

Undergraduate Handbook

Department of Architectural Engineering



Philadelphia University
Amman – Jordan

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Important websites

Admission and Registration Information

<http://www.philadelphia.edu.jo/admission.asp>

<http://www.philadelphia.edu.jo/arabic/admission.asp>

Architectural Engineering Department

<http://www.philadelphia.edu.jo/engineering-ee.asp>

Deanship of Student Affairs

<http://www.philadelphia.edu.jo/students.asp>

Introduction

Philadelphia University

History

Philadelphia University was established in 1989 as a private, accredited university in Amman, Jordan. The deanship of engineering was established in 1991, More than 450 engineers have graduated and are working inside Jordan and abroad. The faculty of Engineering includes the following departments:

- Electrical Engineering
- Computer Engineering
- Mechanical Engineering
- Communications and Electronics Engineering
- Mechatronics Engineering
- Architecture Engineering

The faculty of engineering constitutes of several buildings with a total area of 5400m², and it includes 28 specialized and highly equipped laboratories. The total number of engineering students is about 1000 students.

Mission

As a distinguished academic institution, Philadelphia University commits itself to becoming a full partner in the development of Jordanian society in particular as well as other societies at the regional and global levels. The role of science, technology, information and communication is becoming ever more vital to the well-being of humanity. In the coming few years, this role is bound to become a decisive engine of growth, High-quality relevant education, supported by problem-oriented, interdisciplinary and inter-institutional research, as the only means of leading any society to become an active and productive partner in human civilization.

The speed of globalization and the collapse of cultural and economic barriers require modern education, e-learning and hardcore systems to be rooted in democratic interaction, human rights, unfettered freedom of thought and greater creativity by the younger sectors of society.

Whereas the rapid development of knowledge, science and technology to widen the cultural divide between generations and society, modern approaches to education and lifelong interactive learning will be indispensable in counteracting the affects of this trend.

Carrying a revered name, with deep routes in history, of a major city of the Decapolis on the King Road linking old civilizations, Philadelphia is committed to moving forward, through twin engines of quality and modernity, along the information highway. It hopes to affect a strong link between knowledge, learning and modern civilization.

The keyword is proper, fast-developing and morally charged education. Young men and women are the vehicle that propels societies into a future fuelled by education. Philadelphia and sister institutions can be instrumental in bringing this about.

Architectural Engineering Department

Mission

The Architectural Engineering department has put forward several goals and missions so as to enhance the quality of its graduates .The graduate should be well prepared to face and solve problems they might encounter in the real world and integrate easily in their new environment after graduation. The objectives of the department can be summarized in the following:

- Ø Educate its students for effective practice in architecture.
- Ø Provide up-to-date design architectural skills and knowledge for a wide variety of profession role in private, public practice and prepare student for graduate study.
- Ø Offer a curriculum comprised of a diverse and balanced set of courses and experiences
- Ø Impart a variety of analytical and synthetic skills and knowledge in areas relevant to architecture: visual, and sensorial, and manual acuties, building construction technology, design, theory, history and criticism, human dynamic,

planning, lands cape and communication.

Ø Supplement sound training by nurturing the whole person within an understanding of architectural engineering as aboard humanistic and scientific discipline

Ø Produce architects able to meet demands of a changing profession, and whose technical skills will be complemented by personal vision, ethical persuasiveness and entrepreneurial drive.

Ø (mutual respect, corporation and communication community service and leadership)

Facilities

Department's Studios:

The department is prepared with many drawing and working studios, in which each student has his own drawing table along with his own computer, in order to be able to work both manually and digitally in the same time, as a way to be always up-to date and able to adapt to the development that is rapidly occurring worldwide, which is one of the main objectives of the department

Computer Labs:

Computer labs are a major component of the department of architecture, many of the design projects are produced digitally. The computer labs in the departments are equipped with top of the art computers, and the latest specialized programs, e-books, and archives that students are free to use at any time

Technology Incubators

"Economic and social development cannot be achieved in the absence of initiative and creativity, or in the presence of fear and change"

His Majesty King Abdullah II

The Jordan Innovation Center (JIC) at Philadelphia University is a new type of Business Incubators to be launched in Jordan to provide support and development of new innovative technical and business ideas. It supports innovative projects in any discipline given that have a commercial potential outcomes

A Business Incubator provides "a unique and highly flexible combination of business development processes, infrastructure and people, designed to nurture and grow new and small businesses by supporting them through the early stages of development and change." (UKBI)

Business Incubators are a powerful economic development tool used extensively in Europe and the USA with around 4000 in existence worldwide today. The JIC at Philadelphia University intends to replicate this success within the Jordanian economy.

The Electrical Engineering Department at Philadelphia University has direct interactions with the Business Incubator at the university, where several senior project designs from the department have been supported and funded by the JIC.

The Architectural Engineering department includes the following full time faculty members:

- **Dr. Afnan ,Ph.D** (Assistant Professor)
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- **Dr. Osama Khasawne** (Assistant Professor)
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- **Dr. Nawar Sami** (Assistant Professor)
Specialty: Architectural Engineering / Theories of architecture
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- **Dr. Asmaa nyaze** (Associate Professor)
Specialty: Architectural Engineering /Islamic Architecture
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- **Dr. Ahlam alshareef** (Assistant Professor)
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- **Eng. Lama Alahmad.** (Lecturer)
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Architectural Engineering Curricula

Overview

Architectural engineering is one of the highly progressing disciplines that need to be up to date with state of the art technology. The courses offered by the Architectural Engineering department at Philadelphia University follow the highest standards and text books comparable with top foreign universities. Our faculty members have extensive experience in all aspects of Architectural engineering.

The Architectural engineering curricula at Philadelphia University consist of 165 credit hours (CH). Out of the 165 CH, there are (27) CH that are university requirements, (27) CH that are faculty requirements, and 111 CH that are department requirements. Each is divided into sub-requirements as shown in the tables that follow. Grades at Philadelphia University are given in percentages (out of 100). A student is supposed to pass the courses with an accumulative grade point average of **60%** to graduate. A detailed grade description can be found at the admissions office website.

Architectural Engineering Curricula

1 - University Requirements (27) CH

1-1 University Compulsory Requirements: (15)CH

Course No	Course Title	Cr. H.	Prerequisite
114101	Arabic language Skills (1)	3	114099
111100	Military Science	3	-----
111101	National Education	3	-----
130101	English language Skills (1)	3	130099
130102	English language Skills (2)	3	130101

1-2 University Elective Requirements: (12) CH

Course No	Course Title	Cr. H.	Prerequisite
140111	Language Skills(1)	3	-----
140112	Language skills (2)	3	-----
111133	Human Thought and Civilization(1)	3	-----
420143	Legal Cultural	3	-----
420140	Human rights	3	-----
330111	Introduction to project management	3	-----

Course No	Course Title	Cr. H.	Prerequisite
731102	Skills of using social	3	---

	networks		
910102	Health culture	3	---
780101	Communication and connection skills	3	---
610230	Pioneering and creativity	3	---
240152	Environmental culture	3	---
111112	Introduction to Psychology	3	---

2- Faculty Requirements (27) CH

Course No	Course Title	Cr. H.	Prerequisite
250101	Mathematics (1)	3	---
250102	Mathematics (2)	3	250101
211100	Applied Physics(1)	3	---
211204	Applied Physics(2)	3	211100
212101	General chemistry (1)	3	---
660131	Handcrafted engineer drawings	1	---
660132	Computer engineer drawings	1	660131
620171	Engineering Workshop (1)	1	660132
630263	Programming Language	3	---
640253	Engineering Skills	3	130102
610550	Entrepreneurship	3	640253 + 120 Cr .H.

3 – Department of Architectural Engineering Requirements (111) CH

3-1 Compulsory Requirements (93) CH

Course No	Course Title	Cr. H.	Prerequisite
660149	Architectural Design (1)	3	---
660151	Architectural Design (2)	4	660149
660161	Architectural drawings	3	660132
660162	Free Hand Drawing (1)	2	---
660163	Architectural Drawing & Perspective	3	660162
660252	Architectural Design (3)	4	660151
660253	Architectural Design (4)	4	660252
660264	Computer Aided Design (1)	2	660161

660265	Computer Aided Design (2)	2	660264 660163
660223	Building Construction (1)	3	660161
660224	Building Construction (2)	3	660223
660211	History of Architecture (1)	3	660151 130101
660212	History of Architecture (2)	3	660211
660354	Architectural Design (5)	4	660253 660224
660355	Architectural Design (6)	4	660354
660359	Working Drawing(1)	3	660224
660212	Islamic architecture	3	660313
660314	Theories of Contemporary Architecture (1)	3	660212 130102
660331	Town Planning	3	660253 130102
660332	Landscape Architecture	3	660331
660456	Architectural Design (7)	4	660355 660331
660457	Architectural Design (8)	4	660456
660437	Urban design	3	660332
660415	Behavior in Architecture	3	660314
660291	Environmental control	3	211204
660467	Advanced computer applications	3	660265
660499	Engineering Training	3	115 CrH
660581	Engineering Project (1)	3	660499
660582	Housing	4	660581

3-2 Electives Requirements in Architectural Engineering (6)

Course No	Course Title	Cr. H.	Prerequisite
190333	Technical studies in English	3	130102
660265	Architecture survey	3	211100
660416	Theory of Contemporary Architecture (2)	3	660313
660592	Illumination & Acoustics	3	211204
660329	Special topics in Architecture	3	Dept. Approval

3-3 Compulsory Requirements in Architectural Engineering (12) Cr Hr

Course No	Course Title	Cr. H.	Prerequisite
660442	Building specifications and legislations	3	660359
670315	Construction Mechanics and Constructions	3	211204
670416	Concrete and metal constructions	3	670315
620329	Mechanical systems of architecture	3	250101

Course Description

- **660163 Architectural Drawing & Perspective**
(3Cr. Hrs)

This course is concerned with the architectural drawing techniques, practice of different presentation methods, types of lines used in Architectural drawing, in addition to geometrical and descriptive projections, 3D. drawings (isometrics, axonometric), basic geometric drawing, in

addition to architectural lettering. Introducing drawing techniques required for architectural representation of 3D objects, through perspective drawings, and the projection of shades and shadows on 2D and 3D architectural drawings.

- **660162 Free Hand Drawing**

(2Cr. Hrs)

Teaching drawing technique without using drafting tools, with the use of pencil, to present plans, forms, compositions of different forms in addition to studying and drawing of perspectives.

- **660149 Architectural Design (1)**

(3Cr. Hrs)

The studying of basic principles of architectural design through 2D practical applications by which different visual compositions could be created in space, studying the movement and visual colors, and the visual training for different colors and materials and model building.

- **660151 Architectural Design (2)**

(4Cr. Hrs)

Practical and theoretical study of 3D forms main composition and the method of placing them in space, architectural composition, practicing and creating their Architectural identity in space, construction and methods of application in design, the design of two projects like kiosks and pergolas etc., for the development of the students visual perception through the design of applicable building in order to train students to better understand their environment and culture.

- **660264 Computer Aided Design (1)**

(2Cr. Hrs)

This course is concerned with an introduction to the general use of computers and file management. It covers 2D drawing using several graphics software programs to enable students to execute various 2D architectural drawings.

- **660252 Architectural Design (3)**

(4Cr. Hrs)

This course is the beginning of the evolution from basic principles of design to the Architect design. This takes place through designing actual and specific projects in place of ordinary and absolute formation. Thus it deals with a design of building which have a direct relation with actual life experience of the students such as residential, educational building direct services and their use as recreational & sports building, bank branches, post office branches. This is because of the easy comprehension of studying of the component elements of the building the building the natural relation between the buildings as well as the ways of administration methods used in service building. This will help the student understand the object to be attained by the design, through matching if possible to take advantage of the use of this very function of the buildings.

- **660253 Architectural Design (4)**

(4Cr. Hrs)

Design buildings that have a relation with the students construction services Clinic, Maternity, Police, commercial buildings (shopping center) so the design project is build on studies programs through laws, regulation that control the activities limited the building which they want to build with the frame of regulations of the private building to be designed.

- **660223 Building Construction (1)**

(3Cr. Hrs)

Introduction to: Building construction and systems, loading effects on buildings, building construction elements and materials both the national and the international. In addition it presents detailed information about the Foundation, the wall systems, the insulation and the expansion joints. The course covers as well a detailed drawing about the previous material.

- **660224 Building Construction (2)**

(3Cr. Hrs)

To study different construction elements including; walls, columns, beams, slabs and roof coverings, stairs, doors and windows. The course covers the finishing materials and applications starting from floors to walls to plastering and painting. Study of pre cast constructions system if time allows.

- **660291 Environmental Control**

(3Cr. Hrs)

It concentrates on different climate conditions and its effects on the design process, temperature control inside buildings, shade measuring design and its utilities for defining the appropriate amount of insulation and shades, types of heat isolation, wind directions and ventilation in and outside building. Air conditioning by using passive system energy, Vernacular environmental solutions for regions of different climate.

- **660211 History of Architecture (1)**

(3 Cr. Hrs)

The study starts from the old architecture of ancient civilization such as; Nile valley, Mesopotamia, Latin America, and South East Asia, until the classical eras of Greeks and Romans, with indication to the various influences which affected the development of architectural thought and mode.

- **660212 History of Architecture (2)**

(3 Cr. Hrs)

A continuation of History of Architecture (1), it covers the development of architecture from the dawn of Christianity through the Byzantine period, the middle Ages, down to the Renaissance, Baroque and Rococo.

- **660265 Computer Aided Design (2)**

(2Cr. Hrs)

An extension to course Computer Aided Design (1). It concentrates on 3D computer drawings, handling surfaces, solids, material editing, lighting settings, backgrounds etc. It also deals with the utilization of other related programs.

- **660354 Architectural Design (5)**

(4Cr. Hrs)

The Introductory in this course continues the examination of the issues raised in precedent design and begins investigation of more complex issues related to building design and environmental context. Emphasis is placed on developing a systematic approach to architectural design while simultaneously dealing with the development of theory and intellectual inquiry.

- **660355 Architectural Design (6)**

(4Cr. Hrs)

Continuation of Arch (401322) projects more complex than the precedent course.

- **660359 Working Drawing**

(3Cr. Hrs)

The study of working drawing concept and its importance on construction & contract process, enabling students to prepare all drawings & details to build an integrated building, by learning how to present their projects according to local building codes.

- **660314 Theories of Contemporary Architecture (1)**

(3Cr. Hrs)

This course concerns with the developments of architecture from the industrial revolution to the end of the Second World War in 1945. It particularly emphasizes on the social, Economics and political changes, and their effects on the modern architectural trends and pioneers.

- **660456 Architectural Design (7)**

(4Cr. Hrs)

Design of public buildings such as: offices, hotels, and hospitals, taking into consideration the laws at organization, health and environment. Using the modern technology in the works:

electrical, mechanical, acoustic... Lectures in design methodology, case studies, preparing basic studies, for the project that will be designed.

- **660457 Architectural Design (8)**

(4Cr. Hrs)

Design complex building for investment like tourist villages, Airport facilities commercial building, cultural centers (cinema, theater, library, lecture hall.....)

Using the modern technology in design. Lectures in design methodology, case studies, preparing basic studies for the project that will be designed.

- **660415 Behavior in Architecture**

(3Cr. Hrs)

Introducing social and environmental human sciences, with emphasis on the Environment impact, as prime factor, on human behavior. Then the influence of the sociological and psychological output on architectural design. The perception and realization processes of the 2D & 3D forms. Finally, discussing sensuous, symbolism for architectural forms.

- **660442 Building Specifications & Profession Fundamental**

(3Cr. Hrs)

The principles of professional practice that determine the Architect's responsibilities practice and jobs and his relationships with concerned private and official parties in building construction principles of (private, design, consulting) administration, the estimate cost and CBM. In addition to quantity bills, specification of materials, different buildings, structural and non-structural elements, in accordance with the prepared working drawings, and included details.

- **660331 Town Planning**

(3Cr. Hrs)

This course defines the general meaning of the subject and levels of planning, i.e., national, regional and urban level, with a discussion to the socio-economic and physical factor, and their prime impact on the planning process. Historical background of urban development since the earlier civilization of Nile Valley and Mesopotamia take place, with reference to the influential factors on those developments. The planning discussions continue throughout the successive periods until the reaching to the theories and techniques applied in modern town planning.

- **660581 Engineering Project (1)**

(3Cr. Hrs)

Creates data base, that any project for graduation depends on, by adapting scientific method's of clear architectural thought which enable the student to approach means for forming the project programs, thus to advance and finally obtains best alternative.

- **660499 Engineering Training**

(3Cr. Hrs)

After the completion of 110 C.H. the students should find a certified place to practice their acquired knowledge and have a feeling of the real world practice.

- **660582 Engineering Project (2)**

(6Cr. Hrs)

The student should submit fully developed design of his best proposed concept. Complete comprehensive design including detailed analytical data, solutions and fully developed presentations which influence the output of his project.

- **660332 Landscape Architecture**

(3Cr. Hrs)

This course comprises: Basic knowledge about landscape design with its general philosophical and specific functional concepts, historical development part, geometric and naturalistic form of design, principles of organization to achieve harmony and unity. The students will utilize computerized techniques to execute selected projects.

Elective Courses

- **660592 Illumination and Acoustics**

(3Cr. Hrs)

Studying the natural, artificial lighting in the buildings, studying acoustics principles, acoustics isolation, lighting and acoustics measuring instruments.

- **660416 Theories of Contemporary Architecture (2)**

(3Cr. Hrs)

As an extension to course (1), It continues the academic study about thoughts, trends and movements, of modern Architecture since the end of the second world war. Role of educational and technological changes is also considered.

- **660517 Building Conservation/spatial topics in architecture**

(2Cr. Hrs)

An introduction to the preservation policies, the evolution of conservation theory, philosophy and practice, conservation planning and management, In addition to processes and methods implemented to preserve historic and cultural sites.

Student Guidance

The definition of academic Guidance is based on the interaction between the engineering student and his/her advisor until the required courses within his/her curricula is being registered.

The student has to know the following:

- Each student in the faculty of engineering has an assigned academic advisor that is chosen by the department. The advisor is responsible to give directions for the student while choosing courses for registration. This should be performed at the beginning of every semester.
- The student has to take the following points into consideration while in the registration process:

- Making sure that he/she passed the prerequisite (refer to Architectural Engineering Curricula)
 - The registration should follow the sequence shown in the study plan, this should include:
 - University requirements: compulsory and electives.
 - Faculty requirements: compulsory and electives.
 - Specialty requirements.
 - It is preferred that the student refers to the study plan during the registration process to take the suggested load of credit hours according to the semester and year specified.
 - The academic Guidance process is not compulsory, so the student can register for classes without taking the advisor comments into consideration, but the student will take full responsibility for this action as well as its consequences since this might delay his/her graduation.
- The student must understand that the registrars from for at least 12 credit hours and at most of 18 credit hours in regular semesters.
 - The student has the right to withdraw (Drop) from a course or more during a certain semester under the condition that the student has to stay registered for at least 9 credit hours. This withdrawal (Drop) should be approved by the course professor as well as the academic advisor.
The withdrawal (Drop) should take place in a specific period of time that is set by the admission and registration department. There is a defined period within which the student can be refund for the course fees, after this time period the student will lose his right to any the refund.
 - The student can Add/Drop courses according to the admission and registration office time table only. The student is allowed a limited number of Adds/Drops that is set by the admissions and registration department.

Quality Assurance

Philadelphia University has achieved the first ranking leading all public and private universities in Jordan in the quality assurance of the Hussein Fund for Creativity and Excellence for the faculties of Information Technology and Law. The university has set and demonstrated the highest quality assurance measures in teaching, management and research development that have attracted the attention of domestic and foreign institutions.

In the Architectural Engineering department, the highest measures of quality assurance are being adopted to raise the level of teaching standards, and implement clear measures for teaching, advising, senior project organization, testing and course assessment. This is put in a feedback system that helps the department to hear the comments from the students and allow them to evaluate both the course and the instructor of each course they attend in the department. This of course increases the level and quality of teaching and information delivery.

The mission of the department and its objectives stresses on the implementation of the highest quality measures and regulations to provide the best learning experience

to our students. (See *department mission in Architectural Engineering Department mission section*)

Honors and Awards

Philadelphia University as well as the Architectural Engineering Department promotes and encourages students to excel in their studies through the introduction of various awards and honor lists that present the names of top students>

These awards are listed on the University Admission site (<http://www.philadelphia.edu.jo/admission.asp>). Also, an annual honor list is published and engraved on the entrance of the Deanship of Engineering that highlights the names of the honored students from each engineering discipline.