

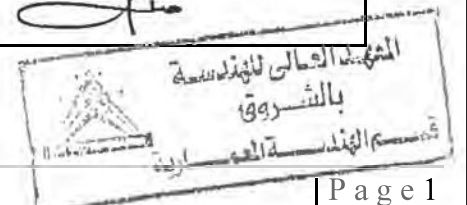


Architectural Engineering Program Specification (2024-2025)

According to regulation of academic standards 2019
And NARS 2018

Administrative Information

Program title	Architectural Engineering, ARC	
Program type	Single	
Award / degree	B.Sc. Degree	
Dept. (s) responsible	Architectural Engineering	
Head of the Department:	Prof. Dr. Manal Yehia Tawfic	
program Coordinator:	Prof. Dr. Manal Yehia Tawfic	
External evaluator	11-09-2020	Associate Prof. Sahar Morsi Mohamed Mohamed Ali
	05-12-2021	Prof. Dr. Yousry Mohamed Mowafy
	27-03-2022	Prof. Dr. Wael Yousef
Date of program Operation	1995	
Date of approval from the higher ministry of education	04/07/2019, no of the educational ministry approval 2381	
Date of the most recent approval of the Department council for program specification modifications as NARs 2018	Department council's board meeting in 22-11-2020	
Date of most recent approval of program specification by the Department council	Department council's board meeting in 16 - 09 -2024 Academic council's board meeting in 18 - 09 -2024	





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Architectural Engineering Program Specification

(New curriculum of academic year 2024 -2025)

A. General

1. Basic Information

- **Program Title:** Bachelor Degree of Architectural Engineering .
- **Program Type:** Single
- **Department responsibility:** Architectural Engineering Department.
- **Head of the department:** Prof. Dr. Manal Yehia Tawfic
- **Program Coordinator:** Prof. Dr. Manal Yehia Tawfic
- **Date of program regulations approval:**
 - 04/07/2019 ,no of the educational ministry approval 2381
- **Year of operation:** 2024 -2025

2. External evaluation: Date of external evaluation:

(Appendix 1)

- **11-09-2020:** Associate professor.Sahar Morsi Mohamed Mohamed Ali
- **05-12-2021:** Prof. Dr. Yousry Mohamed Mowafy
- **27-03-2022:** Prof. Dr. Wael Yousef

3. Staff Members

(Appendix 2)

Architectural Engineering Program is taught by 26 highly qualified staff members, 15 of them are full time employed and 5 are part time staff members in The Architectural Engineering department, in addition to 6 full time employed staff members for teaching the basic science and civil subjects.



B. Professional Information

1. Preamble

The department aims to prepare and qualify the students to be able to practice the architecture profession effectively in both the Egyptian and international architects job markets. Students shall be provided by needed knowledge and skills to solve architectural and urban problems that continuously exist due to the changing nature of societal behavior and pattern. They also should be qualified to deal with the existing problems, available environmental resources and contemporary technologies .

That will be achieved through seventy-two (72) courses, seventy (70) of them are theoretical and practical courses, and other two (2) summer field training courses. The students shall effectively interact within the total two hundred and fifty (250) hours of the courses through the teaching and learning processes .

The Department also engage students in participating in various specialized research fields needed to benefit the societal evolution and sustainable development. Students' personal abilities are also considered to be a target by developing their personalities and abilities. This can be achieved through qualifying them to work under pressure, co-operate within a team work, ability for continuous search and self-learning. This will enable to attain desired success metrics in-order to deal with any challenges concerning job market or obstacles that may obstruct effective community contributions.

Accordingly, the department provides the appropriate environment for the student through the institutional capacity, effective resources and the availability of basic database of references represented in the institute's library, professors' lectures and the existence of an easily accessible information network

2. Program Vission, Mission, Aims and job opportunities

2.1. Program vision

The program has to be one of the best architectural programs nationally and inter nationally, that feed the labor market by qualified alumnus.

2.2. Program mission

- Preparing creative architects familiar with modern science and technologies to cope with the labor market needs.
- Prepare qualified alumni have the ability to share in the social charities within the scope of the sustainable development .
- Develop the Cabability of the scientific research and the self- learning for the students.



2.3. Program Aims

1. Investigative the manner and visualize / conceptualize skills in students' work with giving attention to small details, plan and execute research work.
2. Adopt a holistic problem-solving approach for complex, ambiguous, and open- ended challenges and scenarios.
3. Recognize the new role of architectural engineer in social and cultural point of view as the leader of design projects who has the ability to understand, assemble, and coordinate all of the disciplines to create a sustainable environment.
4. Design project and apply knowledge to understand the context of the architect in the construction industry, including the architect's role in the processes of bidding, procurement of architectural

2.4. Job opportunities

1. Consult
2. Research centers (construction - architecture - planning - housing and population studies - environmental studies - construction building technology).
3. Construction companies (architectural and implementation).
4. Economic and feasibility studies of projects.
5. Quality and modernization entities.
6. Planning, management and follow-up.
7. Improvement programs.
8. Interior design.
9. Landscape design.
10. Real estate investment field



3. Learning Outcomes (LO's) of the graduate: The program courses fulfill the NARS 2018

3.1. The attributes of Architectural engineer

The Architectural Engineering Program adopted the NARS 2018 attributes for Engineering and Architectural Engineering. The graduates of Architectural engineering should have the ability of:

- a. Master a wide spectrum of engineering knowledge and specialized skills and can apply acquired knowledge using theories and abstract thinking in real life situations;
- b. Apply analytic critical and systemic thinking to identify, diagnose and solve engineering problems with a wide range of complexity and variation;
- c. Behave professionally and adhere to engineering ethics and standards;
- d. Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance;
- e. Recognize his/her role in promoting the engineering field and contribute in the development of the profession and the community;
- f. Value the importance of the environment, both physical and natural, and work to promote sustainability principles;
- g. Use techniques, skills and modern engineering tools necessary for engineering practice;
- h. 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;
- i. Communicate effectively using different modes, tools and languages with various audiences; to deal with academic/professional challenges in a critical and creative manner;
- j. Demonstrate leadership qualities, business administration and entrepreneurial skills.

3.2. Competences of the graduate

A. General Competencies for Engineering graduate (A) :

The 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 multicultural teams.
- A8- Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
- A9- Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
- A10 - Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.

b. Competencies for Architectural Engineering (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 bidding, procurement of architectural services and building production.

The Learning Out-Comes of The Program (LOs):

The program has three domains for the learning out comes: Cognitive Domains, Psychomotor Domains, Affective Domains. And these learning out comes are related to the competencies of the graduate as shown in table (4):

a. Cognitive Domains (LOs):

- A1.1. Identify, formulate complex engineering problems.
- A3.1. Consider global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline.
- A3.2. Detect the principles and contexts of sustainable design and development.
- A4.1. Identify contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
- A6.1. Identify consideration of other trades requirements.
- B1.1. Use adequate knowledge of: history and theory, related fine arts, local culture and heritage, technologies and human sciences.
- B2.1. Identify 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.
- B3.1. Determine structural design, construction, technology and engineering problems associated with building designs.
- B4.1. Classify the constraints of: project financing, project management, cost control and methods of project delivery while having adequate the knowledge of industries, organizations, regulations and procedures involved.
- B5.1. Apply the context of the architect in the construction industry, including the architect's role in the processes of bidding, procurement of architectural services and building production.

b. Psychomotor Domains (LOs):

- A1.2. Solve complex engineering problems
- A1.3. Apply engineering fundamentals, basic science and mathematics
- A2.1. Develop and conduct appropriate experimentation
- A2.2. Simulate, analyze and interpret data
- A2.1. Use statistical analyses and objective engineering judgment to draw conclusions.
- 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.
- A4.2. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
- A5.1. Practice research techniques and methods of investigation
- A6.2. Plan engineering projects, monitor implementation of engineering projects.
- B1.2. Create architectural, urban and planning designs that satisfy both aesthetic and technical requirements.
- B2.2. Produce designs that meet building users' requirements.
- B3.2. Generate ecologically responsible, environmental conservation and rehabilitation designs
- B4.2. Transform design concepts into buildings, integrate plans into overall planning.
- B5.2. Prepare design project briefs and documents.

c. Affective Domains (LOs):

- A7.1.** Work efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
A8.1. Communicate to convey ideas verbally, numerically, graphically, and using symbols effectively
A9.1. Manage effectively tasks, time, and resources.
A9.2. Acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
A9.3. Use creative, innovative and flexible thinking.
A10.1. Maintain engagement in self-directed learning and life-long education.

Table no (4): The relation between the competencies and the learning out comes of the program

no	The competency	The learning out comes		
		Cognitive Domains	Psychomotor Domains	Affective Domains
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	A1.1 Identify, formulate complex engineering problems	A1.2 Solve complex engineering problems A1.3 Apply engineering fundamentals, basic science and mathematics	
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.		A2.1 Develop and conduct appropriate experimentation A2.2 Simulation, analyze and interpret data 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 Consider global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline A3.2 Detect the principles and contexts of sustainable design and development.	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	
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	A4.1 Identify contemporary technologies, codes of practice and standards, quality guidelines, health and safety 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	
A6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	A6.1 Identify consideration of other trades requirements.	A6.2 Plan engineering projects monitor implementation of engineering projects	
A7	Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.			A7.1 Work 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 Communicate to convey ideas verbally, numerically, graphically, and using symbols effectively



Ministry of Higher Education and Scientific Research
The Higher Institute of Engineering, El Shorouk City
Architectural Engineering Department



Follow table no (4): The relation between the competencies and the learning out comes of the program

no	The competency	The learning out comes		
		Cognitive Domains	Psychomotor Domains	Affective Domains
A9	Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.			A9.1 Manage effectively tasks, time, and resources. A9.2 Acquire entrepreneurial and leadership skills to anticipate and respond to new situations. A9.3 Use creative, innovative and flexible thinking
A10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.			A10.1 Maintain engagement in self-directed learning and life-long education.
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.	B1.1 Use adequate knowledge of: history and theory, related fine arts, local culture and heritage, technologies and human sciences.	B1.2 Create architectural, urban and planning designs that satisfy both aesthetic and technical requirements	
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.	B2.1 Identify 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.	B2.2 Produce designs that meet building users' requirements	
B3	Generate ecologically responsible, environmental conservation and rehabilitation designs; through understanding of: structural design, construction, technology and engineering problems associated with building designs.	B3.1 Determine structural design, construction, technology and engineering problems associated with building designs.	B3.2 Generate ecologically responsible, environmental conservation and rehabilitation 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.	B4.1 Classify the constraints of: project financing, project management, cost control and methods of project delivery while having adequate the knowledge of industries, organizations, regulations and procedures involved.	B4.2 Transform design concepts into buildings, integrate plans into overall planning	
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 bidding, procurement of architectural services and building production.	B5.1 Apply the context of the architect in the construction industry, including the architect's role in the processes of bidding, procurement of architectural services and building production.	B5.2 Prepare design project briefs and documents	

4. Curriculum Structure and Contents

4.1. Program references:

The architecture program was guided by the standards set by the Engineering, Technological and Industrial Studies Sector Committee set 2020 as well as the National Standards for Quality Assurance and Accreditation. NARs 2018

4.2. the program duration:

The duration of studying for a bachelor's degree is five academic years starting with a general preparatory year for all students. Courses are taught in English except those which are related to humanities aspects require to be studied in Arabic language. The study is conducted on the basis of two semesters, each semester duration is fifteen (15) weeks in addition to the final exams period.

4.3. the program structure :

The program include 70 courses of total 250 contacts hours , in form of 170 credit hours.

The program courses are remarkable as they are classified as follows:

The field	No of courses	No of courses/ levels				
		Preparatory level	1 st level	2 nd level	3 rd level	4 th level
Humanities & Social Sciences	9	4	2	2	1	-
Math & Basic Sciences	11	7	2	1	1	-
Basic Engineering	22	2	8	5	5	2
Applied Eng & Design	16	-	3	3	5	5
Projects* & Practice	4	-	1	1	-	2
(culture of engineering	5	1	-	1	2	1
Project management	3	-	-	1	-	2
Total	70	14	16	14	14	12

Table (1) the program structure

Note:

1st: The two field training course are to be taught within external trainers and internal revisors and evaluators.

2nd: The two of the culture engineering courses are elective courses in the 3rd and 4th level

4.4. Program Content

The following are the subjects taught during this program in the 5 levels of the study:

Preparatory year / 1st term

no.	Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area							
			Lectures	tutorial	Practical	Total hours		Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des. & Comp. App. & I.C.T	Proj. & Practice	Discretionary (culture of engineering)		
1	PHM 011	Mathematics (1)	2	2	-	4	90	60	-	2	150		4						
2	PHM 013	Physics (1)	2	1	2	5	90	30	30	2	150		5						
3	PHM 015	Mechanics (1)	2	2	-	4	90	60	-	2	150		4						
4	ARC 011	Engineering drawings and projections (1)	1	2	-	3	60	40	-	2	100			3					
5	CHE 011	Chemistry (1)	2	1	1	4	60	20	20	2	100		4						
6	HUM 013	Computer skills	1	-	2	3	30	10	10	2	50	3							
7	HUM 011	Technical English Language	1	-	1	2	30	10	10	1	50	2							
Total			11	8	6	25					750	5	17	3	0	0	0	0	0

Preparatory year / 2nd term

no.	Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area							
			Lectures	tutorial	Practical	Total hours		Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des. & Comp. App. & I.C.T	Proj. & Practice	Discretionary (culture of engineering)		
1	PHM 012	Mathematics (2)	2	2	-	4	2	60	-	90	150		4						
2	PHM 014	Physics (2)	2	1	2	5	2	30	30	90	150		5						
3	PHM 016	Mechanics (2)	2	2	-	4	2	60	-	90	150		4						
4	ARC 012	Engineering drawings and projections (2)	1	2	2	5	2	20	20	60	100			5					
5	PHM 017	Technology of production	1	-	2	3	2	15	15	45	75								3
6	HUM014	History of engineering and technology	2	-	-	2	2	25	-	50	75	2							
7	HUM 011	Technical English Language	1	-	1	2	1	10	10	30	50	2							
Total			11	7	7	25					750	4	13	5	0	0	0	0	3

1st Year/ 1st term

no.	Code	Course Name	Teaching Hours					Marking				Subject Area							
			Lectures	tutorial	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary (culture of engineering)	Project mangment
1	ARC121	Architectural design (1)	1	5	-	6	5	90	-	60	150				6				
2	ARC131	Architectural construction and building technology (1)	2	2	-	4	3	60	-	40	100			4					
3	ARC161	Sygraphy and prespective	1	3	-	4	3	60	-	40	100			4					
4	ARC111	Theories of Architecture(1)	2	-	-	2	2	40	-	60	100			2					
5	PHM141	Statistical analysis	2	-	2	4	2	40	20	40	100	4							
6	CVE 131	Servaying	2	1	-	3	2	40	-	60	100			3					
7	ARC162	Visualization and principles of design and architectural presentation	1	2	-	3	3	60	-	40	100			3					
Total			11	13	2	26					750	0	4	16	6	2	0	0	0

1st Year/ 2nd term

no.	Code	Course Name	Teaching Hours					Marking				Subject Area							
			Lectures	tutorial	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary (culture of engineering)	Project mangment
1	ARC122	Architectural design (2)	1	5	-	6	5	90	-	60	150				6				
2	ARC132	Architectural construction and building technology (2)	2	2	-	4	3	60	-	40	100			4					
3	HUM141	History of Architecture (1)	2	-	-	2	2	40	-	60	100	2							
4	ARC 141	Computer applications in the architectural drawings	1	-	2	3	2	20	10	20	50				3				
5	PHM132	Engineering Modelling	2	2	-	4	3	60	-	40	100	4							
6	CVE132	Mechanics of structures	2	2	-	4	2	40	-	60	100			4					
7	HUM142	Specialized technical English Language	2	1	-	3	2	40	-	60	100	3							
8	ARC134	Field training (1)	-	-	2	2	-	25	25	-	50					2			
Total			12	12	4	28					750	5	4	8	6	3	2	0	0

2nd Year/ 1st term

no.	Code	Course Name	Teaching Hours					Marking				Subject Area							
			Lectures	tutorial	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary (culture of engineering)	Project management
1	ARC221	Architectural design (3)	1	5	-	6	5	90	-	60	150				6				
2	ARC231	Architectural construction and building technology (3)	2	2	-	4	3	60	-	40	100			4					
3	HUM241	History of Architecture (2)	2	-	-	2	2	40	-	60	100	2							
4	ARC251	The access to the environmental studies	2	-	-	2	2	40	-	60	100						2		
5	PHM241	Specialized chemistry	2	-	1	3	2	40	20	40	100		3						
6	CVE231	Concret and steel constructions	2	2	-	4	3	40	-	60	100			4					
7	HUM 242	History of cith planning	2	-	-	2	2	40	-	60	100	2							
Total			13	9	1	23					750	4	3	8	6	0	0	2	0

2nd Year/ 2nd term

no.	Code	Course Name	Teaching Hours					Marking				Subject Area							
			Lectures	tutorial	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary (culture of engineering)	Project management
1	ARC 222	Architectural design (4)	1	5	-	6		90	-	60	150				6				
2	ARC 232	Architectural construction and building technology (4)	2	2	-	4		60	-	40	100			4					
3	ARC 211	Theories of Architecture(2)	2	-	-	2		40	-	60	100			4					
4	CVE 232	Properties and resistance of materials	2	1	-	3		40	-	60	100			3					
5	ARC 241	Computer applications in the architectural presentation	1	-	2	3		20	10	20	50				3				
6	HUM 243	Legislation and contracts	2	1	-	3		40	-	60	100							3	
7	CVE 233	Investigation of Soil and foundations	2	2	-	4		40	-	60	100			4					
8	ARC 232	Field training (2)	-	-	2	2		25	25	-	50					2			
Total			12	11	4	27					750	0	0	15	6	3	2	0	3

3rd year/ 1st term

3rd year/ 1 st term																						
no.	Code	Course Name	Teaching Hours					Marking				Subject Area										
			Lectures	tutorial	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary (culture of engineering)	Project mangnt			
1	ARC 321	Architectural design (5)	1	5	-	6	5	90	-	60	150							6				
2	ARC 331	Working designs (1)	2	2	-	4	4	90	-	60	150							4				
3	HUM 341	History of Architecture (3)	2	-	-	2	2	40	-	60	100	2										
4	ARC 371	City planning (1)	2	1	-	3	3	60	-	40	100				3							
5	ARC372	Geographical information systems (GIS)	2	-	1	3	3	20	10	20	50				3							
6	ARC351	Energy Efficiency in Buildings	2	1	-	3	2	40	-	60	100										3	
7	ARC333	Technical fixtures and treatments in buildings	2	1	-	3	3	40	-	60	100				3							
Total			13	10	1	24					750	2	0	9	10	0	0	3	0	0	3	0

3rd year/ 2nd term

3rd year/ 2 nd term																						
no.	Code	Course Name	Teaching Hours					Marking				Subject Area										
			Lectures	tutorial	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary (culture of engineering)	Project mangnt			
1	ARC 322	Architectural design (6)	1	5	-	6	5	90	-	60	150							6				
2	ARC 332	Working designs (2)	2	2	-	4	4	90	-	60	150							4				
3	ARC311	Theories of Architecture (3)	2	-	-	2	2	40	-	60	100				2							
4	ARC 372	City planning (2)	2	2	-	4	3	60	-	40	100				4							
5	PHM 341	Specified Applied Physics	2	1	1	4	2	40	20	40	100		4									
6	ARC38xx	Elective course (1)	2	-	-	2	2	30	-	20	50											
	ARC 3811	Vernacular and Regional Architecture	2	-	-	2	2	30	-	20	50											
	ARC 3821	Architectural criticism issues	2	-	-	2	2	30	-	20	50										2	
	ARC 3831	Areas of Valuable urbanization	2	-	-	2	2	30	-	20	50											
	ARC 3841	Architecture, culture and heritage	2	-	-	2	2	30	-	20	50											
7	ARC 373	Land scape	2	1	-	3	3	60	-	40	100				3							
Total			13	11	1	25					750	0	4	6	13	0	0	2	0	0	2	0

4th year/ 1st term

no.	Code	Course Name	Teaching Hours					Marking				Subject Area						
			Lectures	tutorial	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary (culture of engineering)
1	ARC 421	Architectural design (7)	1	5	-	6	6	90	-	60	150				6			
2	ARC 431	Working designs (3)	2	2	-	4	4	90	-	60	150				4			
3	ARC 471	urban design	2	2	-	4	3	60	-	40	100				4			
4	ARC 472	Regional Planning	2	1	1	4	3	30	30	40	100			4				
5	ARC 422	Graduation project (1)	2	-	-	2	3	60	-	40	100					2		
6	ARC 473	Housing	1	1	-	2	2	20	-	30	50			2				
7	HUM 431	Project mangment	2	-	1	3	2	40	20	40	100							3
Total			12	11	2	25					750	0	0	6	14	2	0	3

4th year/ 2nd term

4th year/ 2 nd term																		
no.	Code	Course Name	Teaching Hours					Marking				Subject Area						
			Lectures	tutorial	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary (culture of engineering)
1	ARC 423	Graduation project (2)	3	6	-	9	-	200	150	-	350					9		
2	ARC 432	Working designs (4)	2	2	-	4	5	90	-	60	150			4				
3	ARC 424	Interior design	1	2	-	3	3	60	-	40	100			3				
4	HUM 432	Quantities and specifications	2	1	-	3	2	60	-	40	100							3
5	ARC 48XX	Elective course (2)	2	1	-	3	2	20	-	30	50							
	ARC 4812	Urban and civil conservation	2	1	-	3	2	20	-	30	50							
	ARC 4822	Environmental assessment for the projects	2	1	-	3	2	20	-	30	50						3	
	ARC 4842	Principles of practicing the profession	2	1	-	3	2	20	-	30	50							
	ARC 4832	Urban Management and legislation	2	1	-	3	2	20	-	30	50							
Total			10	12	-	22					750	0	0	7	0	9	3	3

4.5 Total teaching hours and subjects distribution over the subject areas

Years	Humanities & Social Sciences	Math & Basic Sciences	Basic Eng	Applied Eng & Design	Projects* & Practice	Discretionary (culture of engineering)	Project management
Total prep year	8	30	8	0	0	3	0
Total 1st year	5	8	24	15	2	0	0
Total 2nd year	2	3	21	15	2	2	3
Total 3rd year	2	4	15	23	0	5	0
Total 4th year	3	0	6	21	11	3	6
Total of Five Years	20	45	74	74	15	13	9
% of Five Years	8%	18%	29.6%	29.6%	6%	5.2%	3.6%
(%) Requirments of the Eng. Sector Committee	8-10%	18-22%	25-30%	25-30%	4-6%	4-6%	2-4 %
(%) Requirments of Engineering Sector Committee of the Supreme Council of Universities, 2016	9-12%	20-26%	20-23%	20-22%	9-11%	8-10%	

Table (3) teaching hours and subjects distribution over the subject areas

Topic	Topic Area							Total Contact hours	Total credit hours
	Humanities and Social Sciences	Business Management	Engineering Culture	Mathematics and Basic Sciences	Basic Engineering Sciences	Applied Engineering and design	Projects and Practice		
Humanities and Social Sciences								20	16
Business Management								9	6
Engineering Culture								13	10
Mathematics and Basic Sciences								45	33
Basic Engineering Sciences								74	51
Applied Engineering and design								74	44
Projects and Practice								15	10
Total Credit hours	16	6	10	33	51	44	10		170
Total Contact hours	20	9	13	45	74	74	15	250	
% Credit hours	9.4%	3.5 %	5.8%	19.4%	30%	25.8%	5.8%		100%
%Contact hours	8%	3.6%	5.2%	18%	29.6%	29.6%	6%	100%	
The Engineering Studies Sector Committee Requirements	8-12%	2- 4%	4-6%	18-22%	25-30%	25-30%	4-6%		

Courses in the Arch. Engineering Program according to Engineering Studies Sector Committee Requirements as follows

Topic	Topic Area				Total Contact hours	Total credit hours
	University Requirements	College Requirements	General Specialization Requirements	Specialization requirements		
University Requirements					19	13
College Requirements					77	53
General Specialization Requirements					88	57
Specialization requirements					66	47
Total Credit hours	13	53	57	47		170
Total Contact hours	19	77	88	66	250	
% Credit hours	7.64%	31.1%	33.5%	27.6%		100%
% Contact hours	7.6%	30.8%	35.2%	26.4%	100%	
Graduation Requirements	Min. 8%	Min. 20 %	Min. 35%	Max. 30%		

5. Academic Standards

National Academic Reference Standards (NARS) was adapted: (Appendix 3)

The program refers to NARS 2018 and the Engineering Sector Committee of the Supreme Council of Universities, 2016 and Gap analysis is done to verify the Engineering Sector Committee of the Supreme Council of Universities, 2020 The detailed contribution between LOS of the program and NARS 2018 in form of competences of the graduate, his attribute, the relation between the courses and the competences, and The relation between the vision, mission, aims of the program and that of the institute, and Comparison of program (Aims) & the competences of the programme is given in **Appendix (3):** Contribution of the Program and the standards of NARS 2018

3-A: The Contribution of the Program Los to the competences of NARS 2018

3-B: The Contribution of the alumni attribute of the Program of NARS 2018

3-C: The relation between the program aims and the competence of the program

3-D: The contribution of the courses to the competences of the program

3-E: The relation between the vision, mission, aims of the program and that of the institute

6. Program Admission Requirements

Secondary Egyptian Schools Graduates.

Secondary School Certificate Graduates of other countries are eligible to join this program if they met the minimum grades set by Admission Office of the Ministry of Higher Education.

The study begins with a preparatory year for all students before specialization in architectural Engineering. Students' departmental allocation is in accordance with the institute Council regulations.

7. Regulations for Progression and Program Completion

- a- The student is considered successful if he passes the examinations in all courses of his class.
- b- The student is promoted to the next higher level if he fails in not more than two subjects of his class or from lower classes,
- c- In addition to the two subjects mentioned in the previous item, the student who fails in two subjects in humanities and social sciences, whether from his class or from lower classes, is admitted to the transfer to the consecutive higher level. Passing successfully in all courses before obtaining the B.Sc. degree is a prerequisite.
- d- The referred student has to sit the examination in the courses in which he has failed together with the students studying the same courses. The student gets a pass grade when he passes the examination successfully. In case the student was considered absent with acceptable excuse in a course, he gets the actual grade,
- f- The grades of the successful student in a course and in the general grade are evaluated as follows:
 - Distinction: from 85% of the total mark and upwards.
 - Very good: from 75% to less than 85% of the total mark.
 - Good from: 65% to less than 75% of the total mark
 - Pass: from: 50% to less than 65% of the total mark
- g- The grades of a failing student in a course are estimated in one of the following grades:
 - Weak: from 30% to less than 50% of the total mark
 - Very weak: less than 30% of the total mark.
- h- The B.Sc. general grade for students is based on the cumulative marks obtained during all the years of study. The students are then arranged serially according their cumulative sum.
- l - The student is awarded an honor degree if his cumulative sum is distinction or very good provided that he gets a grade not less than very good in any class of study other than the preparatory year. Moreover, he should have not failed in any examination he has sat in any class other than the preparatory year.

8. teaching and learning methods:

(Appendix 4-A)

Appendix (4-A): shows the relation between the courses and the teaching and learning methods.

The program uses the following methods:

- Interactive lectures
- Tutorials/Sketches
- Projects
- Researches and Reports
- 3D modelling
- Site visits
- Practical and Laboratory
- Problem solving
- Brain storming
- Cooperative work
- Self learning
- Online lectures
- Presentations and Movies
- Discussions

9. Student Assessment (Methods and rules for student assessment): (Appendix 4-B)

Appendix (4-B): shows the relation between the courses and the assessment methods.

The program uses the following methods:

- Written exam
- Oral Exams
- Discussions
- Mid Term Exam
- Class works
- Projects
- Researches
- Reports
- Presentations
- Discussions
- Laboratory
- Exams
- Quiz


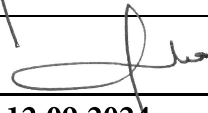
Remark:

Architecture Engineering depends on the researches and the projects, so the discussions are mainly concerning those teaching and learning methods. But the oral exams are concerning the practical courses especially those of basics courses or civil one.

10. Program Evaluation:

Evaluator	Tool
1- Senior students	Questionnaire
2- Alumni	Questionnaire
3- Stakeholders	Questionnaire
4- internal /External Evaluator(s) (External Examiner (s)	Report
5- Other societal parties	Questionnaire

Table (6) program Evaluation

Program title	Architectural Engineering, ARC	
Title	Name	Signature
Program Co-coordinator	Prof. Dr. Manal Yehia Tawfic	
Head of program	Prof. Dr. Manal Yehia Tawfic	
Date of Approval	2024 -2025	12-09-2024 