Electrical Power Engineering
Program Specifications (2024-2025)

Regulations 2010

General

A. Basic Information

1- Program Title:	Electrical Power Engineering
2- Program type:	Single
3- Department responsibility:	Electrical Power Engineering
4- Coordinator:	Dr. Hend Abd El-Monem Salama Mohamed
5- Quality prog. coordinator	Dr. Dina Rostom
6- Internal evaluator:	Dr. Reham Hosny, Dr. Zeinab Gamal, Dr. M. Farouk
7- Year of specification approval:	2024 / 2025
8- Dates of regulation approval:	2010

B. Professional Information

Institute Mission

"The mission is to prepare distinguished engineering cadres capable of keeping pace with global technological development and able to compete, work collectively, and innovate to meet the needs of the local and regional market through the provision of outstanding educational programs. This is done by adopting the latest methods of education, learning, and knowledge exchange in accordance with national academic standards, regulations, and professional ethics, contributing to the development of the cognitive abilities of individuals in the community."

The Institute council approved the mission on **(Appendix 1)**

Program Vision

Program's Vision:

"Working towards enhancing and developing the educational path both locally and regionally, ensuring quality and aligning with the top standards in education and scientific research."

Program Mission

"Training exceptional engineering talents in the fields of creativity, [1] innovation and scientific research [2], equipped to cater to the local and regional job market's demands[3]. "

The department council approved the aims on 5-9-2020 **(Appendix 2).** See the matrix 3.1 in Appendix 3.

1. Program Aims

The EPM program prepares its graduates to become intellectual leaders in the industry. Graduates are grounded in scientific, mathematical, and technical knowledge and relevant technologies that give them the ability to analyze, synthesize, and design engineering systems. The program aims are:

AM1. Apply knowledge of mathematics, science and engineering concepts to the solution of Power and machines problems.

AM2. Design and conduct experiments as well as analyzing and interpreting data to work effectively within multi-disciplinary teams.

AM3. Use the techniques, skills, and appropriate engineering tools, necessary for engineering practice and project management.

AM4. Utilize roles and knowledge of professional, ethical, social responsibilities according to the importance of life-long learning in the conduct of their careers.

AM5. Provide an efficient program environment that encourages continuous self-learning and progression in career.

AM6. Adapt successfully to apply and develop technologies with their skills in new contexts to meet the demands of society.

AM7. Address operation, control issues and planning needs through design work in electrical power engineering.

To judge the compatibility of the program mission with its aims, see the matrix **3.2.** in **Appendix 3.**

The department council approved the aims on 5-9-2020 **(Appendix 2)**

2. The attributes of Electrical power and Machines engineer

According to the National Academic Reference Standard (NARS2018), the graduates of the EPM program must satisfy the following attributes:

1. Master a wide spectrum of engineering knowledge and specialized skills and can apply acquired knowledge using theories and abstract thinking in real-life situations.
2. Apply analytic critical and systemic thinking to identify, diagnose and solve engineering problems with a wide range of complexity and variation.
3. Behave professionally and adhere to engineering ethics and standards.

4. Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance.
5. Recognize his/her role in promoting the engineering field and contribute in the development of the profession and the community.
6. Value the importance of the environment, both physical and natural, and work to promote sustainability principles.
7. Use techniques, skills, and modern engineering tools necessary for engineering practice.
8. Assume full responsibility for own learning and self-development, engage in lifelong learning and demonstrate the capacity to engage in post-graduate and research studies.
9. Communicate effectively using different modes, tools, and languages with various audiences; to deal with academic/professional challenges in a critical and creative manner.
10. Demonstrate leadership qualities, business administration and entrepreneurial skills.

The Institute council approved the NARS 2018 on (Appendix 1)

To judge the compatibility of program attributes with program mission, see the matrix **3.3** in **Appendix 3.**

To judge the compatibility of program attributes with program aims, see the matrix **3.4** in **Appendix 3.**
In addition, to judge the compatibility of program attributes with program competencies, see the matrix **3.5**in **Appendix 3.**

3. Learning Outcomes (LO's)

3.1. Competencies of engineering graduate (Level A)

The Engineering Graduate must be able to:

A- General Engineering NARS Competencies in 2018		
	A.1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.
	A.2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
	A.3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental,

Level A (NARS)		ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
	A.4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.
	A.5	Practice research techniques and methods of investigation as an inherent part of learning.
	A.6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
	A.7	Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.
	A.8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
	A.9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
	A.10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.

3.2. Competencies of basic electrical engineering (Level B)

The electrical engineering graduate must be able to:

B- Electrical NARS Competencies in 2018		
Level B (NARS)	**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.

3.3. High specialized competencies (Level C)

In addition to the competencies for all engineering programs (Level A) and the competencies for the basic Electrical engineering discipline (Level B), the Electrical Power Engineering Program graduate should be able to (Level C) which was approved by the program council **(Appendix 2)**

C- Electrical Power and Machines Engineering ARS		
Level C (ARS)	C.1	Identify and formulate engineering problems to solve problems in the field of electrical power and machines engineering.
	C.2	Test, examine, and protect components, equipment and electrical power systems and machines.
	C.3	Analyze the performance of electric power generation, control, and distribution systems.
	C.4	Integrate electrical, electronic, mechanical components and equipment with transducers, actuators, and controllers in creatively computer-controlled systems.

3.4 Course learning outcomes CLO:

CLO.1	Identify, complex engineering problems by applying engineering fundamentals, basic science, and mathematics.
CLO.2	formulate complex engineering problems by applying engineering fundamentals, basic science, and mathematics.
CLO.3	solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.
CLO.4	Develop appropriate experimentation and/or simulation, to analyze, interpret data, assess, evaluate findings, and using statistical analyses and objective engineering judgment to draw conclusions.
CLO.5	conduct appropriate experimentation and/or simulation, to analyze, interpret data, assess, evaluate findings, and using statistical analyses and objective engineering judgment to draw conclusions.
CLO.6	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.
CLO.7	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.
CLO.8	Practice research techniques and methods of investigation as an inherent part of learning.
CLO.9	Plan, implementation of engineering projects, taking into consideration other trades requirements.

CLO.10	supervise implementation of engineering projects, taking into consideration other trades requirements.
CLO.11	monitor implementation of engineering projects, taking into consideration other trades requirements.
CLO.12	Function efficiently as an individual and as a member of multi-disciplinary and multi- cultural teams.
CLO.13	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
CLO.14	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
CLO.15	Acquire new knowledge; and practice self, lifelong and other learning strategies.
CLO.16	apply new knowledge; and practice self, lifelong and other learning strategies.
CLO.17	Select, electrical power systems applicable to the specific discipline by applying the concepts of generation, transmission and distribution of electrical power systems.
CLO.18	model electrical power systems applicable to the specific discipline by applying the concepts of generation, transmission and distribution of electrical power systems.
CLO.19	analyze electrical power systems applicable to the specific discipline by applying the concepts of generation, transmission and distribution of electrical power systems.
CLO.20	Design, an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.
CLO.21	model an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.
CLO.22	analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.
CLO.23	Design elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools.

CLO.24	implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools.
CLO.25	Estimate the performance of an electrical/electronic/digital system and circuit under specific input excitation and evaluate its suitability for a specific application.
CLO.26	measure the performance of an electrical/electronic/digital system and circuit under specific input excitation and evaluate its suitability for a specific application.
CLO.27	Adopt suitable national and international standards and codes to design, build, operate, inspect, and maintain electrical/electronic/digital equipment, systems and services.
CLO.28	Identify engineering problems to solve problems in the field of electrical power and machines engineering.
CLO.29	formulate engineering problems to solve problems in the field of electrical power and machines engineering.
CLO.30	Test components, equipment and electrical power systems and machines.
CLO.31	examine components, equipment and electrical power systems and machines.
CLO.32	protect components, equipment and electrical power systems and machines.
CLO.33	Analyze the performance of electric power generation, control, and distribution systems.
CLO.34	Integrate electrical, electronic, mechanical components and equipment with transducers, actuators, and controllers in creatively computer-controlled systems.

To judge the compatibility of program aims with its competencies, CLO,s…, see the matrices 3.6, 3.7, 3.8 and 3.9 in Appendix, 3.

The department council approved the ARS (level C) on 5-9-2020 (Appendix 2).

4. Academic Standards of Program

The EPM program adopted exactly as National Academic Reference Standards (**NARS**) of engineering program (August 2018) which were issued by the National Authority for Quality Assurance & Accreditation of Education NAQAAE.

5. Program Structure and Contents

a. Program duration 10 semesters (5-years)

b. Program Structure:

i.	No. of hours: 180	:	168 Compulsory		12 Elective	
ii.	No. of contact hours:	:	170 Lectures		110 Tutorial	16 Lab
iii.	Contact hours of Lectures: 170 hours = 57.4%					
iv.	Contact hours of Tutorials: 114 hours = 37.1%					
v.	Contact hours of Lab: 18 hours = 5.5%					

c. Program Years:

Year	Hours		
	Compulsory	Elective	Total
Preparatory	36	0	36
First	38	0	38
Second	36	0	36
Third	33	3	36
Fourth	25	9	34
Subtotal Hours			180

d. Program Levels and Courses

Preparatory Year

First Semester

Code	Course Name	Teaching Hours						Marking				Subject Area			
		Lectures	Exercises	Practical	Total hours	Eqiv. Credit hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Univ. Req.	Institute Req.	General Req.	Special Req.
PHM 0101	Mathematics (1)	4	2	0	6	4	3	75	-	75	150		4		
PHM 0102	Physics (1)	4	1	1	6	4	3	30	30	90	150		4		
PHM 0103	Mechanics (1)	2	2	0	4	2	2	40	-	60	100		2		
MCE 0101	Engineering drawing & projection (1)	2	4	0	6	2	3	40	-	60	100		2		
CSE 0101	Computer technology	2	1	0	3	2	2	40	-	60	100		2		
HUM 0101	English Technical language	2	0	0	2	2	2	40	-	60	100	2			
Total		**16**	**10**	**1**	**27**	**16**					**700**	**2**	**14**		

Second Semester

Code	Course Name	Teaching Hours						Marking				Subject Area			
		Lectures	Exercises	Practical	Total hours	Eqiv. Credit hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Univ. Req.	Institute Req.	General Req.	Special Req.
PHM 0201	Mathematics (2)	4	2	0	6	4	3	75	-	75	150		4		
PHM 0202	Physics (2)	4	1	1	6	4	3	30	30	90	150		4		
PHM 0203	Mechanics (2)	2	2	0	4	2	2	40	-	60	100		2		
MCE 0201	Engineering drawing & projection (2)	2	4	0	6	2	3	40	-	60	100		2		
MCE 0202	Production technology	4	3	0	7	4	3	40	-	60	100	4			
PHM 0204	Chemistry	4	1	1	3	4	3	40	-	60	100		4		
Total		**20**	**13**	**2**	**32**	**20**		**265**	**30**	**405**	**700**	**4**	**16**		

First Year

First Semester

Code	Course Name	Teaching Hours						Marking				Subject Area			
		Lectures	Exercises	Practical	Total hours	Eqiv. Credit hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Univ. Req.	Institute Req.	General Req.	Special Req.
EPM 1111	Electrical circuits (1)	3	2	0	5	3	3	40	0	60	100			3	
PHM 1111	Mathematics (3)	4	2	0	6	4	3	75	-	75	150			4	
PHM 1112	Physics (3)	4	1	1	6	4	3	30	30	90	150			4	
PHM 1113	Mechanics (3)	3	2	0	5	3	3	40	-	60	100			3	
CVE1111	Civil Engineering	3	2	0	5	3	3	40	-	60	100		3		
HUM 1102	Technical writing	2	1	0	3	2	2	40	-	60	100	2			
Total		**19**	**10**	**1**	**30**	**19**					**700**	**2**	**3**	**14**	

Second Semester

Code	Course Name	Teaching Hours						Marking				Subject Area			
		Lectures	Exercises	Practical	Total hours	Eqiv. Credit hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Univ. Req.	Institute Req.	General Req.	Special Req.
PHM 1211	Mathematics (4)	4	2	0	6	4	3	75	-	75	150		4		
HUM 1203	Economic engineering	2	1	0	3	2	2	40	-	60	100	2			
CSE 1211	Computer programming	3	2	0	5	3	3	40	0	60	100			3	
EPE 1211	Electrical circuits (2)	3	2	0	5	3	3	40	0	60	100			3	
EPE 1212	Electrical Measurements and instruments	3	2	0	5	3	3	40	0	60	100			3	
ECE 1211	Electronic engineering	4	2	0	6	4	3	40	0	60	100			4	
Total		**19**	**11**	**0**	**30**	**19**					**650**	**2**	**4**	**13**	

Second Year

First Semester

Code	Course Name	Teaching Hours						Marking				Subject Area			
		Lectures	Exercises	Practical	Total hours	Eqiv. Credit hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Univ. Req.	Institute Req.	General Req.	Special Req.
PHM 2111	Mathematics (5)	3	2	0	5	3	3	75	-	75	150			3	
CSE 2111	Logic Circuits	3	2	0	5	3	3	40	0	60	100			3	
EPE 2112	Magnetic fields	4	2	0	6	4	3	60	0	90	150			4	
EPE 2111	Electrical testing (1)	0	0	3	3	1	2	30	30	40	100			1	
MCE 2111	Mechanical Engineering	3	2	0	5	3	3	40	0	60	100			3	
ECE 2111	Electronic Circuits (1)	4	2	0	5	4	3	40	0	60	100			4	
Total		**17**	**10**	**3**	**30**	**18**					**700**			**18**	

Second Semester

Code	Course Name	Teaching Hours						Marking				Subject Area			
		Lectures	Exercises	Practical	Total hours	Eqiv. Credit hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Univ. Req.	Institute Req.	General Req.	Special Req.
PHM 2211	Mathematics (6)	3	2	0	5	3	3	75	-	75	150			3	
EPE 2211	Electrical testing (2)	**0**	**0**	**3**	**3**	**1**	**2**	30	30	40	100			**1**	
CSE 2212	Process dynamics and control components	**4**	**2**	**0**	**6**	**4**	3	40	0	60	100			**4**	
EPE 2212	Energy conversion	**4**	**2**	**0**	**6**	**4**	3	**60**	**0**	**90**	**150**			**4**	
ECE 2211	Signal processing	**3**	**2**	**0**	**5**	**3**	3	40	0	60	100			**3**	
CSE 2211	Computer organization (1)	**3**	**2**	**0**	**5**	**3**	3	40	0	60	100			**3**	
Total		**17**	**10**	**3**	**30**	**18**					**700**			**18**	

Third Year

First Semester

Code	Course Name	Teaching Hours						Marking				Subject Area			
		Lectures	Exercises	Practical	Total hours	Eqiv. Credit hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Univ. Req.	Institute Req.	General Req.	Special Req.
EPE 3104	Power electronics (1)	3	2	0	5	3	3	40	0	60	100			3	
EPE 3101	Electrical Machines (1)	3	2	0	5	3	3	40	0	60	100				3
EPE 3102	Electrical testing (3)	0	0	3	3	1	2	30	30	40	100				1
EPE 3203	Transmission and distribution of electrical energy	**4**	**2**	**0**	**6**	**4**	3	40	0	60	100				**4**
HUM 4204	Feasibility study and project management	2	2	0	4	2	2	40	-	60	100	2			
HUM 3107	Environmental effects for project	2	1	0	3	2	2	40	-	60	100	2			
EPE 326X	Specialized elective course (1)	**3**	**2**	**0**	**5**	**3**	3	40	0	60	100				3
Total		**17**	**10**	**3**	**30**	**18**					**700**	**4**		**3**	**11**

Second Semester

Code	Course Name	Teaching Hours						Marking				Subject Area			
		Lectures	Exercises	Practical	Total hours	Eqiv. Credit hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Univ. Req.	Institute Req.	General Req.	Special Req.
EPE 3201	Electrical machines (2)	**4**	**2**	**0**	**6**	**4**	3	40	0	60	100				**4**
EPE 3105	Automatic control	4	2	0	6	4	3	40	0	60	100				4
EPE 3204	Power system analysis (1)	**3**	**2**	**0**	**5**	**3**	3	40	0	60	100				**3**
EPE 3202	Electrical testing (4)	**0**	**0**	**3**	**3**	**1**	**2**	30	30	40	100				**1**
EPE 4204	Power system protection and switchgear	3	1	0	4	3	3	40	0	60	100			3	
EPE 3103	High voltage engineering	3	2	0	5	3	3	40	0	60	100				3
Total		**17**	**9**	**3**	**26**	**18**					**600**			**3**	**15**

Fourth Year

First Semester

Code	Course Name	Teaching Hours						Marking				Subject Area			
		Lectures	Exercises	Practical	Total hours	Eqiv. Credit hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Univ. Req.	Institute Req.	General Req.	Special Req.
EPE 4103	Power system Analysis (2)	3	2	0	5	3	3	40	0	60	100				3
EPE 416X	specialized elective course (2)	**3**	**2**	**0**	**5**	**3**	3	40	0	60	100				**3**
EPE 4102	Electrical machines (3)	3	2	0	5	3	3	40	0	60	100				3
EPE 4101	Electrical testing (5)	**0**	**0**	**3**	**3**	**1**	2	30	30	40	100				**1**
EPE 4203	Power electronics (2)	3	2	0	5	3	3	40	0	60	100			3	
HUM 3105	Marketing and project management	2	1	0	3	2	2	40	-	60	100	2			
EPE 4199	Project (1)	0	4	0	4	2	-	100		0	100				2
Total		**17**	**15**	**3**	**35**	**20**					**600**	**2**		**3**	**15**

Second Semester

Code	Course Name	Teaching Hours						Marking				Subject Area			
		Lectures	Exercises	Practical	Total hours	Eqiv. Credit hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Univ. Req.	Institute Req.	General Req.	Special Req.
EPE 4202	Electrical machines (4)	3	2	0	5	3	3	40	0	60	100				3
EPE 3205	Economics of generation	**3**	**2**	**0**	**5**	**3**	3	40	0	60	100				**3**
EPE 4201	Electrical testing (6)	**0**	**0**	**3**	**3**	**1**	2	30	30	40	100				**1**
EPE 426X	specialized elective course (4)	3	2	0	5	3	3	40	0	60	100				3
EPE 417X	specialized elective course (3)	**3**	**2**	**0**	**5**	**3**	3	40	0	60	100				**3**
HUM 4106	Legislations and contracts	2	1	0	3	2	2	40	-	60	100	**2**			
EPE 4299	Project (2)	0	4	0	4	2	-	100	-	0	100				**2**
Total		**11**	**12**	**3**	**26**	**14**					**600**	**2**			**12**

The department council approved Changing the schedules of teaching some subjects in different terms on 5-9-2020(Appendix 2).

Total teaching hours and subject's distribution over the subject areas electrical power engineering

	Semester	Course teaching hours	Univ. Req.	Institute Req.	General. Req.	Special Req.
Prep.	1st	16	2	14		
	2nd	20	4	16		
First	1st	19	2	3	14	
	2nd	19	2	4	13	
Second	1st	18			18	
	2nd	18			18	
Third	1st	18	4		3	11
	2nd	18			3	15
Fourth	1st	20	2		3	15
	2nd	14	2			12
Total of Five Years		180	18	37	72	53
% of Five Years			**10%**	**20.6%**	**40%**	**29.4%**
Reference Frame 2020			**8%**	**20%**	**35%**	**30%**
			Min.	**Min.**	**Min.**	**Max.**

The above table shows the agreement with Reference Frame 2020 requirements.

Specialized Elective Courses

Course Code	Course Title	Weekly Hrs.				Total Marks Score			Examination Duration (Hrs.)	Total Marks
		Lectures	Tutorial	Practical	Total Hours	Final	Semester works	Practical /		
EPE 326X - Specialized Elective Course (1)										
EPE 3261	Utilization of Electrical energy	3	2	0	5	60	40	0	3	100
EPE 3262	Electrical network protection	3	2	0	5	60	40	0	3	100
EPE 3263	Application of Microprocessor	3	2	0	5	60	40	0	3	100
EPE 416X - Specialized Elective Course (2)										
EPE 4162	Extra high voltage	3	2	0	5	60	40	0	3	100
EPE 4161	Planning of electrical networks	3	2	0	5	60	40	0	3	100
EPE 4163	Electric drives	3	2	0	5	60	40	0	3	100
EPE 4 17X - Specialized Elective Course (3)										
EPE 4171	Theory of Electrical machines	3	2	0	5	60	40	0	3	100
EPE 4172	Applications of High voltage engineering	3	2	0	5	60	40	0	3	100
EPE 4173	Advanced Control Systems in electrical power	3	2	0	5	60	40	0	3	100
EPE 426X - Specialized Elective Course (4)										
EPE 4261	Special electrical machines	3	2	0	5	60	40	0	3	100
EPE 4262	Application of switchgear and Protection systems	3	2	0	5	60	40	0	3	100
EPE 4263	Computer application in electrical power system	3	2	0	5	60	40	0	3	100

6. Courses Specifications

These courses specifications were revised and approved in 2024. The department council approved the course's specifications on 16-9-2024. Appendix 4. Course specifications are listed in Appendix 5.

7. Program admission requirements

Article (32):

The Minister of Higher Education shall determine, based on the recommendations of the Board of Directors, the start and end dates of the academic year, examination schedules, and holidays at the institute. The actual duration of study for each academic semester, including the examination period, shall not be less than seventeen (17) weeks.

Article (33): Students must attend classes, participate in practical exercises, workshops, and training sessions in accordance with the internal regulations. The Institute's Council may prohibit a student from taking the entire examination or specific subjects if their attendance is unsatisfactory, as per the internal regulations. In this case, the student shall be considered to have failed the courses for which they were prohibited from taking the exams.

The Institute's Board of Directors may suspend a student's enrollment for a maximum period of one academic year, not exceeding two years, if the student provides an acceptable excuse that prevents them from regular attendance. The Central Administration Director may extend this period for a maximum of twice the duration of study at the institute when deemed necessary.

Article (34): At the end of each academic year, the Minister of Higher Education determines the number of students to be admitted to each institute from the citizens of the Arab Republic of Egypt or other countries (foreign students) based on the needs of the following academic year and the qualifications of high school graduates or equivalent certificates. The admission of students to the institute shall be done through the Admission Coordination Office, unless the Minister of Higher Education issues a different decision.

Article (35): Admission and admission requirements to the institute:

<u>The institute accepts the following qualifications:</u>

- General Secondary Education with a scientific or mathematical specialization, or equivalent certificates from Arabic and foreign countries.

- Technical schools' diplomas in the industrial system with a duration of three (3) or five (5) years.

- Technical industrial institute diplomas, subject to the rules and conditions determined by the Minister of Higher Education.

<u>Student enrollment in the institute is subject to the following conditions:</u>

1. Passing a medical examination to confirm their freedom from contagious diseases and fitness for study, as per the rules set by the Higher Institutes Council.

2. Full-time dedication to study at the institute.

3. Having a good reputation and character.

Article (37): The institute shall provide each student with a personal identity card bearing their photo and the dean's signature, and it shall be stamped with the institute's seal. Students are required to present this card for all academic matters, and no student is allowed to attend lectures, practical exercises, or exams without it.

Article (38): Every enrolled student must prove their attendance in the manner determined by the institute.

Article (39): A student may not enroll in more than one institute simultaneously, nor may they simultaneously enroll in an institute not affiliated with the ministry or any university college. A student may not re-enroll in an institute to obtain a certificate they already possess. They may also not re-enroll to obtain another certificate from a similar institute.

Article (40): The institute may admit students who have exhausted their chances of failure in colleges and higher institutes, according to the following rules:

1. The student must be enrolled in the college or higher institute in the previous academic year before joining the institute.

2. The student must have obtained the General Secondary Education certificate or its equivalent, or the diploma of technical industrial schools (3 or 5 years) with a cumulative grade that qualifies them for admission to the institute in the year of obtaining that certificate or in the year of joining the institute, whichever is better for the student. These students will join the first year as newcomers, and their documents will be submitted to the institute for forwarding to the relevant ministry department. Their admission will be subject to the approval of the Central Administration Director.

Article (41): Student enrollment or re-enrollment is allowed in the following cases:

1. New students who have not completed their enrollment procedures for an acceptable reason.
2. Students who withdrew their documents and were previously enrolled in the institute for an acceptable reason.
3. Students who failed to apply to the coordination office in the year of obtaining their General Secondary Education certificate for an acceptable reason.

In all cases, the academic year in which the student does not enroll themselves is considered a year of failure, and the enrollment or re-enrollment (as applicable) is authorized by a decision of the Director of the Central Administration and the approval of the Institute's Board of Directors.

Article (42): A student may not remain in the same class for more than two academic years. The Institute's Board of Directors may authorize students who have spent two years in their class to sit for exams externally in the following year for the subjects they failed, with the exception of first-year students.

The Institute's Board of Directors may also grant an additional opportunity for final-year students to sit for exams externally. If a student is absent from an exam due to an unavoidable reason accepted by the Institute's Council, their absence will not be counted as a failure, provided that the student is not absent for more than three consecutive or non-consecutive opportunities during their study years at the institute

Regulations for progression and program completion

Article (43): The Institute employs a credit hour system rather than a two-semester approach for its curriculum. This structure provides students with the flexibility to select their courses. This approach fosters critical thinking, encourages independent reading, and facilitates the integration of diverse scientific subjects. It also equips students with research skills, library utilization, self-study, and practical experience. Students can choose their courses for each semester following this schedule:

Semester	Start Date	Duration
First Semester	Third Saturday of September	15 weeks
Second Semester	Second Saturday of February	15 weeks
Summer Semester	First Saturday of July	8 weeks

In the summer semester, some courses and students may require approval from the Institute's Board of Directors, based on the guidance of academic advisors and the dean or their representative.

Article (44): Credit hours are allocated as follows: one credit hour for each theoretical lecture hour and two credit hours for courses without theoretical lectures. Students are limited to a maximum of 21 credit hours per semester, with a maximum of six courses. In exceptional cases, the dean of the Institute can add one or more courses.

Article (45): Student performance is assessed continuously during the semester, including final semester examinations. Semester work contributes to the final grade and includes periodic exams, theoretical and practical exercises, research, and regular attendance. The final semester examination accounts for up to 70% of the final grade for courses without practical training and 60% for courses with practical training, depending on the course's nature as outlined in the curriculum plan. Practical courses may be assessed without a final semester examination.

Grades for each course are determined based on the student's final grade according to the following table:

Percentage (%)	Equivalent Grade	Grade Points
95% and above	Excellent (+)	4 (A+)
90% to < 95%	Excellent	3.7 (A)
85% to < 90%	Excellent (-)	3.3 (A-)
80% to < 85%	Very Good (+)	3 (B+)
75% to < 80%	Very Good	2.7 (B)
70% to < 75%	Good (+)	2.3 (C+)
65% to < 70%	Good	2 (C)
60% to < 65%	Acceptable (+)	1.7 (D+)

Percentage (%)	Equivalent Grade	Grade Points
55% to < 60%	Acceptable	1.3 (D)
50% to < 55%	Acceptable (-)	1 (D-)
Below 50%	Fail	0 (F)

Article (46): To graduate from the Institute and earn an academic degree, students must successfully complete the required credit hours. The following conditions apply:

Grade	Percentage	
	From	Up to
Excellent (A)	3.5	4
Very good	3	3.49
Good	2	2.99
Pass	1	1.99

The maximum number of courses a student can register for is 18-20 credit hours in the first and second semesters. In the summer semester, when the study period is half of that in the regular semesters, a student can register for a maximum of 6 credit hours or a maximum of two courses.
A student cannot register for courses with prerequisites until they fulfill the conditions for passing those prerequisites.
During the first two weeks of the semester, students can add or change courses with approval from their academic advisor, provided they stay within the maximum credit hours allowed.
Students can cancel their registration for any course within the first eight weeks of regular semesters (first and second) or three weeks of the summer semester, without a refund. The regular semester registration must not fall below 9 credit hours for undergraduate students.
Withdrawal from all registered courses in any semester is allowed for exceptional and compelling reasons approved by the Institute's Board of Directors, at least two weeks before the final semester examination, without a refund. Students can re-register for the withdrawn courses after settling the required tuition fees. This will not count as a failure.
A student's total absences in any course must not exceed 25% of the total class hours during the semester. Exceeding this limit may lead to the dean canceling the student's registration for the course upon notification from the course instructor, with no refund of fees.
After an absence of one or more semesters for compelling reasons approved by the Institute's Board of Directors, students can resume their studies. Successfully completed courses will be considered, and they must meet any new requirements in the semester they return. Tuition fees for the period of absence must be settled. If a student has been absent for more than 6 regular semesters, they can return as a new student, and their previously earned grades will not be considered
Article (47): The dean of the institute may approve re-examination for a student who misses the final exam of a course due to a compelling excuse accepted by the board of directors.
Article (48): The dean of the institute sets the registration date for students for the academic courses before the start of the semester. He may also approve late registration for any student before the end of the second week, provided they have a valid excuse for the delay. If the excuse is not accepted, the dean may allow late registration as determined by the institute's board of directors, provided that it does not exceed the end of the third week of classes.

Article (49): A student may add one or more courses during the first two weeks of the semester with the approval of the academic advisor and the course instructor, taking into account the maximum number of registered hours for the student. A student may also withdraw from one or more courses after the fourth week of the semester with the approval of the academic advisor and the course instructor, taking into account the minimum number of registered hours for the student. In this case, the withdrawn courses will not be recorded on the student's academic record. A student's absenteeism should not exceed 25% of the actual class hours for any course during the semester.

A student may continue their studies after a hiatus of one semester or more with a valid excuse accepted by the institute's board of directors. They must pay the tuition fees for the period of absence. If a student has been absent for more than six regular semesters with a valid excuse accepted by the board of directors, they may return to study at the institute as a new student, and any previously passed courses will not be counted in their new record.

The dean of the institute may approve re-examination for a student who misses the final exam of a course due to a compelling excuse accepted by the board of directors.

Article (50): The dean of the institute appoints an examination committee and the designated deputy based on an annual decree issued by the Minister of Higher Education. Examination committees are formed according to the institute's regulations.

Article (51): The institute must send a list of students registered for exams, including transfer and final exams, to the relevant department at the Ministry of Higher Education at least one month before the exam date. The department will review the lists to ensure the accuracy of student registration at the institute and their eligibility to take the exams. Students who are not eligible to take the exams will be excluded. These lists will be approved and kept on record by the department, and a copy will be provided to the institute, with a third copy delivered to the general president.

Examinations Regulations for the Implementation of the End-of-Semester Examinations:

Article 1: The Examination Preparation Committee is responsible for the following:

a. Listing the students eligible to take the exams.
b. Preparing lists with students' seat numbers.
c. Scheduling written, practical, and oral exams.
d. Ensuring an adequate supply of answer booklets and other examination materials.
e. Preparing examination venues and furnishing them with the necessary equipment and furniture.

The General Examination Administrator establishes this committee as follows:

a. The Committee Chair, who selects at least three faculty members or others for every 250 students.
b. An administrative assistant for every 50 students.
c. A staff member for every 500 students, with a minimum of two staff members.

Article 2: The Examination Supervision and Operations Committee is responsible for the following:

-Recording student attendance and monitoring their conduct during the exams to maintain order and prevent cheating.

-Collecting answer booklets from students and delivering them to the Examination Regulations and Monitoring Committee.

The General Examination Administrator establishes this committee as follows:

a. A Chair and a Vice-Chair for each Examination Committee, selected from the faculty members for each committee handling written exams.
b. One proctor for every ten invigilators, selected from the faculty members, assistant lecturers, or others with similar qualifications.
c. One invigilator for every 25 students, chosen from the faculty members, assistant lecturers, or others with similar qualifications. The number of invigilators in a single room must not be less than two, regardless of the number of students.
d. One physician for every examination building to oversee the students' health during exams.
e. One nurse for every 1,000 students to receive medical instructions from the physician and implement them.
f. One staff member for every 100 students taking the exam, including those who are absent from the exam.

Article 3: The Examination Regulations and Monitoring Committee is responsible for the following:

a. Distributing answer booklets and other exam materials to invigilators.
b. Collecting answer booklets after students complete their exams.
c. Recording the grades in the grade sheets and reviewing them.
d. Presenting the overall assessment results for different courses and the general examination results to the General Examination Committee and recording the meeting's minutes.
e. Implementing the recommendations of the General Examination Committee regarding student assessments in different courses.

Article 4: The Dean of the Institute, after consulting the relevant department council, appoints an academic staff member to develop written exams in collaboration with the course instructor. In exceptional cases, the Dean may appoint additional individuals for this purpose. This does not apply to bachelor's degree students. Each examination committee for different levels or departments is composed of a Chairperson and members selected by the Dean of the Institute, upon the department council's request. Committee members must be faculty members, assistant lecturers, or others of equivalent status. In cases of urgency, the Dean has the right to appoint committee members.

Article 5: No remuneration is granted for examination duties to the following individuals:

a. External individuals appointed from outside the institute for such duties.
b. Faculty members and all teaching staff members involved in the following activities:
    i. Correcting the examination papers of institute students.
    ii. Participating in various examination committees, including the Preparation and Arrangement Committee, Examination Supervision Committees, Examination Regulations and Monitoring Committee, and Grade Recording Committee, for each semester.

Article 6: A student is not granted a graduation certificate in a specialization listed in the institute's internal regulations unless they pass all the required courses for that specialization.

8. Teaching and Learning Methods

- **Lectures (face-to-face / online)**
- **Presentation**
- **Discussions**
- **Practical and lab. Experiments**
- **Problem Solving**
- **Brain Storming**
- **Projects and Team Working**
- **Site Visits**
- **Research / Reports**
- **Self-learning**
- **Modeling and Simulation**

9. Assessment Methods

- Reports
- Sheets
- Quizzes
- Mid-term Exam
- Final Exam

10. Program Evaluation

Evaluator	Tool	Sample
1. Internal Evaluator(s) (Internal Examiner(s))	Reviewing according to an internal evaluator Checklist report	Reports Appendix 6
2. External Evaluator(s) (External Examiner(s))	Reviewing according to an external evaluator Checklist report	N/A
3. Senior students	Meeting Questionnaire	Samples representative from senior students (Appendix 7)
4. Alumni	Meeting	Samples representative from Alumni (Appendix 7)
5. Stakeholders (Employers)	Meeting Questionnaire	Samples representative from all Sectors (Appendix 7)

The department council approved the Electrical power Engineering program specifications (Appendix 4).

وزارة التعليم العالي

المعهد العالي للهندسة والتكنولوجيا – التجمع الخامس

Quality control coordinator	Head of Electrical Power Engineering Program
Dr. Dina Rostom	Dr. Hend Abdel Monem
Dina Rostom	

Approval date

Date 16 / 9 / 2024

برنامج هندسة القوى الكهربية
المعهد العالي للهندسة والتكنولوجيا
بالتجمع الخامس

Appendices

Appendix 1: *Institute approval council*

Appendix 2: *Department approval council. (5-9-2020)*

Appendix 3 *Matrices*

- **Appendix 3.1: Matching matrix of institute mission and program mission.**
- **Appendix 3.2: Matching matrix of program mission and program aims.**
- **Appendix 3.3: Matching matrix of program mission and program attributes.**
- **Appendix 3.4: Matching matrix of program attributes and program aims.**
- **Appendix 3.5: Matching matrix of program attributes and program competencies**
- **Appendix 3.6: Matching matrix of program aims and program competencies.**
- **Appendix 3.7: Matching matrix of program competences and program learning outcomes**
- **Appendix 3.8: Matching matrix of Courses and program Competencies.**
- **Appendix 3.9: Matching matrix of Courses and program Competencies.**
- **Appendix 3.10: Matching matrix of Courses and teaching and learning methods.**
- **Appendix 3.11: Matching matrix of Courses and program Aims.**

Appendix 4: *Department approval council. (16-9-2024)*

Appendix 5: *Courses Specifications (2024-2025)*

Appendix 6: *Internal Evaluator Report*
Appendix 7: *Questionnaires*