

GIZA HIGHER INSTITUTE OF ENGINEERING AND TECHNOLOGY

Architecture Engineering Program

(Terms' System)

Year of operation: 2021/2022

Program Specifications

2022/2023

(اعتماد المجلس الأكاديمي في ٦ / ٢٠٢٣)

Architecture Engineering Department

Program Specification

A- Basic information

1. Program Title:	Architecture Engineering
2. Program Type:	Single
3. Department (s):	Architecture Engineering
4. Coordinator:	Assoc. Prof. Rofaida Al-Attar
5. External Evaluator (s):	-----
6. Date of ministry approval of syllabus:	28/11/2020
7. Last date of program specifications approval:	Institute Academic Council 6/2023 (According to Internal evaluator report)

B- Professional Information

1. Program Mission and Aims

1-1 Program Mission

An engineer capable of designing, implementing, and accommodating all architectural works, considering the social, economic, and environmental factors, with the application of the required technical specifications, and able to solve the problems facing the implementation of projects, keeping pace with technical and research development, considering the ethics of the profession, and contributing effectively to achieving sustainable development.

1-2 Program Aims

- Graduates who possess the skills and information that help to provide ideal and appropriate solutions to the problems and conditions that exist in their community and surrounding environment.
- Graduates with a degree of responsibility are able to use modern scientific methods and innovative ideas to solve all the problems and conditions they face.
- Graduates who have the ability to use the latest methods of design, construction, implementation, and performance in various projects
- Graduates who are able to continue to learn and acquire the necessary skills to develop professional performance, creative thinking, and ethical business planning
- Graduates who have the skill not only in design and innovation, but also in monitoring implementation, following up on the progress of implementation, and dealing with the parties of the entire system for various projects.
- Graduates are able to communicate with different parties to ensure the achievement of ways of cooperation and teamwork in multiple projects



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

The consistency of the program's mission with the mission of the institute is shown in the following matrix:

Program Mission	Institute Mission	An engineer capable of designing, implementing, and accommodating all architectural works, considering the social, economic, and environmental factors	able to solve the problems facing the implementation of projects with the application of the required technical specifications	keeping pace with technical and research development, considering the ethics of the profession	Contributing effectively to achieving sustainable development.
Able to keep pace with the modern global technological development in various disciplines		√	√	√	√
that meet the needs of the local and regional market		√		√	√
through conducting scientific and applied research				√	
establishing advisory centers and advanced research laboratories that contribute to serving the community and meeting its needs		√		√	√

The consistency of the program's mission with its aims is shown in the following matrix:

Program Mission	Program Aims					
	1	2	3	4	5	6
An engineer capable of designing, implementing, and accommodating all architectural works, considering the social, economic, and environmental factors	√	√				
able to solve the problems facing the implementation of projects with the application of the required technical specifications	√	√	√		√	√
keeping pace with technical and research development, considering the ethics of the profession		√	√	√	√	
Contributing effectively to achieving sustainable development.		√	√	√		

2. Attributes of the Graduates of Engineering

According to NARS 2018, the Engineering graduate must:

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



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

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

The matrix below illustrates how the graduate attributes align with the program aims:

Graduate Attributes	Program Aims					
	1	2	3	4	5	6
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-Recognize his/her role in promoting the engineering field and contribute to the development of the profession and the community			√			√
5-Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance	√					√
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						√



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

The matrix below illustrates how the graduate attributes align with the program mission:

Program Mission	An engineer capable of designing, implementing, and accommodating all architectural works, considering the social, economic, and environmental factors	Able to solve the problems facing the implementation of projects with the application of the required technical specifications	keeping pace with technical and research development, considering the ethics of the profession	contributing effectively to achieving sustainable development.
Graduate Attributes				
1) Master a wide spectrum of engineering knowledge and specialized skills and can apply acquired knowledge using theories and abstract thinking in real life situations	√			
2) Apply analytic critical and systemic thinking to identify, diagnose and solve engineering problems with a wide range of complexity and variation		√		
3) Behave professionally and adhere to engineering ethics and standards	√		√	√
4) Recognize his/her role in promoting the engineering field and contribute to the development of the profession and the community	√	√		
5) Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance		√		
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	√			

3. Competencies of Engineering Graduates: NARS 2018

According to the national academic reference standards (NARS 2018), the engineering graduate must get two types of competencies which are general and specialized competencies. Besides, the institute has added one general competency (A0).

a- General competencies (Level A):

All Engineering Graduates 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 Specializations (Level B):

In addition to the competencies for all engineering programs, the Architectural Engineering graduate 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.



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

- 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, 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 matrix below illustrates how the graduate competencies align with the program aims:

Graduate Competencies	Program Aims	1	2	3	4	5	6
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.					√		
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.			√	√		√	



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

B5) Prepare design project briefs and documents, 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.	√	√	√	
---	---	---	---	--

4. Academic Standards

4-1 NARS 2018 (National Academic Reference Standards) of Egypt.

(Adopted according to the department and institute council decision on 18/2/2020)

4-2 Comparison of provision to selected external references

		Program contact hours	EXISTING %	NARS %	Tolerance %
Institute Requirement	A- Humanities and Social Sciences	25	9.3	11	9-12
General Basic Science	B- Mathematics and Basic Sciences	49	18.1	21	20-26
Architecture Engineering	C- Basic Engineering Sciences	79	29.3	21	20-23
	D- Applied Engineering and Design	٧١	٢٦,٣	21	20-22
	E- Computer Applications and ICT	14	5.2	10	9-11
	F- Projects and Practice	٢٤	٨,٨	9	8-10
	G- Discretionary subjects	8	٣	7	6-8
Total		270	100	100	

Comparison of provision to the requirements of the reference framework of the Engineering Sector Committee (2016):

	Existing % of Five Years	Requirement of the Engineering Sector Committee %
Humanities & Social Sciences	9.3	8-12
Business Administration	2.9	2-4
Math. & Basic Sciences	18.1	18-22
Engineering Culture	5.2	4-6
Basic Engineering Sciences	29.3	25-30
Engineering Applications & Design	29.3	25-30
Projects & Field training	5.9	4-6

From the above table, it is evident that there are some gaps between the current program and NARS. It also fulfills the requirements of the reference framework of the Engineering Sector Committee except in the subject area (Computer Applications).

4-3 Courses contributed to Competencies

The detailed comparisons between Courses and Competencies are given in **Appendix (1)**.



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

5. Curriculum Structure and Contents

5-1 Program duration:

four specialized years in addition to one preparatory year. Each year consists of two terms.

5-2 Program structure:

Total No. of contact hours	Lectures (108), Exercises/ Class works/ Lab. (162), Total (270)
No. of contact hours / week	26 – 28
No. of courses	Compulsory (59), Elective (4)
No. of contact hours of university requirements' courses	15 (5.5%)
No. of contact hours of institute requirements' courses	115 (42.6%)
No. of contact hours of general specification' courses	140 (51.9%)
No. of contact hours of minor specification' courses	-- (----)
Program terms	The program consists of 5 years, 2 terms/ year = 5 x 2 = 10 terms.



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

5-3 Program Contents:

The following are the subjects taught during this program.

Prep. Year / 1st Term

Code	Course Title	Teaching Hours				Marking				
		Lecture	Exercise	Practical	Total Hours	Year works	Practical / Oral exam	Written exam	Total	Wr. Exam duration
EMP 011	Mathematics (1)	2	2	-	4	75	-	50	125	3
EMP 012	Physics (1)	2	-	2	4	45	45	60	150	3
EMP 013	Mechanics (1)	2	2	-	4	75	-	50	125	3
EMP 014	Eng. Drawing & Projection (1)	1	3	-	4	60	-	40	100	4
EMP 015	Chemistry	2	-	2	4	30	30	40	100	3
HUM 016	English Language	2	-	2	4	20	25	30	75	2
EMP 017	Introduction to Computer and programming	2	-	2	4	20	25	30	75	2
	TOTAL	13	7	8	28	325	125	300	750	

Prep. Year / 2nd Term

Code	Course Title	Teaching Hours				Marking				
		Lecture	Exercise	Practical	Total Hours	Year works	Practical / Oral exam	Written exam	Total	Wr. Exam duration
EMP 021	Mathematics (2)	2	2	-	4	75	-	50	125	3
EMP 022	Physics (2)	2	-	2	4	45	45	60	150	3
EMP 023	Mechanics (2)	2	2	-	4	75	-	50	125	3
EMP 024	Eng. Drawing & Projection (2)	2	3	-	5	75	-	50	125	4
ECL 025	Production Technology	3	-	2	5	40	35	50	125	2
HUM 026	Health and Accommodations	2	-	-	2	20	-	30	50	2
ECL 027	History of Engineering & Technology	2	-	-	2	20	-	30	50	2
	TOTAL	15	7	4	26	350	80	320	750	

TRN 028	Summer Internship (1)	0	0	0	0	15	15	20	50	
---------	-----------------------	---	---	---	---	----	----	----	----	--



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

1st Year / 1st Term

Code	Course Title	Teaching Hours				Marking				
		Lecture	Exercise	Practical	Total Hours	Year works	Practical / Oral exam	Written exam	Total	Wr. Exam duration
ARC 111	Architectural Construction (1)	2	3	-	5	90	-	60	150	5
HUM 112	The history of Arts	1	2	-	3	20	-	30	50	2
ARC 113	Principles of Architectural Design	2	3	-	5	90	-	60	150	5
ARC 114	Visual Training	1	2	-	3	60	-	40	75	4
ARC 115	History & Theory of Architecture (1)	2	2	-	4	50	-	50	75	3
ARC 116	Architecture Drawing	1	2	-	3	90	-	60	150	5
HUM 117	Humanity Factors in Architecture	2	2	-	4	20	-	30	50	2
	TOTAL	11	16		27				700	

1st Year/ 2nd Term

Code	Course Title	Teaching Hours				Marking				
		Lecture	Exercise	Practical	Total Hours	Year works	Practical / Oral exam	Written exam	Total	Wr. Exam duration
ARC 121	Architectural Construction (2)	2	3	-	5	90	-	60	150	5
ARC 122	Structural Analysis	2	2	-	4	30	-	45	75	3
ARC 123	Architectural Design (1)	1	5	-	6	90	-	60	150	6
ECL 124	Climate change and Energy conservation	2	1	-	3	50	-	50	100	3
ARC 125	Serigraphy and Perspectives	1	3	-	4	90	-	60	150	5
ARC 126	Plane Surveying	1	2	-	3	30	-	45	75	3
HUM 127	Urban Legislation and professional ethics	3	-	-	3	20	-	30	50	3
	TOTAL	12	16		28				750	



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

2nd Year / 1st Term

Code	Course Title	Teaching Hours				Marking				
		Lecture	Exercise	Practical	Total Hours	Year works	Practical / Oral exam	Written exam	Total	Wr. Exam duration
ARC 211	principles of working Drawings (1)	2	3	-	5	90	-	60	150	6
EMP 212	Basics of Building Materials	2	3	-	5	40	-	60	100	3
ARC 213	Architectural Design (2)	1	5	-	6	120	-	80	200	7
ARC 214	History & Theory of Architecture (2)	2	2	-	4	50	-	50	75	3
EMP 215	Acoustics and Artificial Lighting physics	2	2	-	4	50	-	50	75	2
HUM 216	Environmental Study	1	2	-	3	50	-	50	100	3
	TOTAL	10	17		27				750	

2nd Year / 2nd Term

Code	Course Title	Teaching Hours				Marking				
		Lecture	Exercise	Practical	Total Hours	Year works	Practical / Oral exam	Written exam	Total	Wr. Exam duration
ARC 221	principles of working Drawings (2)	2	3	-	5	90	-	60	150	6
ARC 222	Reinforced Concrete	2	1	-	3	40	-	60	100	3
ARC 223	Architectural Design (3)	1	5	-	6	120	-	80	200	7
ARC 224	History and Theories of Planning	2	1	-	3	50	-	50	100	3
ECL 225	Sustainable Architecture & Power saving	1	1	-	2	50	-	50	100	3
EMP 226	Computer Applications in Architecture (1)	1	1	2	4	10	20	20	50	2
ARC 227	Urban design and landscaping	2	2	-	4	20	-	30	50	2
	TOTAL	11	14	2	27				750	

TRN 228	Field Internship (2)*	0	0	0	0	30	0	20	50	
---------	-----------------------	---	---	---	---	----	---	----	----	--

3rd Year/ / 1st Term

Code	Course Title	Teaching Hours				Marking				
		Lecture	Exercise	Practical	Total Hours	Year works	Practical / Oral exam	Written exam	Total	Wr. Exam duration
ARC 311	Working Drawings (1)	1	5	-	6	90	-	60	150	6
ARC 312	Environmental Design	2	2	-	4	50	-	50	100	3
ARC 313	Architectural Design (4)	1	5	-	6	120	-	80	200	7
ARC 314	Technical and Sanitary Fixtures	2	1	-	3	60	-	40	75	3
ARC 315	History & Theory of Architecture (3)	2	2	-	4	50	-	50	75	3
EMP 316	Computer application in Architecture (2)	1	1	2	4	60	20	20	100	2
	TOTAL	9	16	2	27				700	

3rd Year/ / 2nd Term

Code	Course Title	Teaching Hours				Marking				
		Lecture	Exercise	Practical	Total Hours	Year works	Practical / Oral exam	Written exam	Total	Wr. Exam duration
ARC 321	Working Drawings (2)	1	5	-	6	90	-	60	150	6
ARC 322	Soil Mechanics and Foundations	1	2	-	3	40	-	60	100	3
ARC 323	Architectural Design (5)	1	5	-	6	120	-	80	200	7
ARC 324	Urban planning & Design	2	1	-	3	50	-	50	100	3
HUM 33X	Elective Courses (1)	2	2	-	4	60	-	40	100	2
ARC 33X	Elective Courses (2)	2	2	-	4	60	-	40	100	2
	TOTAL	9	17		26				750	

TRN 328	Field Internship (3)*	0	0	0	0	30	0	20	50	
---------	-----------------------	---	---	---	---	----	---	----	----	--

4th Year/ 1st Term

Code	Course Title	Teaching Hours				Marking				
		Lecture	Exercise	Practical	Total Hours	Year works	Practical / Oral exam	Written exam	Total	Wr. Exam duration
ARC 411	Working Drawings (3)	1	5	-	6	90	-	60	150	7
BUS 412	Specifications and Quantities	2	2	-	4	40	-	60	100	2
ARC 413	Architectural Design (6)	1	5	-	6	120	-	80	200	8
TRN 414	Project (1) *	2	4	-	6	100	50		150	Disc
ARC 415	The economics of Construction & Hosing	2	2	-	4	80	-	70	100	4
	TOTAL	8	18		26				700	

4th Year/ 2nd Term

Code	Course Title	Teaching Hours				Marking				
		Lecture	Exercise	Practical	Total Hours	Year works	Practical / Oral exam	Written exam	Total	Wr. Exam duration
TRN 421	Feasibility Studies and Projects Management	2	2	-	4	60	-	40	100	3
ARC 422	Housing	2	4	-	6	100	-	100	200	4
ARC 423	Project (2) *	2	8	-	10	175	75		250	Disc
ARC 43X	Elective Courses (3)	2	2	-	4	60	-	40	100	3
ARC 43X	Elective Courses (4)	2	2	-	4	60	-	40	100	3
	TOTAL	10	18		28				750	

* The students grade in the final project in the graduation certificate are the average of the total project 1 and project 2



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

5-4 Indicative curricula contents by Architectural Engineering Program:

Code	Course Title	Teaching Hours				Subject Area						
		Lecture	Exercise / Class W	Lab / Practical	TOTAL Hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Design	Comp. App. & ICT	Project & Practice	Discretionary
EMP 011	Mathematics (1)	2	2	0	4		4					
EMP 012	Physics (1)	2	0	2	4		4					
EMP 013	Mechanics (1)	2	2	0	4		4					
EMP 014	Eng. Drawing & Projection (1)	1	3	0	4			4				
EMP 015	Chemistry	2	0	2	4		4					
HUM 016	English Language	2	0	2	4	4						
EMP 017	Introduction to Computer and programming	2	0	2	4		4					
EMP 021	Mathematics (2)	2	2	0	4		4					
EMP 022	Physics (2)	2	0	2	4		4					
EMP 023	Mechanics (2)	2	2	0	4		4					
EMP 024	Eng. Drawing & Projection (2)	2	3	0	5			5				
ECL 025	Production Technology	3	0	2	5					5		
HUM 026	Health and Accommodations	2	0	0	2	2						
ECL 027	History of Engineering & Technology	2	0	0	2	2						
ARC 111	Architectural Construction (1)	2	3	-	5			5				
HUM 112	The history of Arts	1	2		3	3						
ARC 113	Principles of Architectural Design	2	3		5			5				
ARC 114	Visual Training	1	2		3			3				
ARC 115	History & Theory of Architecture (1)	2	2		4			4				
ARC	Architecture Drawing	1	2		3			3				

Code	Course Title	Teaching Hours				Subject Area						
		Lecture	Exercise / Class W	Lab / Practical	TOTAL Hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Design	Comp. App. & ICT	Project & Practice	Discretionary
116												
HUM 117	Humanity Factors in Architecture	2	٢		٤	4						
ARC 121	Architectural Construction (2)	٢	٣		5			5				
ARC 122	Structural Analysis	٢	2		٤			4				
ARC 123	Architectural Design (1)	١	٥		٦				6			
ECL 124	Climate change and Energy conservation	2	١		٣					3		
ARC 125	Serigraphy and Perspectives	1	٣		٤			4				
ARC 126	Plane Surveying	١	٢		٣			3				
HUM 127	Urban Legislation and professional ethics	3			3	3						
ARC 211	principles of working Drawings (1)	٢	٣		٥			5				
EMP 212	Basics of Building Materials	2	٣		٥		5					
ARC 213	Architectural Design (2)	١	٥		٦				6			
ARC 214	History& Theory of Architecture (2)	2	2		4			4				
EMP 215	Acoustics and Artificial Lighting physics	٢	2		4		4					
HUM 216	Environmental Study	١	٢		٣	3						
ARC 221	principles of working Drawings (2)	2	٣		٥			5				
ARC 222	Reinforced Concrete	2	١		٣			3				
ARC 223	Architectural Design (3)	١	٥		٦				6			
ARC 224	History and Theories of Planning	2	١		٣			3				
ECL 225	Sustainable Architecture & Power saving	1	١		2					2		

Code	Course Title	Teaching Hours				Subject Area						
		Lecture	Exercise / Class W	Lab / Practical	TOTAL Hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Design	Comp. App. & ICT	Project & Practice	Discretionary
EMP 226	Computer Applications in Architecture (1)	1	1	2	4		4					
ARC 227	Urban design and landscaping	2	2		4				4			
ARC 311	Working Drawings (1)	1	5		6				6			
ARC 312	Environmental Design	2	2		4				4			
ARC 313	Architectural Design (4)	1	5		6				6			
ARC 314	Technical and Sanitary Fixtures	2	1		3			3				
ARC 315	History & Theory of Architecture (3)	2	2		4			4				
EMP 316	Computer application in Architecture (2)	1	1	2	4		4					
ARC 321	Working Drawings (2)	1	5		6				6			
ARC 322	Soil Mechanics and Foundations	1	2		3			3				
ARC 323	Architectural Design (5)	1	5		6				6			
ARC 324	Urban planning & Design	2	1		3				3			
HUM 33X	Elective Courses (1)	2	2		4	4						
ARC 33X	Elective Courses (2)	2	2		4					4		
ARC 411	Working Drawings (3)	1	5		6				6			
BUS 412	Specifications and Quantities	2	2		4							4
ARC 413	Architectural Design (6)	1	5		6				6			
TRN 414	Project (1) *	2	4		6						6	
ARC 415	The economics of Construction & Hosing	2	2		4			4				
TRN	Feasibility Studies and Projects	2	2		4							4



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

Code	Course Title	Teaching Hours				Subject Area						
		Lecture	Exercise / Class W	Lab / Practical	TOTAL Hours	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Design	Comp. App. & ICT	Project & Practice	Discretionary
421	Management											
ARC 422	Housing	2	٤		٦				6			
ARC 423	Project (2) *	2	٨		١٠						10	
ARC 43X	Elective Courses (3)	٢	٢		٤				4			
ARC 43X	Elective Courses (4)	٢	٢		٤				4			
TOTAL CONTACT HOURS						٢٥	٤٩	٧٩	٧٩	١٤	١٦	٨
AVAILABLE % OF THE SUBJECT AREA						9.3%	18.1%	29.3%	29.3%	5.2%	5.9%	2.9%
NARS %						11	21	21	21	10	9	7
TOLERANCE						9-12	20-26	20-23	20-22	9-11	8-10	6-8

6. Program Admission Requirements (متطلبات الالتحاق بالبرنامج):

A General Secondary School Certificate (Scientific division) with certain grade percentage specified by the national admission office in the supreme council of universities is necessary for admission to the preparatory year.

The student is free to select the program specialization after the preparatory year without any preconditions.

7. Regulations for progression and program completion:

- a) The student gets a B.Sc. degree if he passed all courses of the 10 terms.
- b) The student is promoted to the next higher level if he fails in **not more than** (2 main courses + 2 humanities and social sciences courses) of his year or from lower years.
- c) 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,
- d) The grades of the successful student in a course and in the general grade are evaluated as follows:
 - Excellent: from 85% and upwards of the total mark.
 - 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
 - Fail: in one of the followings:
 - Weak: from 30% to less than 50% of the total mark.
 - Very weak: less than 30% of the total mark.
- e) 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 to their cumulative sum.
- f) 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 year of study other than the preparatory year. Moreover, he should have not failed in any examination in any year other than the preparatory year.

8. Student Assessment Methods:

The matrix below illustrates how the Assessment methods align with the graduate competencies:

Assessment Methods	Competencies														
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5
Written Exam	√		√	√		√					√	√	√	√	√
Mid-term Exam	√		√	√		√					√	√	√	√	√
Quiz	√		√	√		√					√	√	√	√	√
Tutorial assessment	√		√	√		√					√	√	√	√	√
Laboratory tests		√		√							√				
Oral Exam		√	√	√		√		√	√						
Discussions Assessment		√	√	√	√	√	√	√	√		√	√		√	√
Observation	√	√	√	√			√	√	√						
Report / Research assessment				√	√		√	√		√					
Presentation assessment				√	√	√	√	√		√					
Project assessment	√	√	√	√		√	√		√	√	√	√	√	√	√

9. Teaching / Learning methods and strategies

The program uses several methods and strategies of teaching and learning as follows:

1. Lecture
2. Class work (tutorial)
3. Practical and Lab. Experiment
4. Discussion
5. Brain Storming
6. Research and Report
7. Case study
8. Project
9. Site visit
10. Practical training
11. Distant learning (interactive online lectures/tutorials, recorded lectures/tutorials, and videos).

Appendix (2) contains a matrix of the contribution of teaching / learning methods and strategies to the courses.



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

The matrix below illustrates how the teaching/learning methods align with the graduate competencies:

Teaching/Learning Methods	Competencies														
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5
Lecture	√	√	√	√							√	√	√	√	√
Class work (tutorial)	√	√	√	√							√	√	√	√	√
Practical and Lab. Experiment		√		√							√				
Discussion		√	√	√				√			√	√	√	√	√
Brain Storming									√		√	√	√	√	√
Research and Report				√	√		√	√		√					
Case study	√		√	√							√	√			
Project	√	√	√	√		√	√		√	√	√	√	√	√	√
Site visit					√						√		√	√	
Practical training				√	√	√			√		√		√	√	√
Distant learning	√		√	√						√					

10. Course contents

Preparatory Year - First Term

EMP 011 Mathematics (1)

Introduction to functions – inverse function – elementary functions – trigonometric and inverse trigonometric functions – exponential function – logarithmic functions – hyperbolic and inverse hyperbolic functions – limits – continuity – derivative – applications on derivative – curve sketching – convexity and concavity – extreme of functions – indefinite integrals – methods of integration – definite integrals. the fundamental theorem of calculus – l' Ho pital rule – applications on integration – areas – volumes of solids of revolution

EMP 012 Physics (1)

Properties of matter, physical quantities, units, properties of mech. and electric materials – gravitational field and it's applications – fluid statics – fluid dynamics – viscosity – elasticity – sound waves – waves in elastic media – heat and heat dynamics – heat transfer – molecular motion of gasses – first law of heat dynamics – second law of heat dynamics – applications.

EMP 013 Mechanics (1)

Vectors Algebra and Applications - Resultant and Moments of a Force System – Equivalent Force Systems – Equilibrium of Particles and bodies – Friction – Hinges and Pulleys – Center of Gravity – Moment of inertia – Product of inertia Moment – Inertia Moment Transfer Theories – Mohr's Cricle.

EMP 014 Engineering Drawing & Projection (1)

Projection theory – Orthogonal projection – Projection of a Point, line, plane simple bodies – Assistant Projections. Intersection of planes, surfaces and bodies – Unfolding body surfaces – Drawing technology and skills – Geometrical Constructions – Writing dimensions – Perspective.

EMP 015 Chemistry

States of matter – Solutions – Phase rule – Chemical Equilibrium – corrosions – Electrochemistry – Water treatment – Building materials – Pollution – Other chemical industries – Mineral fertilizers. Dyes, colour and Chemical Constitution – Polymers – Sugar and Starch Industries – Petro Chemicals – Semiconductors – Oils, fats, soaps and detergents.

HUM 016 English Language

Introduction – characteristics of technical English language – revision of English Grammer – some styles of writing – characteristics of effective sentences – common faults in writing of sentences in English language – construction of paragraphs: main idea – methods of presentation of main idea – types of paragraphs – analysis of some technical writings in different engineering specializations – translation.

EMP 017 Introduction to Computer and Programming

Computer system – brief history - computer devices and element – input and output devices – central processor unit - additional units – software programs – operation system programs – programming language application – programs flowcharts – problem solving and programs – software algorithms – Boolean Algebra – principles of spreadsheet and database – application program development.

Preparatory Year - Second Term

EMP 021 Mathematics (2)

Theory of equations – matrices – matrices and linear system – determinants and linear systems – eigenvalues and eigenvectors – applications on matrices and determinants – sequences and series – vectors – polar, cylindrical and spherical coordinates – equations of the second degree – parabola – ellipse – hyperbole – translation and rotation of axes – equations of pairs of strict lines.

EMP 022 Physics (2)

Electricity and magnetism - charge, matter and electric field – Gauss law - elec. Potential – capacitors and insulating materials – current, resistance, and elec. Field – magnetic field – Amper law – Savart and Biot laws – Faraday's law coefficient – magnetic properties of materials – integral form – heat effect of current – optics – properties of optics – electromagnetic waves – optical phenomena deviation of optics – mirrors – lenses – optical fibers.

EMP 023 Mechanics (2)

Kinematics of particles – coordinate systems – linear and curvilinear motions – relative motion – kinetics of particles – Newton's laws of motion – constant and variable Acceleration - applications – work and energy of particles – work and kinetic energy – different types of energies – power.

EMP 024 Engineering Drawing & Projection (2)

Obtaining missing views – principles of sectioning – applications on machines parts drawing – steel connections – structural steel.

EMP 025 Production Technology

Introduction to engineering material (ferrous & non-ferrous) – polymers – ceramic – composite materials – forming processes – casting – forging – rolling – drawing – joining operations – riveting – welding – adhesive bonding – hand operations – machining operations – turning – shaping – drilling – milling – grinding – measurement tools – vernier caliper – micrometer.

HUM 026 Health and Accommodations

Definition of demography – demographic properties – demographic data sources – population growth and environmental impact – concept of community health and psychological health – factors affecting health – environmental problems.

ECL 027 History of Engineering and Technology

Engineering concepts and definitions (Engineering - Engineer – Technology) , Requirements of technological advancement, Types of technology (Capital saving technology - Labor saving technology - Neutral technology), Successful Engineer, Pioneers in Engineering Science and Technology, Early engineering work, Major sections of Engineering (Aerospace Engineering - Chemical Engineering - Civil Engineering, Communication and Electronics Engineering - Mechanical Engineering - Architecture), New Fields (Computer Engineering - Software Engineering - Micro Engineering - Molecular Engineering - Mechatronics - Medical Engineering -), Engineering from a social perspective, relations with different sciences (engineering and science - engineering and literature), areas of work in different engineering disciplines



MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

TRN 028 Summer Internship (1)

Summer training (1) shall be held after the completion of the second semester of the preparatory year and shall be directed to the specialized departments for two weeks as a condition for entering the departments. The training deals with the student's knowledge about the scientific department, the study plan, the academic guidance, the laboratory capabilities and the meeting with the faculty members to talk about the sub-disciplines of the scientific department.

Architecture Engineering Department - First Year - First Term

ARC 111 Architectural Construction 1

This course aims to introduce students both theoretically and practically to the fundamentals of architecture constructions and introduces different building materials and their uses. It also introduces the fundamentals and principles of architecture construction. Students will also learn the terms and symbols of different construction materials and their basics (stone, bricks, walls, roofs, deep foundations, supporting walls, frames, domes, and wooden floors). They will also learn the different styles of building construction (modern - classical).

HUM 112 The history of Arts

Students will be introduced to the arts and how art is different than crafts. They will understand the relationship between arts and culture and different human settlements. Student will learn different methods of artistic expression. They will compare between traditional meaning of art and modern ones. Students will be introduced to the different modern schools of art and how they are related to thinking techniques and timely applications there.

ARC 113 Principles of Architectural Design

This course aims at introducing students to the principles, elements and characteristics of the design process. It also enables students to learn about the implementation of the design process, with its different dimensions. Students will also be taught to deal correctly with main spaces and their relation to each other and will be enabled to relate these spaces to the movement's elements. They will study qualitatively and quantitatively spaces and their properties with regard to different activities. They will also study different openings and outlooks of each space; in this they will relate between the human, climate and utility elements of the design. They will also be introduced to simple constructions of small buildings and to problem solving techniques with regards to the design process.

ARC 114 Visual Training

Defining the different basics technologies in drawing: techniques of using the pencil – ratios – isometric and hatching – Values and degrees and measurement of degrees – Front planes – middle and posterior planes – Outlining buildings and their details – Study of nature and outlining trees – Studying the factors that lead to the technical success of rough sketches – Pencil and ink drawing of the different visual – audio and architectural elements both in drawing rooms and in the open field – studying the different architectural models.

ARC 115 History Theory of Architecture (1)

The course aims to explain the relationship between architectural thought and the philosophy of design in every era and the different effects. It also looks at the effect of these on architectural elements in ancient civilization, (Ancient Egyptian, West Asian, Babylonian, Assyrian, Persian) & Classic civilizations (Greek & Roman) The course also aims to introduce design fundamentals flanging from identifying architectural spaces and the utilities of designing architectural units that offer comfort living rooms and bedrooms, public use spaces and considers the needs of users and beneficiaries.



MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

ARC 116 Architecture Drawing

This course aims to improve the student's ability to imagine. The student will be able to use drawing tools professionally and efficiently to draw architectural plans, sections and facades for buildings and different objects. This course will enable them to use the architectural language to express the graphic clearly.

HUM 117 Humanity Factors in Architecture

Students will learn to define architecture as a framework for social studies. Students will understand that personal considerations are a starting point for designing buildings based on behavioral and social needs. They will obtain a historical overview of the linking point between both studies and they will understand the basis of the different theoretical standpoints. They will understand how societies are formed and the relationship between humans and their environment. They will learn the importance of awareness, behavior and culture in architecture and the two-way relationship between behavior and the surrounding environment. They will understand more about human personal needs and how they are related to social concepts, they will also learn about social standards in the modern building. Students will learn the scientific method of choosing the samples and collecting the data and the different methods of data analysis. Students will be taught how to carry out a practical applied research project.

Architecture Engineering Department - First Year – Second Term

ARC 121 Architectural Construction 2

This course aims at teaching the student theoretically and practically the basics of architecture construction through an introduction to building materials and their different uses. Students learn the basic material requirements of building works (wall bearing – skeletal buildings - steel) and the different types and stages of building finishing (floors – painting – wall plasters – wooden work) – stairs – insulation methods

(sound – heat - water).

ARC 122 Structural Analysis

Reactions – Normal forces – Shearing force and bending moment diagrams for statically determinate structures – Deformation of statically determinate system architectural studies.

ARC 123 Architectural Design (1)

The course involves the study of the factors and issues that underlie the understanding of reconciling human needs and wants with architectural forms and designs. The course presents architectural design as a synthesis of environmental concerns, behavioral responses, functional requirements and technical systems. The course focuses on the architectural design process and its different stages. The course emphasizes on problem in the design of buildings. It teaches students how to study buildings (analysis), how they are approached and carried through (process) and how they are conceptualized and developed (synthesis). Issues of form and space, circulation patterns, geometry, space requirements, and structure systems, are explored through studio design exercises, projects and discussions.

ECL 124 Climate Change and Energy Conservation

Students will learn about climate change and how it affects the natural and artificial environment and human life. They will also learn the role of humans in protecting the environment through researching about different natural and renewable energy sources.



MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

ARC 125 Serigraphy and Perspectives

This course attempts to develop the students' imaginative and spatial capabilities, by teaching the student how to recognize and image three dimensional objects. The students will also learn basic hatching and shadowing principles and techniques, of points, planes and bulk objects. Students will learn the main rules of drawing perspectives (the angle of view, the viewing cone, the optical angles, the vanishing points and the inverted isometric). Specifically, the student will be trained to draw shadows of different surfaces: windows, stairs ...etc. By the end of the course the student will learn to draw from a three-Dimensional perspective and finally draw the shadows on its isometrics.

ARC 126 Plane Surveying

Introduction – Scales – Verniers – Linear measurements – Simple instruments for angles measurement – Chain surveying – Leveling – Theodolite surveying – Map construction – Principles of photogrammetry – photogrammetric applications in architecture.

HUM 127 Urban Legislation and professional ethics

Covers several issues: the urban planning legislation as well as building and housing legislation – General and detailed planning of cities and villages – Vacant land subdivision, industrial areas and city center instructions – Counties renovation and environmental upgrading criteria for internal and external courts – Stair and projection regulations – Architectural applications covering urban control legislation in Egypt.

Architecture Engineering Department - Second Year - First Term

ARC 211 Principles of working Drawings 1

Students are introduced to the anatomy of different architectural and constructional methods. They are taught about loadings and loadings transfer, traditional construction methods, and connections between different architectural and structural elements. They are also taught about different complementary terms like (false ceilings, curtain walls, light weight partitions). They are also taught drawing techniques and they apply all this knowledge by creating a small or medium scale building plan. (a commercial villa for example).

EMP 212 Basics of Building Materials

Engineering materials – Standardization – Standard specification codes – Technical inspection – Building materials technology – Modern developments and innovative applications of building materials – Concrete technology – Reinforced concrete materials (aggregates – cement – mixing water – reinforcing steel) – Concrete production – Quality control of concrete works – Building units and portions – Gypsum – Lime – Timber – Stones – Adverse effect of water on building materials : Efflorescence – Chemical attack – Abrasion freeze – Flow attack – Mechanical of Engineering materials : Testing machines and strain meters – Mechanical properties – Strength and behavior of materials subjected to static tension, compression , bending and shear.

ARC 213 Architectural Design (2)

The course aims to develop and orient the student capabilities to treat architectural design as a creation process and to solve spatial problems on different levels of design (from the context and general layout to masses and spaces). The course emphasizes the importance of construction in the formulation of inner spaces, and the architectural shape as a framework for functional, social and culture needs. Throughout the course students will learn about different architectural projects that cover different programs and concepts and architectural programs. Students will understand different architectural forms within the different concepts of spaces. They will understand the dynamics of inner and outer spaces and different



MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

architectural characters (with urban, environmental, structural and symbolic references). Students will be expected to deal with structure as a constraint for the inner space and architectural form. Students will be expected to present a final project, using their own skills and not a computer.

ARC 214 History & theory of Architecture (2)

Understanding the link between architectural thinking of every era, human characteristics and place on architectural properties. This is done through comparative, analytical studies that compare the development of architectural and arts in western Europe including down of Christianity architecture, Byzantine architecture, Romantic architecture, gothic architecture & Renaissance architecture and their relationship to the Coptic church. The course also aims to study the philosophy and design limits of public buildings. The course introduces the foundations of design in service buildings (Educational, cultural, libraries, museums, Theatres, health, recreational, social areas, shopping areas and tourism offices & buildings).

EMP 215 Acoustics and Artificial Lighting Physics

This course introduces students to basic elements in studying acoustics. They will learn different behaviors of sound in both closed and open places. They will understand the different ranges of sound, vibration times of echoes and methods of control (sound absorption materials – and different treatments of sound absorption). They will also learn about sound magnification and the fundamentals of acoustics design in different spaces (auditoriums, theatres, music rooms, etc.) They will learn about lighting in both indoor and outdoor settings and the effect of lighting on what spaces look like. They will also learn the different applications of artificial Lighting.

HUM 216 Environmental Study

Building as a mediator between man and the surrounding environment and through the study of the thermal environment: components of climate, parameters that affect the site climate, climatic data and representations – thermal comfort chart – solar radiation – sun path charts – shading devices and its design – Heat transfer between building and the environment – ventilation and air movement – openings and orientation – design goals of environmental control – design methods and architectural treatments of thermal environment.

Architecture Engineering Department - Second Year - Second Term

ARC 221 Principles of working Drawings 2

Students are introduced to the anatomy of different architectural and constructional methods. They are taught about buildings with wide spans, and taught how to use concrete, wood or steel – modern implementation methods. They are taught the different implementation techniques of these methods to different buildings.

ARC 222 Reinforced Concrete

Principles of design of reinforced concrete structures – Analysis and design of sections – Loads' distribution – Details of beam reinforcement – Solid slabs – Stairs – Statically determinate frames – Hollow block slabs – Beams net – Flat slabs – Connections of precast structural units.

ARC 223 Architectural Design (3)

Students will learn about the architectural design of complex, large buildings. They will learn different data collection and analysis methods. They will design projects with multiple buildings emphasizing the internal and external spatial relationships between different buildings and their surroundings. Students will learn different issues of natural illumination and ventilation.



MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



**GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY**

They will also learn to apply artificial lighting and ventilation techniques to relevant buildings. Students will create models using acquired laser and computer skills and techniques.

ARC 224 History and Theories of Planning

This course aims at introducing students to the history and reality of human settlements – Old civilizations of Egypt – like that of the Euphrates and Tiger. They will become familiar with different influences on the settlement process. They will become able to differentiate between the Greek and Roman civilizations with respect to their different characteristics, practices, and their unique urban centers. They will learn about civilization and urban characteristics of both the European and the Islamic Middle Ages. They will study the industrial revolution and its theories of societal development and modernization. Students will be introduced to urban planning, and its goals and different dimensions and levels. They will apply their acquired knowledge to contemporary problems plaguing Egyptian cities. They will also acquire relevant research training and skills.

ECL 225 Sustainable Architecture & Power Saving

The introduction of unsustainable energy use in contemporary architecture the efficiency of using sustainable energy in traditional architecture in different climate zones Sustainable methods implemented in solar energy applications.

The terms relevant to energy & power saving and sustainability. The contemporary architectural schools of thought & the viability of using energy in the midst of sustainability and calls for decreased consumption.

EMP 226 Computer Applications in Architecture (1)

This course introduces students to the capabilities and uses of computers in the fields of architecture and urban development. Students are introduced to the tools, techniques and applications that can be used in different procedures and stages of design. These tools include design representation and evaluation. Students are also taught how to prepare 2d and 3d architectural drawings. Students are also introduced to different problems and needs that a designer might have or face and how to tackle them. Towards the end of the course, students will be able to use computers in architectural design.

BUS 227 Urban design and landscaping

This course aims at explaining the different methods of project management used for solving problems of both design and implementation under the given constraints of time and costs. Introduction to project management : aims and importance, distribution of work tasks on individuals logic activities, follow-up network, critical path networks, linear tables, general basis for managing construction projects, implementation programs (labor, materials, equipment), financing and the required cash flow for the projects – Methods and stages of decision making : steps of taking decision, measures, evaluation methods of stating the relative importance of these measures, using network evaluation, field applications.

TRN 228 Field Internship (2)

Field Internship is considered one of the most important methods of practical application at the undergraduate level. It also aims to market the outputs of the departments as it may have the opportunity to get a promise of employment by the training body

Summer Internship is an essential part of the graduation requirements that the student must successfully pass, and a two-week period performed by the student in one of the outstanding companies or institutions in the field of specialization to allow the student to develop knowledge and applied skills, and the link between theoretical study and practical reality, which helps the student to accept the nature of work and adapt to it, and develop communication skills with others. At the end of the Internship, the student shall submit a separate report on the training. The evaluation shall be done through a committee formed by the department council. One of its members shall be the supervisor of the training from the training



MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

department and the training supervisor from the scientific department in addition to a third member nominated by the department head.

Architecture Engineering Department - Third Year - First Term

ARC 311 Working Drawings (1)

Students are taught how to develop an initial project plan into a complete and detailed working project. They study, in-depth various methods and materials used to cover large span buildings and their impact on the architectural designs. Students are taught about cladding of skeleton buildings. Students also learn about different types of steel sections and their uses in openings and partitions design. They also learn different stair types, designs and materials. Students will apply all this to architectural working drawings and detailing of suitable different projects.

ARC 312 Environmental Design

The inefficient use of energy in contemporary architecture – the efficiency of energy use in traditional architecture of different climatic regions – Utilization of passive solar energy applications – Energy conservation concepts and recycling – Modern architectural trends and the efficient use of energy in the light of energy consumption rationalization concerns.

ARC 313 Architectural Design (4)

The course aims to give detailed in-depth training to students to broaden and deepen their architectural knowledge through conducting a series of field design projects that cover all the branches and options of projects both residential and industrial to create an urban and architectural building mass using the most suitable and appropriate options, while keeping in mind different spaces and visual issues and internal and external techniques. Through this student will need to apply the existing building laws and regulations. Students will link projects to their construction sites. They will learn different methods of editing and finalizing architectural drawings and they will create three-dimensional models. Students will be allowed to use laser and computer technologies in assembling their projects.

ARC 314 Technical and Sanitary Fixtures

This course introduces the fundamentals of assembling and preparing elevators and their architectural prerequisites and requirements. Students are also introduced to hydraulic services, water sanitation and sewage and draining systems, liquid waste, solid waste, rain water and how to prepare buildings for sewage and drainage systems. This is all done with a problem-solving approach. Students are also introduced to fire fighting precautions and their application with regards to design and construction process.

ARC 315 History & theory of Architecture (3)

Study & understanding the philosophical elements of Islamic architecture. The course includes the following eras. Islamic eras (Umayyad & Abassid, Tulunid, Fattamid, Ayoubi, Mamlouks, Ottoman) with a study of different examples relevant to the period (mosques, houses, markets, schools, bathroom) The course also aims to introduce architectural schools in the 19th century as an introduction to contemporary architecture (Romantic), the gap between structural architecture & developments towards clinical practice. The crossing of the gaps in Europe & America. The course also introduces the steps in which architectural philosophies and schools of thoughts transformed during the 20th century the pre-state stage. The new trends of art & organic architecture. International architecture in Germany, France & Holland. The period between wars. The industrial era & the technological boom after world war2, the humanitarian stage.



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

EMP 316 Computer application in Architecture (2)

In this course students will be introduced to applications that help in the processes of design and decision-making, and which applications are used at each stage of the design process. They will also be introduced to applications and programs in different areas related to architecture (including colour procession and drawing perspectives) This will all be within a framework of theoretical and empirical application of various programs but without concentrating on specific applied program.

Architecture Engineering Department - Third Year - Second Term

ARC 321 Working Drawings (2)

This course aims at training the student how to prepare complete tender documents for different types of projects while applying the relevant applicable rules. This will be through the preparation of a complete set of designs that can be directly implemented. This project should include all applicable drainage, water supply and electricity installations. The project should also include any specifications (like false ceilings, floor design, fire systems, air conditioning and ventilation).

ARC 322 Soil Mechanics and Foundations

Soil properties – Soil classification – Stress transfer through soils – Soil consolidation – Earth pressure – Design of shallow foundations – Pile foundations – Bearing walls – In-site soil investigations and selection of adequate foundation type.

ARC 323 Architectural Design (5)

This course teaches students to assemble architectural designs with multiple entrances and different movement dynamics and elements. Students will study programs with all their aspects and perform analytical tests. They will create architectural designs of buildings while emphasizing and modeling the study of both interior and exterior spaces and visual relationships between the building and its surroundings. The course places emphasis on creating 3d models of architectural projects and studying different architectural sites.

ARC 324 Urban planning & design

The stud of the development & planning of settlers. The introduction to the levels of urban planning and its role & the integration of them. The steps and levels of preparing a general, detailed strategic plan. The introduction of the fund amentias& properties of urban design. Creativity in the design process. Visual awareness. Visual solution in the creation of urban spaces. Creating a general strategic plan or layout for a city or town, and creating a plan or layout for a detailed area in accordance to general plan.

TRN 328 Field Internship (3)

Field Internship is considered one of the most important methods of practical application at the undergraduate level. It also aims to market the outputs of the departments as it may have the opportunity to get a promise of employment by the training body

Summer Internship is an essential part of the graduation requirements that the student must successfully pass, and a two-week period performed by the student in one of the outstanding companies or institutions in the field of specialization to allow the student to develop knowledge and applied skills, and the link between theoretical study and practical reality, which helps the student to accept the nature of work and adapt to it, and develop communication skills with others. At the end of the Internship, the student shall submit a separate report on the training. The evaluation shall be done through a committee formed by the department council. One of its members shall be the supervisor of the training from the training department and the training supervisor from the scientific department in addition to a third member nominated by the department head.

Architecture Engineering Department - Fourth Year - First Term

ARC 411 Working Drawings (3)

This course aims at training the student to prepare complete tender documents for different types of projects while applying the relevant applicable laws. This will be through the preparation of a complete set of designs for a project that can be directly implemented in nature. The chosen project should be applicable to a large span area and have a complicated plan. Students should know the general guidelines and conditions for building and acknowledge different contracting procedures and documents necessary to implement such a project.

BUS 412 Specifications and Quantities

This course aims to introduce students to different types, definitions and formats of contracts. Students will learn the different components and main points of contracts and the tendering procedures. They will understand the relationship between parties to the contract in construction projects. Students will learn the different stages of project preparation. They will learn how to calculate quantities. They will understand different excavation and filling quantities. They calculate quantities of plain and reinforced concrete and steel, brick walls and isolation. They learn how to estimate costs and create a final invoice. They will learn different types, items and uses of specifications. They will also learn different methods of formatting the specifications for different Works (brickwork, concrete, isolation, etc.).

ARC 413 Architectural Design (6)

Students will deepen their architectural thinking through learning and practicing how to apply different architectural and designing frameworks; they will study analytical models for alternate designs of public and private buildings to eventually create urban and architectural models for groups of buildings. This will enable students to recognize the most viable methods and alternatives that will achieve design, construction, environmental, visual and utility requirements. Through all these students will need to work within the constraints of the relevant legal requirements. Students will work on projects with composite solutions and architectural depth and related to the natural surroundings and environment. Students will also learn the different techniques of creating 3 dimensional designs in architecture.

TRN 414 Project (1)

The student will undertake initial research for the preparation of the final project, in group work. Students will concentrate on preparing a layout that combines all group's projects in an inclusive manner. This should all be done while considering the fact that project should be chosen with respect to the nature of the site & the rest of the group's project. This is all to be done through research and relevant data collection, The student should prepare his/her project program by the end of the term.

ARC 415 The Economics of construction & Hosing

The course introduced the economic side of areas and buildings. It introduces the features of costs in the design & implementation process. It introduces necessary skills needed to control the costs of building. It also teaches how to create feasibility studies for projects.

Architecture Engineering Department - Fourth Year - Second Term

BUS 421 Feasibility Studies and Projects Management

This course aims at explaining the different methods of project management used for solving problems of both design and implementation under the given constraints of time and costs. Introduction to project management : aims and importance, distribution of work tasks on individuals logic activities, follow-up network, critical path networks, linear tables, general basis for managing construction projects, implementation programs (labor, materials, equipment), financing and the required cash flow for the projects – Methods and stages of decision making : steps of taking decision, measures, evaluation methods of stating the relative importance of these measures, using network evaluation, field applications.

ARC 422 Housing

This course aims at teaching the student the skills of understanding the issues and problems of urban housing and planning in Egypt; this is in reference to global standards and realities in an attempt to compare and find solutions to these issues and problems. **Basic Studies:** Problems of city planning and housing in Egypt in comparison to developed and non-developed countries with regards to their economic, social and urban realities and how these realities affect their planning methods.

Planning studies: Students will study cities and suburbs as basic planning units. They will be introduced to integrated theories of planning and their applications to existing and new cities. They will also be introduced to the basics and theories of land use. They will learn all about residential areas and communities, open work areas, work centers, service centers, industrial zones and roads networks.

ARC 423 Project (2)

Students will create architectural designs for their graduation project, these projects should already have a plan and site specified in the first term. The project should be all encompassing, comprehensive and complex as to display the students' capabilities in dealing with different back grounds & frame work acquired throughout his years in the major. The project should fill design requirements architecturally and with regards to construction.

Tables of Elective Courses

The Course	Code Symbol	Title and Code symbol of Elective Course	
Elective Course (1)	HUM 33X	HUM 331	Photography
		HUM 332	Architecture Criticism and Project Evaluation
		HUM 333	Artistic Taste
Elective Course (2)	ARC 33X	ARC 334	Technical Report Writing
		ARC 335	Restoration and Sustainable Conservation Systems
		ARC 336	Building Technology and Advanced Construction Systems
Elective Course (3)	ARC 43X	ARC 431	3D Model Design Lab
		ARC 432	Building Information Systems
		ARC 433	Geographic Information Systems
Elective Course (4)	ARC 43X	ARC 434	Advanced Programing System in Architecture
		ARC 435	The development of Urban Communities
		ARC 436	Renovation and Urban Upgrading

Elective Courses Description

HUM 331 Photography

Students will study colours, lighting and viewing angles. They will study different types of cameras and their accuracy and how to use them. Students will also be trained to take pictures both in the morning and at night.

HUM 332 Architecture Criticism and Project Evaluation

This course aims to prepare students to be able to critically evaluate architecture. They are taught different concepts and definitions and they are introduced to the different approaches and schools of architectural criticism. They are introduced to the nature and importance of criticism and evaluation in the design process and its outcomes. They are introduced to the techniques and methods of constructive criticism and taught the standards of social and personal evaluation. This is done through empirically evaluating contemporary case studies.

HUM 333 Artistic Taste

Students will be introduced to the meaning of taste and general taste - beauty and ugliness - the elements of the process of artistic taste. The steps of artistic taste, the methods and techniques of the evolution and development of artistic taste. The communications revolution and general taste - critique of artistic taste - the awareness of a recipient towards artistic pieces and tastes and the influences on the evolution of taste within the recipient.

HUM 334 Technical Report Writing

Introduction – Writing of numbers – Symbols – Abbreviations and equations – Rules of statement writing, language, structure, accuracy, consolidation, variety, confirmation – Variation of sentences – Easiness to read – Basic writing of active paragraph – How to start writing – Summary and conclusion – Writing and organizing the subject – Review and editing – Different forms of writing : letters, notes, proposals, reports, examples, reference, tables and tables – Final edition of technical writing – Contacts writing.

HUM 335 Restoration and Sustainable Conservation Systems

Study of heritage and historical buildings. Restoration and sustainable conservation methods. Study the implementation and necessary preservations in this field. The student makes a study project in this area including all necessary studies.

ARC 336 Building Technology and Advanced Construction Systems

This course aims to introduce students to advanced construction methods and their applications and the study of techniques and methods of manufacturing in sites and in factories. Students will also learn the economics of application and the execution of traditional and advanced and mechanized building methods and their previous techniques. Students will learn how to choose the building method, the overlaps between methods, design, execution, economics of designing and preparing documents, flexibility of design, finishing and the technical of contracts.

ARC 431 3D Model Design Lab

Introduction to different materials & their different uses in the model's lab. Introduction to fundamentals of projects, interfaces and landscape plans. Skills of assembling different elements and ways to show final 3d model of whole, details, spaces of general area. Student will also coordinate model with nature and manufactured elements.



MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

ARC 432 Building Information Systems

Understand the basics of information systems of buildings. Explaining the techniques and tools that allow application. Students learn to different use the Projects. How to set up 2d & 3d graphics. Extracting quantity calculations and the relevant specifications and creating applications while using the program for a number of projects.

ARC 433 Geographic Information Systems

Understanding geographic information systems and its application in the fields of urban planning and design. Getting to know the techniques and tools of Gils. Training & practicing using the tools of different programs & their applicability in developing the databases and the analysis and extracting the evidence for chart areas and urban design of cities and villages. Applying all this to a draft strategic plan for a small city or village.

ARC 434 Advanced Programing System in Architecture

Introduction to programing lang, Auto-Lisp Lang, introduction to c#.net lang, using c#.net to prepare API plug-in, XML File controlling cad commands using Plug-in programs, project .

ARC 435 The development of Urban Communities

This course aims to introduce students to the main elements of design and development of urban communities and their relationship to social and economic aspects. Students will understand the evolution of rural towns and Egyptian cities with regards to economic, social and urban aspects of this evolution. They will study current conditions and realities, the characteristics and changes and the development agenda in guiding the urban economic realities. Students will also study development processes like the main and official floors and their balance. They will also learn about the process of designing and developing an urban community and its components. Students will learn about the relevant official and social procedures, the administrative and executive operations, they will study different historical and local examples, they will learn about following up and analyzing experiments. This will all enable students to learn all that is needed about executive, detailed planning and designing urban communities and applying teachings.

ARC 436 Renovation and Urban Upgrading

This course highlights the basic concepts of renovation and urban development by emphasizing and utilizing all available and surrounding environmental constraints, and making the best use of human and urban resources. Students will understand and study examples of development and renovation by examining and evaluating local and international empirical examples. Students will learn to analyze urbanization and its problems in existing cities, this analysis will make them understand the different reasons behind urban deterioration and the impacts of economic and societal issues on this deterioration. Students should be able to develop methods of solution, and acquire the know how necessary for modification and development and maintenance, through analyzing case studies.

11. Evaluation of program learning outcomes

Evaluator	Tool	Sample
1- Senior students	Questionnaire	استبيانات لأراء الطلاب في المقررات والمحاضرين والهيئة المعاونة بإجمالي حجم عينة ----- استبيان.
2- Alumni	Questionnaire	تم عمل استبيانات لأراء الخريجين في البرنامج بإجمالي حجم عينة ----- استبيان.
3- Stakeholders (Employers)	Questionnaire	تم عمل استبيانات ولقاءات مع مجموعة من رجال الاعمال في المجال الهندسي.
4-External Evaluator(s) (External Examiner(s))	Report	- Report of external evaluator -----
5- Other societal parties	Questionnaire	N.A.

We certify that all of the information required to deliver this program is contained in the above specification and will be implemented. All course specification for this program is in place.

Program coordinator:

Name: Assoc. Prof. Dr. Rofaida El-Attar Signature: Date: 3/٧/202٣

Dean:

Name: Prof. Dr. Ahmed Abd-Allah Signature: Date: 3/٧/202٣

Head of Quality Assurance Unit:

Name: Dr. Mohamed Sadek Signature: Date: 3/٧/202٣

Appendix (1)

Contribution of Courses to Program Competencies



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

Course		COMPETENCIES: NARS 2018														
		A. General Engineering Graduate Competencies										B. Architectural Eng. Graduate Competencies				
Code	Title	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5
EMP 011	Mathematics (1)	x														
EMP 012	Physics (1)	x	x			x										
EMP 013	Mechanics (1)	x			x	x										
EMP 014	Eng. Drawing & Projection (1)								x							
EMP 015	Chemistry	x	x		x											
HUM 016	English Language								x		x					
EMP 017	Introduction to Computer and programming		x		x					x						
EMP 021	Mathematics (2)	x														
EMP 022	Physics (2)	x	x			x										
EMP 023	Mechanics (2)	x				x										
EMP 024	Eng. Drawing & Projection (2)								x							
ECL 025	Production Technology		x					x								
HUM 026	Health and Accommodations					x					x					
ECL 027	History of Engineering & Technology					x					x					
ARC 111	Architectural Construction (1)						x									x
HUM 112	The history of Arts										x	x	x			
ARC 113	Principles of Architectural Design	x							x			x				
ARC 114	Visual Training	x							x			x				
ARC 115	History & Theory of Architecture (1)					x					x	x	x			
ARC 116	Architecture Drawing								x							



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

Course		COMPETENCIES: NARS 2018														
		A. General Engineering Graduate Competencies										B. Architectural Eng. Graduate Competencies				
Code	Title	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5
HUM 117	Humanity Factors in Architecture		x			x		x					x			
ARC 121	Architectural Construction (2)						x									x
ARC 122	Structural Analysis	x	x									x				
ARC 123	Architectural Design (1)								x			x				
ECL 124	Climate change and Energy conservation			x										x		
ARC 125	Serigraphy and Perspectives								x				x			
ARC 126	Plane Surveying	x	x		x			x								
HUM 127	Urban Legislation and professional ethics				x										x	x
ARC 211	principles of working Drawings (1)					x	x	x	x		x	x			x	
EMP 212	Basics of Building Materials		x	x	x							x				
ARC 213	Architectural Design (2)											x	x			
ARC 214	History & Theory of Architecture (2)			x		x						x	x			
EMP 215	Acoustics and Artificial Lighting physics				x								x			
HUM 216	Environmental Study			x	x									x		
ARC 221	principles of working Drawings (2)					x	x	x	x		x	x			x	
ARC 222	Reinforced Concrete			x	x									x		
ARC 223	Architectural Design (3)											x	x			
ARC 224	History and Theories of Planning							x			x	x				
ECL 225	Sustainable Architecture & Power saving			x	x									x		
EMP 226	Computer Applications in Architecture (1)				x				x							



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

Course		COMPETENCIES: NARS 2018														
		A. General Engineering Graduate Competencies										B. Architectural Eng. Graduate Competencies				
Code	Title	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5
ARC 227	Urban design and landscaping			x						x		x				
ARC 311	Working Drawings (1)						x								x	x
ARC 312	Environmental Design			x	x									x		
ARC 313	Architectural Design (4)			x								x	x			
ARC 314	Technical and Sanitary Fixtures				x		x									x
ARC 315	History & Theory of Architecture (3)			x		x					x	x	x		x	
EMP 316	Computer application in Architecture (2)				x				x							
ARC 321	Working Drawings (2)						x								x	x
ARC 322	Soil Mechanics and Foundations		x	x										x		
ARC 323	Architectural Design (5)			x								x	x			
ARC 324	Urban planning & Design		x										x		x	
ARC 411	Working Drawings (3)									x	x	x			x	
BUS 412	Specifications and Quantities						x		x	x					x	x
ARC 413	Architectural Design (6)			x					x			x	x	x		
TRN 414	Project (1) *		x					x	x				x			
ARC 415	The Economics of Construction & Hosing		x			x		x					x			
TRN 421	Feasibility Studies and Projects Management	x			x		x		x	x				x	x	
ARC 422	Housing			x						x		x				
ARC 423	Project (2) *		x	x				x	x			x	x	x		
TRN 028	Summer Internship (1)							x	x	x						



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

Course		COMPETENCIES: NARS 2018														
		A. General Engineering Graduate Competencies										B. Architectural Eng. Graduate Competencies				
Code	Title	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	B5
TRN 228	Field Internship (2)							x	x	x				x	x	
TRN 328	Field Internship (3)							x	x	x				x	x	
NO. OF COURSES SERVING THE COMPETENCY		12	14	15	15	13	9	12	20	9	9	21	16	11	12	7

HUM 33X	Elective Courses (1)															
ARC 33X	Elective Courses (2)															
ARC 43X	Elective Courses (3)															
ARC 43X	Elective Courses (4)															



Appendix (2)

Contribution of Teaching/learning Methods and Strategies to the Courses



وزارة التعليم العالي
MINISTRY OF HIGHER EDUCATION



QUALITY ASSURANCE UNIT



GIZA HIGHER INSTITUTE OF ENGINEERING
AND TECHNOLOGY

Architecture engineering - Teaching/learning Methods and Strategies Vs. Courses Matrix

Teaching/learning Methods		Lecture	Class Activity (tutorial)	Practical and Lab. Experiment	Discussion	Brain Storming	Assignment and Homework	Case study	Project	Site visit	Practical training	Self-Study
MAT 011	Mathematics (1) A *	X	X		X	X						
PHY 012	Physics (1) A *	X	X	X	X		X					
MEC 013	Mechanics (1) A *	X	X		X	X						
DEP 014	Engineering Drawing & Projection (1) A *	X	X		X	X						
CHE 015	Chemistry	X	X	X	X		X					
GNS 016	English Technical Language	X	X		X		X					
MAT 021	Mathematics (1) B *	X	X		X	X						
PHY 022	Physics (1) B *	X	X	X	X		X					
MEC 023	Mechanics (1) B *	X	X		X	X						
DEP 024	Engineering Drawing & Projection (1) B *	X	X		X	X						
TIN 025	Introduction to Engineering & Production	X	X	X	X							
COP 026	Computer and Programming	X	X	X	X	X						
ARC 111	Architectural Construction (1)	X	X		X		X			X		
HUM 112	The history of Arts	X	X		X		X					
ARC 113	Principles of Architectural Design	X	X		X		X					
ARC 114	Visual Training	X	X		X	X	X					
ARC 115	History & Theory of Architecture (1)	X	X		X		X					X
ARC 116	Architecture Drawing	X	X				X					
HUM 117	Humanity Factors in Architecture	X	X		X		X					

Teaching/learning Methods		Lecture	Class Activity (tutorial)	Practical and Lab. Experiment	Discussion	Brain Storming	Assignment and Homework	Case study	Project	Site visit	Practical training	Self-Study
Course												
ARC 121	Architectural Construction (2)	X	X				X			X		
ARC 122	Structural Analysis	X	X				X					
ARC 123	Architectural Design (1)	X	X		X	X	X	X	X	X		
ECL 124	Climate change and Energy conservation	X	X		X		X					
ARC 125	Serigraphy and Perspectives	X	X				X					
ARC 126	Plane Surveying	X	X	X	X	X	X	X				
HUM 127	Urban Legislation and professional ethics	X	X				X					
ARC 211	principles of working Drawings (1)	X	X				X		X			X
EMP 212	Basics of Building Materials	X		X	X		X				X	
ARC 213	Architectural Design (2)	X	X		X	X	X		X	X		
ARC 214	History& Theory of Architecture (2)	X	X		X		X					X
EMP 215	Acoustics and Artificial Lighting physics	X	X		X	X	X					
HUM 216	Environmental Study	X	X	X	X		X					
ARC 221	Principles of working Drawings (2)	X	X				X		X			X
ARC 222	Reinforced Concrete	X	X				X					
ARC 223	Architectural Design (3)	X	X		X	X	X		X	X		
ARC 224	History and Theories of Planning	X	X		X		X					
ECL 225	Sustainable Architecture & Power saving	X	X	X	X		X					
EMP 226	Computer Applications in Architecture (1)	X	X	X		X	X				X	
ARC 227	Urban design and landscaping	X	X		X	X	X	X				
ARC 311	Working Drawings (1)	X	X		X		X		X			

Teaching/learning Methods		Lecture	Class Activity (tutorial)	Practical and Lab. Experiment	Discussion	Brain Storming	Assignment and Homework	Case study	Project	Site visit	Practical training	Self-Study
Course												
ARC 312	Environmental Design	X	X	X	X		X					
ARC 313	Architectural Design (4)	X	X		X	X	X		X			
ARC 314	Technical and Sanitary Fixtures	X	X		X		X	X				
ARC 315	History & Theory of Architecture (3)	X	X		X		X					X
EMP 316	Computer application in Architecture (2)	X	X	X	X		X				X	
ARC 321	Working Drawings (2)	X	X		X		X		X			
ARC 322	Soil Mechanics and Foundations	X	X	X			X					
ARC 323	Architectural Design (5)	X	X		X	X	X		X			
ARC 324	Urban planning & Design	X	X		X	X	X	X	X	X		
HUM 33X	Elective Courses (1)											
ARC 33X	Elective Courses (2)											
ARC 411	Working Drawings (3)	X	X		X	X	X	X	X			
BUS 412	Specifications and Quantities	X	X				X	X				X
ARC 413	Architectural Design (6)	X	X		X	X	X		X			
TRN 414	Project (1) *	X	X		X	X	X		X	X		X
ARC 415	The economics of Construction & Hosing	X	X				X					
TRN 421	Feasibility Studies and Projects Management	X	X		X		X	X				
ARC 422	Housing	X	X			X	X	X	X	X		
ARC 423	Project (2) *	X	X		X	X	X		X	X		X



Appendix (3)

Report of Internal Reviewer

تقرير مراجعة داخلية
لتوصيف برنامج بكالوريوس الهندسة المعمارية ومقررات الفرق حتى السنة الثانية
لالحة 2022/2021

تم الاستفادة من المراجعة الخارجية لبرنامج اللاحة القديمة (2016/2017) والتي ورد تقريرها في 2023/4، حيث قام القسم بعمل التعديلات اللازمة طبقاً لتقرير المراجع الخارجي. وأسقطت تلك التعديلات والملاحظات على توصيف البرنامج والمقررات للوحة الجديدة.

يعبر التقرير التالي عن الرأي العلمي الموضوعي
للسيد الأستاذ الدكتور: خالد سليم فجال
الوظيفة: أستاذ بقسم العمارة - معهد الجيزة
تمت مراجعة وتقييم توصيف البرنامج المرفق بناء على طلب: وحدة ضمان الجودة
اسم البرنامج: الهندسة المعمارية
اسم الكلية / المعهد: معهد الجيزة العالي للهندسة والتكنولوجيا
بداية العمل باللائحة: (2021-2022)
تاريخ المراجعة: 2023 /6

التقييم الشامل لتوصيف البرنامج المعنى يشمل المكونات التالية:

أ) البيانات الأساسية للبرنامج

العناصر	مستوف	مستوف جزئياً	غير مستوف	مميزات التقييم
البيانات الأساسية	√			بالاطلاع على توصيف البرنامج تبين أن البيانات الأساسية للبرنامج مستوف
اسم المنسق: د. مصطفى مشهور				

ب) التقييم الأكاديمي

مميزات التقييم	أهداف البرنامج
مهداف البرنامج واضحة ومنطقية وقابلة للتحقيق، ويمكن قياسها كما وتوعاً، ومتسقة مع المعايير المتبناة	√ واضحة √ كما √ نوعاً

ج) المعايير الأكاديمية

العنصر	التقييم	مميزات التقييم
تحديد المعايير الأكاديمية	محددة √ غير محددة	تم تبني معايير أكاديمية محددة
تبني البرنامج معايير الهيئة القومية لضمان جودة التعليم والاعتماد	نعم √ لا	تبني البرنامج المعايير الأكاديمية القومية (NARS 2018) المعدة بمعرفة الهيئة القومية لضمان جودة التعليم والاعتماد في 2020/2
المعايير تتوافق مع رسالة المؤسسة	نعم √ لا	تم الاطلاع على رسالة المعهد
تم اعتماد المعايير الأكاديمية من مجلس الكلية	نعم √ لا	تم الاطلاع على محضر المجلس الأكاديمي في 2021/2/1 والذي اعتمد المعايير المتبناة
تم إحاطة مجلس الجامعة بالمعايير الأكاديمية	نعم √ لا	لا ينطبق
تم مراجعة المعايير الأكاديمية من مراجع خارجي	نعم √ لا	تم الاطلاع على تقرير المراجع الخارجي لتوصيف البرنامج (أ.د. مهند العجمي) الذي أعد في ابريل 2023

تقرير مراجعة داخلية
لتوصيف برنامج بكالوريوس الهندسة المعمارية ومقررات الفرق حتى السنة الثانية
لالحة 2022/2021

تم اتخاذ الإجراءات التصحيحية بناء على مراجعة المعايير	نعم ✓	لا	تم الاطلاع على الإجراءات التصحيحية بناء على مراجعة البرنامج
في حالة عدم تبنى البرنامج معايير الهيئة القومية لضمان جودة التعليم والاعتماد: لا ينطبق			
ملائمة المعايير الأكاديمية لمواصفات الخريج	ملائمة ✓	غير ملائمة	توجد مصفوفة توضح مدى ملائمة المعايير الأكاديمية لمواصفات الخريج
تحقيق المعايير الأكاديمية المثبتة من خلال توصيف البرنامج	تحقق ✓	لا تحقق	طرق التدريس والتعلم وأساليب تقويم الطلاب المتضمنة في توصيف البرنامج والمقررات تمكن من تحقيق المعايير الأكاديمية

د) مخرجات التعلم للبرنامج

مخرجات التعلم	واضحة ✓	غير واضحة	<input type="checkbox"/>
المبررات: تم الاطلاع على مخرجات التعلم وتبين وضوحها، كما استخدمت أفعال مناسبة، وقابلة للقياس. كما أنها تحلق الجدارات المستهدفة للخريج.			
ارتباط مخرجات التعلم بأهداف البرنامج	مرتبطة ✓	غير مرتبطة	<input type="checkbox"/>
المبررات: توجد مصفوفة صحيحة ومنطقية توضح الارتباط			
تحقيق المقررات الدراسية لمخرجات التعلم	تتحقق ✓	لا تحقق	<input type="checkbox"/>
المبررات: من خلال مصفوفة العلاقة بين المقررات والمخرجات والجدارات، تبين أن كل جدارة تتحقق بأكثر من مقرر. المبررات: واضحة من مصفوفة العلاقة بين مواصفات الخريج ومخرجات التعلم			
مواكبة مخرجات التعلم للبرنامج لاحتياجات سوق العمل	تواكب بنسبة كبيرة ✓	لا تواكب	<input type="checkbox"/>
المبررات: تغطي احتياجات السوق من أفرع الهندسة المعمارية.			

هـ) هيكل البرنامج ومحتوياته

مقررات العلوم الأساسية	متوازنة ✓	غير متوازنة	
مقررات العلوم الإنسانية والاجتماعية	متوازنة ✓	غير متوازنة	
مقررات متخصصة	متوازنة ✓	غير متوازنة	
تدريب عملي وميداني	متوازنة ✓	غير متوازنة	
أخرى	متوازنة ✓	غير متوازنة	
مهررات التقييم:			
تم عمل جدول مقارنة بين نسب مكونات البرنامج ونظيراتها بمعايير NARS وأيضاً بنسب لجنة القطاع الهندسي، حيث تبين وجود توافق إلى حد ما، ويوجد . إلا أنه يوجد انخفاض عن النسب المرجعية لتطبيقات الحاسب الآلي.			

و) تقويم أعمال الطلاب

طرق التقويم المستخدمة:
امتحانات أعمال سنة تحريرية، مشاريع مصغرة، تمارين، تقييم أعمال فصل، مناقشة بالمحاضرة، امتحانات تحريرية نهائية، امتحان منتصف ترم، امتحانات شفوية.

تقرير مراجعة داخلية
لتوصيف برنامج بكالوريوس الهندسة المعمارية ومقررات الفرق حتى السنة الثانية
لالحة 2022/2021

ملائمة طرق تقييم الطلاب لطبيعة مخرجات التعلم	ملائمة √	غير ملائمة
المبررات: تم الاطلاع على مصفوفة الارتباط بين وسائل التقييم ومخرجات التعلم، حيث تبين ملائمة طرق التقييم للمخرجات		
قدرة طرق التقييم على قياس مخرجات التعلم المستهدفة	قادرة √	غير قادرة
المبررات: تتسم بتنوع طرق التقييم		

ي) مقررات البرنامج (تم مراجعة مقررات السنوات إعدادي - أولى - ثانية)

- نموذج توصيف المقرر المستخدم مستوفي جميع العناصر اللازمة للتوصيف
- استخدام التعليم الهجين محدود.
- استخدام وسائل تقييم مناسبة.

الرأي النهائي:

يوجد توصيف جيد للبرنامج ومقررات الفرق الجاري تدريسها حتى سنة 2023-2024، ويمكن اعتماد التوصيف من المجالس المعنية.

التوقيع:

الإسم : أ. د. خالد سليم فجال

