

Building & Construction Engineering Department

المعايير الأكاديمية القومية

تم تبني برنامج هندسة التشييد والبناء للمعايير القياسية الأكاديمية القومية المرجعية (NARS) الصادرة من الهيئة القومية لضمان جودة التعليم والاعتماد إصدار 2018 بمجلس القسم رقم (4) بتاريخ (2019/1/17) وبعد موافقة لجنة شؤون الطلاب في (2019/1/22) ومجلس الإدارة رقم (1) بتاريخ (2019/1/23)

Competencies of Building & Construction Engineering Graduate

- A1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
- A2. Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
- A3. Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
- A4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
- A5. Practice research techniques and methods of investigation as an inherent part of learning.
- A6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
- A7. Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.
- A8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
- A9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
- A10. Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.
- D1. Select appropriate and sustainable technologies for construction of buildings, infrastructures and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of: Structural Analysis and Mechanics, Properties and Strength of Materials, Surveying, Soil Mechanics, Hydraulics and Fluid Mechanics.
- D2. Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; besides, the following civil engineering topics: water resources and Irrigation Engineering, transportation engineering, and construction engineering.

Building & Construction Engineering Department

- D3. Plan and manage construction processes; address construction defects, instability and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.
- D4. Deal with biddings, contracts and financial issues including project insurance and guarantees, and procurement of construction and building services.
- D5. Diagnose and use architectural designs that satisfy both aesthetic and technical requirements, using adequate knowledge of engineering history, theory, technologies and human sciences.

Matrix of Program Aims and Program Mission:

Program Aims		Program Mission			
		Learning Mission	Post graduate and research Mission	Society and environmental affairs mission	Ethics mission
1	Deal with, diagnose and solve practical problems related to building and construction engineering considering real-life constraints and complexity through mastering of needed knowledge and skills, analytical and experimental techniques, critical and systematic thinking, and modern tools.	√			
2	Design safe structures and engineering systems that satisfy human needs as well as serviceability, environmental, and sustainability requirements. techniques and methods.	√			
3	Design and conduct experiments as well as analyze and interpret data.	√	√		
4	Acquire good communication skills as well as leadership, business administration and entrepreneurial skills, show good work ethics and professional conduct, and work effectively within multidisciplinary teams.				√
5	Recognize their role in promoting the engineering field and contribute in the development of the profession and the community.			√	
6	Pursue post-graduate studies, lifelong learning, and distinguished employment.		√	√	

Building & Construction Engineering Department

Matrix of program aims versus program graduate attributes

		Matrix of Program Aims versus Program Attributes					
		1	2	3	4	5	6
Program Aims	Program Attributes	Deal with, diagnose and solve practical problems related to building and construction engineering considering real-life constraints and complexity through mastering of needed knowledge and skills, analytical and experimental techniques, critical and systematic thinking, and modern tools.	Design site structures and engineering systems that satisfy human needs as well as serviceability, environmental, and sustainability requirements, techniques and methods.	Design and conduct experiments as well as analyze and interpret data.	Acquire good communication skills as well as leadership, business administration and entrepreneurial skills, show good work ethics and professional conduct, and work effectively within multidisciplinary teams.	Recognize their role in promoting the engineering field and contribute in the development of the profession and the community.	Pursue post-graduate studies, lifelong learning, and distinguished employment.
		1	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	Work in and lead a heterogeneous team of professionals from different engineering specialties and assume responsibility for own and team performance.						
5	Recognize his/her role in promoting the engineering field and contribute in the development of the profession and the community..						
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.						
11	Generate ecologically responsible, environmental conservation and rehabilitation designs through understanding of: construction, technology and engineering problems associated with building designs.						
12	Accomplishing the optimal structural designs to meet the required architectural requirements, taking into account adequate knowledge of building and construction engineering techniques.						
13	Plan, manage and implement construction projects with the knowledge of financial, quality issues and safety requirements and also environmental impacts of projects.						

