Higher Institute of Engineering and Technology in Manzala

المعايير الأكاديمية القومية المرجعية NARS
National Academic Reference Standards

The National Academic Reference Standards (NARS) are external references for designing and upgrading the undergraduate educational program of faculties of Engineering. They also represent general expectations about the standards for the award of Bachelor Degree in Engineering and articulate the attributes and competencies that those possessing such qualification should be able to demonstrate.



ARCHITECTURE

Competencies in NARS 2018:

- Competencies are the combination of knowledge, skills, and attitudes that enable graduates to perform tasks and responsibilities effectively in a wide range of professional and academic contexts. They reflect what the graduate is expected to know, understand, and be able to do by the end of the program, ensuring alignment with labor market needs and national/international qualification frameworks.
- The reference for standards considered in the development of this program is National Academic Reference Standards for Engineering (NARS 2018) which is adopted and approved by institute council in 10 December 2022 meeting No. (3).

Architectural Engineering Program Mission:

- The Architectural Engineering Program is committed to prepare graduates of engineers who are able to keep pace with technological development in various specializations at all local and regional levels with high quality in education and community service through advanced scientific research, as well as providing a creative scientific environment in the program to motivate its employees to be more productive.

Academic Reference Standards for the Architecture Program

Institute Vision:
The Higher Institute of Engineering and Technology at Manzala aspires to be a leading engineering institute in the field of engineering education and scientific research, and to provide a distinguished community educational service.

Institute Mission:
The Higher Institute of Engineering and Technology at Manzala is committed to preparing a graduate with the knowledge, skills, and engineering competencies that qualify him to compete in the local and regional market, demonstrate excellence in scientific research, and provide community services that contribute to achieving sustainable development goals within the framework of human and moral values.

Strategic Goals
The institute has identified three main strategic goals as follows:

- First Goal: Distinguished Graduate Competitive in the Local and Regional Labor Market.
- Second Goal: Organize and Enhance the Efficiency of Scientific Research and Encourage International Publication.
- Third Goal: Strengthen Community Engagement to Contribute to the Sustainable Development Goals.

Program Aims :

1. Acquire a broad range of engineering knowledge and specific skills, as well as the ability to apply learned knowledge in real-world problems through theories and abstract thinking.
2. Utilize analytical, critical, and systemic thinking to effectively identify, diagnose, and resolve engineering problems that exhibit a diverse range of complexity and variability.
3. Demonstrate professional conduct and adhere to the ethical principles and standards set forth in the field of engineering.
4. Collaborate within a diverse team of professionals from various engineering disciplines, effectively assuming both individual and collective responsibility for performance and leadership.
5. Acknowledge the importance of promoting the engineering field and actively contribute to its development, as well as making positive contributions to the community at large.
6. Recognize the significance of the environment, both physical and natural, and endeavor to promote sustainability principles
7. Use the essential techniques, skills, and current engineering tools to practice engineering.
8. Assume complete responsibility for own learning and growth, engage in lifelong learning, and demonstrate the ability to pursue postgraduate and research opportunities.
9. Demonstrate effective communication skills by utilizing diverse modes, tools, and languages to engage with different audiences. Approach academic and professional challenges in a critical and creative manner, utilizing effective communication strategies.
10. Demonstrate leadership capabilities, business administration, and entrepreneurship skills.

LEVEL A (NARS) GENERAL COMPETENCIES OF ENGINEERING GRADUATE

COMETENCIES OF ENGINEERING GRADUATE
The Engineering Graduate must be able to:

1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
2. 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.
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.
4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
5. Practice research techniques and methods of investigation as an inherent part of learning.
6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
7. Function efficiently as an individual and as a member of multi-disciplinary and multi cultural teams.
8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations. 12
10. Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.

LEVEL B (NARS) THE COMPETENCIES OF ARCHITECTURE ENGINEERING GRADUAT

In addition to the Competencies for All Engineering Programs the BASIC ARCHITECTURAL Engineering graduate and similar programs must be able to:

1. 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.
2. 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.
3. Generate ecologically responsible, environmental conservation and rehabilitation designs; through understanding of: structural design, construction, technology and engineering problems associated with building designs.
4. 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.
5. Prepare design project briefs and documents, and understand the context of the architect in the construction industry, including the architect's role in the processes of bidding, procurement of architectural services and building production.