



# **Faculty of Engineering and Architecture (FEA)**

# Faculty of Engineering and Architecture (FEA)

## Officers of the Faculty

Peter F. Dorman	President of the University
Ahmad Dallal	Provost, ex-officio
Ibrahim Hajj	Dean
Fadl Moukalled	Associate Dean
Moueen Salameh	Registrar, ex-officio
Salim Kanaan	Director of Admissions, ex-officio
Lokman Meho	University Librarian, ex-officio

## Faculty Administrative Support

Ghada Kamar Najm	Executive Officer
Alia Kazma Serhal	Student Services Officer
Lara Touma	Financial Officer

## Historical Background

The first programs leading to a master's degree were introduced in 1962. Since then other programs have been added to help meet the growing demand for advanced engineering education. Between October 1990 and October 1994, six new master's degree programs were introduced: the Master of Engineering Management (1990); four programs leading to the degree of Master of Engineering, with majors in computer and communications engineering; electric power engineering; electronics, devices and systems, and environmental and water resources engineering (1991-1993); the Master of Mechanical Engineering (1994) with majors in applied energy, materials and manufacturing, or thermal and fluid sciences. In 1998 two additional programs were added, the Master of Urban Design and the Master of Urban Planning and Policy.

In 2007 PhD programs accepted students in three departments of FEA: Civil Engineering (PhD in Civil Engineering and a PhD in Environmental and Water Resources Engineering), Electrical and Computer Engineering (PhD in Electrical and Computer Engineering), and Mechanical Engineering (PhD in Mechanical Engineering).

## Vision

The Faculty of Engineering and Architecture is a world-class professional school that attracts eminently qualified faculty of international caliber and outstanding students. The FEA contributes to the development of Lebanon and the region by providing undergraduate and graduate education of the highest quality, promoting strong research programs, and rendering expert services to the community.

# Mission

The Faculty of Engineering and Architecture (FEA) at the American University of Beirut is a leading professional school in the Middle East. The FEA offers educational programs of the highest standards, promotes research and creative scholarly activities of its faculty and students, and provides services to the community at large, while addressing the needs of Lebanon and the region. The FEA undergoes continuous improvement to maintain a challenging and intellectually stimulating environment, and prepares its students to be life-long learners, innovators, and professionals capable of being leaders in their chosen careers, committed to personal integrity and civic responsibility.

## Graduate Programs

### Master's Degree Programs

The Faculty of Engineering and Architecture offers graduate programs of study leading to the degree of Master of Engineering (ME), with majors in civil engineering; computer and communications engineering; environmental and water resources engineering; electrical and computer engineering; and mechanical engineering. The Faculty also offers the degrees of Master of Engineering Management (MEM); Master of Urban Design (MUD); Master of Urban Planning and Policy (MUPP); Master of Science in Environmental Technology (MS); and Master of Mechanical Engineering (MME), major applied energy.

The requirements for admission to the master's programs are those specified for the master's degree in the Admissions section in this catalogue, with the following interpretations and additions:

### Deadlines

Applications for admission to graduate study should be submitted to the Office of Admissions according to deadlines set in the Admissions section pages 37-43.

- Applications are considered complete upon receipt of at least two letters of recommendation from professors or supervisors of the applicant, and an official transcript covering at least the end of the first semester of the senior year or its equivalent. In addition, applicants to the electrical and computer engineering graduate programs are required to sit for the GRE General Test.
- All applications may include an application for graduate assistantships. All applications for graduate assistantships received after admission application deadlines will be considered, pending availability.

### Process of Admission

- The Office of Admissions forwards applications for graduate admission to the Dean's Office. The Dean's Office in turn forwards the applications to the departments. The graduate faculty adviser, the departmental representative on the graduate studies committee, and the chairperson consider each case individually.
- Recommendations for admission and the departmental acceptance letters are forwarded to the FEA Graduate Studies Committee from the Dean's Office.

- The Faculty Graduate Studies Committee meets in 'special sessions for admission' and recommends applicants for admission.
- Upon confirmation of the admission list by the Graduate Studies Committee, the Dean's Office forwards the list and the departmental acceptance letters to the university Office of Admissions.
- The Office of Admissions prepares and sends the admission packages.
- Students who are accepted must confirm their acceptance of admissions and assistantships within one month. If a student does not respond within this time, the assistantship will be re-assigned.

## Criteria for Admission to Master's Programs

Admission to graduate study offered by the departments of FEA is merit-based and limited to applicants who either hold a bachelor's degree from AUB or from an approved institution in an appropriate field as specified by the department. Furthermore, such applicants should have completed undergraduate or graduate study that is of sufficient quality and scope to indicate high promise of success in the opinion of the Graduate Studies Committee and the department in which the applicant proposes to study. Admission to graduate study is in one of three categories. The minimum admission standards in all categories are described below. Additional requirements specific to each graduate program within FEA are included in the departmental sections.

### Admission as a Regular Student

An applicant is admitted as a regular student if s/he meets the following minimum admission requirements: has an average of 80 for the last two years at AUB or the equivalent at other universities as determined by the Faculty, adequate English proficiency as established by the University, and at least two letters of recommendation from faculty or supervisors familiar with the academic ability of the applicant. An applicant whose last semester's grades are not included in the application is admitted provided that s/he has maintained an average of 80 for the last two years. The average in all three categories is to be calculated based on all required courses taken during the last two years of the student's undergraduate studies. If the number of credits taken during the last two years is fewer than 60, previous terms will be considered until this number is at least 60.

### Admission on Probation

An applicant is admitted on probation if s/he meets the following minimum admission requirements: an average for the last two years of 75 at AUB or the equivalent at other universities as determined by the Faculty, adequate English proficiency as established by the University, and at least two letters of recommendation from faculty familiar with the academic ability of the applicant. A student whose last semester's grades are not included in the application is admitted on probation provided that s/he has maintained an average of 75 for the last two years of undergraduate study. In addition, an applicant who does not meet the above minimum requirements but appears to have reasonable potential for success as a graduate student, as manifested by appropriate practical experience or a high score on a relevant standardized exam such as the GRE, may be admitted on probation. A student admitted on probation must complete nine credits of graduate level courses during the first two semesters of graduate studies, must pass all courses, and must attain a minimum cumulative average of 80 to receive regular student status. If the student fails to meet any of these conditions, s/he will be dropped from the program.

## Admission as a Prospective Master's Student

This category is reserved for students applying to graduate study in a field other than that of their undergraduate major. An applicant is admitted as a prospective graduate student if s/he meets the following minimum admission requirements: an average of 75 for the last two years at AUB or the equivalent at other universities, as determined by the Faculty, in their undergraduate study; demonstrated competence in courses related to the field being sought; adequate English proficiency as established by the University; and at least two letters of recommendation from faculty members familiar with the academic ability of the applicant. The Graduate Studies Committee shall act on the admission of prospective graduate students upon the recommendation of the department or program of the intended major. The department or program of the intended major recommends the supplementary undergraduate courses the applicant must take before s/he may be considered for admission, to graduate work, by the Graduate Studies Committee. Upon the completion of the supplementary undergraduate courses with an average of at least 80, the department or the academic unit may recommend to the Graduate Studies Committee admission of the applicant to the graduate program. The supplementary courses must be completed within four consecutive semesters, excluding summers.

## Academic Evaluation

- A student admitted on probation must complete nine credits of graduate level courses during the first two semesters of graduate studies, must pass all courses, and must attain a minimum cumulative average of 80 to receive regular student status. If the student fails to meet any of these conditions, s/he will be dropped from the graduate program.
- A student is placed on probation if s/he attains a cumulative average of 70 or more, but less than 80. This probation is removed at the end of the following term by the attainment of a cumulative average of at least 80. If the student fails to remove the probation, s/he will be dropped from the graduate program.
- A student is dropped from the graduate program if s/he attains a cumulative average of 70 or more, but less than 80, in any term and fails one course in that term. (This rule does not apply to the first term of study.)
- A student is dropped from the graduate program if s/he attains a cumulative average of less than 70 or fails two courses in one term.
- A student who accumulates two consecutive failures in the seminar course will be dropped from the Faculty.
- A student dropped from a graduate program will not be allowed to re-enroll in the same program at any future date.

## Regulations for Master's Students taking Undergraduate Courses

- Master's-level students who are required to take undergraduate courses must obtain a grade of at least 70 in each undergraduate course taken.
- If a student fails to obtain a grade of 70 in any of these undergraduate courses, the student is allowed to repeat that course only once.
- Failure to meet the requirements stipulated above will result in the student being dropped from the graduate program.

## English Requirements for Master's Students

Applicants to the graduate program, other than AUB graduates and graduates of recognized colleges or universities in North America, Great Britain, Australia, and New Zealand, must meet the English Language Proficiency Requirement (ELPR).

Applicants who are admitted to graduate study, or prospective graduate study, from recognized institutions of higher education with scores on the English proficiency tests as indicated below will be required to take the following English courses:

<b>Score on English Proficiency Tests</b>				
<b>EEE</b>	<b>Paper-based TOEFL</b>	<b>Computer-based TOEFL</b>	<b>Internet-based TOEFL</b>	<b>English Requirement</b>
< 500	< 573	< 230	< 88	Not Admitted
500-549	573-599	230-249	88-96	ENGL 338
>550	>600	>250	>100	None

\*Accepted graduate students who score between 80 and 88 on the IBT or its equivalent on the EEE may be eligible to take UPEN 007: English for Engineering Graduates. For more information, students should contact the department to which they were accepted.

Graduates placed in either ENGL 102 or 203 must register for the course during the first semester of their enrollment. Graduate students placed in ENGL 102 will not be allowed to take any graduate courses with ENGL 102 and must register for ENGL 203 immediately after successfully completing ENGL 102. Graduate students enrolled in ENGL 102 or 203 must obtain a minimum grade of 70 in these courses or they will be dropped from the graduate program.

Graduate applicants who score 500 or better on the verbal reasoning section of the general part of the Graduate Record Examination (GRE) are exempt from taking any English proficiency test for the purpose of meeting the ELPR.

## Graduation Requirements

To be eligible for graduation with a master's degree from the Faculty of Engineering and Architecture, a graduate student must have

- completed the credit hours of course work required by the program
- passed a comprehensive examination
- completed thesis or project requirements, as appropriate
- met the residence requirements specified for the master's degree in the section on Admissions in this catalogue
- satisfied the Faculty regarding the adequacy of the student's professional development and conduct.

## Comprehensive Examination

The comprehensive examination should be taken as soon as the student completes most of the course requirements and not later than the second week of the term in which the student is expected to graduate. A student who does not pass the comprehensive examination may take it a second time after a period of at least three months.

## Curricula and Courses

The curricula and courses offered in each department are presented in detail below. All courses offered by a department have the initials of that department or program as prefixes to the course number.

In all engineering departments the first digit of the three-digit number indicates the year (2 for the first year, 3 for the second year, 4 for the third year, and 5 for the fourth year). The second digit indicates the sequence, and the third digit indicates the course in the sequence.

## Courses Open to Students from Other Faculties

Students from other Faculties are allowed to take any course for credit offered by the FEA, provided space is available, prerequisites are satisfied, and the student has prior approval of his/her Faculty and the department offering the course.

## Doctor of Philosophy (PhD) Programs

The Faculty of Engineering and Architecture offers graduate programs leading to the degree of Doctor of Philosophy (PhD) with specializations in civil engineering, electrical and computer engineering, environmental and water resources engineering, and mechanical engineering.

## Criteria for Admission to PhD Programs

Candidates for a doctoral degree program must hold a master's degree or its equivalent and must demonstrate outstanding academic ability (minimum average of 85 or its equivalent) at the master's level, as well as the potential to conduct scholarly research. Additional specific requirements for each program can be found in the section of the department offering the program.

Application to the doctoral program will follow the deadlines set by the Admissions Office. All applicants are required to take the General Exam part of the Graduate Record Examination (GRE) and submit their scores. Students other than AUB graduates and graduates of recognized colleges or universities in North America, Great Britain, Australia, and New Zealand are required to take the Test of English as a Foreign Language (TOEFL). Students who sit for this test must receive a minimum score of 600 if taken manually, or 250 if it is taken by computer.

Admission to a PhD program requires recommendations of the department, the FEA Graduate Studies Committee, and the approval of the AUB Board of Graduate Studies.

## Financial Support Available to Graduate Students

The FEA offers three types of financial assistance to the most qualified applicants to its graduate programs: fellowships, graduate research assistantships (GRA), and graduate teaching assistantships (GA).

The students who receive financial support are expected to maintain a high level of academic performance, satisfactory progress toward a degree, and satisfactory performance of the work assignments associated with the aid.

Fellowships, GRAs and GAs, covering tuition and stipends are available for students at the graduate level in return for assisting faculty members in teaching and/or research for a specified number of hours per week in an academic department. Recipients are selected on the basis of their academic record and departmental need. Applications may be obtained from the FEA Dean's Office and should be submitted prior to the beginning of the semester (see deadline on the FEA webpage).