

**International Academy for Engineering and Media Science**

**Engineering Division**

**Architectural Engineering Department**

## **Program Specification**

**For**

**Architectural Engineering Program**

**Bylaw 2021**

## **Program Specification**

**International Academy for Engineering and Media Science**

**Engineering Division**

**Architectural Engineering Programme.**

### **A. Basic information**

- 1- Program Title** : Architectural Engineering
- 2- Program type** : single
- 3- Department** : Architectural Engineering
- 4- Program Coordinator** : Dr. Mohamed Abdraboh Amirah
- 5- External Evaluators** :
- 6- Internal Evaluators** : 1 - Dr. Mohie Eldin Elbatout  
(Lecturer of Architecture, Architectural Engineering department - Engineering Division - International Academy for Engineering and Media Science)
- 7- Date of program Bylaw approval** : Ministerial decision No. 921 dated 13/03/2022
- 8- Date of program specification approval:** 15 – 8 - 2021

### **B. Professional information**

#### **1. Architectural Engineering Program Mission:**

In the framework of the mission of the Engineering Division of the International Academy of Engineering and Media Sciences, the Architectural Engineering Program is committed to preparing graduates who are capable of innovation and development in the field of architecture to meet the needs of the local and regional labor market and keep abreast of technological, environmental and applied technologies in accordance with national academic reference standards in order to meet the goals of sustainable development in light of professional values.

## **2. Architectural Engineering Program Objectives: -**

The Architectural Engineering program aims to equip its graduates with a diverse range of knowledge and skills in architecture. The graduate should be able to:

- 01-** Provide students with theoretical and applied knowledge and skills related to architecture that align with the needs of society and the labor market, ensuring continuous self-learning and meeting sustainability requirements.
- 02-** Graduate competent architects with the scientific understanding and knowledge necessary for the architectural field. This includes supporting their ability to adhere to professional ethics, traditions, and rules of honest competition.
- 03-** Expand students' horizons, fostering creative and innovative abilities in all areas related to architecture.
- 04-** Support students in applying the scientific method to think critically, conduct research, and solve problems. This prepares them to produce architecturally and urbanistically efficient projects using advanced technologies and modern sciences.
- 05-** Provide students with practical experiences in design and execution by training them on realistic projects with various constraints, enhancing their capabilities for effective participation in work teams.
- 06-** Apply knowledge of engineering concepts, basic science, and analytical, critical, and systematic thinking to identify and solve engineering problems.
- 07-** Demonstrate professional and ethical responsibilities while applying engineering standards and sustainability principles to design, model, and develop digital systems.
- 08-** Contribute to the development of the profession and community by showcasing leadership qualities, business administration skills, and entrepreneurial capabilities.

### **3. Graduate Attributes of the Architectural Engineering Program:**

The Architectural Engineering program is committed to preparing graduates to be able to:

- G1-** Designing creative, artistic and cultural architectural projects.
- G2-** Proficient in communication and presentation skills, with attention to detail and wholeness, and understanding the details of visuals and environmental data.
- G3-** Using advanced technologies and programs to produce implementation documents with the ability to learn and self-develop.
- G4-** Supervising and implementing architectural elements, solving problems using analytical and creative methods, and working within a team.
- G5-** Applying ethical, professional and humanitarian standards, union and governmental laws and regulations and their importance in practicing the profession of architecture.
- G6-** Realizing the importance of sustainability, environmental preservation, identity, style and human personality in architecture.

### **4. Relationship of program objectives with graduate attributes**

Table 1 shows the relationship between the program objectives and graduate attributes.

(Table 1), The Matrix of the relationship between Program objectives and graduate attributes.

Program Objectives	Graduate Attributes					
	G1	G2	G3	G4	G5	G6
<b>O1</b>	*			*		
<b>O2</b>					*	*
<b>O3</b>		*			*	
<b>O4</b>			*			
<b>O5</b>			*		*	

Program Objectives	Graduate Attributes					
	G1	G2	G3	G4	G5	G6
O6	*		*		*	*
O7	*					*
O8				*		*

## 5. The Academic Reference for the Program: -

In the Framework of the National Academic Reference Standards for the Engineering Sector 2018 (NARS 2018), the program competencies are classified into two levels:

- **Level A:** This level reflects the general competencies that any graduate from the College of Engineering should have gained.
- **Level B:** This level reflects the general specialized competencies that any graduate in the field of architecture engineering should possess.

### 5.1 Competencies for Engineering Graduates (Level A)

**The Engineering Graduate must be able to:-**

- A1.** Identify formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
- A2.** Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
- A3.** Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
- A4.** Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk

management principles.

- A5.** Practice research techniques and methods of investigation as an inherent part of learning.
- A6.** Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
- A7.** Function efficiently as an individual and as a member of multi-disciplinary and multi- cultural teams.
- A8.** Communicate effectively - graphically, verbally and in writing - with a range of audiences using contemporary tools.
- A9.** Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
- A10.** Acquire and apply new knowledge; and practice self: lifelong and other learning strategies.

## **5.2 Competencies for Architectural Engineering Graduates (Level B)**

**In addition to the Competencies for All Engineering Programs the basic**

**Architectural Engineering graduate and similar programs must be able to:**

- B1.** Create architectural, urban and planning designs that satisfy both aesthetic and technical requirements, using adequate knowledge of: history and theory, related fine arts, local culture and heritage, technologies and human sciences.
- B2.** Produce designs that meet building users' requirements through understanding the relationship between people and buildings, and between buildings and their environment; and the need to relate buildings and the spaces between them to human needs and scale,
- B3.** Generate ecologically responsible, environmental conservation and rehabilitation designs; through understanding of: structural design, construction, technology and engineering problems associated with building designs.
- B4.** Transform design concepts into buildings and integrate plans into overall

planning within the constraints of: project financing, project management, cost control and methods of project delivery; while having adequate knowledge of industries, organizations, regulations and procedures involved.

**B5.** Prepare design project briefs and documents, and understand the context of the architect in the construction industry, including the architect's role in the processes of building, procurement of architectural services and building production.

**6. The Academic Reference and Program Aims: -**

Table 2 explains how the competencies of the current program achieve the program aims:

(Table 2), The Matrix of the relation between Program Aims and Academic Reference

		Academic Reference (NARS 2018)														
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5
Program Objectives	O1	*	*	*							*	*	*	*		
	O2			*	*								*	*		
	O3							*		*					*	
	O4				*	*										*
	O5					*				*	*					*
	O6	*	*	*									*	*	*	
	O7			*					*				*	*	*	*
	O8						*								*	*

**7. Program Intended Learning Outcomes (ILOs)**

**I. Knowledge, Understanding and Awareness: -**

**KU1** - Define a variety of concepts, principles, and theories of engineering,

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architecture and related disciplines.

- KU2** - Describe the attributes of architectural products and the influences that affect their design and implementation, within historical, contemporary, local, and global contexts.
- KU3** - Explain how architectural and urban products are studied, researched, designed and produced, in relation to the adopted tools, techniques, processes and methods.
- KU4** - Discuss a variety of topics, problems and issues related to architecture, including functional, aesthetic, social, cultural, environmental, technical, and economic aspects.
- KU5** - Recognize the architects' roles in designing, implementing, appraising and developing architectural and urban products.
- KU6** – Express the values and ethics of architects towards the society, environment and profession.
- KU7** - Argue the implications of globalization, innovation, climate change, energy saving, and digitalization on architecture and urbanism.

## **II. Intellectual and Cognitive Skills: -**

- ICS1** - Use the fundamentals of mathematics, physics, science, and engineering, in solving of specific architectural and engineering problems.
- ICS2** - Apply knowledge, principles, and standards of functional requirements in different situations of architectural and engineering practice.
- ICS3** - Utilize design specifications, codes, and regulations to create buildings and designs that are comfortable, accessible, healthy, safe, and risk-free.
- ICS4** - Select in response to their performance expectations the appropriate structural and non-structural systems, as well as, construction and finishing materials.
- ICS5** - Appraise the principles of fine arts and aesthetics as an influence on the quality of architectural design.



- ICS6** - Employ the community social needs in designing the architectural and urban products.
- ICS7** - Adopt the principles and standards of sustainable and environmental design to produce buildings that are eco-friendly.
- ICS8** - Operate effectively a range of computer software to complete several tasks related to the architectural practice.
- ICS9** - Propose the proper methods and processes when designing urban and architectural projects and preparing the necessary drawings and documents.
- ICS10** - Integrate research-based decisions in various design processes.
- ICS11** - Implement logical reasoning to compare, defend, criticize, and evaluate architectural products and solutions.
- ICS12** - Report a group of professional activities related to design and construction works to document projects phases and responsibilities.

### **III. Practical and Professional Skills: -**

- PPS1** - Produce two-dimensional and three-dimensional drawings and models, using manual and digital tools.
- PPS2** - Conduct scientific research and investigations using a range of sources, tools, and methods, to identify, understand, and solve architectural problems.
- PPS3** - Formulate effective reports and presentations for various tasks, ideas and projects.
- PPS4** - Prepare construction drawings, specifications, and documents for architectural products.
- PPS5** - Develop briefs, programs, and plans for managing the design and construction processes in architecture.
- PPS6** - Generate ideas keeping in mind users' needs, building's usage and environmental impact.
- PPS7** - Propose architectural responses that incorporate principles of anthropometry,

health, safety, and welfare.

**PPS8** - Create ideas and solutions to architectural problems that consider aesthetic, functional, social, cultural, environmental, technical, and economical aspects.

**PPS9** - Design several types of architectural products, systems, buildings and projects.

#### **IV. General and Transferable Skills: -**

**GTS1** - Manage effectively tasks, time, and resources, with respect of priorities.

**GTS2** - Demonstrate fluently the verbal, visual and written communication skills required for the profession.

**GTS3** - Act in stressful situations to carry workloads, achieve goals and meet deadlines.

**GTS4** - Find information and knowledge to keep engaged in self-directed learning and life-long education.

**GTS5** - Demonstrate listening and discussion skills with respect to different opinions and investment of feedback.

**GTS6** - Work collaboratively in teams as a member or a leader in multi-disciplinary and multi-cultural situations.

#### **8. Program Structure: -**

Program Duration : 9 Semesters.

Program Credit : 144 Hrs.

Compulsory Courses : 129 Hrs.

Elective Courses : 15 Hrs.

Table (3): Courses Classification According to reference framework for preparing study programs

Subject		Percentage	Tolerance
1	Humanities and Social Sciences	11%	9-12%
2	Mathematics and basic sciences	21%	20-26%

3	Basic Engineering Sciences	21%	20-23%
4	Applied engineering and design	21%	20-22%
5	Computers and information technology	10%	9-11%
6	Projects and practice	9%	8-10%
7	Optional Topics	7%	6-8%
<b>Total</b>		<b>100%</b>	<b>100%</b>

This is in addition to the field training for students of the second and third levels, for a period of three weeks for each level.

Courses Classification	Credit Hrs.	%
Academy Requirements	18	12.5
Engineering Requirements	33	22.9
Architectural Engineering Requirement	93	64.6
<b>Total</b>	<b>144</b>	<b>100%</b>

#### ➤ Academy Requirements Study Plan

The Academy requirements study plan contains 15 mandatory credits and 3 elective credits. All Academy students must take the 15 mandatory credits. Each student can choose 3 elective credits from the available elective course list. The Academy council assigns a committee for each course to develop its specs and to follow up its reports and files according to the academy internal quality assurance system.

- **Mandatory Courses ( 15 Credit Hours )**

Code	Course Title	Cr.	Lec	Ex	Lab
ENG 0101	English Language	3	2	2	0
ARA 0102	Arabic Language	3	3	0	0
HUR 0110	Human Rights	3	3	0	0
COM 0200	Computer Skills	3	2	0	2
EGY 0300	Egyptology	3	3	0	0

- Elective Courses ( 3 Credit Hours )

Code	Course Title	Cr.	Lec	Ex	Lab
BUS 0310	Business Administration Fundamentals	3	3	0	0
PSY 0320	Thinking Philosophy	3	3	0	0
EGY 0330	Egyptian History	3	3	0	0
MDA 0400	Media Ethics	3	3	0	0
MDA 0410	Media and Politics	3	3	0	0
MDA 0420	Media and Society	3	3	0	0
RTV 0430	International Media	3	3	0	0
ART 0500	Basics of Arts	3	3	0	0

➤ Engineering Major

The Major requirements study plan contains mandatory courses. These courses represent the essential and general scientific background for all students in the Major to help them choose the suitable academic program. The following are the data of the Major requirements courses.

- Mandatory Courses ( 30 Credit Hours )

Code	Course Title	Cr.	Lec	Ex	Lab
BAS 2102	Mathematics 1	3	2	2	0
BAS 2103	Physics 1	3	2	1	2
BAS 2104	Mechanics	3	2	2	0
MED 2105	Engineering Drawing	3	1	4	0
MED 2106	History of Engineering & Tech	3	2	2	0
MED 2107	Technical Workshop	3	1	2	2
BAS 2110	Mathematics 2	3	2	2	0
BAS 2111	Physics 2	3	2	1	2
BAS 2112	Engineering Chemistry	3	2	1	2
BAS 2123	Statistics & Probability Theory	3	2	2	0

- Elective Courses ( 3 Credit Hours )

Code	Course Title	Cr.	Lec	Ex	Lab
CAI 2601	Principles of Computer Engineering	3	2	0	2
ELE 2531	Principles of Mechatronics	3	2	2	0

ARC 2532	Principles of Architecture Engineering	3	2	2	0
ELE 2533	Principles of Electronic Engineering	3	2	2	0
CEN 2366	Principles of Civil Engineering	3	2	2	0
ELP 2444	Principles of Electrical Engineering	3	2	2	0

### ➤ Architecture Engineering Program

#### • Mandatory Courses ( 84 Credit Hours )

Course Code	Course Name	Pre. Code	Prerequisite	Lec	Tut	Sum	Credit Hrs.
ARC 2201	History And Theory Of Planning			2	2	4	3
ARC 2202	Architectural Drawing 1			0	6	6	3
ARC 2203	Architectural Drawing 2	ARC 2202	Architectural Drawing 1	0	6	6	3
ARC 2205	History And Theory Of Architecture 1			2	2	4	3
ARC 2207	Architectural Design Studio 1			0	6	6	3
ARC 2208	Architectural Design Studio 2	ARC 2207	Architectural Design Studio 1	0	6	6	3
ARC 2209	Building Construction 1			1	4	5	3
ARC 2210	Building Construction 2	ARC 2209	Building Construction 1	1	4	5	3
ARC 2213	Landscape And Site Planning			2	2	4	3
ARC 2215	Environmental Control			2	2	4	3
ARC 2218	History And Theory Of Architecture 2	ARC 2205	History And Theory Of Architecture 1	2	2	4	3
ARC 2220	Architectural Design Studio 3	ARC 2208	Architectural Design Studio 2	0	6	6	3
ARC 2221	Architectural Design Studio 4	ARC 2220	Architectural Design Studio 3	0	6	6	3
ARC 2223	Building Construction 3	ARC 2210	Building Construction 2	1	4	5	3
ARC 2224	Working Drawing 1	ARC 2223	Building Construction 3	1	4	5	3
ARC 2225	Working Drawing 2	ARC 2224	Working Drawing 1	1	4	5	3
ARC 2226	Housing			2	2	4	3
ARC 2228	Urban Design And Landscape			2	2	4	3
ARC 2231	Building & Urban Legislation			2	2	4	3
ARC 2232	Field Training			0	0	6	3
ARC 2240	History Of Architecture 3	ARC 2218	History And Theory Of Architecture 2	2	2	4	3
ARC 2242	Architectural Design Studio 5	ARC 2221	Architectural Design Studio 4	0	6	6	3
ARC 2260	Graduation Project	ARC 2242	Architectural Design Studio 5	0	6	6	3
CEN 2308	Properties and strength of materials			2	2	4	3
CEN 2311	Structural Analysis 1			2	2	4	3

CEN 2313	Surveying Engineering			2	2	4	3
CEN 2322	Design Of Steel Construction	CEN 2311	Structural Analysis 1	2	2	4	3
CEN 2323	Design Of Concrete Structures 1	CEN 2311	Structural Analysis 1	2	2	4	3

• Elective Courses ( 9 Credit Hours )

Course Code	Course Name	Pre. Code	Prerequisite	Lec	Tut	Sum	Credit Hrs.
ARC 2234	Interior Design	ARC 2221	Architectural Design Studio 4	2	2	4	3
ARC 2235	Recent Building Technology			2	2	4	3
ARC 2236	Architecture, Culture And Heritage			2	2	4	3
ARC 2237	Architecture In Hot Arid Zones	ARC 2215	Environmental Control	2	2	4	3
ARC 2238	Architectural Criticism	ARC 2220	Architectural Design Studio 3	2	2	4	3
ARC 2239	Green Architecture	ARC 2215	Environmental Control	2	2	4	3
ARC 2245	Studies In Architecture And Human Behavior			2	2	4	3
ARC 2246	The Maintenance And Preservation Of Buildings			2	2	4	3
ARC 2247	Advanced & Recent Theories Of Architecture			2	2	4	3
ARC 2248	Environmental System: Site Planning			2	2	4	3
ARC 2249	Project Evaluation And Analysis			2	2	4	3
ARC 2250	Environmental Impact Assessment			2	2	4	3
ARC 2251	Renewable Energy Systems	ARC 2215	Environmental Control	2	2	4	3
ARC 2252	Advanced Finishing Materials			2	2	4	3
ARC 2253	Advanced Technical Installations			2	2	4	3
ARC 2254	Housing Policies			2	2	4	3
ARC 2255	Studies In Urban Landscape			2	2	4	3
ARC 2256	City Planning			2	2	4	3
ARC 2257	Urban Conservation And Rehabilitation			2	2	4	3
ARC 2258	Sustainability In Architecture	ARC 2215	Environmental Control	2	2	4	3
ARC 2259	Thermal Environmental Systems	ARC 2215	Environmental Control	2	2	4	3
CEN 2341	Contracts, Quantities & Specifications			2	2	4	3

## 9. Suggested Study Plan for Architectural Engineering Program

### Semester 1

Course Code	Course Name	Pre-Code	Prerequisite	Lec	Tut	Lab	Sum	Credit Hrs.
BAS 2102	Mathematics 1			2	2	0	4	3
BAS 2103	Physics 1			2	1	2	5	3
MED 2105	Engineering Drawing			1	4	0	5	3
MED 2106	History of Engineering & Tech			2	2	0	4	3
BAS 2104	Mechanics			2	2	0	4	3
ARA 102	Arabic Language			3	0	0	3	3

### Semester 2

Course Code	Course Name	Pre-Code	Prerequisite	Lec	Tut	Lab	Sum	Credit
BAS 2110	Mathematics 2	BAS 2102	Mathematics 1	2	2	0	4	3
BAS 2111	Physics 2	BAS 2103	Physics 1	2	1	2	5	3
MED 2107	Technical Workshop			1	2	2	5	3
BAS 2112	Engineering Chemistry			2	1	2	5	3
ENG 101	English Language			3	0	0	3	3
COM 200	Computer Skills			2	0	2	4	3

### Semester 3

Course Code	Course Name	Pre-Code	Prerequisite	Lec	Tut	Sum	Credit Hrs.
ARC 2202	Architectural drawing 1			0	6	6	3
HUR 110	Human Rights			3	0	3	3
ARC 2209	Building construction 1			1	4	5	3
ARC 2205	History and theory of architecture 1			2	2	4	3
CEN 2311	Structural analysis 1			2	2	4	3
CEN 2313	Surveying Engineering			2	2	4	3

### Semester 4

Course Code	Course Name	Pre-Code	Prerequisite	Lec	Tut	Sum	Credit
EGY 300	Egyptology			3	0	3	3
ARC 2207	Architectural design studio 1			0	6	6	3
ARC 2210	Building construction 2	ARC 2209	Building construction 1	1	4	5	3
ARC 2203	Architectural drawing 2	ARC 2202	Architectural drawing 1	0	6	6	3
CEN 2323	Design of concrete Structures 1	CEN 2311	Structural analysis 1	2	2	4	3
CEN 2308	Properties and Strength of Materials			2	2	4	3

### Semester 5

Course Code	Course Name	Pre-Code	Prerequisite	Lec	Tut	Sum	Credit Hrs.
	Academy Elective			3	0	3	3
ARC 2208	Architectural design studio 2	ARC 2207	Architectural design studio 1	0	6	6	3
ARC 2223	Building construction 3	ARC 2210	Building construction 2	1	4	5	3
ARC 2213	Landscape and Site Planning			2	2	4	3
ARC 2201	History and theory of planning			2	2	4	3
ARC 2231	Building & Urban Legislation			2	2	4	3

### Semester 6

Course Code	Course Name	Pre-Code	Prerequisite	Lec	Tut	Sum	Credit
ARC 2220	Architectural design studio 3	ARC 2208	Architectural design studio 2	0	6	6	3
ARC 2224	working drawing 1	ARC 2223	Building construct	1	4	5	3
ARC 2218	History and theory of architecture 2	ARC 2205	History & theory of Architecture 1	2	2	4	3
CEN 2322	Design of steel construction	CEN 2311	Structural analysis	2	2	4	3
ARC 2215	Environmental control			2	2	4	3
	Engineering Major Elective Course			3	0	3	3



### Semester 7

Course Code	Course Name	Pre-Code	Prerequisite	Lec	Tut	Lab	WS	Sum	Credit Hrs.
ARC 2221	Architectural design studio 4	ARC 2220	Architectural design studio 3	0	6	0	0	6	3
ARC 2225	working drawing 2	ARC 2224	working drawing 1	1	4	0	0	5	3
ARC 2226	Housing			2	2	0	0	4	3
BAS 2123	Statistics & Probability Theory			3	0	0	0	3	3
ARC 2232	Field Training			0	0	0	6	6	3

### Semester 8

Course Code	Course Name	Pre-Code	Prerequisite	Lec	Tut	Lab	WS	Sum	Credit Hrs.
ARC 2242	Architectural design studio 5	ARC 2221	Architectural design studio 4	0	6	0	0	6	3
ARC 2240	History and theory of Architecture 3	ARC 2218	History & theory of Architecture 2	2	2	0	0	4	3
ARC 2228	Urban design and landscape			2	2	0	0	4	3
	Architectural Engineering Elective (1)			0	0	6	0	6	3

### Semester 9

Course Code	Course Name	Pre-Code	Prerequisite	Lec	Tut	Lab	WS	Sum	Credit Hrs.
ARC 2260	Graduation Project	ARC 2242	Architectural design studio 5	0	6	0	0	6	3
	Architectural Engineering Elective (2)			2	1	2	0	5	3
	Architectural Engineering Elective (3)			2	1	2	0	5	3

## **10. Program Admission Requirements:**

Having Egyptian Secondary education or equivalent certificate with major in Mathematics, then after passing the preparatory year and fulfilling the admission requirements the students will be able to attend the department

## **11.Regulations for progression and program completion:**

The minimum number of credit hours required for graduation is 144 Cr. These credits distributed among the academy requirements, the major requirement and the program requirements.

The student is responsible for the study load that is adequate to his/her abilities and study level. The Academic Advisor examines the student's records to advise him/her to take a number of courses appropriate to his academic achievement at the Major with consideration to the following:

1. The maximum number of credit hours is 18 per week during the fall and spring semesters. This number of credit hours may however reach 21 if the Student's GPA is 3 or more. This may change if the student expected to graduate in the semester and advised by the student's academic advisor.
2. The minimum number of credit hours is 12 per week during the fall and spring semesters except for graduating students where the student can register for a number of credit hours less than 12 depending on the remaining credit hours in his/her last semester.
3. In the summer semester, the maximum number of credit hours is 6. This number may be increased to 9 credits if this will allow the student to be graduated. Each course group should not be less than 10 students.
4. The Major council must approve other cases of violating the maximum and minimum limits.

The applied study system allows the students to complete their study program in the

minimum time (4 years). However, the following restrictions should consider:

1. The maximum period of the study program is 16 main semesters, including the withdrawn semesters without counting the summer semesters.
2. The Academy council may allow a student to exceed these maximum specified periods in justifiable cases subject to a recommendation from the Major council.

### **The Grades of Success:**

Table (4) shows the program grades of success.

Table (4): The Grades of Success

Symbol	Points	Percentage
<b>A+</b>	<b>4.0</b>	<b>more than 97%</b>
<b>A</b>	<b>4.0</b>	<b>More than 93% and less than 97%</b>
<b>A-</b>	<b>3.7</b>	<b>More than 89% and less than 93%</b>
<b>B+</b>	<b>3.3</b>	<b>More than 84% and less than 89%</b>
<b>B</b>	<b>3.0</b>	<b>More than 80% and less than 84%</b>
<b>B-</b>	<b>2.7</b>	<b>More than 76% and less than 80%</b>
<b>C+</b>	<b>2.3</b>	<b>More than 73% and less than 76%</b>
<b>C</b>	<b>2.0</b>	<b>More than 70% and less than 73%</b>
<b>C-</b>	<b>1.7</b>	<b>More than 67% and less than 70%</b>
<b>D+</b>	<b>1.3</b>	<b>More than 64% and less than 67%</b>
<b>D</b>	<b>1.0</b>	<b>More than 60% and less than 64%</b>
<b>F</b>	<b>0.0</b>	<b>Less than 60%</b>

## 12. Teaching and Learning Methods

Table 5 clarify the relation between program teaching & learning methods and the program competencies

(Table 5), The Matrix of the relationship between Teaching and Learning Methods and Program Competencies

		Teaching and Learning Methods							
		Lecture	Tutorial / Exercise	Discussions	Laboratory	Site Visit	Presentation	Project	Research
<b>Program Competencies</b>	<b>A1</b>	*	*						
	<b>A2</b>			*	*			*	*
	<b>A3</b>	*	*						
	<b>A4</b>	*	*			*			
	<b>A5</b>								*
	<b>A6</b>			*	*	*		*	
	<b>A7</b>						*		*
	<b>A8</b>			*			*		
	<b>A9</b>			*			*		*
	<b>A10</b>			*					*
	<b>B1</b>	*	*						*
	<b>B2</b>	*	*					*	
	<b>B3</b>	*	*		*		*		
	<b>B4</b>	*	*					*	
	<b>B5</b>	*	*			*			

### 13. Assessment Methods:

The mark percentage of the practical and theoretical courses should be as follows:

Theoretical Courses	Practical Courses		
25%	15%	Midterm Exam.	Semester Course work Mark 60%
25%	15%	Quizzes	
10%	10%	Punctuality and Participation	
-	20%	Practical (Lab, workshop, ...)	
40%	40%	Final Exam ( may include Oral)	Final Mark 40%
<b>100%</b>	<b>100%</b>	<b>Sum</b>	

Table 6 illustrates how program assessment methods achieve program competencies. (Table 6), The Relation between Program Competencies and Assessment Methods.

		Assessment Methods					
		Exam	Quizzes	Research	Report	Project	Discussions
<b>Program Competencies</b>	<b>A1</b>	*	*	*	*		*
	<b>A2</b>			*	*		*
	<b>A3</b>	*	*		*	*	
	<b>A4</b>	*	*		*		
	<b>A5</b>			*			*
	<b>A6</b>			*	*	*	*
	<b>A7</b>			*	*	*	
	<b>A8</b>			*	*	*	
	<b>A9</b>			*	*		
	<b>A10</b>				*	*	*
	<b>B1</b>	*	*	*	*	*	*
	<b>B2</b>	*	*	*	*	*	*
	<b>B3</b>	*	*	*	*	*	*
	<b>B4</b>	*	*	*	*	*	*
	<b>B5</b>	*	*	*	*	*	*

#### 14. Evaluation of program learning outcomes

No.	Evaluator	Tool	Sample
1	Senior students	Meeting + questioner	20%
2	Alumni	questioner	20%
3	Stakeholders (Employers)	Site visits	NA
4	Evaluator	External members	NA
5	Others	-	NA

**Program Coordinator** : Dr. Mohamed Abdraboh Amirah

**Signature** :

**Date** : 10 - 2023

**Division Dean** : Prof. Saeid Elhalafawy

**Signature** :

**Date** : 10 - 2023