3	2	2	0	4	3	-	-	-	-	-	-
MATH 301	Probability & Statistic	3	2	2	0	4	-	3	-	-	-	-	-
total		19	12	8	9	29	3	3	7	1	3	2	0

3rd Year/ 2nd Semester

Code	Course Name	Teaching Hours					Subject Area						
		Credit	Lectures	Exercises	Practical	Total hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des	Comp. App. & ICT	proj. & Practice	Discretionary

CECE 203	Electric Circuits II	3	2	2	0	4	-	-	2	-	-	1	-
CECE 213	Electric Circuits Lab	1	0	0	3	3	-	-	-	-	1	-	-
CECE 209	Digital Logic Design II	3	2	2	0	4	-	-	2	-	1	-	-
CECE 211	Digital Logic Lab	1	0	0	3	3	-	-	-	-	1	-	-
PHYS 301	Waves, Optics & Atomic Physics	3	2	2	0	4	-	3	-	-	-	-	-
PHYS 311	Optics Lab	1	0	0	3	3	-	1	-	-	-	-	-
MATH 202	Differential Equations	3	2	2	0	4	-	3	-	-	-	-	-
BASE 303	Engineering Economics	3	2	2	0	4	-	-	-	-	-	-	3
Total		18	10	10	9	29	0	7	4	0	3	1	3

4th Year/ 1st Semester

Code	Course Name	Teaching Hours					Subject Area						
		Credit	Lectures	Exercises	Practical	Total hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des	Comp. App. & ICT	proj. & Practice	Discretionary
CECE 317	Electric Machine I	3	2	2	2	6	-	-	-	3	-	-	-
CECE 431	Digital Control	3	2	2	0	4	-	-	-	3	-	-	-
CECE 319	Power Electronics I	3	2	2	2	6	-	-	-	2	-	1	-
CECE 309	Electrical Energy Conversions	3	2	2	2	6	-	-	-	3	-	-	-
BASE 306	Research Methods	3	2	2	0	4	3	-	-	-	-	-	-
BASE 404	Negotiation Skills	3	3	0	0	3	3	-	-	-	-	-	-
total		18	13	10	6	29	6	0	0	11	0	1	0

4th Year / 2nd Semester

Code	Course Name	Teaching Hours					Subject Area						
		Credit	Lectures	Exercises	Practical	Total hours	Hum. & Soc	Math. & B. Sc.	B. Eng. Sc.	App. Eng. &	Comp. App. & ICT	proj. & Practice	Discretionary

							. Sc.			Des			
CEC E 318	Electric Machine II	3	2	2	2	6	-	-	-	2	1	-	-
CEC E 320	Power Electronics II	3	2	2	2	6	-	-	-	2	-	1	-
CEC E 430	Transmission & Distribution of Electrical Energy	3	2	2	0	4	-	-	-	2	-	1	-
CEC E 322	Power System Analysis I	3	2	2	2	6	-	-	-	2	-	1	-
ENG R 303	General Mechanical Engineering- Applied Thermodynamics	3	2	2	0	4	-	-	3	-	-	-	-
BAS E 401	Communication Skills	3	3	0	0	3	3	-	-	-	-	-	-
Total		**18**	**13**	**10**	**6**	**29**	**3**	**0**	**3**	**8**	**1**	**3**	**0**

5th Year/ 1st Semester

Code	Course Name	Teaching Hours					Subject Area						
		Credit	Lectures	Exercises	Practical	Total hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des	Comp. App. & ICT	proj. & Practice	Discretionary
CEC E 436	Electrical Machines III	3	2	2	2	6	-	-	-	1	1	1	-
CEC E 489	Professional Training	3	0	0	3	3	-	-	-	-	-	3	-
CEC E 323	Power System Analysis II	3	2	2	2	6	-	-	-	3	-	-	-
CEC E 439	Protection & Switchgear in Electrical Power	3	2	2	2	6	-	-	-	2	-	-	1
CEC E 494	High Voltage Engineering	3	2	2	0	4	-	-	-	2	-	-	1

CEC E 496	High Voltage Engineering Lab	1	0	0	3	3	-	-	-	1	-	-	-
CEC E 490	Senior Project I	1	3	0	0	3	-	-	-	-	-	1	-
BAS E 307	Contracts, Bids & Liabilities	2	2	0	0	2	2	-	-	-	-	-	-
BAS E 308	Seminar	0	2	0	0	2	-	-	-	-	-	-	-
total		19	15	8	12	35	2	0	0	9	1	5	2

5th Year / 2nd Semester

Code	Course Name	Teaching Hours					Subject Area						
		Credit	Lectures	Exercises	Practical	Total hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des	Comp. App. & ICT	proj. & Practice	Discretionary
CEC E 437	Electrical Machines IV	3	2	2	2	6	-	-	-	1	1	1	-
CEC E 446	Planning of Electrical Networks	3	2	2	2	6	-	-	-	3	-	-	-
CEC E 428	Power System Protection	3	2	2	2	6	-	-	-	3	-	-	-
CEC E 455	Selected topics in Electrical Power Engineering	3	2	2	2	6	-	-	-	-	-	-	3
CEC E 491	Senior Project II	2	1	0	3	4	-	-	-	-	-	2	-
CEC E 424	Control System	3	2	2	0	4	-	-	-	3	-	-	-
Total		17	11	10	11	32	0	0	0	10	1	3	3

- The following table shows the percentage for subject area distribution in each level in the program relevant sector NARS 2009 requirements as following in Table (3):

Table (3): The percentage for subject area distribution in each level in the program

Levels	subject area						
	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des	Comp. App. & ICT	Project & Practice	Discretionary
1st Year/ 1st Semester	0	14	3	0	0	0	0

1st Year/ 2nd Semester	0	10	1	0	3	0	3
2nd Year/ 1st Semester	3	3	7	0	3	1	0
2nd Year/ 2nd Semester	0	7	4	0	3	1	3
3rd Year/ 1st Semester	3	3	7	1	3	2	0
3rd Year/ 2nd Semester	0	3	10	0	3	2	0
4th Year/ 1st Semester	6	0	0	11	0	1	0
4th Year/ 2nd Semester	3	0	3	8	1	3	0
5th Year/ 1st Semester	2	0	0	9	1	5	2
5th Year/ 2nd Semester	0	0	0	10	1	3	3
Total	17	40	36	39	18	18	11
Percentage	9.4972067%	22.3464%	20.11%	21.788%	10.0555%	10.0559%	6.14525%
NARS2009 Engineering Requirements	(9-12 %)	(20-26 %)	(20-23 %)	(20-22 %)	(9-11 %)	(8-10 %)	(6-8 %)

Appendix (4)

Matrix between ARS (Electrical Power Engineering Program) & NARS2018

ARS (Telecommunication Eng.)	NARS2018 (Engineering)
Competences for general Engineering Graduate (Level A)	**Competences for general Engineering Graduate (Level A)**
A1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	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.	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.	A3.Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
A4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	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.	A5.Practice research techniques and methods of investigation as an inherent part of learning.
A6.Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	A6.Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
A7. Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.	A7.Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
A8.Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	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.	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.	A10.Acquire and apply new knowledge, and practice self, lifelong, and other learning strategies.

Competences for the BASIC ELECTRICAL Engineering graduate (Level B)	Competences for the BASIC ELECTRICAL Engineering graduate (Level B)
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.	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.	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.	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.	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.	B5.Adopt suitable national and international standards and codes to design, build, operate, inspect, and maintain electrical/electronic/digital equipment, systems, and services.
Competences for Electrical power Engineering program Graduate (Level Cp)	
Cp1.Design and analyze power generation, transmission, control, and distribution systems, while developing and simulating heavy equipment such as generators, motors, and transmission lines to ensure effective construction, performance, and accurate interpretation of experimental results.	
Cp2.Determine technical and operational issues and formulate engineering solutions to effectively oversee the engineering activities across the varied phases of electric power generation, transmission, control, and distribution systems.	
Cp3.Test and examine components, create and assess sketches, specifications, and datasheets for power system components to guarantee precision and compliance.	
Cp4. Integrate electrical, electronic, and mechanical components and equipment with transducers, actuators, and controllers in creatively computer-controlled systems.	

Appendix (5)

- The matrix between the teaching and learning methods of the program and the Program outcomes (POC's):

Teaching and Learning methods	Academic Standards (Mention code only)																		
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP4
Online / face to face lectures	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1			1
Tutorials: sheets/ sketches	1		1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1
Projects		1			1	1	1		1	1	1	1	1		1	1			
Problem solving	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1
Brainstorming	1			1	1	1			1		1	1	1	1	1	1	1	1	1
Practical: lab		1					1			1	1	1	1	1	1	1	1	1	1
Discovering		1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Reports / research	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cooperative work		1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Presentation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Discussion	1		1	1	1	1		1	1			1	1		1	1		1	
Modelling		1									1	1	1	1	1	1	1	1	1

Appendix (6)

- The matrix between the assessment methods of the program and the Program outcomes (POC's):

Student Assessment methods	Academic Standards (Mention code only)																		
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP4
Quizzes	1		1	1	1	1		1	1		1	1	1	1		1	1	1	1
Mid-term exam	1		1	1		1			1	1	1	1	1	1	1	1	1	1	1
Final exam	1		1	1		1			1	1	1	1	1	1	1	1	1	1	1
sheets/ sketches	1		1	1		1			1	1	1	1	1	1	1	1	1	1	1
projects		1					1			1	1	1	1	1	1	1	1	1	1
Practical: lab		1					1			1	1	1	1	1	1	1	1	1	1
Oral exam							1	1	1	1									
Discussions	1		1	1	1	1		1	1			1	1		1	1		1	
Reports/ research	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Modelling		1									1	1	1	1	1	1	1	1	1

Appendix (7)

Program mission	Academic Standards (Mention code only)																		
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP4
Preparing and graduating electrical engineers specialized in the applications of electrical engineering	1	1									1					1			
Equipped with the knowledge, creativity, and skills necessary to excel in the local and regional job markets.				1			1				1	1	1				1		
Emphasizes continuous self-learning, fostering innovation and scientific research					1				1	1									1
Preparing graduates to actively contribute to the advancement of society through community service						1		1									1		
In alignment with the sustainable development goals and Egypt's Vision 2030			1												1			1	
the program promotes the development of innovative and sustainable solutions that enhance energy efficiency, protect the environment, and address societal challenges with ethical and high-quality practices.			1	1					1			1	1	1	1	1		1	1

Appendix (8)

Attributes of the graduate program:

The Program adopted the attributes of the Engineers of NARS 2018 to be attributes of the program alumni:

AP1. Master a wide spectrum of engineering knowledge and specialized skills and can apply acquired knowledge using theories and abstract thinking in real life situations.
AP2. Apply analytic critical and systemic thinking to identify, diagnose and solve engineering problems with a wide range of complexity and variation.
AP3. Behave professionally and adhere to engineering ethics and standards.
AP4. Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance.
AP5. Recognize his/her role in promoting the engineering field and contribute to the development of the profession and the community.
AP6. Value the importance of the environment, both physical and natural, and work to promote sustainability principles.
AP7. Use techniques, skills, and modern engineering tools necessary for engineering practice.
AP8. 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.
AP9. Communicate effectively using different modes, tools, and languages with various audiences; to deal with academic/professional challenges critically and creatively.
AP10. Demonstrate leadership qualities, business administration, and entrepreneurial skills.
AP11. Create designs and join projects that meet the disabled needs.

Appendix (9)

The matrix between the program mission and the attributes of the graduate program (AP)

Attributes of the graduate program (AP)	Program Mission					
	Preparing and graduating electrical engineers specialized in the applications of electrical engineering	equipped with the knowledge, creativity, and skills necessary to excel in the local and regional job markets.	emphasizes continuous self-learning, fostering innovation and scientific research	preparing graduates to actively contribute to the advancement of society through community service	In alignment with the sustainable development goals and Egypt's Vision 2030	the program promotes the development of innovative and sustainable solutions that enhance energy efficiency, protect the environment, and address societal challenges with ethical and high-quality practices
AP1. Master a wide spectrum of engineering knowledge and specialized skills and can apply acquired knowledge using theories and abstract thinking in real-life situations.	√					
AP2. Apply analytic critical and systemic thinking to identify, diagnose, and solve engineering problems with a wide range of complexity and variation.		√				√
AP3. Behave professionally and adhere to engineering ethics and standards.		√				√
AP4. Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance.	√	√		√		
AP5. Recognize his/her role in promoting the engineering field and contribute to the development of the profession and the community.			√	√	√	

AP6. Value the importance of the environment, both physical and natural, and work to promote sustainability principles.					√	√
AP7. Use techniques, skills, and modern engineering tools necessary for engineering practice.	√	√			√	
AP8. 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.			√	√		
AP9. Communicate effectively using different modes, tools, and languages with various audiences; to deal with academic/professional challenges critically and creatively.			√			
AP10. Demonstrate leadership qualities, business administration, and entrepreneurial skills.	√	√				√
AP11. Create designs and join projects that meet the disabled needs.				√		

The matrix between the program aims and the attributes of the graduate program (AP) as shown in table:

Table: The matrix between the program aims and the attributes of the graduate program (AP)

Program Aims	The attributes of the graduate program (AP)
The program provides students with a strong foundation in engineering by offering essential knowledge, practical skills, and conceptual tools.	**AP1.** Master a wide spectrum of engineering knowledge and specialized skills and can apply acquired knowledge using theories and abstract thinking in real life situations.
	AP8. 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.
It enables students to engage in a balanced mix of theoretical and applied learning that fosters innovation and enhances their ability to address regional energy challenges.	**AP2.** Apply analytic critical and systemic thinking to identify, diagnose and solve engineering problems with a wide range of complexity and variation.
	AP7. Use techniques, skills, and modern engineering tools necessary for engineering practice.
	AP5. Recognize his/her role in promoting the engineering field and contribute to the development of the profession and the community.
The program also enables communication, leadership, and teamwork skills while promoting ethical and social responsibility.	**AP9.** Communicate effectively using different modes, tools, and languages with various audiences; to deal with academic/professional challenges critically and creatively.
	AP3. Behave professionally and adhere to engineering ethics and standards.
	AP4. Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance.
It equips students with modern technological competencies aligned with labor market needs.	**AP1.** Master a wide spectrum of engineering knowledge and specialized skills and can apply acquired knowledge using theories and abstract thinking in real-life situations.
	AP7. Use techniques, skills, and modern engineering tools necessary for engineering practice.
	AP10. Demonstrate leadership qualities, business administration, and entrepreneurial skills.
	AP5. Recognize his/her role in promoting the engineering field and contribute to the development of the profession and the community.
	AP11. Create designs and join projects that meet the disabled needs.
Also, it enables the students to support participation in research and community-based projects that contribute to the sustainable development goals of 2030.	**AP8.** 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.

	AP2. Apply analytic critical and systemic thinking to identify, diagnose and solve engineering problems with a wide range of complexity and variation.
	AP6. Value the importance of the environment, both physical and natural, and work to promote sustainability principles.

Appendix (10)

Program Aims	Academic Standards (Mention code only)																		
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5	Cp1	CP2	Cp3	CP4
The program provides students with a strong foundation in engineering by offering essential knowledge, practical skills, and conceptual tools.	1	1									1					1			
It enables students to engage in a balanced mix of theoretical and applied learning that fosters innovation and enhances their ability to address regional energy challenges.			1		1							1					1		
The program also enables communication, leadership, and teamwork skills while promoting ethical and social responsibility.							1	1	1						1			1	
It equips students with modern technological competencies aligned with labor market needs.				1						1			1	1	1	1			
Also, it enables the students to support participation in research and community-based projects that contribute to the sustainable development goals of 2030.			1		1								1				1		

Appendix (11)

Program Aims	Program Mission					
	Preparing and graduating electrical engineers specialized in the applications of electrical engineering	equipped with the knowledge, creativity, and skills necessary to excel in the local and regional job markets.	emphasizes continuous self-learning, fostering innovation and scientific research	preparing graduates to actively contribute to the advancement of society through community service	In alignment with the sustainable development goals and Egypt's Vision 2030	the program promotes the development of innovative and sustainable solutions that enhance energy efficiency, protect the environment, and address societal challenges with ethical and high-quality practices
The program provides students with a strong foundation in engineering by offering essential knowledge, practical skills, and conceptual tools.	√					√
It enables students to engage in a balanced mix of theoretical and applied learning that fosters innovation and enhances their ability to address regional energy challenges.	√	√	√			√
The program also enables communication, leadership, and teamwork skills while promoting ethical and social responsibility.				√		
It equips students with modern technological competencies		√		√	√	√

aligned with labor market needs.						
Also, it enables the students to support participation in research and community-based projects that contribute to the sustainable development goals of 2030.			√	√	√	√

Appendix (12)

Institute Mission	program Mission					
	Preparing and graduating electrical engineers specialized in the applications of electrical engineering	equipped with the knowledge, creativity, and skills necessary to excel in the local and regional job markets.	emphasizes continuous self-learning, fostering innovation and scientific research	preparing graduates to contribute to the advancement of society through community service actively	In alignment with the sustainable development goals and Egypt's Vision 2030	the program promotes the development of innovative and sustainable solutions that enhance energy efficiency, protect the environment, and address societal challenges with ethical and high-quality practices
achieving academic excellence	√					
graduating engineers capable of creativity, innovation, scientific research, continuous self-education			√			√
active participation in the development of society		√				
meet the challenges of the era and keep pace with rapid development				√		√
achieve the goals of sustainable development and Egypt's Vision 2030 considering professional ethics, and quality of performance					√	√

Appendix (13)

Regulation governing the completion of the program:

- The bachelor's degree program consists of four academic levels, where students progress from one level to the next upon completing a specified percentage of the program's required credit hours, as follows:

Level	Degree	Program Level Definition	Percentage of Completed Credit Hours
1	Bachelor's	Freshman (First Year)	0% – Less than 20%
2	Bachelor's	Sophomore (Second Year)	20% – Less than 40%
3	Bachelor's	Junior (Third Year)	40% – Less than 70%
4	Bachelor's	Senior (Fourth Year)	70% – Less than 100%

1. A student may register for academic courses during the main semesters—subject to the approval of the academic advisor—up to a maximum total of credit hours, as follows:
   a) Up to 21 credit hours for students with a cumulative GPA of 3.0 or higher.
   b) Up to 18 credit hours for students with a cumulative GPA of 2.0 or higher but below 3.0.
   c) Up to 14 credit hours for students with a cumulative GPA of below 2.0.
2. A student may register for academic courses during the summer semester—subject to the approval of the academic advisor—up to a maximum total of credit hours, as follows:
   a) Up to 9 credit hours for students with a cumulative GPA of 3.0 or higher.
   b) Up to 8 credit hours for students with a cumulative GPA of below 3.0.
   c) A student may enroll in one additional course beyond the aforementioned limits if it facilitates their graduation.
3. The institute has the authority to determine the courses offered each semester and the procedures for student registration. However, courses that are prerequisites for other courses or are essential for graduation must be made available for registration every semester.
4. To earn a bachelor's degree, a student must:
   a) Complete the required credit hours for the program.
   b) Achieve a minimum cumulative GPA of 2.0 at graduation.
   c) Pass all zero-credit-hour courses.
   d) Successfully complete the mandatory field training within the specified duration for their program during their study period.
5. A student may add a course:
   a) Within the first week of the main semesters.
   b) Within the first three days of the summer semester.
6. A student may drop a course:
   a) Until the end of the second week of the main semesters.
   b) Until the end of the first week of the summer semester.
7. A student may withdraw from a registered course:
   a) Within the first ten weeks of the main semesters.
   b) Within the first five weeks of the summer semester.

- Withdrawal does not result in a failing grade, provided the withdrawal request is submitted and approved within the designated period. The student will receive a "W"

(Withdrawal) grade for the course, which does not affect their GPA. The withdrawn course may be retaken in subsequent semesters.

8. If a student is unable to attend the final exam for a course due to an acceptable excuse, as approved by the Department Head or Program Coordinator and the Dean of the Institute, the course will be marked as Incomplete (I).
   a) The "I" grade does not impact the student's cumulative GPA.
   b) If the student fails to take the final exam at the next available scheduled date, the "I" grade will be converted to an "F".
   c) When the student completes the missed exam, their score will be combined with their coursework grades to determine the final course grade.
9. A student may retake a course (both coursework and exam) for grade improvement, subject to the following rules:
   a) The higher grades obtained will be recorded in the GPA, while the transcript will indicate that the course was retaken.
   b) A student may retake up to five courses for grade improvement during their academic tenure, except for courses repeated to meet graduation requirements.
   c) If the student fails a retaken course, the previous grade will be nullified, and an "F" will be recorded instead. The student must retake the course, with a maximum achievable grade of B+.

Appendix (14)

Regulation governing professional training:

1. Eligibility for professional training:
    a) Practical training is available to students who have successfully completed at least the second level of study (i.e., more than 60 credit hours).
    b) For female students, participation in off-campus training requires written approval from their legal guardian, along with their explicit consent regarding the training institution. If the guardian does not grant approval, the student will undergo training within the institute.
2. Duration and Training Environment
    a) The student must complete a minimum of eight weeks of field training at an industrial or service-oriented establishment relevant to their academic program.
    b) Training is conducted under the full supervision of the institute.
    c) Alternatively, training may be conducted within the institute, provided the environment simulates real-world industrial or service settings.
3. The trainee must adhere to full working hours as stipulated by the training institution.
4. Supervision, Reporting, and Evaluation
    a) Supervision Structure:
        i. Each group of trainees (not exceeding twenty students) is assigned an academic supervisor from the relevant department and a field supervisor from the training institution, whose appointment is approved by the academic department.
        ii. The academic and field supervisors coordinate to oversee student progress, monitor training activities, and assess performance.
    b) Progress Reporting & Evaluation:
        i. The academic supervisor prepares biweekly progress reports based on site visits to the training institutions.
        ii. At the end of the training period, the field supervisor submits an assessment report evaluating the students:
            - Attendance and commitment to training.
            - Ability to apply theoretical knowledge to practical scenarios.
            - Understanding technical and professional aspects of the work.
            - Teamwork skills and readiness for collaborative work.
            - Comprehension of roles, responsibilities, and work ethics.
            - Strengths and areas for improvement in both behavior and performance.
    c) Students' Technical Report:
        i. The student must submit a technical report to their academic supervisor at the end of the training period.
        ii. This report should outline:
            - The objectives achieved during training.
            - The methods used to achieve these objectives.
            - Identified weaknesses and strategies for overcoming them.
    d) Final evaluation:
        i. The academic department evaluates the student's training performance based on reports from the academic and field supervisors.

ii. The student's performance is graded on a Pass/Fail basis, with uniform grading criteria applied to all students receiving a Pass or Fail decision, as determined by the department.
iii. The student's performance during the training period is assessed by both the company's training supervisor and the institute's training supervisor. This evaluation accounts for 40% of the total course grade (100 marks) and is distributed across five criteria, with 8 marks allocated per criterion, as follows:

criteria	Marks	Institute Supervisor Signature	Company Supervisor Signature
Adherence to attendance and working hours			
Professional ethics and conduct			
Response to the training program			
Acquired skills			
Integration of coursework with training			
Total Evaluation Score			

iv. At the end of the training period, the student must submit a final report, which an evaluation committee assesses. This evaluation accounts for 10% of the total course grade. The student must also undergo a public oral discussion, constituting 50% of the total course grade.

Evaluation Criteria	Marks	Evaluation Committee	Signature
Students' Submitted Report			
1-			
2-			
3-			
Public Oral Discussion			

وزارة التعليم العالي

معهد الوادى العالى للهندسة والتكنولوجيا بالقليوبية

كشف رصد الدرجات لمادة: التدريب العملي رقم المادة : CVEE 339

نهائى الفصل الدراسى الأول للعام الجامعى 2025/2024

م	رقم الطالب	اسم الطالب	تقدير جهة التدريب (40)	التقدير الاكاديمى (10)	مناقشة (50)	الاجمالى (100)	التقدير
1							
2							
3							

Appendix (15)

Program Admission Requirements:

- **Enrollment Requirements for Admission to the Institute**

1) At the end of each academic year, the Minister of Higher Education—following consultation with the Supreme Council for Institutes—shall determine the number of students to be admitted as regular students to the Institute. This includes both Egyptian nationals and international applicants who hold a General Secondary Education Certificate (Thanaweya Amma), or equivalent certificates whether Arab or foreign, as well as graduates of technical industrial diplomas (three-year and five-year systems), for each academic year.
2) The nomination of Egyptian students for regular enrollment at the Institute shall be carried out through the Universities Admission Coordination Office (Tansik), unless otherwise stipulated by a decision from the Minister of Higher Education. The nomination of non-Egyptian students shall be subject to the general policies established by the Ministry of Higher Education.
3) For a student to be enrolled at the Institute, the following conditions must be met:

- Possession of one of the following academic qualifications:

- General Secondary Education Certificate (Scientific – Mathematics track) or its recognized equivalent from Arab or foreign educational systems.

- Al-Azhar Secondary Education Certificate (Science stream).

- Technical Industrial Secondary School Diploma (three-year system).

- Technical Industrial Secondary School Diploma (five-year system).

- Technical Industrial Institute Diploma.

- Medical fitness: The student must pass a medical examination proving that they are free from communicable diseases and fit to pursue academic study.

- Good conduct: The student must demonstrate good character and a commendable reputation.

- Formal registration: Every applicant must complete the formal registration process at the Institute.

- Full-time study commitment: The student must be committed to full-time study at the Institute.

- **Program Enrollment Requirements**

Student distribution across the academic departments of the Institute shall follow the structure outlined in the Student Handbook, as revised in the 2023–2024 academic year. This distribution was ratified by the Academic Council in a session held on Saturday, 19 September 2023, and the revised handbook is included as an appendix.

- Students select their desired academic program according to the following procedure:

- A specialization preference form is distributed to preparatory-year students in early May, following the official announcement opening the selection period for academic specializations.

- The selection window remains open for one week, starting on a Saturday and ending the following Thursday.

- Students who do not submit their preferences within the specified period will be assigned to academic departments at the discretion of the Dean of the Institute.

- The final allocation to departments is conducted after the summer semester results are announced. The placement is based on each student's Grade Point Average (GPA) from the preparatory year and is subject to the capacity limitations of each academic department.

Appendix (16)

Grading system:

- The total score for each course is distributed based on a weighted grading system. These grades are allocated to student activities, midterm exam scores, practical exam scores, and final exam scores.
- Students are not allowed to take the final exam for the course unless they have attended at least 75% of the total laboratory and practical session hours required for that course.
- A student enrolled in a bachelor's degree program must obtain at least a (D) grade to pass any course. The grades are used to calculate the student's cumulative GPA for each course based on the corresponding grade points, as shown in the table below:

Degree percentage (%)	Grade	Equivalent degree	GPA
$D \geq 95$	A+	Excellent+	4.0
$90 \leq D < 95$	A	Excellent	3.7
$85 \leq D < 90$	A-	Excellent-	3.3
$80 \leq D < 85$	B+	Very good+	3.0
$75 \leq D < 80$	B	Very good	2.7
$70 \leq D < 75$	C+	Good+	2.3
$65 \leq D < 70$	C	Good	2.0
$60 \leq D < 65$	D+	Pass+	1.7
$55 \leq D < 60$	D	Pass	1.3
$50 \leq D < 55$	D-	Pass-	1.0
$D < 50$	F	fall	0

- The student's success is evaluated according to one of the following grades: (Excellent – Very Good – Good – Pass)

- While a student's failure is evaluated using one of the following grades: (Weak – Very Weak)

- The application of the above grading system shall be in accordance with the regulations specified in the institute's internal by laws. If an examination in any course includes both a written component and either an oral or practical component, the student's grade for that course shall be calculated based on the average of the written, oral, and/or practical components. A student who is absent from the written examination is considered absent from the entire course examination and shall not be assigned a grade for it. The cumulative grade upon graduation is classified as follows: Pass for a GPA from 2.0 to less than 2.5, Good for a GPA from 2.5 to less than 3.0, Very Good for a GPA from 3.0 to less than 3.5, and Excellent for a GPA from 3.5 to 4.0.

محاضر الاجتماعات

محضر اجتماع لجنة تعزيز وتطوير البرنامج
بتاريخ 2025/7/19

إنه في يوم السبت الموافق 2025/7/19، اجتمعت لجنة تعزيز وتطوير برنامج هندسه القوي الكهربية بمعهد الوادي العالي للهندسة والتكنولوجيا بالقليوبية برئاسة **الأستاذ الدكتور/** حسين حامد غز وبحضور كلاً من:

م	الاسم	الدرجة الوظيفية
1	أ.د. حسين حامد غز	أستاذ ببرنامج هندسة القوى الكهربية
2	د/ ايهاب جعفر الصادق	مدرس ببرنامج هندسة القوى الكهربية
3	م. نسمة محمد	معيد ببرنامج هندسة القوى الكهربية
4	م. م أيه هيكل	مدرس مساعد ببرنامج هندسة القوى الكهربية
5	م/ علياء موسي	معيد ببرنامج هندسة القوى الكهربية
6	م. م داليا تامر	مدرس مساعد ببرنامج هندسة القوى الكهربية

بدء الاجتماع بكلمة ترحيب من السيد الأستاذ الدكتور/ حسين حامد غز في دعم مسيرة البرنامج للاعتماد وتم مناقشة **التالي:**

الموضوع الأول:

اعتماد توصيف برنامج هندسة القوي الكهربية.

القرار: وافقت اللجنة على عرض توصيف برنامج هندسة القوي الكهربية (2025/2026) على مستشاري الجودة بالمعهد لاتخاذ الإجراءات التصحيحية اللازمة بعد المراجعة الداخلية.

يعتمد،،،

المشرف علي البرنامج

أ.د/ عابد محمود أحمد جاد

وزارة التعليم العالي
معهد الوادي العالي للهندسة والتكنولوجيا بالقليوبية
برنامج هندسة القوي الكهربية
لجنة تعزيز وتطوير البرنامج

الأستاذ الدكتور/ حسين حامد غز

تحية طيبة وبعد،

بناء على اجتماع لجنة مراجعة وتطوير البرنامج في يوم السبت الموافق 2025/7/19، وتصديقها وموافقتها على اعتماد توصيف البرنامج الخاص ببرنامج هندسة القوي الكهربية لعام (2025/2026)، لذا يرجي التكرم بالموافقة ليتم عرضه على مستشاري الجودة بالمعهد لاتخاذ الإجراءات التصحيحية اللازمة بعد المراجعة الداخلية.

ولسيادتكم جزيل الشكر،

أمين المجلس

أ.د. حسين حامد غز

أولاً: نص رسالة المعهد المعتمدة:

- يلتزم معهد الوادي العالي للهندسة والتكنولوجيا بتحقيق التميز الأكاديمي وتخريج مهندسين قادرين على الإبداع والابتكار والبحث العلمي والتعليم الذاتي المستمر والمنافسة في سوق العمل المحلي والإقليمي والمشاركة الفعالة في تنمية المجتمع لمواجهة تحديات العصر ومواكبة التطور السريع لتحقيق أهداف التنمية المستدامة ورؤية مصر 2030 في ضوء الأخلاقيات المهنية وجودة الأداء.
- "The High Valley Institute of Engineering and Technology is committed to achieving academic excellence and graduating engineers capable of creativity, innovation, scientific research, continuous self-education, competition in the local and regional labor market, and active participation in the development of society to meet the challenges of the era and keep pace with rapid development to achieve the goals of sustainable development and Egypt's Vision 2030 in light of professional ethics. And quality of performance."

ثانيًا: نص رسالة البرنامج المقترحة:

- إعداد وتخريج مهندسين متخصصين في مجال هندسة القوي الكهربية، ومزودين بالمعرفة، والإبداع، والمهارات اللازمة للتميز في أسواق العمل المحلية والإقليمية. يركز البرنامج على التعلم الذاتي المستمر، وتعزيز الابتكار والبحث العلمي، وإعداد الخريجين للمساهمة الفعالة في تقدم المجتمع من خلال خدمة المجتمع. ويتماشى البرنامج مع أهداف التنمية المستدامة ورؤية مصر 2030، حيث يعزز تطوير حلول مبتكرة ومستدامة تعزز كفاءة الطاقة، وتحمي البيئة، وتواجه التحديات المجتمعية من خلال ممارسات أخلاقية وعالية الجودة".
- "Preparing and graduating electrical engineers specialized in the applications of electrical engineering, equipped with the knowledge, creativity, and skills necessary to excel in the local and regional job markets. The program emphasizes continuous self-learning, fostering innovation and scientific research, and preparing graduates to contribute to the advancement of society through community service actively. In alignment with the sustainable development goals and Egypt's Vision 2030, the program promotes the development of innovative and sustainable solutions that enhance energy efficiency, protect the environment, and address societal challenges with ethical and high-quality practices"

ثالثاً: بنود التوافق بين رسالة البرنامج ورسالة المعهد:

رسالة المعهد	رسالة البرنامج					
	إعداد وتخريج مهندسين متخصصين في مجال هندسة القوي الكهربية	مزودين بالمعرفة، والإبداع، والمهارات اللازمة للتميز في أسواق العمل المحلية والإقليمية.	يركز البرنامج على التعلم الذاتي المستمر، وتعزيز الابتكار والبحث العلمي	وإعداد الخريجين للمساهمة الفعالة في تقدم المجتمع من خلال خدمة المجتمع.	ويتماشى البرنامج مع أهداف التنمية المستدامة ورؤية مصر 2030	يعزز تطوير حلول مبتكرة ومستدامة في مجال كفاءة الطاقة وتحمي البيئة، وتواجه التحديات المجتمعية من خلال ممارسات أخلاقية وعالية الجودة
بتحقيق التميز الأكاديمي	√					
وتخريج مهندسين قادرين على الإبداع والابتكار والبحث العلمي والتعليم الذاتي المستمر			√			√
والمنافسة في سوق العمل المحلي والإقليمي		√				
المشاركة الفعالة في تنمية المجتمع لمواجهة تحديات العصر ومواكبة التطور السريع				√		√
لتحقيق أهداف التنمية المستدامة ورؤية مصر 2030 في ضوء الأخلاقيات المهنية وجودة الأداء					√	√

- The mission of the program contributes to the mission of the High Valley Institute for Engineering and Technology as shown in the table:

Institute Mission	program Mission					
	Preparing and graduating electrical engineers specialized in the applications of electrical engineering	equipped with the knowledge, creativity, and skills necessary to excel in the local and regional job markets.	emphasizes continuous self-learning, fostering innovation and scientific research	preparing graduates to contribute to the advancement of society through community service actively	In alignment with the sustainable development goals and Egypt's Vision 2030	the program promotes the development of innovative and sustainable solutions that enhance energy efficiency, protect the environment, and address societal challenges with ethical and high-quality practices
achieving academic excellence	√					
graduating engineers capable of creativity, innovation, scientific research, continuous self-education			√			√
active participation in the development of society		√				
meet the challenges of the era and keep pace with rapid development				√		√
achieve the goals of sustainable development and Egypt's Vision 2030 considering professional ethics, and quality of performance					√	√

ثالثًا: الأهداف العامة لبرنامج هندسة القوي الكهربية

1. توفير خلفية شاملة في الهندسة من خلال مقررات دراسية تزوّد الطلاب بالمعرفة الأساسية والمهارات العملية والمفاهيم اللازمة لفهم وتطوير هذا المجال.
2. تقديم تعليم عالي الجودة بمزيج متوازن من الدراسات النظرية والعملية التي تعزز الابتكار وتزيد من قدرات حل المشكلات لمواجهة التحديات الهندسية المحلية والإقليمية.
3. تعزيز مهارات الاتصال والقيادة والعمل الجماعي لتمكين الخريجين من التعاون بفعالية، والالتزام بالأخلاقيات المهنية، واحترام القيم المجتمعية.
4. إعداد محترفين في مجال الهندسة الكهربائية مؤهلين لتلبية متطلبات سوق العمل المتغير.
5. استخدام التقنيات المتقدمة للمساهمة في المجتمع وضمان التوافق مع متطلبات سوق العمل الحالي.
6. تطوير أنظمة تعليمية وبحثية تعالج مشكلات المجتمع المحلي وتدعم أهداف التنمية المستدامة 2030.

General Objectives of the Program:

1. Recognize a comprehensive background in engineering through courses that equip students with core knowledge, practical skills, and concepts necessary for understanding and advancing the field.
2. Provide high-quality education with a balanced mix of theoretical and practical studies that foster innovation to increase problem-solving abilities for local and regional engineering challenges.

   and solutions for regional energy challenges.

3. State communication, leadership, and teamwork empower graduates to collaborate effectively, uphold professional ethics, and respect societal values.
4. Prepare electrical professionals who are well-qualified to meet the demands of the evolving job market.
5. Use advanced technologies for societal contribution and ensure alignment with current labour market requirements.
6. Develop educational and research systems that address local community problems while supporting the Sustainable Development Goals 2030.

رابعا: السمات المميزة لبرنامج هندسة القوي الكهربية

1. يعمل البرنامج بنظام الساعات المعتمدة، حيث يقدم دورات صيفية مخصصة بناءً على استشارات الطلاب ويوفر بيئة صفية صغيرة مثالية لتعزيز جودة التعلم.
2. يُركز البرنامج على التدريب العملي المتوافق مع متطلبات الصناعة، بدعم من موارد متخصصة لتجربة عملية متقدمة. تم تصميم مشاريع التخرج، خاصةً في مجالات الطاقة الخضراء وكفاءة الطاقة، لضمان جودة الطاقة في الأنظمة وتزويد الطلاب بالمهارات اللازمة لتلبية متطلبات العالم الواقعي في حلول الطاقة المستدامة.
3. يقع المعهد استراتيجياً في مدينة العبور ضمن جمعية العُرابي، مما يتيح سهولة الوصول للطلاب من المحافظات القريبة ويُسهل التعاون مع المنشآت الصناعية في المنطقة الصناعية المحلية.

Distinctive Features of The Program

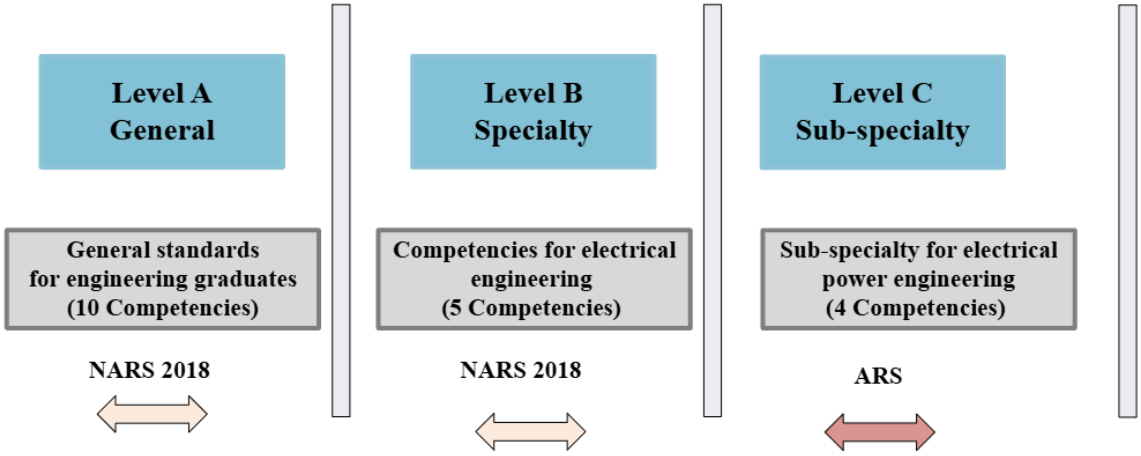
1. The program operates on a credit-hour system, offering tailored summer courses based on student consultations and providing an ideal, small-class environment to enhance learning quality.
2. Emphasis is placed on practical training aligned with industry requirements, supported by specialized resources for advanced hands-on experience. Graduation projects, particularly in green energy and energy efficiency, are designed to ensure system power quality and prepare students with the skills to meet real-world demands in sustainable power solutions.
3. Strategically located in Obour City within the Orabi association, the institute enables easy access for students from nearby governorates and facilitates collaboration with industrial establishments in the local industrial zone.

خامسا: تبني المعايير الأكاديمية لبرنامج هندسة القوي الكهربية

5. The academic standards:

- According to the National Academic Reference Standard – engineering NARS 2018 which be divided into, into three categories: competencies for general engineering graduates (Level A)

which included 10 competencies, and specialty competencies for electrical engineering (Level B) which included 5 competencies.



For the electrical power engineering program competencies (ARS) are categorized into three categories as follows:

Competencies for general engineering graduates of the institute (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.
A4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
A5. Practice research techniques and methods of investigation as an inherent part of learning.
A6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
A7. Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
A8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
A9. Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
A10. Acquire and apply new knowledge, and practice self, lifelong, and other learning strategies.

Specialty competencies for electrical engineering (Level B)

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.

B 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.
B 3. Design and implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools.
B 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.
B 5. Adopt suitable national and international standards and codes to design, build, operate, inspect, and maintain electrical/electronic/digital equipment, systems, and services.

Sub-specialty for the electrical power engineering program (Level CP)

CP1. Design and analyze power generation, transmission, control, and distribution systems, while developing and simulating heavy equipment such as generators, motors, and transmission lines to ensure effective construction, performance, and accurate interpretation of experimental results.
CP2. Determine technical and operational issues and formulate engineering solutions to effectively oversee the engineering activities across the varied phases of electric power generation, transmission, control, and distribution systems.
CP3. Test and examine components, create and assess sketches, specifications, and datasheets for power system components to guarantee precision and compliance.
CP4. Integrate electrical, electronic, and mechanical components and equipment with transducers, actuators, and controllers in creatively computer-controlled systems.

For the electrical power engineering program, the learning outcomes are related to the competencies of the graduate as follow:

The Program Learning Outcomes (PLOs):

LO1. Identify the engineering fundamentals for basic science and mathematics.
LO2. Formulate the complex engineering fundamental problems
LO3. Solve complex engineering problems
LO4. Conduct the appropriate experiment (simulate and lab).
LO5. Analyze the data using statistical analyses to draw conclusions.
LO6. Apply engineering design processes to produce cost-effective solutions that meet the specifications taking into consideration global, cultural, social, economic, environmental, ethical, and other aspects.
LO7. Demonstrate the principles and contexts of sustainable development
Design.
LO8. Utilize contemporary technologies, codes of practice and standards, quality guidelines,
LO9. Utilize health and safety requirements, environmental issues and risk management principles.
LO10. Practice research techniques and methods of investigation as an inherent part of learning.
LO11. Plan the implementation process of the engineering projects
LO12. Supervise the engineering projects
LO13. Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
LO14 Communicate effectively – graphically, verbally and in writing
LO15. use contemporary tools for effective communication
LO16. Use creative, innovative and flexible thinking.
LO17. acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
LO18. Apply new knowledge and other learning strategies.

LO19. Practice self and lifelong
LO20. Select suitable components and configurations for electrical power systems by evaluating their compatibility with generation, transmission, and distribution requirements.
LO21. Model electrical power systems that effectively represent generation, transmission, and distribution networks using industry-standard software and analytical tools.
LO22. Analyze the performance of electrical power systems by assessing efficiency, reliability, and sustainability factors across generation, transmission, and distribution stages.
LO23. Apply theoretical concepts related to generation, transmission, and distribution to solve real-world electrical power system challenges within the specific discipline.
LO24. Design electrical, electronic, or digital systems or components tailored to meet the requirements of specific applications, ensuring functionality, efficiency, and relevance.
LO25. Model electrical, electronic, or digital systems or components using appropriate simulation and prototyping tools to represent real-world behavior and validate design assumptions.
LO26. Analyze the performance and reliability of electrical systems or components through testing and evaluation, using quantitative methods to assess system effectiveness.
LO27. Design elements, modules, sub-systems, or systems within electrical, electronic, or digital engineering that meet specified technical and functional requirements.
LO28. Implement designed elements, modules, sub-systems, or systems in real-world applications, ensuring accuracy, functionality, and compliance with engineering standards.
LO29. Estimate the expected performance of an electrical, electronic, or digital system or circuit based on specific input excitation parameters.
LO30. Measure the actual performance of a system or circuit by applying specific input excitations and using appropriate instrumentation and methods.
LO31. Evaluate the suitability of the system or circuit for a designated application by comparing measured performance to application requirements.
LO32. Adopt suitable national and international standards and codes to ensure the design, operation, and maintenance of electrical, electronic, and digital systems align with regulatory and safety requirements.
LO33. Design electrical, electronic, and digital equipment and systems in strict accordance with national and international standards, and codes.
LO34. Operate the functioning of electrical and digital systems according to national and international standards and codes.
LO35. Analyze the construction and performance of power generation, transmission, control, and distribution systems including heavy electrical equipment using simulations to assess behavior under various conditions, identify improvement areas, and ensure resilience and compliance with standards.
LO36. Design integrated power systems that meet technical and operational requirements, ensuring efficient, safe, and sustainable generation, transmission, and distribution with effective load management, minimized losses, and adaptive control for reliable performance.
LO37. Determine technical and operational issues within the phases of power generation, transmission, control, and distribution systems, focusing on factors such as efficiency, reliability, and safety.
LO38. Formulate engineering solutions to address identified problems in electric power systems, applying appropriate methods and technologies to enhance system performance and reliability.
LO39. Test electric power components used in generation, transmission, control, and distribution systems.

LO40. Examine power system components by preparing and reviewing sketches, specifications, and datasheets to ensure accuracy and compliance with standards, ensuring system reliability.
LO41. Integrate electrical, electronic, and mechanical components with complex systems involving transducers, actuators, and controllers to ensure optimal performance and reliability, addressing design challenges effectively to achieve desired functionality in automated and computer-controlled environments.

Table: The relation between the competencies and the learning outcomes of the program

No	The competencies of the electrical power engineering program	Program learning outcomes (PLO)
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	LO1. Identify the engineering fundamentals for basic science and mathematics. LO2. Formulate the complex engineering fundamental problems LO3. Solve complex engineering problems
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.	LO4. Conduct the appropriate experiment (simulate and lab). LO5. Analyze the data using statistical analyses 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.	LO6. Apply engineering design processes to produce cost-effective solutions that meet the specifications taking into consideration global, cultural, social, economic, environmental, ethical, and other aspects. LO7. Demonstrate the principles and contexts of sustainable development Design.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	LO8. Utilize contemporary technologies, codes of practice and standards, quality guidelines, LO9. Utilize health and safety requirements, environmental issues and risk management principles.
A5	Practice research techniques and methods of investigation as an inherent part of learning.	LO10. Practice research techniques and methods of investigation as an inherent part of learning.
A6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	LO11. Plan the implementation process of the engineering projects LO12. Supervise the engineering projects
A7	Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.	LO13. Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	LO14 Communicate effectively – graphically, verbally and in writing LO15. use contemporary tools for effective communication
A9	Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	LO16. Use creative, innovative and flexible thinking. LO17. 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.	LO18. Apply new knowledge and other learning strategies. LO19. Practice self and lifelong
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.	LO20. Select suitable components and configurations for electrical power systems by evaluating their compatibility with generation, transmission, and distribution requirements. LO21. Model electrical power systems that effectively represent generation, transmission, and distribution networks using industry-standard software and analytical tools. LO22. Analyze the performance of electrical power systems by assessing efficiency, reliability, and sustainability factors across generation, transmission, and distribution stages. LO23. Apply theoretical concepts related to generation, transmission, and distribution to solve real-world electrical power system challenges within the specific discipline.

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.	LO24. Design electrical, electronic, or digital systems or components tailored to meet the requirements of specific applications, ensuring functionality, efficiency, and relevance. LO25. Model electrical, electronic, or digital systems or components using appropriate simulation and prototyping tools to represent real-world behavior and validate design assumptions. LO26. Analyze the performance and reliability of electrical systems or components through testing and evaluation, using quantitative methods to assess system effectiveness.
B3	Design and implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools.	LO27. Design elements, modules, sub-systems, or systems within electrical, electronic, or digital engineering that meet specified technical and functional requirements. LO28. Implement designed elements, modules, sub-systems, or systems in real-world applications, ensuring accuracy, functionality, and compliance with engineering standards.
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.	LO29. Estimate the expected performance of an electrical, electronic, or digital system or circuit based on specific input excitation parameters. LO30. Measure the actual performance of a system or circuit by applying specific input excitations and using appropriate instrumentation and methods. LO31. Evaluate the suitability of the system or circuit for a designated application by comparing measured performance to application requirements.
B5	Adopt suitable national and international standards and codes to design, build, operate, inspect, and maintain electrical/electronic/digital equipment, systems, and services.	LO32 Adopt suitable national and international standards and codes to ensure the design, operation, and maintenance of electrical, electronic, and digital systems align with regulatory and safety requirements. LO33. Design electrical, electronic, and digital equipment and systems in strict accordance with national and international standards, and codes. LO34. Operate the functioning of electrical and digital systems according to national and international standards and codes.
CP1	Design and analyze power generation, transmission, control, and distribution systems, while developing and simulating heavy equipment such as generators, motors, and transmission lines to ensure effective construction, performance, and accurate interpretation of experimental results.	LO35. Analyze the construction and performance of power generation, transmission, control, and distribution systems including heavy electrical equipment using simulations to assess behavior under various conditions, identify improvement areas, and ensure resilience and compliance with standards. LO36. Design integrated power systems that meet technical and operational requirements, ensuring efficient, safe, and sustainable generation, transmission, and distribution with effective load management, minimized losses, and adaptive control for reliable performance.
CP2	Determine technical and operational issues and formulate engineering solutions to effectively oversee the engineering activities across the varied phases of electric power generation, transmission, control, and distribution systems.	LO37. Determine technical and operational issues within the phases of power generation, transmission, control, and distribution systems, focusing on factors such as efficiency, reliability, and safety. LO38. Formulate engineering solutions to address identified problems in electric power systems, applying appropriate methods and technologies to enhance system performance and reliability.
CP3	Test and examine components, create and assess sketches, specifications, and datasheets for power system components to guarantee precision and compliance.	LO39. Test electric power components used in generation, transmission, control, and distribution systems. LO40. Examine power system components by preparing and reviewing sketches, specifications, and datasheets to ensure accuracy and compliance with standards, ensuring system reliability.
CP4	Integrate electrical, electronic, and mechanical components and equipment with transducers, actuators, and controllers in creatively computer-controlled systems.	LO41. Integrate electrical, electronic, and mechanical components with complex systems involving transducers, actuators, and controllers to ensure optimal performance and reliability, addressing design challenges effectively to achieve desired functionality in automated and computer-controlled environments.

أجندة اجتماع مجلس إدارة البرنامج

تاريخ الاجتماع	الأربعاء 2024/7/31					
مكان الاجتماع	غرفة أعضاء هيئة التدريس	**توقيت الاجتماع**	من	10 ص	إلى	12 م

الحاضرون:

م	الاسم	الدرجة الوظيفية
1	أ.د. حسين حامد غز	أستاذ ببرنامج هندسة القوى الكهربية
2	د/ ايهاب جعفر الصادق	مدرس ببرنامج هندسة القوى الكهربية
3	م. نسمة محمد	معيد ببرنامج هندسة القوى الكهربية
4	م. م أيه هيكل	مدرس مساعد ببرنامج هندسة القوى الكهربية
5	م/ علياء موسي	معيد ببرنامج هندسة القوى الكهربية
6	م. م داليا تامر	مدرس مساعد ببرنامج هندسة القوى الكهربية

الموضوعات التي سيتم مناقشتها:

م	الموضوع
1	النظر في شأن مراجعة رسالة البرنامج للتأكد من انها تتماشي مع رسالة المعهد والعمل على صياغة لتحديثها
2	دراسة توافق مقترح تحديث رسالة البرنامج مع رسالة المعهد المعتمدة.
3	عرض ومناقشة الأهداف والسمات المميزة للبرنامج
4	النظر في شأن إعداد آلية للمراجعة الدورية لتحديث رسالة البرنامج.
5	مناقشة تبني المعايير الأكاديمية لبرنامج هندسة القوي الكهربية
6	اعتماد توصيف برنامج هندسة القوي الكهربية لعام 2024-2025

أمين المجلس	أ.د. حسين حامد غز
المشرف علي البرنامج	أ. د. عابد محمود أحمد جاد
تاريخ مجلس البرنامج	2024/7/31

محاضر الاجتماعات

محضر مجلس إدارة البرنامج

إنه في يوم الأربعاء 2024/7/31، اجتمعت لجنة تعزيز وتطوير برنامج هندسه القوي الكهربية بمعهد الوادي العالي للهندسة والتكنولوجيا بالقليوبية برئاسة **الأستاذ الدكتور/** حسين حامد غز أمين المجلس وبحضور كلاً من:

م	الاسم	الدرجة الوظيفية
1	أ.د. حسين حامد غز	أستاذ ببرنامج هندسة القوى الكهربية
2	د/ ايهاب جعفر الصادق	مدرس ببرنامج هندسة القوى الكهربية
3	م. نسمة محمد	معيد ببرنامج هندسة القوى الكهربية
4	م. م أيه هيكل	مدرس مساعد ببرنامج هندسة القوى الكهربية
5	م/ علياء موسي	معيد ببرنامج هندسة القوى الكهربية
6	م. م داليا تامر	مدرس مساعد ببرنامج هندسة القوى الكهربية

بدء الاجتماع بكلمة ترحيب من السيد الأستاذ الدكتور/حسين حامد في دعم مسيرة البرنامج للاعتماد وتم مناقشة **الموضوعات التالية:**

الموضوع الأول: النظر في شأن مراجعة رسالة البرنامج للتأكد من انها تتماشي مع رسالة المعهد والعمل علي صياغة لتحديثها

القرار: وافقت اللجنة على تقديم طلب إلى مدير البرنامج لعقد ورشة عمل مع جميع الأطراف المعنية بالعملية التعليمية (أعضاء هيئة التدريس ومعاونيهم والإداريين والطلاب والأطراف المجتمعية ذات الصلة) لمناقشة مقترح تطوير الرسالة واستقصاء الرأي حولها.

الموضوع الثاني: دراسة توافق مقترح تحديث رسالة البرنامج مع رسالة المعهد المعتمدة.

القرار: وافقت اللجنة على إعداد دراسة تتضمن بنود التوافق بين رسالة البرنامج بعد مراجعتها وصياغتها في الصورة النهائية مع رسالة المعهد المعتمدة وعرضها على مجلس إدارة البرنامج قبل اعتماد رسالة البرنامج النهائية.

الموضوع الثالث: عرض ومناقشة الأهداف والسمات المميزة للبرنامج

القرار: وافقت اللجنة على أن تتضمن ورشة العمل عرض ومناقشة أهداف البرنامج والسمات المميزة له.

الموضوع الرابع: النظر في شأن إعداد آلية للمراجعة الدورية لتحديث رسالة البرنامج.

القرار: وافقت اللجنة على إعداد آلية مقترحة ويتم عرضها على مجلس إدارة البرنامج لاعتمادها.

الموضوع الخامس: مناقشة تبني المعايير الأكاديمية لبرنامج هندسة القوي الكهربية واعتماد مصفوفة التوافق بين الجدارات ومخرجات التعلم الخاصة ببرنامج هندسة القوي الكهربية.

القرار: تم تبني المعايير الاكاديمية ل NARS 2018 بحيث تعد جدارات (A) خاصة لكلية الهندسة وعددهم 10 جدارات، و جدارات (B) لقسم الهندسة الكهربية وتم إعداد ARSحيث لا يوجد به تخصص هندسه القوي الكهربية.

الموضوع السادس: اعتماد توصيف برنامج هندسة القوي الكهربية لعام 2025/20244.

القرار: وافق المجلس على توصيف برنامج هندسة القوي الكهربية (2025/2024) وعرضه علي سيادة عميد المعهد لاعتماده.

يعتمد،

المشرف علي البرنامج

أ.د/ عابد محمود أحمد جاد

المخاطبات

الأستاذ الدكتور الدكتور/ حسين حامد غز

تحية طيبة وبعد،

بناء على اجتماع لجنة مراجعة وتطوير البرنامج يوم الثلاثاء الموافق 2024/7/31، وتصديقها وموافقتها على أهمية مراجعة رسالة البرنامج وأهدافه وسماته المميزة بما يتماشى مع معايير الجودة والاعتماد ومستجدات سوق العمل و مناقشة تبني المعايير الأكاديمية لبرنامج هندسة القوي الكهربية ومن ثم اعتماد مصفوفة التوافق بين الجدارات و مخرجات التعلم وتوصيف البرنامج (2024-2025) الخاص ببرنامج هندسة القوي الكهربية و وما يتطلب ذلك من عقد ورشة عمل لجميع الاطراف المعنية بالعملية التعليمية (أعضاء هيئة التدريس ومعاونيهم والإداريين والطلاب والأطراف المجتمعية ذات الصلة)، لذا يرجي التكرم بالموافقة على عقد ورشة العمل يوم الأربعاء الموافق 2024/8/14.

ولسيادتكم جزيل الشكر،

أمين المجلس

أ.د. حسين حامد غز

دعوات حضور ورش العمل

دعوة حضور ورشة عمل
(أعضاء هيئة التدريس ومعاونيهم – الأطراف المجتمعية)

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الأستاذ الدكتور/ حسين حامد غزتحية طيبة وبعد،

تحية طيبة وبعد،،،

انطلاقا من سعي برنامج هندسه القوي الكهربية على استيفاء معايير الجودة والاعتماد، وما يتطلب ذلك من مراجعة رسالة وأهداف وسمات المميزة لبرنامج القوي الكهربية في ضوء اللائحة الداخلية للبرنامج وتتوافق مع رسالة المعهد، ولمناقشة تبني المعايير الأكاديمية لبرنامج هندسة القوي الكهربية و اعتماد جدارات البرنامج وتوافقها مع مخرجات التعلم بالإضافة لمراجعة توصيف البرنامج وذلك حرصاً على المشاركة الفاعلة لكل أطراف العملية التعليمية في منظومة الجودة.

لذا نتشرف بدعوة سيادتكم لحضور ورشة العمل المزمع عقدها يوم الأربعاء الموافق 2024/8/14، للإفادة والمشاركة بالراي لتعديل وتطوير البرنامج.

ولسيادتكم جزيل الشكر،،،

أمين المجلس

أ.د. حسين حامد غز