Ministry of Higher Education

Higher Institute of Engineering
and Technology at Manzala

Quality Assurance Unit

Architecture Engineering

Program Report

2023 / 2024

B.Sc. in Architecture Engineering

Architecture Engineering Program Report

Higher Institute of Engineering and Technology at Manzalla

2023-2024

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Higher Institute of Engineering and Technology at Manzala
Department: Architecture Engineering Program

A- Basic information:

1- Program title	Architecture Engineering	
2- Specialization:	Architecture Engineering	
3- program duration:	The program duration is **five years**, 10 semesters. Contact hours are distributed according to NARS requirements.	
4- Number of credit Hours/Number of courses	□ Total hours of program: 276 contact hours	
	A. Humanities and social science:	15 contact hours
	B. Mathematics and basic science:	59 contact hours
	C. Basic Engineering Science:	62 contact hours
	D. Computer Application and ICT:	26 contact hours
	E. Applied Engineering and Design:	68 contact hours
	F. Project and practice:	26 contact hours
	G. Discretionary (institution character – identifying) subjects:	20 contact hours
5- The foundations of the formation of committee's examiners	The examination committees are selected through the Department Council based on specialization. A second examiner is chosen within the same field as the first examiner.	
6- External examiners:	√ **Available** □ Unavailable • Through using "Evaluation of the Examination Paper in Terms of Form and content and Blueprint" • As well as the program and course specification and reports were evaluated from external reviewer accredited from NAQAAE.	

B- Specialized information:

7- Statistics:

- Number of students enrolled in the program: **87**
- Rate of success in the program (%): **97.7%**
- Direction to join the program (relative to the numbers enrolled in the program during the last 3 years): ☐ Increasing **√ Fixed** ☐ Decreasing
- Last examination results: Attached are the first and second terms results
- Distribution of success rates (%):

Year	Excellent	Very Good	Good	Acceptable	Transferred to the upper level with courses	Failed
1st	0	2	2	0	14	1
2nd	0	7	7	4	5	1
3rd	3	7	8	0	5	0
4th	6	6	9	0	0	0
Total	9	22	26	4	24	2

8- The Academic Standards:

- Level A: Competencies of engineering graduate:

A1. Identify the concepts and theories of mathematics and sciences related to Architectural engineering to solve complex engineering problems.

A2. Design and execute suitable experiments or simulations, analyze and interpret data, assess and appraise the results, and employ statistical analysis and unbiased engineering judgment to derive conclusions.

A3. Utilize engineering design methodologies to create economical solutions that fulfill defined requirements, taking into account global, cultural, social, economic, environmental, ethical, and relevant considerations within the framework of sustainable design and development principles.

A4. Employ modern technologies, adhere to industry codes of practice and standards, follow quality guidelines, prioritize health and safety requirements, address environmental concerns, and apply principles of risk management.

A5. Incorporate research techniques and investigative methods as an integral aspect of the learning process.

A6. Plan, conduct and write a technical report on a project considering related trades needs.

A7. Collaborate effectively both independently and as a

	valuable member of multidisciplinary and culturally diverse teams. A8. Effectively communicate with a variety of audiences using modern tools, whether through graphical, verbal, or written means. A9. Develop innovative solutions and acquire entrepreneurial skills for the practical industrial problems and response to new situations. A10. Sustain self-management and time management skills, remain adaptable in the face of change and conflicting conditions, and commit to lifelong self-improvement and learning.
- Level B: Competencies of Architecture engineering:	B.1 Prepare and develop architectural, urban, and planning designs that meet aesthetic and technical criteria, drawing upon comprehensive knowledge of history, theory, related fine arts, local culture and heritage, technology, and human sciences. B.2 Create designs that achieve the needs of building users by comprehending the interaction between people and structures, as well as the connection between buildings and their surroundings. Additionally, consider the importance of aligning buildings and the spaces between them with human requirements and scale. B.3 Produce environmentally conscious, conservation-oriented, and rehabilitation-focused designs with a firm grasp of structural design, construction methods, technology, and engineering challenges that are inherent in building designs. B.4 Transform design concepts into actual buildings and incorporate plans into comprehensive planning processes, considering limitations such as project financing, project management, cost control, and project delivery methods. This should be done with a solid understanding of the relevant industries, organizations, regulations, and procedures involved. B.5 Compose design project briefs and documents while comprehending the architect's position within the construction industry. This includes understanding the architect's role in processes like bidding, the procurement of architectural services, and building production.

9- Quality Assurance Systems:	
- Periodic Review System for The Program:	√ **Available** □ Not Available √ **Annual** □ More Than a Year **Through the role of the Associate Dean of Education and the activities of the Teaching and Learning Committee and other academic related departments:** - All our revisions are assigned to professionals, either internal or external professors with the required experience in their field of specialty. - Every revision procedure covers several points and questions about the aspects of each course, all of which must be answered - Course indicators as well as a program indicator are given to the reviewers each to analyze and study. - Those indicators cover most of the statistics needed to give a complete view of the course performance, either the number of students, how well did they perform, their grades, student appraisal of the teaching staff performance during the course, number of full-time and part-time lecturers, etc. - Those indicators cover duration of 10 terms up to the date of the course / program revision. - Delivery of learning and teaching seminars and workshops around the faculty. - Assist staff to meet their institutional responsibilities in the provision of appropriately detailed information in Course Outlines and the preparation of quality resource materials.
- Compatibility of Academic structure of the Program with the Competencies	- Compatible - Program courses are compatible with PLOs as indicated in the attached comparison matrix: -

Level	Competencies	Courses covering such PLO's
Level (A)	**A.1** Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	BS 111, CIVA 112, CIVA 211, CIVA 221, CIVA 311, ARE 124,
	A.2 Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and	CIVA 212, ARE 124, CIVA 211, CIVA221,

		objective engineering judgment to draw conclusions.	
		A.3 Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and Contexts of sustainable design and development.	BS 111, ARE113, CIVA 111, ARE121, ARE 212, ARE 213, CIVA 211, ARE 222, ARE 224, ARE 312, ARE 322, ARE 321E, ARE 322E, ARE411, ARE 415, ARE 411E, ARE 412E, ARE 421, ARE 421E, ARE 422E
		A.4 Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	ARE112, CIVA 121, ARE 212, ARE 214, ARE 215, ARE 222, ARE 225, ARE 311E, ARE 312E , ARE313E, ARE 324, CIVA 321, ARE413, ARE 415
		A.5 Practice research techniques and methods of investigation as an inherent part of learning.	ARE111, CIVA 111, ARE 125, ARE 211, ARE 214, ARE 215, ARE 221, ARE 225, ARE 311, ARE314, ARE 321, ARE412, ARE413
		A.6 Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	BS 111, CIVA 112, ARE122, ARE123, CIVA 121, ARE 213, ARE 324
		A.7 Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.	CIVA 112, ARE121, ARE123, ARE 312, ARE 323E, ARE 421, ARE 421E , ARE 422E
		A.8 Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	ARE113, ARE 125, CIVA311, ARE 321E, ARE 322E, ARE 323E, ARE414
		A.9 Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	ARE 313, CIVA311, ARE411, ARE423
		A.10 Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.	ARE111, ARE122, ARE123, ARE124, ARE 211, ARE 213, CIVA 211, ARE 223, ARE 224, CIVA221, ARE 314, ARE 323, CIVA 321, ARE423

	Level (B)	**B.1** Prepare and develop architectural, urban, and planning designs that meet aesthetic and technical criteria, drawing upon comprehensive knowledge of history, theory, related fine arts, local culture and heritage, technology, and human sciences.	ARE113, ARE123, ARE 214, ARE 215, ARE 221, ARE 223, CIVA221, ARE 311, ARE 313, ARE314, ARE 321, ARE 323, ARE412, ARE413, ARE 415
		B.2 Create designs that achieve the needs of building users by comprehending the interaction between people and structures, as well as the connection between buildings and their surroundings. Additionally, consider the importance of aligning buildings and the spaces between them with human requirements and scale.	ARE111, ARE113, ARE121, ARE122, ARE124, ARE 211, ARE 213, ARE 221, ARE 222, ARE 224, ARE 225, ARE 311, ARE 313, CIVA311, ARE 311E, ARE 312E, ARE 313E , ARE 321, ARE 322, ARE 323, ARE 321E, ARE412, ARE411, ARE414, ARE 411E ,ARE 412E, ARE 421, ARE 421E, ARE 422E, ARE423
		B.3 Produce environmentally conscious, conservation-oriented, and rehabilitation-focused designs with a firm grasp of structural design, construction methods, technology, and engineering challenges that are inherent in building designs.	ARE111, ARE112, ARE113, ARE121, ARE 212, ARE 213, ARE 221, ARE 222, ARE 223, ARE 224, ARE 225, ARE 311, ARE 312, ARE 311E, ARE 312E, ARE 313E, ARE 321, ARE 322, CIVA 321, ARE412, ARE423,
		B.4 Transform design concepts into actual buildings and incorporate plans into comprehensive planning processes, considering limitations such as project financing, project management, cost control, and project delivery methods. This should be done with a solid understanding of the relevant industries, organizations, regulations, and procedures involved.	ARE112, ARE 223, ARE 312, ARE 322, ARE 323, ARE 322E, ARE411, ARE414, ARE 415, ARE 411E, ARE 412E, ARE 421 ARE422, ARE 421E , ARE 422E, ARE423
		B.5 Compose design project briefs and documents while comprehending the architect's position within the construction	ARE122, ARE 324, ARE 322E, ARE412, ARE414, ARE422, ARE423

	industry. This includes understanding the architect's role in processes like bidding, the procurement of architectural services, and building production.	

- Student Evaluation to Measure the Extent to Which the Educational Objective Has Been Acquired:	
- Evaluation Tools:	Different types of methods verify the performance of students distributed on Intended Learning Outcomes: - **Written Exams**: including short Quizzes to assess Knowledge and understanding (Week 13) - **Oral Exam**: including those taken during laboratory hours to assess Knowledge and Understanding. (Week 12) - **Lab Exam;** including those taken during laboratory hours to asses Knowledge, understanding, and General Skills (Week 12) - **Quizzes:** to asses Intellectual Skills (Week 4, 9) - **Research, and reporting Assignments:** to assess Intellectual Skills, General and Transferable Skills (week 3, 6, 9). - **Graduation project:** (single student or teamwork) to assess Professional, Practical Skills, General and Transferable Skills (after the end of all exams). - **Mini project:** (single student or teamwork) to assess Professional, Practical Skills, General and Transferable Skills (week 9, 12).
- External Auditor's Notes: (If Any)	All observation the external auditors were checked and modified.
- The Effectiveness of The Internal Review System in The Development Of The Program	√ **Suitable** All observation the external auditors were checked and modified.

10- Educational options:

- Ratio of faculty members to students:

Program staff					Student No.	Student: Staff ratio
	Prof.	Assoc. Prof	Ass. Prof	Total		
Full time	1	-	1	2	87	1:14.5
Part time	-	1	3	4		
Total	1	1	4	6		

- Matching of Faculty Member's Specialization to Program needs:

√Suitable ☐ To some extent
☐ Inappropriate (why)

- In general, according to the previously mentioned statistics concerning the number of staff with respect to the number of students in each semester we can deduce that most of the specialties in the program are covered.
- Specifically, the Architecture core courses, we have almost been able to satisfy most of the course's needs. However, there are still some courses in which we need to acquire external aid by qualified part-time professors.

- Drawing Galleries:

√ Suitable ☐ To some extent
☐ Inappropriate (why)

- Drawing rooms are available and cover most of the courses required for the architecture program.
- Most of the equipment is available and equipped for students.
- The capacity of all rooms is suitable for (20-37) students.

- Library:

√Suitable ☐ To some extent
☐ Inappropriate (why)

- In general, the library serves the academic community.
- Regular hours are from Saturday – Thursday (9:00 am – 3:00 pm) except during the summer where it ends at 2:30 pm.
- It offers a distinguished up-to-date information service, using an integrated information system that facilitates direct search through a computerized. Catalog; bibliographic databases on CD-ROMs and through

	direct connection to the Internet. Available is a library lab that can serve up to 4 users at once. - The main Library serves the undergraduate students, faculty members, researchers and professionals with a maximum capacity to accommodate daily 47 users. - The books and references are of the latest editions and cover a wide range of topics in the field. - The library also supervises and orders the student textbooks requested by the department every year. They are given to the students through the library bookstore facility.
- Computer lab:	**√Suitable** □ To some extent □ Inappropriate (why) - Computer labs are available and cover most of the required courses - There are 2 computer labs with (25-35) computers, all networked and accessible via the internet. - Most software is available to students. - Each lab has one computer to assist lecturers with any demonstrations acquired - The lab has qualified technicians with very good computer skills. - The average number of students is one student per computer.
- Communication with businesses entities to provide training opportunities for students:	**√Suitable** • Students of the preparatory year perform practical training at the institute during the summer vacation for a period of 4 weeks, and it is implemented under the supervision of the teaching staff and the assisting staff. Each scientific department council determines a system of practical and field training for the first, second and third-year students for 4 weeks annually inside or outside the institute during the summer vacation and is implemented under the supervision of the teaching staff and the assisting staff. • Over 85% of the students gained a real chance to be well trained and some of which joined those same places after graduation. • Each student completes a survey report in which he gives a survey about the good points and the weak point of his training as well as the benefits that he acquired. Also, his recommendations for a better quality.

	• All students are obliged to be trained during the summer unless there a critical excuse is presented by the student for not, such as a medical excuse. However still a student has to full fill his training course later on as a graduation requirement. • There is a great cooperation with almost all companies allover Egypt for training the students.

11- Any other program requirements:	
Follow up System for weaknesses	**√ Active** □ Active to limited extent □ Not Active (why) One of the ways of insuring that the program objectives are being fulfilled is by continuous observing of the following: 1. More site visits and in site practical learning in some of the core courses for the architectural subjects to enhance the learning process, and more collaboration from the collage to arrange those sites. 2. Some of the advanced tools for 3d model making should be provided to serve subjects with 3d nature. 3. More comprehend concept of researching and searching for new trends and innovations and self-learning should be involved. 4. More text books as a references for the courses should be refreshed and renewed to cope with the new techniques of teaching and learning. 5. Using technological application in studying for enhancing the educational system 6. Allow staff members to attend professional conferences (this is done by the agreement with the university 7. Administration for providing fund and active participation in these conferences will be added to the evaluation of the staff member). 8. Training staff members on using Moodle to upload their courses. 9. Training courses for staff members in their field and in teaching and general fields. 10. Organizing meetings between staff members and architectural firms and offices as well as expert architects. 11. Staff development is a must to meet the rapid changing of modern technology. 12. Some of the staff members were allowed to attend professional conferences in which they were able to publish their own work and learn about other new developments either in their field or other related fields. 13. Staff teaching members are required to upload their software courses on the website

	14. There is now an e learning-course center where courses are uploaded and available for students to download any course they want. 15. Using technological application in studying for enhancing the educational system.
12- Suggestions of Program development:	
- Program structure (courses/hours):	**a.** 10 semesters (5-years) **b.**

Humanities and Social Sciences	15
Mathematics and Basic Sciences	59
Basic Engineering Sciences	62
Applied Engineering and Design	68
Computer Applications and ICT	26
Projects and Practice	26
Discretionary (institution character – identifying) subjects	20
Total	276

- New courses:	A new bylaws proposal for all programs, including the Architecture engineering program, is being worked on.
- Training and skills:	- Examination committees are formed to discuss each student about his/her training, where each student makes a presentation. - **Staff development requirements:** 1. Staff development is a must to meet the rapid changing of modern technology. 2. Some of the staff members were allowed to attend professional conferences in which they were able to publish their own work and learn about other new developments either in their field or other related fields. 3. Staff teaching members are required to upload their software courses on the web site 4. There is now an e learning-course center where courses are uploaded and available for students to download any course they want. 5. Using technological application in studying for enhancing the educational system.

<table>
<tr><td>- Business sector proposals for program development:</td><td colspan="3">Proposing representation of members of the external community in various councils</td></tr>
<tr><td>- Achieved actions from previous year</td><td colspan="3">Not exit</td></tr>
<tr><td>- Action plan for next academic year</td><td colspan="3"><table>
<tr><th>Action Plan</th><th>Responsibility</th><th>Time frame</th></tr>
<tr><td>Using technological application in studying for enhancing the educational system.</td><td>Head of Program</td><td>September 2024 – May 2025</td></tr>
<tr><td>Training faculty members to use Moodle to teach their e-training</td><td>Head of Program</td><td>September 2024 – May 2025</td></tr>
<tr><td>Providing support to faculty members for international conferences and congresses.</td><td>Dean/ Head of program</td><td>September 2024 – May 2025</td></tr>
<tr><td>Increase site visits to construction projects to cover all branches.</td><td>Head of Program</td><td>September 2024 – May 2025</td></tr>
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Program Coordinator:

Name	*Signature*	*Academic Year*
Prof. Assoc. Dr. Tarek AbouOuf		2023-2024

Head of Department:

Name	*Signature*	*Academic Year*
Prof. Assoc. Dr. Tarek AbouOuf		2023-2024

Dean:

Name	*Signature*	*Academic Year*
Prof. Dr. Attia Aref	Attia Aref	2023-2024