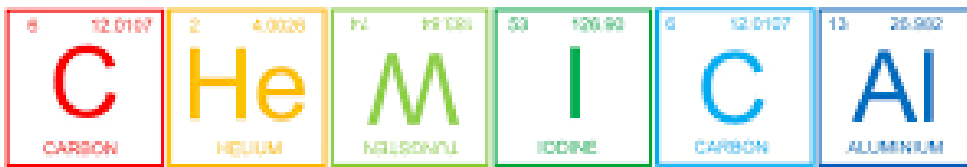
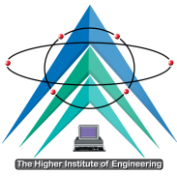


# Quality Guide of Chemical Engineering Program 2024/2025



# ENGINEERING



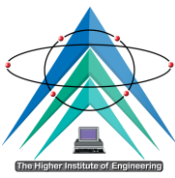


# Chemical Engineering (CE) Program Quality Guide



## List of Contents

Introduction to the Guide	3
<b>First: Basic information about the program</b>	<b>3</b>
<b>Second: Definition of the program</b>	<b>3</b>
<b>Third: Vision, Mission and Objectives of the Program</b>	<b>4</b>
(1) Program Vision	4
(2) Program Mission	4
(3) Program objectives	4
(3-1)General objectives of the program	4
(3-2)Educational objectives of the program	4
<b>Fourth: Distinctive features of the program</b>	<b>5</b>
<b>Fifth: Specifications of the program graduate</b>	<b>5</b>
(5-1)General specifications of the graduate	5
(5-2)Special specifications of the graduate	6
<b>Sixth: Fields of work of the program graduate</b>	<b>8</b>
<b>Seventh: Organizational structure</b>	<b>9</b>
<b>Eighth: Competences of chemical engineering program</b>	<b>10</b>
<b>Ninth: Quality assurance, accreditation, and comprehensive quality in higher education</b>	<b>13</b>
(1) Introducing the National Authority for Higher Education Quality Assurance and Accreditation	13
(2) The plan of raising awareness of quality concepts in the program.	14
(3) Quality concepts and terminology	15
(4) Various opinion polls (evaluation guide)	22
<b>Tenth: Mechanisms and standards</b>	<b>25</b>



## **Introduction to the guide**

This guide aims to introduce the basic data and information for the chemical Engineering and Program, which includes the definition of the program, the vision, mission and objectives of the program, the distinctive features of the program, as well as the graduate specifications and fields of work. The guide also includes the departments and units supporting the program. As well as, the guide includes the curricula of the 2013 and 2019 regulations according to what is available in the study regulations.

## **First: Basic information about the program**

**Name of the institution to which the program is affiliated:** Higher Institute of Engineering in EL-Shorouk.

**Type of institution:** Private higher institute with fees.

**Name of the university / academy affiliated to the institution:** The institute is affiliated to the Ministry of Higher Education and Scientific Research.

**Name of the scientific department to which the program is affiliated:** Chemical Engineering

**Date of establishment:** 1995

**Duration of study:** Five (5) years

**Language of study:** English

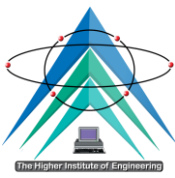
**Geographical location:** Cairo Governorate EL- Shorouk City – EL-Nakhil Suburb - P.O. Box 3 - Telephone 19644

**Website:** [www.hie.sha.edu.eg](http://www.hie.sha.edu.eg)

## **Second: Definition of the program**

Quality has become an essential and necessary element for any institution that provides its services in a global competitive manner. Universities are considered the most important elements and tools for the progress, development and prosperity of any society. Universities are the first institutions entrusted with preparing professionals and specialists for all sectors of society. Likewise, universities are responsible for advancing society and raising the country's status among the world. Likewise, universities in developed countries such as the United Kingdom (UK) contribute a large percentage to the economy, which explains the importance of universities in the world countries in various sectors of society.

Quality in university institutions is considered the engine of progress for the quality of all institutions in society. Because graduates of university institutions are the bearers of progress and advancement in various institutions and sectors of society. These force us to pay attention to the quality of university education in the era of the information revolution that has made the world a small village that can evaluate one another. The current working paper addresses the elements of achieving educational quality in university institutions.



Because quality is a necessary and continuous work and a basic requirement represented in working efficiently and effectively with the variables of the current knowledge era of continuous and rapid development. Efforts and energies must be devoted to developing the practices and activities of the university system with its inputs, processes and outputs in accordance with standard standards, and to achieve continuous improvement in performance to provide a superior educational service, and raise the quality level of the graduate is constantly maintained, keeping pace with the corresponding rapid development in science and progress in quality standards.

### **Third: Vision, Mission and Objectives of the Program**

#### **(1) Program Vision**

Providing future engineers with appropriate theoretical knowledge and technical skills to respond to the professional market demands in the field of Chemical Engineering.

#### **(2) Program Mission**

The mission of the Chemical Engineering program is to harness the capabilities and efforts to build, train and qualify chemical engineer professionally to conduct research and provide advisory services specialized in Chemical Engineering and science applications.

#### **(3) Program Objectives**

##### **(3-1) General Objectives of the Program**

- Apply knowledge in mathematics and other engineering sciences to solve engineering design problems.
- Utilize and manage resources creatively through effective analysis and interpretation
- Recognize the potential and applicability of computer based methods in chemical engineering design, English language and Network to get specialized information.
- Use a basic knowledge in chemical process industries.
- Plan and execute research work, evaluate outcomes and draw conclusions
- Relate chemical reactions and their characteristics to process industries
- Engage in safe laboratory practice
- Apply knowledge and skills to respond to the recent technological changes.

##### **(3-2) Educational objectives of the program**

- Apply knowledge and advanced technical skills in chemical engineering.
- Utilize and manage resources creatively through effective analysis and interpretation skill.
- Address the issues of process dynamics and control in plant operation.
- Identify and control the impact that chemical engineering has on society from an environmental, economic, social and cultural point of view.
- Recognize the challenging role and responsibilities of the professional engineer, while abiding by the ethics of the profession.

## **Fourth: Distinctive features of the program**

1. The program is distinguished by its connection to the historical status of the institute, as the institute and the program were established in 1995 AD, the program grants a bachelor's degree in engineering after five years of study. Over the course of more than twenty-five years, the chemical Engineering Program at the Higher Institute of Engineering (HIE) in EL-Shorouk city is considered one of the centers of excellence in engineering education in Egypt. A number of (24) batches have graduated, with (631) engineers, until the end of the academic year 2023/2022.
2. Partnerships and agreements with Helwan fertilizers industry, which helps in training students, faculty members and their assistants in modern technological fields and topics, in addition to linking what is taught in some courses to what is available in the labor market and providing international exams for students.
3. Partnerships and agreements with Galaxy for chemicals industry, which helps in training students, faculty members and their assistants in modern technological fields and topics, in addition to linking what is taught in some courses to what is available in the labor market and providing international exams for students.
4. The existence of a research plan for the program that is consistent with the research plan of the Egyptian state.
6. Cooperating with many state institutions in the field of student training and field visits such as El-Nasr for petroleum industries – Abo Za'bal for fertilizers – Ezz steel – nuclear materials center-Galaxy chemicals.
7. The program is distinguished by the fact that a large number of faculty members have obtained scientific degrees from prestigious universities and distinguished scientific schools.
8. Student participation in student activities by participating in local competitions and obtaining advanced positions.
9. The availability of a number of incoming students to the program.
11. The program is a professional entity specialized scientifically in teaching specialized courses in the field of chemical engineering.

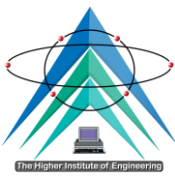
## **Fifth: Program Graduate Specifications**

### **(5-1) General Graduate Specifications**

A graduate of the chemical Engineering Program must be able to do the following:

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.

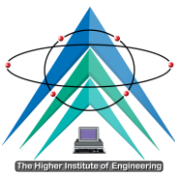




5. Recognize his/her role in promoting the engineering field and contribute in the development of the profession and the community.
6. Value the importance of the environment, both physical and natural, and work to promote sustainability principles.
7. Use techniques, skills and modern engineering tools 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

#### **(5-2) Special specifications for the graduate**

1. Mastering the knowledge acquired from modeling, designing, plants and chemical engineering equipment taking into consideration the economic side.
2. Applying heat and mass balance for different industrial processes.
3. Scarcity of Chemical Engineering Specialization in Egypt: The chemical engineering specialization is relatively rare in Egypt, which increases its significance.
4. Program Meets Market Demands and High Employment Rates for Graduates: The program responds to labour market needs, with a high employment rate for graduates reaching 76%.
5. Distinguished Faculty Members: Many faculty members have obtained academic degrees from various prestigious universities and scientific schools known for excellence. Additionally, they actively participate in scientific and research committees both inside and outside the institute.
6. Alignment of the Department's Research Plan with Egypt's National Plan: The department's research aligns with the national research plan of Egypt and community service needs.
7. Continuous Development of the Program: The chemical engineering program is continuously updated to keep pace with new changes and market needs. A petrochemical specialization has been added to the chemical engineering program.
8. Historical Connection with the Institute: The Department of Chemical Engineering was established alongside the founding of the institute in 1995, making it one of the oldest private engineering institutes in Egypt. This long history has allowed the department to develop multiple programs that align with academic advancements and the changing demands of the labor market.
9. Geographic Location of the Institute: The institute has a strategic location, serving students from multiple governorates in Egypt. It provides transportation for students from other regions and offers distinguished on-campus housing.
10. Program's Affiliation with the Higher Institute of Engineering in Shorouk City:



- The institute is a member of the Egyptian Engineers Syndicate.
- All educational programs at the institute are accredited by the National Authority for Quality Assurance and Accreditation of Education.
- The institute supports faculty members and research staff by covering publication costs and granting research leave. It also covers the cost of postgraduate studies for research staff.
- The institute has ranked high in the annual evaluation of the engineering sector committee of the Supreme Council of Universities, winning first place for three consecutive years.
- The institute contributes to community service and has a cooperation protocol with the Shorouk City Authority.

#### 11. Cooperation Protocol with Universities and Equivalent Institutions:

The program benefits from the contribution of distinguished faculty members seconded from Egyptian public universities. These members enrich the educational process and diversify academic expertise.

The program also includes two field training courses (Field Training 1 and 2), taught by institute faculty in collaboration with engineering institutions, to prepare students for the labor market and multidisciplinary collaboration.

#### 12. Job Opportunities for Graduates:

The program equips graduates to work in the design, implementation, and management of major industrial projects and factories, as well as in quality control.

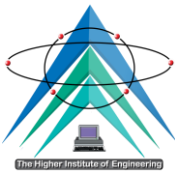
#### 13. Foreign Students in the Program:\*\*

Foreign students make up 3.26% of the total student body, indicating the program's importance in international labor markets.

#### 14. Distinguishing Features of the Program Compared to Other Programs at the Institute:

- The student-to-faculty ratio is balanced, offering better communication between students and faculty, and enhancing leadership opportunities.
- The faculty members are annually evaluated, and several have been promoted to prominent positions within the institute.
- Graduates of the chemical engineering program benefit from the institute's affiliation with the Oriental Weavers Group, creating job opportunities for two graduates in key positions within the company.
- The program stays updated with new developments, with the Ministry of Higher Education approving the introduction of the petrochemical specialization.





## **Sixth: Fields of work for the program graduate**

The field of specialization in chemical engineering is a broad field, as there are many jobs that the student can work in after graduation, such as:

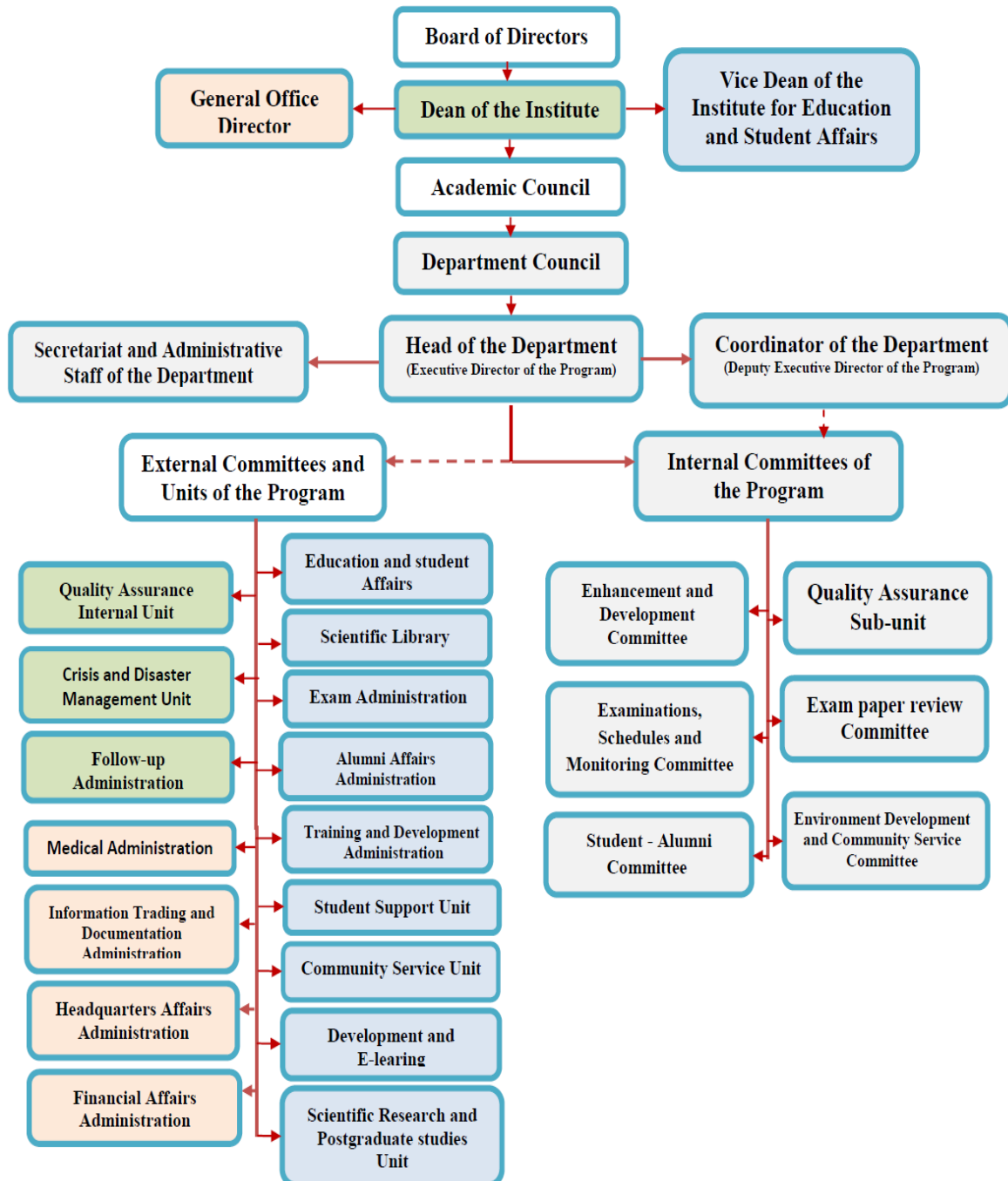
### **6-1 First: Fields of chemical engineering**

The demand for chemical engineers has been increased over the past 30 years due to industrial growth and prosperity especially in the fields of:

- A. Petroleum industries as in refining
- B. Petrochemical industries as polymers, solvents, monomers production.
- C. Environmental engineering to prevent environmental pollution
- D. Pharmaceuticals as process engineer to improve and increase medicines produced
- E. Plastics as process engineer for production of polyethylene, polypropylene
- F. Rubber Industries
- G. Cement industries
- H. Food Industries
- I. Ceramics industries
- J. Paints Industries

## Seventh: Organizational Structure : Department of Chemical Engineering

### Organizational Structure of Chemical Engineering Department



## Eighth: competences of chemical engineering program

- Learning Outcomes (LO's)
  - Competencies of engineering graduate (Level A)

The engineering graduate must be able to:

<b>A- General Engineering NARS Competencies in 2018</b>			
A1	<u>Identify, formulate, and solve</u> complex engineering problems by <u>applying</u> engineering fundamentals, basic <u>science and mathematics</u>	a1.1	Identify and formulate, engineering fundamentals, basic science, and mathematics in the field of Chemical Engineering.
		a1.2	Follow methodologies and techniques and explain the data collection and interpretation principle in solving engineering problems.
		a1.3	Apply engineering fundamentals, basic science, and mathematics to solve engineering problems.
A2	<u>Develop</u> and conduct appropriate experimentation and/or <u>simulation</u> , <u>analyze</u> and <u>interpret data</u> , <u>assess</u> and <u>evaluate</u> findings, and <u>use statistical analyses</u> and objective engineering judgment to <u>draw conclusions</u> .	a2.1	Develop and conduct appropriate experimentation and/or simulation.
		a2.2	Analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
		a2.3	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.	a3.1	Discuss topics related to humanitarian interests and moral issues.
		a3.2	Analyze the environmental impacts of different industries, to minimize the waste and treat the industrial facilities.
		a3.3	Apply engineering design processes to produce cost effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
		a3.4	Use Chemical Engineering IT tools and programming in design
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety	a4.1	Explain the business and the management principles relevant to chemical engineering

	requirements, environmental issues, and risk management principles.	a4.2	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.	a5.1	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.	a6.1	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.	a7.1	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.	a8.1	Write technical language and technical report
		a8.2	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.	a9.1	Use creative, innovative, and flexible thinking <u>in problem solving and design</u> .
		a9.2	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.	a10.1	Acquire and apply new knowledge in deal with the fundamental problems and troubleshooting in chemical engineering plants.
		a10.2	Practice self, lifelong and other learning strategies.

• **Competencies of basic chemical engineering (Level B)**

In addition to the competencies for all engineering programs the basic chemical engineering graduate must be able to:

<b>B- Chemical Engineering NARS Competencies in 2018</b>			
B1	Design a practical chemical engineering system, component or process utilizing a full range of chemical engineering principles and techniques including: <u>Mass and Energy Balance, Thermodynamics, Mass Transfer, Heat Transfer,</u>	b1.1	Explain the essential facts, concepts, theories and the characteristics attributes of organic and inorganic reactions and its applications in the chemical process industries
		b1.2	Use The conventional procedures of chemical analysis and characterization common engineering materials and

	<u>Momentum Transfer, Kinetics of Chemical Reactions, Reactor Design, Instrumentation and Control of Chemical Processes, and Process and Plant Design.</u>		component.
		b1.3	Demonstrate the chemical engineering principles and design principles techniques in chemical engineering
		b1.4	Identify methods for petroleum and natural gas processing.
		b1.5	Design a practical chemical engineering system, component or process utilizing a full range of chemical engineering principles and techniques including Mass and Energy Balance, Thermodynamics, Mass Transfer, Heat Transfer, Momentum Transfer, Kinetics of Chemical Reactions, Reactor Design, Instrumentation and Control of Chemical Processes, and Process and Plant Design.
B2	<u>Engage in the recent technological changes and emerging fields relevant to chemical engineering to respond to the challenging role and responsibilities of a professional chemical engineer.</u>	b2.1	Engage in the recent technological changes and emerging fields relevant to chemical engineering.
		b2.2	Act as a professional chemical engineer and respond to the challenging role and responsibilities.
B3	Apply numerical modeling methods and/or computational techniques appropriate to chemical engineering.	b3.1	Explains basic information and methods of evaluation, good analysis, modelling and simulation of industrial processes
		b3.2	Apply numerical modelling methods and/or computational techniques appropriate to chemical engineering.
B4	Adopt suitable national and international standards and codes to: design, operate, inspect and maintain chemical engineering systems.	b4.1	Discuss the principle of quality assurance required for system, codes and standards, the health, safety requirements and environmental issues in the Chemical Engineering field.
		b4.2	Adopt suitable national and international standards and codes to design, operate, inspect and maintain chemical engineering systems.

• **High specified competencies (Level C)**

In addition to the competencies for all engineering programs (Level A) and the competencies for the basic chemical engineering discipline (Level B), the Chemical Engineering (CE) program graduate must be able to (Level C):

**Level C: Highly specialized competencies of Chemical engineering program**

<b>ARS Competencies</b>	C1 Acquire insight in the development of raw material, methods of conversion into a useful product, improve the ability to select proper material of construction of equipment in industrial process
	C2 Design and operate different processing systems in the chemical process industries including petroleum refining and gas processing and assess the balance of cost, quality and effects on the environment in production operations
	C3 Apply the concepts of project economics and resources evaluation methods for design and decision making under conditions of risk and uncertainty.

**Ninth: Quality Assurance, Accreditation and compressive Quality in Higher Education**

**(1) Definition of the National Authority for Higher Education Quality Assurance and Accreditation**

The National Authority for Quality Assurance and Accreditation was established by Law Number (82) of year 2006 of the Presidency of the Republic, which stipulates that this authority shall have independence and have a public legal personality, and shall be affiliated with the Prime Minister, and its headquarters shall be in Cairo, and the Authority may establish branches in the governorates. Mr. President of the Republic also issued Decree Number 25 of year 2007 issuing the executive regulations of this law.

The National Authority for Quality Assurance and Accreditation in Education is one of the main pillars of the national plan for education reform in Egypt, as it is the body responsible for spreading the culture of quality in educational institutions and society, and for developing national standards that keep pace with international standard standards to restructure educational institutions and improve the quality of their operations and outputs in a manner that leads to gaining the community's confidence in them, increasing their competitive capabilities locally and internationally, and serving the purposes of sustainable development in Egypt. In light of this, the Authority seeks to continuously develop education and ensure its quality according to a set of principles and values that emphasize transparency, objectivity, justice, and keenness to assist educational institutions in adjusting their conditions and improving their overall performance to qualify and obtain accreditation.

The Authority is not considered a regulatory body, but rather an accreditation body for educational institutions that are able to achieve the requirements of national standards. Therefore, it is keen to provide all forms of guidance, advice, and support to these institutions in a way that helps them continuously improve the quality of their outputs through objective and realistic mechanisms for self-evaluation and accreditation. To achieve the above, the Authority is keen to provide and disseminate sufficient and accurate



information that can help educational institutions in self-evaluation, and then take the necessary steps to advance and obtain accreditation and Test.

## **(2) Awareness plan for quality concepts in the program**

The awareness plan is based on starting from the senior leadership of the institution, through faculty members, assistants faculty members, administrators, and all employees of the institution, all the way to the students who are the cornerstone of the educational process.

Serial	Plan items	Implementation mechanisms	Timeline	Implementation responsibility	Monitoring and performance evaluation indicators
1	Holding seminars and workshops regarding spreading the culture of quality, its concept and importance, and the procedures followed to ensure quality, progress and accreditation (faculty members - auxiliary staff - administrative staff - students).	Seminars and workshops. - Meetings and meetings. - Advertisement in the department and display screen. - Website.	During the year	Program administration Institute administration	Statement of attendance at seminars and workshops. - Meeting minutes. - Relevant questionnaires. - Awareness of relevant parties about the culture of quality.
2	Defining the vision, mission and objectives of the program, graduate specifications and program competencies	- advertisement in the department and display screen. - Website.	October 2023	Program message standard	- Advertisement on the display screen. - Advertisement on the website. - Relevant questionnaires. - Awareness of relevant parties.
3	Seminars and workshops to define academic standards and updates of the National Authority for Quality Assurance and Accreditation in Education.	Seminars and workshops. - Continuous review of the National Authority for Quality Assurance and Accreditation website.	During the year	Program administration Institute administration	- Statement of attendance at seminars and workshops. - Meeting minutes. - Relevant questionnaires. - Awareness of relevant parties.

	(Faculty members – assistant faculty staff - specialists from the administrative staff.				
4	Preparing a quality management guide	A guide to quality management in the program	October 2023	Program Coordinator Program Director	- Availability of a copy of the quality management guide.
5	Introducing the website of the National Authority for Quality Assurance and Accreditation	Link to the website of the National Authority for Quality Assurance and Accreditation.	During the year	Program Coordinator	- Awareness of the role of the National Authority for Quality Assurance and Accreditation and following up on its various publications. - Awareness of relevant parties.

### (3) Quality concepts and terms

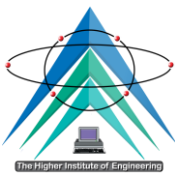
When using these concepts and terms, the Authority emphasizes the meanings shown in front of each of them. The Authority is aware that these concepts and terms may have been mentioned with different meanings in other references or guides. The Authority emphasizes that these concepts have been greatly simplified to maximize their benefit in a manner that suits the target group of this guide.

**Educational institution:** A university, faculty, or higher institute that offers educational programs leading to a university scientific curriculum (bachelor's or licentiate) or a higher degree (master's or doctorate).

**Educational program:** A set of educational courses and activities determined by the institution to achieve the competencies (educational outcomes) of the graduate required for the student to obtain a scientific degree in a specific specialization.

**Program vision:** An ambitious future description of what the program or the individual wants to achieve, and the period of its achievement ranges between the medium and long term, i.e. the distant future, so that the main goal of writing it is to use it as a guide in choosing the program's directions in the activities, policies, and events specific to the program, in the present and the future.

**Program mission:** Precisely formulated phrases that reflect the reasons for establishing the program and determine what can be offered to society and the labor market and present the purpose that makes it different from other programs. It clarifies the essence of its operations



in education and learning, the targeted sectors, and the human and material resources that distinguish it. The program's mission may include the values and philosophy that govern the program's performance and its management's dealings with others.

**Program objectives:** The final results that the program seeks to achieve, which must be precisely defined, clear, understandable, realistic, flexible and measurable.

**Policies:** A guide for decision-making in various areas of activity related to the educational program, such as admission and transfer policy, teaching and learning policy, and financial policy. Policies must be written, approved, understandable, and flexible.

**Governing Councils:** The official councils of the institution and the educational program (e.g. University Council/Institute Administration, faculty/Institute Council, Academic Department Council) that have the legitimate authority derived from the organizational structure of the institution and have the right to set and approve educational policies, programs, curricula, and budgets, and to make related executive decisions.

**Educational Quality Assurance:** The process of verifying that academic standards are consistent with the educational institution's mission that has been identified, defined, and approved by its governing councils, in a manner consistent with national academic standards or approved international standards, and that the level of quality of learning opportunities, scientific research, community participation, and environmental development are considered appropriate or exceed the expectations of all types of end-users of the services provided by the educational institution.

**Accreditation:** The recognition granted by the National Authority for Quality Assurance and Accreditation of Education to the educational institution if it can prove that it has the efficiency in institutional capacity, and achieves educational effectiveness, or grants it to the educational program according to the national standards or any other standards but approved by the Authority, and the institution or program has advanced systems that ensure continuous improvement, enhancement and development of quality.

**National Academic Standards (NARS):** The national academic standards for the various educational programs prepared by the Authority with the assistance of specialized experts and representatives of the various sectors of the beneficiaries. These standards represent the minimum required to be achieved for accreditation.

**Accredited Standards (ARS):** The academic standards adopted by the institution (or the educational program in the institution) and approved by the National Authority for Quality Assurance and Accreditation provided that their level is higher than the minimum level of the National Academic Standards (NARS).

**Evaluation and Accreditation Standards:** The standards prepared by the Authority to evaluate and accredit higher education institutions or educational programs in these institutions, which were designed and reviewed by a team of specialized experts from academic leaders and representatives of the various sectors of the beneficiaries. The evaluation and accreditation criteria for the educational program focus on both program management and the educational effectiveness of the program. The evaluation and accreditation criteria are considered the main tool used in the evaluation and accreditation stage.

**Program management:** represents the first axis for evaluating and accreditation of the educational program. This axis refers to the program's ability to perform efficiently through the availability of a clear message and specific goals, conscious academic and administrative leadership, clear and appropriate organization, sufficient and appropriate financial resources and supporting material facilities, and information technology.

**Program educational effectiveness:** represents the second axis for evaluating and accreditation of the educational program, and refers to the effectiveness of the teaching and learning process in the program according to the adopted academic standards that achieve the planned message and goals of the program and meet the expectations of the end beneficiaries. This requires adopting specific and approved academic standards and a good design of the program and its curricula in a way that achieves the targeted learning outcomes of the program, following effective policies and methods for teaching and learning, following objective and announced policies for accepting students with the provision of appropriate academic guidance (or student leadership) and all other forms of support for students, continuous assessment of learning outcomes, using highly capable faculty members, and the availability of targeted plans for enhancement and development.

**Program self-evaluation:** The process of evaluating the overall performance of the educational program by those responsible for managing the program from academic and administrative leaders, in order to reveal areas of strength and weakness in the management of this program and its educational effectiveness.

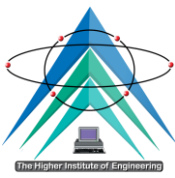
**Program self-study:** One of the basic means of self-evaluation of the program, and it is based primarily on describing and diagnosing the current status of the program, and identifying areas of strength and weakness in its capabilities, management, design and educational processes, and the learning resources it uses, etc. In addition, the study must include an accurate identification of possible areas of improvement and development, and proposals, means and responsibilities for enhancement and development.

**Program Evaluation and Accreditation Criteria:** A set of criteria prepared by the Authority and related to the two main pillars of evaluation and accreditation of educational programs in higher education institutions, namely program management and program educational effectiveness.

**Evaluation and Accreditation Indicators, Elements and Characteristics:** Each of the evaluation and accreditation criteria specified by the Authority includes a set of indicators that express the intended standard, and each indicator includes a set of related elements, and finally each element includes a set of characteristics that are required to be measured during the evaluation and accreditation process of the program.

**Distinctive Features of the Program:** A set of characteristics that distinguish the program and that distinguish it from other similar educational programs on the one hand, and from other programs in the same institution on the other hand, and such characteristics are called competitive advantages.

**The competitive position of the program:** It reflects the position of the educational program in comparison to other similar educational programs (or even non-similar ones in



the same institution) in terms of areas and elements of excellence and distinction, which helps to determine its position among these competing programs directly or indirectly.

**Quality Management in the Program:** It relates to the mechanisms, procedures, rules and activities used to ensure achieving high levels of quality in the program, which are mainly related to the program management standards and its educational effectiveness.

**Community stakeholders:** All individuals, institutions and entities that have a legitimate interest or benefit or bear risks resulting from the existence and implementation of the educational program, which includes, for educational programs, (students, parents, faculty members and their assistants, employees of the institution, representatives of the professional association associated with the program, business organizations and governmental organizations, and individuals and institutions of civil society that constitute the local community of the institution geographically).

**External reviewer:** An academic member with experience in the field of specialization invited by the institution to review the program's structure, content and academic standards, its ability to achieve the targeted learning outcomes, the methods and resources of self-learning used, the teaching and learning facilities available, the evaluation of student work, and other activities related to its management and educational effectiveness

**Accredited Reviewers:** A team of faculty members or experts in the field of higher education development from outside the institution subject to evaluation and accreditation, who are related to the specializations of the programs offered by the institution and have no conflicting interests, as they are selected, appointed, trained and accredited by the Authority to carry out the review and evaluation process during field visits to the institution.

**Coordinator:** A faculty member nominated by the institution to coordinate the review and evaluation process of the educational program before, during and after the field visit of the team of accredited reviewers.

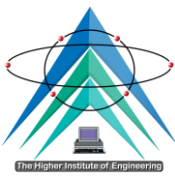
**Field visit:** A visit by the Authority's accredited auditors to the program site for evaluation and accreditation purposes, during which all standards, indicators, elements and characteristics related to the evaluation and accreditation axes of the program are reviewed and audited as stated in the self-study. The visit is conducted in coordination with the institution to which the program belongs.

**Annual program report:** A report submitted annually to the Authority on the educational program subject to evaluation and accreditation, which shows the results of the self-evaluation of the program's performance in the immediately preceding academic year, areas for improvement and addressing weaknesses in the program, areas for enhancing strengths, and any other practices to develop the program's performance in light of previous accredited auditors' reports.

**Self-learning:** The student's ability to continue to develop his cognitive, mental and professional abilities and skills independently, in contrast to the typical methods of learning.

**Learning styles:** The different methods through which the learning process takes place, including face-to-face learning, distance learning, and e-learning.





**Intended Learning Outcomes (ILOs):** The intended learning outcomes (knowledge, understanding and skills) that the institution seeks to achieve through its various programs and that are linked to its mission, reflect the adopted academic standards, are measurable, and are clearly linked to the various methods of evaluating students.

**Student Performance Evaluation:** A set of direct and indirect methods, including exams, approved by the institution to measure the extent of achievement and realization of the intended learning outcomes (cognitive abilities and their mental, practical and professional skills) from a specific educational program or course.

**Graduate Specifications:** The expected competencies/educational outcomes (competencies/abilities) of the graduate resulting from the acquisition of knowledge and skills upon completion of a specific educational program.

**Student File:** A record that includes all information related to the student during his/her study period in the program, as it includes data on the courses he/she has completed, the grades he/she obtained, the courses in which he/she has failed academically, the types of support he/she received, and the grievance forms that were previously submitted, etc. It is considered a complete picture of the student's academic status.

**Labor market organizations:** government institutions, public and private companies, and civil society organizations that provide employment opportunities for program graduates.

**Measurement:** An organized process by which the amount of the characteristic we are measuring is determined in terms of an appropriate unit of measurement such as questionnaires and tests. Measurement in the educational process can be defined as the extent to which students achieve the planned objectives through the achievement test and passing the continuous assessment skills in which cognitive achievement and acquired skills are achieved by students.

**Assessment:** An organized process based on measurement by which a judgment (assessment) is issued on the thing to be evaluated in light of what it contains of the characteristic subject to measurement and its relation to an agreed value or a specific standard.

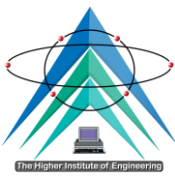
**Evaluation:** Identifying the extent to which students have achieved their objectives and making appropriate decisions and recommendations regarding them by diagnosing the strengths and weaknesses in any element of the educational system.

**Quality control:** The techniques and practical activities used to conduct a permanent examination of all components of the activity.

**Quality Assurance:** It is an activity and a means of ensuring that the requirements and standard criteria required for the institution are met to achieve the institution's goal to reach outputs that satisfy the labor market and the needs of society.

**Quality Improvement:** The executive procedures and activities taken by the institution to increase the effectiveness of activities and operations within it to benefit both the institution and the consumer.





**Institutional Accreditation:** It is a process of evaluating the quality of the educational level of the institution, on the basis that the institution achieves the greatest amount of its goals, and that it has the resources that enable it to continue in the future.

**Academic Accreditation:** It is the recognition that the programs of an educational institution have achieved or reached the minimum standards of efficiency and quality set in advance by the body granting the accreditation certificate.

**Quality Management Unit:** The unit responsible for quality management within the institution and has all the documents and evidence related to quality management within the institution.

**Academic Advisor:** Provides academic guidance services by following up on the student's performance and assisting him in choosing or changing courses each semester....etc. and is recognized in the credit hour system, but with regard to the academic regulations in the semester system, it is replaced by the academic leader.

**Specifications of a good student:** Possesses a set of knowledge, skills, experiences and attitudes in the field of specialization and in the field of life and citizenship within a sound ethical framework. The Authority has identified a set of standards that must be available in the graduate, which everyone (teacher - student - leaders ... etc.) seeks to achieve through the quality system.

**Students who are struggling:** Those with learning difficulties. And those who did not achieve the targeted educational results and are exposed to failure.

**Community participation:** Effective integration between society and the institution through mutual contribution in continuous efforts to improve education, increase its effectiveness, solve community problems and provide services to its individuals and institutions in a way that benefits society and the educational institution.

**Academic Guidance:** Introducing students to the academic programs, systems and laws within the college/institute, as well as revealing their inclinations and abilities and providing them with the opportunity to benefit from the expertise of faculty members to help them solve their problems using scientific methods appropriate for each case. It also aims to help the student discover himself and make his own decisions, especially how to overcome the difficulties that hinder his academic path. It is specific to the credit hour system, while regarding the academic regulations, the semester system is replaced by student leadership.

**Strategic Planning:** Determining the vision, mission, goals and strategic objectives of the institution that must be achieved in over a long period of time (5 years or more) as well as the means necessary to achieve this.

**Strategic plan:** represents the outcome of the strategic planning process and must be written and approved and define the vision and mission of the institution, its goals and strategic objectives and the available and future means to achieve this and reflect the university/academic strategy.

**Executive plan for the institution's strategy:** includes various activities and tasks required to be carried out in order to achieve the institution's goals and strategic objectives with a



precise definition of responsibilities, timetable, monitoring and evaluation indicators, and achievement levels.

**Corrective and preventive measures:** are a set of procedures that the institution decides to undertake to meet unmet standards or to enhance the performance of some already met standards to maintain their fulfillment. This is done through organized procedures that specify tasks, distribute roles, and the specific time for implementation, and is followed up in what is known as the improvement plan.

**Development:** those planned efforts made by members of the institution's community to develop its performance level.

**Development plans:** specify the tasks required for the development process, implementation responsibilities, time frame, follow-up mechanism, and alternative procedures in the event of failure to implement.

**Appropriate mechanism:** a method announced by the college/institute and adopted that is consistent with its nature and the nature of its students, such as a complaints box - submitting a request or grievance - sending an email.

**Questionnaire:** standardized tools for polling opinions or collecting data on a specific topic/topics, prepared according to scientific conditions, and their results are statistically analyzed to determine opinions.

**Feedback:** Benefit from the results of the evaluation process and correct the path towards the desired goal.

**Program/course file:** A file containing the course description and its reports on previous years, teaching and evaluation activities, student comments, expert opinion, measures taken to improve it, measures being implemented, and everything related to the course to include better performance, as the experiences of the previous year are utilized to improve performance and ensure the advancement and improvement of performance regardless of who is responsible for the course.

**Program/course description:** Includes a specification of academic standards, objectives, targeted educational outcomes, teaching and evaluation strategies, and identifies the courses, their hours distribution, and everything related to the program for its successful implementation.

**Cooperative Learning:** Cooperative learning is a student-centered learning method where students work in heterogeneous groups (with different cognitive and skill levels) to achieve a common educational goal. The number of members in each group ranges between 4-6 individuals. One of the most important assumptions of cooperative learning is that students are not allowed to be passive recipients, but rather are encouraged to actively participate in learning to interact with their colleagues, explain what they have learned, listen to their points of view, and encourage and support each other.

**Office hours:** Specific hours during which faculty members are present in their offices to receive students, discuss any educational problems related to them, and work to guide them to solve them.

**Student evaluation:** A set of methods, including exams, approved by the institution to measure the extent of achievement and realization of the targeted learning outcomes (students' cognitive, mental, and professional abilities and skills) from a specific educational program or course.

**Stages of obtaining programmatic accreditation:**

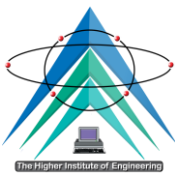
- Forming a team to manage and prepare the self-study of the program.
- Preparing the self-study.
- Submitting an application for programmatic accreditation to the Education Quality Assurance and Accreditation Authority.
- Uploading the required documents and papers on the Authority's website.
- Forming the field visit team.
- Examining the documents, auditing and reviewing them by the field visit team.
- Sending the initial report from the Authority to the program management.
- Responding to the initial report from the program management and sending it to the Authority.
- The Authority's Board of Directors' decision regarding accreditation.

**(4): Various opinion polls (evaluation guide):**

Model number	Subject	Target group	Proposed implementation mechanisms	
			Timing	Distribution mechanisms
<b>First:- Methodology for preparing the guide for opinion polls</b>				
<b>Second:- Opinion polls for students (15 models)</b>				
1	Educational effectiveness	All students	End of each semester	Electronic
2	Institutional capacity	All students	End of the academic year	Electronic
3	Summer training	Students benefiting from training	after the end of the training period	Electronic
4	Admission and transfer policies	Preparatory group - Fourth Communications	First month of the first semester	Electronic
5	Support systems for struggling students	Students benefiting from support	End of the academic year	Paper
6	Computer labs and specialized labs	- All students	End of each semester	Electronic
7	Library	Students visiting the library	End of each semester	Paper

8	Vision and mission of the institute	Fourth group for all programs	End of the academic year	Electronic
9	Assessment of academic leadership	for all groups except the (preparatory) group	End of the academic year	Electronic
10	Training and workshops	Students benefiting from training	after the end of the training course	Electronic
11	Teaching and learning strategies	A sample of students	before preparing the strategic plan	Paper
12	Hybrid education	All students	at the end of the academic year	electronic
13	Complaints and suggestions mechanism	All students	at the end of each semester	electronic
14	Academic leader	All students	at the end of the academic year	electronic
15	Website assessment	All students	at the end of each semester	electronic
<b>Third: - Opinion polls for graduates and works (5 models)</b>				
1	Specifications of the Institute's graduates and labor market requirements	Employers	annually	Electronic
2	Quality of educational service	Graduates	annually	Electronic
3	External environment	Beneficiaries	annually	Electronic
4	Website assessment	Beneficiaries	annually	Electronic
5	Services provided by the program	Graduates	annually	Electronic
<b>Fourth: - Opinion polls for faculty members (12 models)</b>				
1	E-learning	Faculty members and assistant Faculty members		Electronic
2	Vision and mission of the Institute	Faculty members and assistant Faculty members	End of the academic year	Electronic
3	Job satisfaction	Faculty members and assistant Faculty members	End of the academic year	Electronic
4	Academic leadership	Faculty members and assistant Faculty members	Annually	Electronic

5	Training needs	Faculty members and assistant Faculty members	End of each semester	Electronic
6	Education and learning strategy	Faculty members and assistant Faculty members	After preparing the education and learning strategy plan	Electronic
7	Hybrid education	Faculty members and assistant Faculty members	End of the academic year	Electronic
8	The head of the department's opinion on the faculty member	Faculty members	End of the academic year	Electronic
9	Website assessment	Faculty members and assistant Faculty members	End of the academic year	Electronic
10	Training and workshops	Training beneficiaries	at the end of each training course	Electronic
11	Scientific research	Faculty members and assistant Faculty members	Annually	Electronic
12	Credibility and ethics	Faculty members and assistant Faculty members	Annually	Electronic
<b>Fifth: - Opinion polls for the administrative apparatus (6 models)</b>				
1	Job satisfaction	Administrative staff	End of the academic year	Electronic
2	Academic leaders	Administrative staff	Annually	Electronic
3	Vision and mission of the institute	Administrative staff	Annually	Electronic
4	Training needs	Administrative staff	End of each academic semester	Electronic
5	Website evaluation	Administrative staff	Annually	Electronic
6	Training and workshops Training	beneficiaries	at the end of each training course	Electronic
<b>Sixth: - Opinion polls for community service (1 model)</b>				
1	Community service and environmental development	Community parties	Annually	Electronic



## **Tenth: Mechanisms and Standards**

### **First: Mechanisms**

#### **1. Mechanism for polling/questionnaire of the various categories related to the program and measuring their satisfaction.**

The program is keen to poll/questionnaire of the various categories related to the program and measure their satisfaction with the various services provided to them as follows:

- Preparing the items of the poll/questionnaire in coordination with the Quality Assurance Unit at the Institute.
- Determining the time frame for launching the poll/questionnaire.
- Launching the poll/questionnaire to the various categories, each in its own regard.
- Analyzing the poll/questionnaire.
- Presenting and discussing the results of the analysis of the poll/questionnaire in the relevant councils.
- Taking the necessary corrective measures and following up on the implementation procedures

#### **2. Mechanisms for publishing academic standards**

- Holding meetings, discussion groups and workshops in the department that mainly aim to introduce academic standards and raise awareness among faculty members of the need to review course descriptions in line with those standards
- Continuous training by the institute's management on describing and reporting the program and courses through continuing seminars and training courses.
- - Publishing and announcing the adopted academic standards on the institute's website to enable faculty members to review their course descriptions and inform students and other beneficiaries of the program's academic standards.
- Distributing an electronic copy of the National Standards Requirements (NARS) document to faculty members and their assistants in the department.
- A booklet was prepared to introduce the concepts of quality and the criteria for evaluating and accrediting the program for faculty members and assistants and published it through the website and on the display screen in the department, as well as making posters to introduce the importance of quality in addition to periodic follow-up by the program's quality committee.
- Presenting questionnaires to measure the extent of awareness of academic standards and their analysis.
- There are formal procedures established by the department to measure and monitor the extent of application of the academic standards adopted by the program and ensure compliance with them.



### **3. Mechanism for spreading the culture of quality**

The culture of quality is spread in the program via the following:

- Displaying the concepts and terms of quality and spreading its culture through the display screen in the department.
- Preparing the quality guide for the program and disseminating it to all categories in the program.
- Implementing workshops to introduce the concepts and terms of quality and spreading its culture.
- Implementing training courses in the field of quality.

#### **Second: Standards**

##### **1. Standards for setting and evaluating oral and practical exams**

Oral and practical exams are set and evaluated based on the following standards:

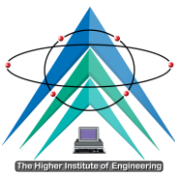
##### **First: Oral exams**

Oral exams mean tests and questions given to students and they are asked to answer them orally, and their purpose is to know the extent of students' understanding and comprehension of the academic material and the extent of their ability to express themselves with their opinions and ideas.

- The examination committee is able to measure the students' ability to understand the subject by following up on the dialogue and discussion with the students, and the (grades) are distributed according to the nature of the courses and within the framework of the applicable regulations.
- There is a plan for evaluation and distribution of grades, which is formulated in a manner that suits the applicable regulations.

##### **Second: Practical exams**

- Practical exams aim to evaluate students on a specific performance and determine their level in the steps of this performance. It is important that the examination committee is not concerned with evaluating the final product only.
- The faculty member should pay attention to the work style and behavior during the practical experiment. To achieve the goal of the practical tests, the faculty member/assistant staff uses an observation card to record the performance steps that the students perform during the work, then uses a scale to evaluate the final product.
- There is a plan for evaluation and distribution of grades that is formulated in accordance with the applicable regulations.



• Students must submit a report on the practical experiment. It is necessary for the faculty member/assistant staff to provide the student with a number of instructions related to each of:

- 1) The deadline for submitting the report
- 2) The method of submitting the report
- 3) The conditions that must be met in the report
- 4) The method of receiving feedback by the student
- 5) The percentages (grades) are distributed according to the nature of the courses and the applicable regulations.

## **2. Criteria for developing and assessment the examination paper**

- The examination paper is developed and assessed based on the following criteria:
- The examination paper is written on the computer, clear and free of spelling errors.
- The examination paper is written in the language in which the course is taught.
- The header of the exam paper includes the name of the institute and the program.
- The header of the exam paper includes the course information - the academic year - the semester - the exam date - the exam time - the exam type (closed book or open book) - a statement of the compulsory and optional questions - a statement of the tables and curves that the student is allowed to enter for the exam, if any.....etc.
- The exam paper appears comfortable for the student and free of stuffing that confuses the student.
- The page number is written at the footer of the exam paper, especially if there is more than one page.
- The exam paper includes the name of the examiner or the names of the examinees if there is more than one examinee, and the examinee/examinees must sign the exam paper.
- The total score for the question is written opposite each question.
- The numbers of the main questions and their branches are clear and unambiguous.
- The exam paper ends with a phrase that clarifies the end of the questions, such as Good luck - The questions are over .... etc.