

جدارات برنامج هندسة التشييد والبناء

Construction & Building Engineering Program Competencies	
A-General Competencies	
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- Interdisciplinary Program Competencies (ARS)	
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, and Hydraulics.
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
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
D6	Build and rehabilitate structures that satisfy human needs as well as serviceability, environmental, and sustainability requirements through understanding of: structural design, construction, building, technology and engineering problems associated with design processes.