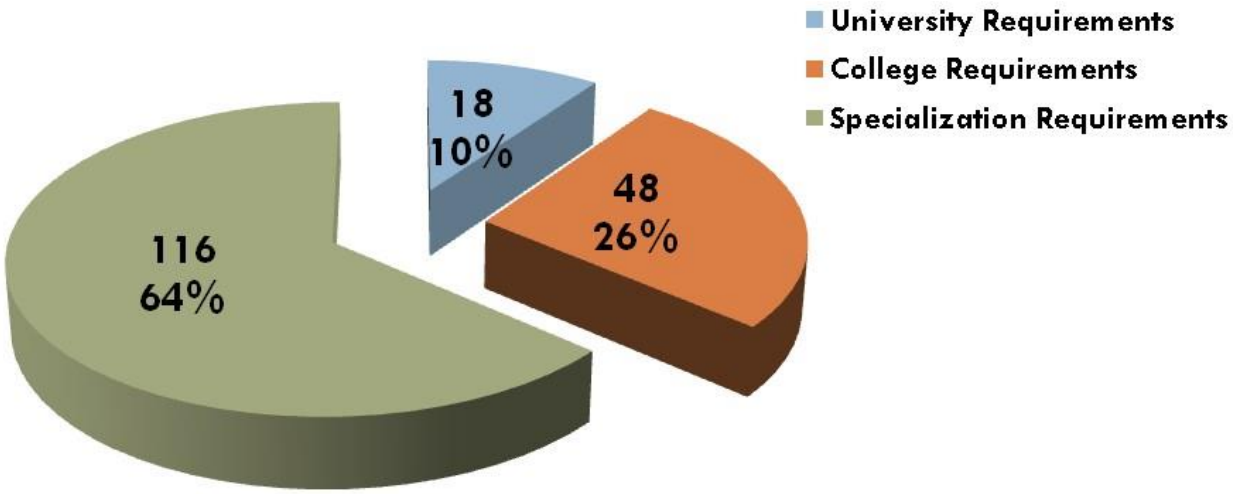
Building Engineering Program



Building Engineering Program Mission and Goals

Program mission

The mission of the Building Engineering program is to provide high quality education in the field of building and construction. The program is devoted to graduate engineers capable of applying knowledge to participate in building the society and solving the problems of structural, environmental and construction engineering, and design of building engineering systems to support sustainable development efforts in Egypt.

The main objectives of the program are to produce and qualify graduates able to:

- Apply knowledge of mathematics, science and engineering concepts to the solution of field problems in the Structural, Environmental Engineering and Construction Project Managements.
- Act professionally in design and supervision of Building Engineering disciplines and Use the codes of practice of all Building Engineering disciplines effectively and professionally.
- Solve Structural, Environmental and Construction engineering problems and design Building Engineering systems. Moreover, graduates can utilize experimental tools and data analysis techniques for Building Engineering applications.
- Permanently providing the community with every new and up-to-date development in all Building Engineering disciplines through long life learning.
- Acquire and utilize personal, communication, and leadership skills and be able to work collaboratively in a multidisciplinary team.

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University Requirements

The student will study (6) General Education Elective Courses (humanities) selected by him from the following list of courses, with a total of (18) credit hours.

Course Code	Course Title	Credit Hours
HUM 011	English Language	0
HUM 012	German Language	3
HUM 013	Technical Writing and Communication	3
HUM 014	Engineering Profession, Practice, and Responsibilities	3
HUM 111	Engineering Economy	3
HUM 112	Health and Wellness	3
HUM 211	Impact of Technology on Society	3
HUM 212	Introduction to Marketing	3
HUM 311	Engineering Management	3
HUM 312	Human Resource Management	3
HUM 313	Engineering Law	3

College Requirements

Basic Science Courses

Student must study the following list of courses as basic science requirements:

Course Code	Course Title	Credit Hours
PHM 012	Calculus for Engineering (1)	3
PHM 013	Calculus for Engineering (2)	3
PHM 014	Linear Algebra and Analytical Geometry	3
PHM 022	Waves, Electricity, and Magnetic Fields	3
PHM 032	Engineering Mechanics (1) - Statics	3
PHM 033	Engineering Mechanics (2) - Dynamics	3
PHM 042	General Chemistry	3
PHM 113	Calculus for Engineering (3)	3
PHM 114	Statistics and Probability for Engineering	3
PHM 115	Differential Equations and Partial Differential Equations	3

Basic Engineering Courses

Student must study the following list of courses as Basic Engineering requirements:

Course Code	Course Title	Credit Hours
CSE 012	Engineering Computation	3
MDP 024	Production Engineering	3
MDP 061	Engineering Design and Graphics	4
MEP 112	Thermodynamics	3
MDP 132	Structures and Properties of Materials	3

General Specialization Courses for Building Engineering Program

Course Code	Course Title	Credit Hours
MEP 113	Building Thermal Sciences	3
ARC 114	Building Engineering Drawing	3
CES 115	Structural Analysis (1)	3
CES 116	Strength of Materials	3
CES 121	Building Engineering Systems	3
CEI 122	Fluid Mechanics	3
CES 143	Building Engineering Materials	3
CEP 212	Surveying (1)	4
CEP 213	Surveying (2)	4
CES 213	Structural Analysis (2)	3
EPM 213	Acoustics & Lighting	4
CES 214	Numerical Methods in Building Engineering	3
CES 223	Concrete Structures Design (1)	3
CES 224	Building Systems Optimization	3
CES 231	Steel Structures Design (1)	3
CES 242	Concrete Technology (1)	3
CES 243	Concrete Technology (2)	3
MEP 311	Thermal Analysis of Buildings	3
MEP 312	HVAC System Design	3
CES 313	Computer Aided Structural Design	3
CES 323	Concrete Structures Design (2)	3
CES 324	Construction Engineering (1)	3
CES 352	Soil Mechanics	3
CES 353	Foundation Design	3
CES 361	Engineering Management Principles	3
ARC 414	Building Envelope Design	3
CES 418	Structural Dynamics	3
CES 419	Senior Seminar	2
CES 423	Construction Engineering (2)	3
CES 442	Modern Building Materials	3
CES 463	Project Management for Construction	3
CES 497	Graduation Project (1)	3
CES 498	Graduation Project (2)	3
	Total Credit Hours	**101**

Technical Electives for Building Engineering

The student shall select five Technical Elective Courses from the following list. Four courses should be selected from one field and the fifth course can be selected from any field. Accordingly, a total number of 15 credit hours should be earned.

- **Technical Electives for Environmental Engineering**

Course Code	Course Title	Credit Hours
ARC 362	Indoor Air Quality	3
EPM 411	Building Illumination and Day Lighting	3
MDP 445	Building Acoustics	3
CEP 449	Selected Topics in Environmental Engineering	3
ARC 453	Control Systems in Buildings	3
ARC 462	Building Energy Conservation Technologies	3

- **Technical Electives for Construction Engineering**

Course Code	Course Title	Credit Hours
CES 362	Planning & Scheduling	3
CES 464	Resources Management	3
CES 465	Risk and Safety Management	3
CES 466	Legal Issues in Construction	3
CES 467	Selected Topics in Construction Engineering (1)	3
CES 468	Selected Topics in Construction Engineering (2)	3

- **Technical Electives for Structural Engineering**

Course Code	Course Title	Credit Hours
CES 325	Concrete Structures Design (3)	3
CES 412	Selected Topics in Structural Engineering	3
CES 422	Design of Concrete and Steel Bridges	3
CES 424	Concrete Structures Design (4)	3
CES 439	Steel Structures Design (2)	3
CES 443	Masonry	3

Course Tree of Building Engineering Program