

# FACULTY OF ENGINEERING CAIRO UNIVERSITY



# CUFE

The **Faculty of Engineering – Cairo University** has a profound historical background - the first engineering college in the Middle East and Africa where the school was established during the reign of Mohamed Ali in 1816 - and since its launch, it has been associated with the largest French and Swiss engineering schools in the world at that time. Its highly efficient and competent Graduates have greatly participated in solving many of the problems of the community and are always part of the development of the industry and the establishment and enhancement of infrastructure and service of national projects. Graduates have widely joined universities and international research institutions and have held high positions not only in the engineering field, but also in many fields, including politicians, economists and businessmen.

Globally developed, CUFE is currently one of the largest universities in Africa and the Arab world where there are many disciplines to meet the demands of society and age: starting with four major engineering disciplines in the early century – to reach now **24 Engineering degrees** in the two current adopted systems : **The Two-Semester System, where principal engineering programs are available**, as well as the **Credit-Hour System, where the interdisciplinary and specialized programs are offered**.



CAIRO UNIVERSITY- FACULTY OF ENGINEERING



The Faculty's specializations and fields of study vary from **14 academic departments** to **15 specialized centers**. The faculty also offers **71 postgraduate programs- PG-** in various engineering and environmental disciplines, offering **diplomas, master's degrees, doctorates degrees, and professional and inter-disciplinary diplomas**.



## VISION

Excellence and leadership in engineering education nationally, regionally and internationally to better serve individuals, society and environment.



## MISSION

Achieve academic excellence to graduate competitive engineers, academically, professionally and ethically capable of continuous learning, in line with international innovations and effective contribution to sustainable development in Egypt.



## STRATEGIC GOALS

- Develop renowned and competitive graduates.
- Provide attractive work environment suitable for continuous improvement of faculty members and assistants.
- Develop a system to assess strategic needs and the future directions of the faculty of engineering.
- Strengthen the relationship between the faculty of engineering and alumni, industrial enterprises, educational institutes and society.
- Upgrade and enhance work systems and procedures for administrative and academic developments.
- Realize means for continuous improvement of scientific research and graduate studies.

## GRADUATE ATTRIBUTES

- Apply basic principles of mathematics, science and engineering concepts to solve engineering problems.
- Observe, define and solve engineering problems.
- Use modern methods and tools suitable for the practice of engineering.
- Design systems, components and processes appropriate to achieve an engineering goal in a realistic framework.
- Recognize the impact and problems of engineering applications on society and the environment.
- Design and perform appropriate laboratory experiments and analyze and interpret their data.
- Understand contemporary engineering issues.
- Work efficiently in a multidisciplinary team.
- Commit to professional ethics and social and cultural responsibility.
- Effectively communicate orally and in writing.
- Appreciate the importance of self-learning and professional life.
- Successfully manage engineering projects in the context of various economic, environmental and social constraints.
- Achieve the requirements of potential employers.





## QUALITY OF ENGINEERING EDU.



According to the English ranking classification "QS 2018", Cairo University is ranked 231rd on the world, Architecture: 101-150, Civil Engineering: 151-200, Chemical Engineering: 251-300, Computer Engineering: 301-350, Electronics and Electrical Engineering: 201-250, & Mechanical Engineering: 201-250.



Faculty of Engineering is nationally accredited as an institution from "The National Authority to Ensure the Quality of Education and Accreditation" (NAQAAE) in March 2016 for a period of five years. The Communications Department received the national accreditation in May 2013 for five years and the renewal in 2018.



The Architecture program, the two-semester system, is revalidated by the UNESCO-UIA VALIDATION EDUCATION COMMITTEE in October 2017 for a period of five years; as well as, the AET program, CH system, is validated in March 2016 by the same body for three years.

## TWO-SEMESTER SYSTEM PROGRAMS

CUFE offers a bachelor's degree, in Two-Semester System, in one of the following Engineering Disciplines:

### 1. ARCHITECTURAL ENGINEERING

The Department is one of the oldest departments in the CUFE- and dates back to 1932. The department aims to prepare an architect, a designer and a competent creative practitioner.



### 2. CIVIL ENGINEERING

The Civil Engineering program is divided into three main sections: Structural Engineering, Irrigation and Hydraulics, and Public Works.



### 3. MECHANICAL POWER ENGINEERING

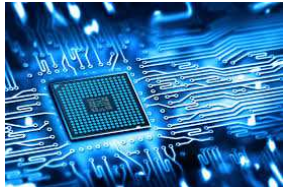
### 4. MECHANICAL DESIGN & PRODUCTION

The Department was established in 1916 at the Mohandes-khana School. In 1926, the electricity specialization was added to it.



### 5. ELECTRICAL & COMMUNICATION ENGINEERING

A program for students who wish to obtain higher education certificates to join the largest universities in the world as well as major local and international companies.



### 6. ELECTRICAL POWER & MACHINES ENGINEERING

The Graduates are qualified according to international standards and compete with their peers in the local and international professional market in the field of Electric Energy.



### 7. CHEMICAL ENGINEERING

Students learn about industrial processes and design and control the performance of their systems in terms of dealing with raw materials and products within the industrial establishment.



### 8. GEOLOGICAL ENGINEERING & MINING

### 9. PETROLEUM ENGINEERING

### 10. METALLURGICAL ENGINEERING

The Department includes the three disciplines: Mining, Petroleum and Metallurgical Engineering



### 11. AEROSPACE ENGINEERING

Aerospace Engineering program was launched in 1938 and deals with physical laws and aerospace techniques in space and atmosphere.



### 12. SYSTEMS & BIOMEDICAL ENGINEERING

The department was established in 1976 and it seeks excellence in the fields of medical engineering in terms of education, scientific research and innovation through the creation and transfer of knowledge.



### 13. COMPUTER ENGINEERING

The latest departments of CUFE and participates actively in the community and in the field of technology.



## CREDIT-HOUR (CHS) SYSTEM PROGRAMS

Program Number	Program Name	System
1	Architectural Engineering and Technology	AET
2	Communication and Computer Engineering	CCE
3	Electrical Energy Engineering	EEE
4	Healthcare Engineering & Management	HEM
5	Construction Engineering and Management	CEM
6	Structural Engineering	STE
7	Water Engineering and Environment	WEE
8	Civil Infrastructure Engineering	CIE
9	Petroleum and Petrochemical Engineering	PPC
10	Aeronautical Engineering and Aviation Management	AEM
11	Mechanical Design Engineering	MDE
12	Mechatronics Engineering	MEE
13	Industrial Engineering & Management	IEM
14	Manufacturing Engineering & Materials	MEM
15	Sustainable Energy Engineering	SEE





الخريطة العامة لكلية الهندسة  
جامعة القاهرة



جامعة القاهرة

CUFE- GIZA CAMPUS



- |    |  |
|----|--|
| ١  | مبنى الهندسة الاشرافية   |
| ٢  | المبنى الإداري   |
| ٣  | مبنى الهندسة المعمارية والأشغال العامة والهندسة الجوية الطبية والمنظومات وهندسة الحاسبات |
| ٤  | مبنى الهندسة المدنية   |
| ٥  | مسجد الكلية الرئيسي  |
| ٧  | مدراج السداوي  |
| ٨  | مبنى هندسة الألكترونيات والاتصالات الكهربائية  |
| ٩  | المكتبة  |
| ١٠ | مبنى التصميم الميكانيكي والإنتاج   |
| ١٤ | مبنى التصميم الميكانيكي الجديد   |
| ١١ | مبنى هندسة القوى الميكانيكية (مبنى الحرارة)  |
| ١٢ | مبنى نادي الكلية   |
| ١٣ | ورشة الكلية  |
| ١٩ | مبنى هندسة القوى الميكانيكية (سيارات)  |
| ٢٠ | مبنى الرياضيات والفيزياء الهندسية  |
| ٣١ | مبنى الري والهايبر ويفا  |
| ٣٢ | مبنى هندسة المناجم والبتروول والفلات   |
| ٣٣ | مبنى الهندسة الكيميائية  |
| ٤٠ | مبنى هندسة الطيران   |
| ١٦ | مبنى هندسة القوى والآلات الكهربائية  |
| ١٧ | مبنى هندسة القوى الميكانيكية الجديد  |
| ٣٤ | مبنى خواص المواد   |
| ٣٠ | معمل خواص المواد   |
| ٣٠ | ورشة معمل خواص المواد  |
| ٣٤ | معمل أبحاث ميكانيكا التربة والأساسات   |
| ٣٦ | معمل أبحاث ميكانيكا التربة والأساسات الجديد  |
| ٣٥ | مبنى خرسانة  |
| ٣٧ | مخازن  |



**CUFE- SHEIK ZAYED ANNEX**



150000	مبنى الإدارة والمدخل الرئيسي
50000	مرکز بحثية
50000	مرکز بحثية
50000	برج المساعة
51000	قسم (2)
52000	قسم (3)
53000	قسم (5)
54000	قسم (7)
55000	قسم (6)
56000	قسم (4)
57000	قسم (1)

# STUDENTS ACTIVITIES & WELFARE

## FACULTY OF ENGINEERING- CAIRO UNIVERSITY



### YOUTH WELFARE DEPARTMENT

The College has a special department for youth welfare. Its role is as follows:

#### A - Student Welfare

It is done through: -Studying problems that students face: social, psychological and academic, helping to find appropriate solutions.

-Trying to solve the students' economic problems through the social solidarity fund for college students and the student welfare fund

-The use of university support in the expenses of treatment (for difficult cases) - and the disbursement of compensation devices - and the costs of central solidarity).

#### B - Students Activities

It is done through: - Develop a plan for the various sports, social, cultural and artistic activities that commensurate with the wishes and desires of students. - Presenting projects in the various fields of activities of the SU council to assist in the proposed activities and services for the students. - Positive help in the implementation of the activities approved by the SU and to overcome the obstacles encountered by them to come out in the appropriate manner.

Hence, the following objectives are achieved:

**A - Developing students' hobbies by providing them with the necessary resources. B - Investing in students leisure time in a more productive manner that provides students with experiences C- Encouraging the spirit of community service and instilling leadership among students through public service, cultural, recreational camps and trips. D. Promoting the spirit of fellowship and college life among students thus strengthening their connection with each others & their instructors. The college is considered one of the top faculties at the university level in various students activities.**



### CUFE STUDENT UNION- CUFE SU

CUFE SU is formed annually by electing two students for each study group for each of the seven PUIC committees. Each committee shall have a secretary and an assistant secretary among its members of the students, and a consultant of faculty members chosen by the faculty dean who has experience in the field of the work of the committee under the supervision of the Vice Dean for Education and Student Affairs as a leader of the Student Union in order to provide support, guidance and advice to the Federation Committees. The Director of the Youth Welfare Department shall be secretary of the Union Council Fund. The students shall carry out their activities through these committees:

- Families Committee
- Sports Activity Committee
- Cultural & Media Activities Committee
- Art Activity Committee
- Mobility and Public Service Committee
- Social Activity Committee
- Scientific & Technological Activity





**NEW**

## BYLAWS OF CUFE 2-SEMESTER PROGRAMS

CUFE is a pioneering college that seeks excellence in performance. In order to continue to play this leading role in light of many local and international changes, CUFE had to reconsider the scientific programs offered by this educational institution to face real challenges in continuing this pioneering level.



**This role can not be undertaken without the development of a coherent scientific approach - which seems inevitable to accelerate the pace of education in the world and the region around us to meet the many challenges of:**

- 1- Providing job opportunities for graduates in the local, regional and international markets.
- 2- Keeping abreast of developments in engineering programs as the latest list was issued in 2003.
- 3- Adhering with the requirements of quality in modern engineering education based on self-learning of the student and not education, and development of the student's challenges during the period of study, both at the level of quality requirements locally or globally.

## OBJECTIVES OF THE 2018 NEW BYLAWS & REGULATIONS



- Updating the current regulation in line with contemporary trends in engineering education.
- Reformulation of the study syllabus to match the global study systems - to increase the opportunities of graduates in the regional and international labor markets.
- Communication and compatibility with global engineering education systems.
- To amend the graduation requirements to include the requirements of the university - the requirements of the college - requirements of general specialization and take into account the balance between those requirements.
- Reduce contact hours and develop student self-learning.
- Achieve the means of continuous improvement of the development of scientific research system.
- Preparing a distinguished graduate capable of competing locally and regionally.
- Focusing on developing students' skills and adjusting their measurement methods in accordance with the requirements of quality in engineering education and the needs of the local, regional and international labor market.
- Developing Creativity & Innovation skills of students
- Development of the engineering sense of the student, research and problem solving skills related to the environment and society (Problem Solving).
- Focusing more on practical training courses (industrial and field).
- Benefit from the abundance, diversity and development of existing learning resources.



The students start their study, at the faculty of Engineering, with the preparatory year. During this year they study different topics and gain skills which are necessary for choosing and joining the department of their choice. The department they actually get to join is determined by the student's choice and by local regulations.

The engineering mathematics and physics department (EMP) supervises all teaching activities in the preparatory year and is responsible for teaching basic science classes at all levels.

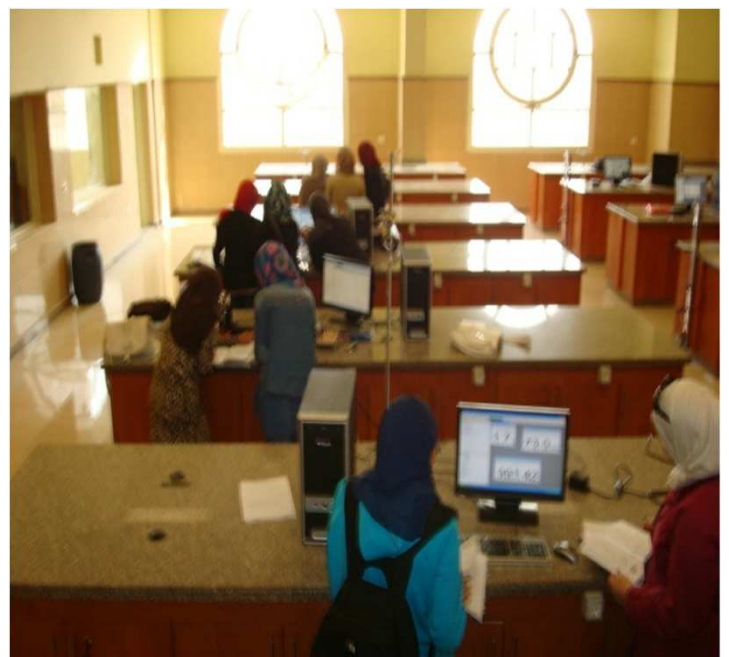


### Key Features

- Covering the basic scientific concepts associated with different engineering specializations. This aids the students in choosing their majors.
- Linking the scientific concepts with corresponding applications through scientific thinking and analysis supported with efficient experimental practices.
- Developing strategic learning methodologies supporting an independent scientific character for each student. This approach aims at enriching the creativity in design and application to last throughout the student's future career in engineering.
- Studying a set of courses which are comparable in quality to their counterparts at reputable institutes all over the world.
- Training in the basics of engineering design, including engineering drawing and workshop skills.

### Objectives

- Training in teamwork for analyzing and applying the studied scientific concepts.
- Building the scientific character of the student through practicing critical and analytical thinking of experimental results associated with basic scientific concepts.
- Building the skills for recognizing the creativity aspects in the student for determining their future specialization.
- Linking the studied scientific concepts with corresponding engineering applications which may contribute to the society welfare and improving the environment.
- Supporting the scientific background of each student in the fields of mathematics, physics, mechanics, and chemistry which are necessary for their future studies at the chosen department.



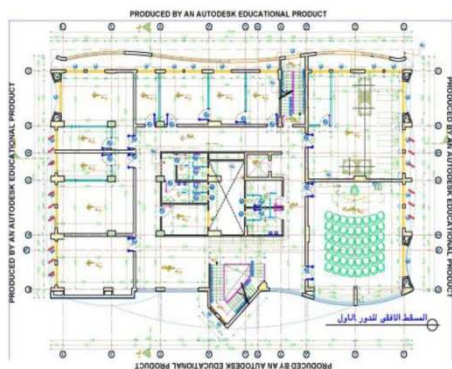
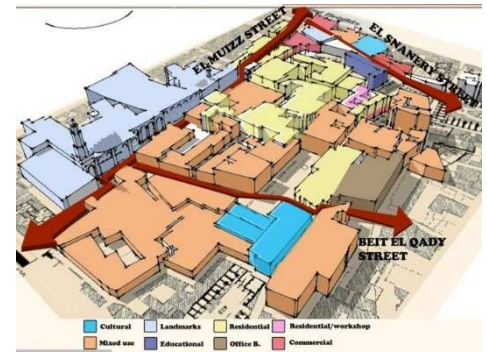
For more information

Visit <http://emp.eng.cu.edu/en/about-us/>

Faculty of Engineering, Cairo University, Giza 12613, Egypt



The Program of Architecture is one of the oldest disciplines taught at the Faculty of Engineering, Egypt. The Department of Architecture was founded in 1816 at the Citadel, it was then closed for several years and reopened in 1866 by Khedive Ismail. The study of Architecture relies basically on the development of students' imagination and creativity. It works on the elaboration of the knowledge of building sciences in order to design buildings and spaces that enable individuals to efficiently and comfortably maintain their daily needs and activities. The core of the study of architecture basically tackles several areas including: architectural and urban design; building technology and construction; humanities; history and theories of architecture; urbanism; visual skills and interior design. Recently digital applications were also introduced to enrich the field.



### Program Vision and Objectives

The program aims at graduating an architect who is capable of creating designs strongly linked to their contexts. An architect who is, at the same time, capable of efficiently communicating her/his ideas with multimedia. Towards that aim, the program offers a number of core courses taught to all enrolled students, then a number of elective courses covering the five specialization streams offered at the 3<sup>rd</sup> and 4<sup>th</sup> year of the program.



### Work Areas

The Architectural Engineering program graduate might work in one of several areas, including but not limited to:

- Design and engineering consultancy for buildings and urban settings.
- Planning, urban, and environmental design, and creating an integrated urban environment.
- Three-dimensional expression and the virtual reality linked with architecture and the built environment.
- Local communities enabling within local and mega-scale projects.







Civil Engineering Field is the oldest Engineering Discipline and the most demanded in the Job market in Egypt and the Middle East.

The Civil graduate will work in the design, construction, operation, and management of civil Engineering projects including all types of structures: residential, administration, commercial and industrial buildings, bridges, service projects, tunnels, highways and airports, railways, water and wastewater projects, surveying, geotechnical projects, different types of irrigation projects, dams, barrages, harbours and coastal protection.



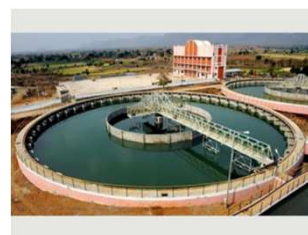
### Fields of Work for a Civil Engineer

- Planning and design of different Civil engineering projects,
- Tenders preparation and estimation, and time schedules,
- Construction supervision, execution, and project management of Civil Engineering projects,
- Development and renovation of new building materials,
- Real-estate Developers,
- Ministries and governmental bodies.

### Program's Objectives

The Civil Engineering Program aims at:

- Providing students with strong knowledge, and proficient skills in the design, operation, maintenance, and management of different civil engineering projects.
- Eliminating the gap between academic knowledge and practical experience .
- Use of different software in the analysis and design of different civil engineering projects.
- Developing communication skills, team work, and problem solving skills.





The Mechanics Department was established in 1916 within five departments of the Royal Engineering School. The thermal laboratory was established in early 1928 and included the latest thermal machines at the time. In 1963, the Department of Mechanical Power Engineering was established.

Since then, the courses have been updated to coincide with scientific and technological progress. Therefore, the scientific disciplines of the department have been divided into three main areas:

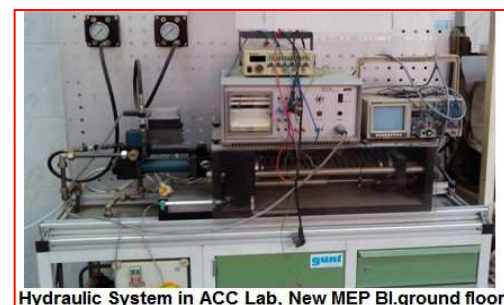
- \* Thermodynamics and combustion machines
- \* Heat transfer and applications
- \* Fluid flow and turbines

The different subject area of the Mechanical Power Engineering Department include:

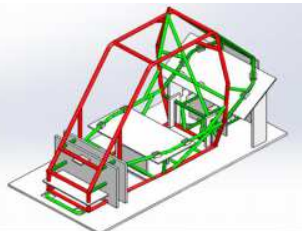
New and renewable energies, Refrigeration and air conditioning, Energy conservation, Sea water desalination, Environmental engineering, Automatic control of mechanical energy systems, Pipelines and pumps, Power plants and steam engineering, Sustainable energy engineering, Internal combustion engines, Gas turbines and Firefighting.

The department has a variety of labs covering all fields, as well as a specialized center in mechanical power engineering, measurement and calibration Lab. and Automatic Control Lab

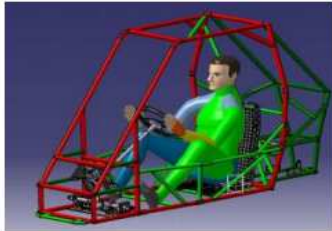
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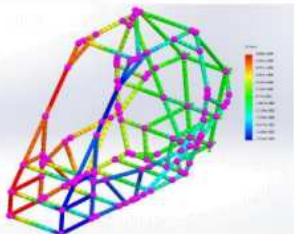
Hydraulic System in ACC Lab, New MEP Bl.ground floor



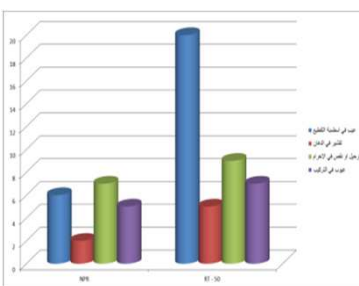
JIG DESIGN & SIMULATION



ERGONOMICS DESIGN ON CATIA



CAD SIMULATION FOR LOADINGS



The mechanical design and production department (MDP) offers a high quality education at both undergraduate and postgraduate levels. The department awards the bachelor's degree in mechanical design and production. Moreover, the department aims to qualify students through exposing them to scientific topics related to mechanical design, materials and manufacturing, dynamics, vibrations and control of mechanical systems, industrial engineering, solid mechanics and stress analysis. The MDP department is an integral department in the faculty since its role is not only limited to providing courses for students in the department however it also offers courses to students in most of the other departments in the faculty. Throughout the past years, the department has had an advanced ranking amongst universities worldwide.



### Program Objective

1. Develop renowned and competitive Mechanical Engineers with depth knowledge in Design, Manufacturing and Industrial engineering.
2. Provide attractive academic and work environment suitable for continuous improvement of faculty members, teaching and research assistants.
3. Develop a dynamic system to assess strategic needs and future directions of Mechanical Design and Production Department.
4. Strengthen ties and relationships between Department of Mechanical Design & Production and alumni, industrial enterprises, educational institutes and society.
5. Develop, upgrade and sustain work systems and procedures within the departments and affiliated institutes.
6. Continuously develop and improve basic & applied research, graduate programs and studies.

### Program Key Features

- 1- Providing courses which link theory to practice.
- 2- Linking the applications of courses offered with modern software packages.
- 3- Giving students the freedom to choose courses which deepen their understanding in their specialization.
- 4- Providing summer training for students in factories and companies which allows students to find employment opportunities after graduation.

For More Info.:

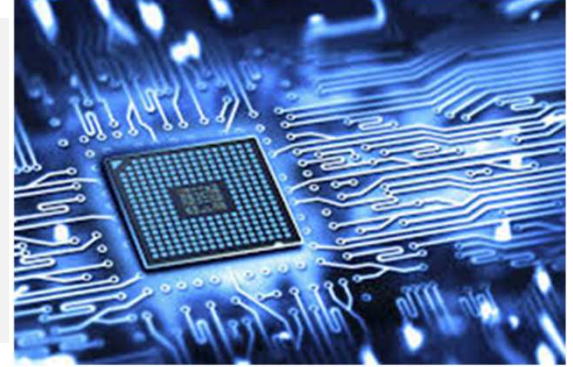
[eng.cu.edu.eg/en/](http://eng.cu.edu.eg/en/)  
 Faculty of Engineering, Cairo University,  
 Giza- Egypt





The Electronics and Electrical Communications Engineering Department (EECE) at Cairo University encompasses five major disciplines that – together – provide the foundation for the transformation towards the information society. These disciplines are: Electronics, Communications, Electronics and Communications of Computer Systems, Electromagnetics and Waves, and Control.

Over the years, and under the leadership of highly distinguished and dedicated department chairmen, the EECE Department of Cairo University has established a world-wide reputation for academic excellence. Indeed, it has produced graduates of high caliber who are proving themselves in various national and international enterprises, and who have also influenced the political, social and economic life in Egypt.



The **vision** of the program is to provide top-quality education, to engage in society-related research, development and training that will enhance the quality of life, to continue to produce high quality engineering graduates in the area of telecommunications and electronics. The program was nationally accredited in 2013.



The **mission** of the program is to create modern education and research environment that attracts high caliber students through:

- Continuously improving the teaching and research facilities and laboratories.
- Providing access to up-to-date information resources.
- Continuously updating the program teaching curricula in cooperation with industry and other stakeholders using program website [eece.cu.edu.eg](http://eece.cu.edu.eg)
- Facilitating career opportunities, internships and scholarships to its graduates with the continuity of communication with them.
- Equipping the graduates with the essential communication skills that qualify them to assume their social responsibilities after graduation.

FOR MORE INFO:  
<http://eng.cu.edu.eg/>

FACULTY OF ENGINEERING- CAIRO  
UNIVERSITY  
GIZA- EGYPT





The discipline of Electrical Power Engineering encompasses all subjects relating to electrical energy including its generation, whether traditional (fossil fuel-based) or renewable; transmission and distribution of energy through high, medium and low voltage power lines; utilization of electrical energy in industry and all other societal functions; control of energy usage to conserve it and to maximize its benefits.

Teaching in this discipline is carried out by more than one hundred faculty members and teaching assistants. It is also supported by a unique collection of laboratory facilities.

### Study Subjects in EPE

The courses offered in this discipline cover a large spectrum of subjects such as:

- Electrical machines and drives.
- Electric and magnetic fields and their applications.
- Generation of traditional as well as renewable energy.
- Electric power quality and energy conservation.
- Power network operation, Flexible power transmission, and electrical load management.
- High voltage engineering and its industrial applications.
- Traditional and modern control theories and computer-control in industry.
- Power electronics and its applications.
- Standard specifications and electrical

### Degrees Granted in EPE

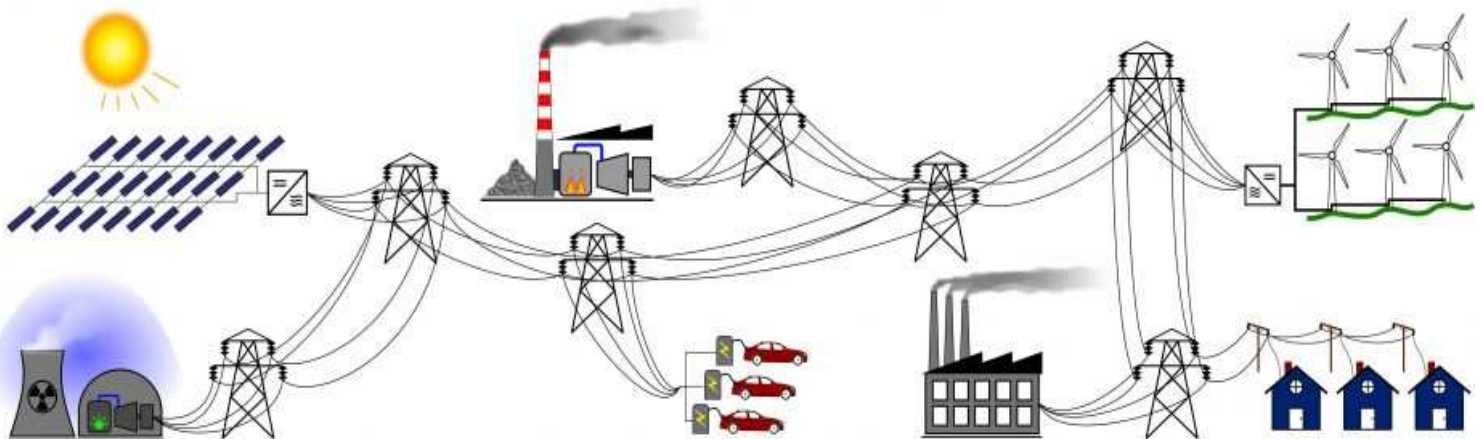
The Faculty of Engineering - Cairo University (CUFE) grants a bachelor's degree in Electrical Power Engineering, which qualifies the graduate to work in any one of the many areas that this discipline covers.

CUFE also grants post-graduate degrees, namely, Diploma, Master's, and Ph.D. degrees in Electrical Power Engineering, where the applicant for each degree must meet a number of criteria before being enrolled. It is worth mentioning that all degrees granted in Electrical Power Engineering are internationally recognized.

### Employment Opportunities for EPE Graduates

Many employment opportunities await a graduate in EPE. With the ever increasing demand for electrical energy –industrial, commercial and residential- and hence the increase in energy generation, the Government's electrical sector is employing a significant number of EPE graduates. Also, numerous industrial bodies are seeking EPE graduates, including electric companies, manufacturing companies, and public service institutions. Young entrepreneurs may also see many promising opportunities in the area of EPE.

<http://eng.cu.edu.eg/en/contact-us/>





The chemical engineer is responsible for converting the raw materials into more useful products with the highest benefit at the lowest cost and the least damage to the environment. This is achieved by designing, operating, developing and managing the industrial processes using and applying physical, chemical, mathematical and economic principles.

The chemical engineer works in diverse fields, including but not limited to, oil refining and natural gas processing, petrochemicals manufacturing (e.g. plastics, rubber, pigments, dyes, etc.), ceramics, glass, cement and fertilizers industries. The chemical engineer has an important role in leather industry, food and beverage industries, water treatment, industrial and agricultural waste recycling, energy efficiency in industrial facilities and finding alternative energy sources to reduce global warming.



### **PROGRAM OBJECTIVES**

- Provide chemical engineering students, at both the undergraduate and postgraduate levels, with a strong technical education and communication skills that will enable them to have successful careers in a wide range of industrial and professional environments.
- Pursue knowledge and commensurate understanding to students about the industrial processes and their design bases to control the performance of their system in terms of dealing with raw materials and products within industrial establishments.
- Acquire students the ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- Enhance the quality and competence of graduates with an ethical vision and appreciation to their social and moral responsibilities both within their careers in engineering and through service in their communities.
- Stimulate outstanding research activities that contribute to the advancement of the chemical engineering profession and the development of the local and regional industry.



### **KEY FEATURES**

- The core courses in the department are concerned with all the essentials that the engineer needs in the design, operation and management of industrial facilities.
- A variety of elective courses for students to fit their selected plan.
- Application of design software packages to solve practical material and energy balances and design problems.
- Practical training opportunities in national design companies and industrial plants.

For more information visit:  
<http://che.eng.cu.edu.eg/en/>  
Cairo University, Faculty of Engineering, Giza, Arab Republic of Egypt.



## What is a Metallurgical Engineer

Cairo University has recognised the role of the Metallurgical Engineers in building Modern Egypt, as early as 1958, when the Metallurgical Engineering Programme was launched for the first time. The Metallurgical Engineer designs and develops materials and alloys for civil and military applications. In our modern life many conventional alloys are replaced by new and advanced materials for electronic, biomedical, renewable energy, space, structure and many other applications. These advanced materials are based on metals, polymers, ceramics and composite materials.

1. Preparing competent graduates on both National and International levels, who fully understand fundamentals, practices and technology in all areas related to metals and materials design, treatment, manufacturing, protection and development. Metallurgical engineering students will study courses that will develop their understanding of the core concepts of technology, new technologies and create new processes.
2. Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study. The students will develop communication, entrepreneurship and innovation skills.



<http://mpm.eng.cu.edu.eg/en/>

## Where do Metallurgical Engineers work?

**Iron and Steel Industry.**

**Manufacturing of spare parts.**

**Petrochemical and Petroleum Industries.**

**Casting, welding and inspection.**

**Nuclear Industries.**

**Aluminium Industry.**

**Automotive Industry.**

**Energy Stations.**

**Metal Forming Industries.**

**Research and Development.**



### **Program Goals**

- Preparing competent graduates on both National and International levels, who fully understand fundamentals, practices and technology in all areas related to Mining and geological industries.
- Mining and geological engineering courses develop the students understanding of the core concepts of technology, new technologies and create new processes.
- Get the students involved in all areas of mining and geological engineering with real practice in Mining companies, geological sites, research institutes and universities.

### **Who is a Mining and Geological Engineer?**

The role of mining and geological engineer play an important role in searching for, prospecting, and exploration of ores and minerals by using the different geological and mining methods either surface or underground mining.

To exploit the mined ores, the physical or chemical processing may be used to enhance their economic values and meet the industrial standards.

### **Mining and Geological Engineers work fields**

- **Crushing and grinding of rocks**
- **Surface and underground surveying**
- **Mineral and mineral wastes Processing**
- **Ventilation and air conditioning of mining constructions**
- **Feasibility studies of mining projects**
- **Site investigation and rock testing**
- **Mining companies**
- **Minerals resources exploration**
- **Rocks and minerals analyses**
- **Quarries**
- **Drilling and blasting**
- **Tunnels**
- **Slope stability**
- **Water treatment**
- **Building and ornamental stones**
- **Waste recycling**

**For more information, Visit website:**

**<http://mpm.eng.cu,edu.eg/en/>**





## Key Features

All studies confirm that the globe will continue its dependence on fossil fuel as the main source of energy during the next century, the matter which will certainly lead to an increased labor market demand on Petroleum Engineers worldwide.

As for Egypt, owing to the fast growing oil and gas discoveries, the labor market will always remain in need of a large number of petroleum engineers with distinctive capabilities which allow them to compete with other graduates from eminent international universities in the field of petroleum engineering so that they can keep up with the massive and accelerating advancement in the technologies used in petroleum and petrochemical industries.

Thus, the curriculum of the Petroleum Engineering Program covers three main curricular areas: Humanities and Social Sciences, Basic Engineering Sciences and Applied Engineering and Design as appropriate to the oil and gas industry which provides the graduate with opportunity to step into the labor market through major petroleum companies, either local or regional. Meanwhile, the study plan offered to the Petroleum Engineering students enables them to gain analytical, creative and interpersonal skills.

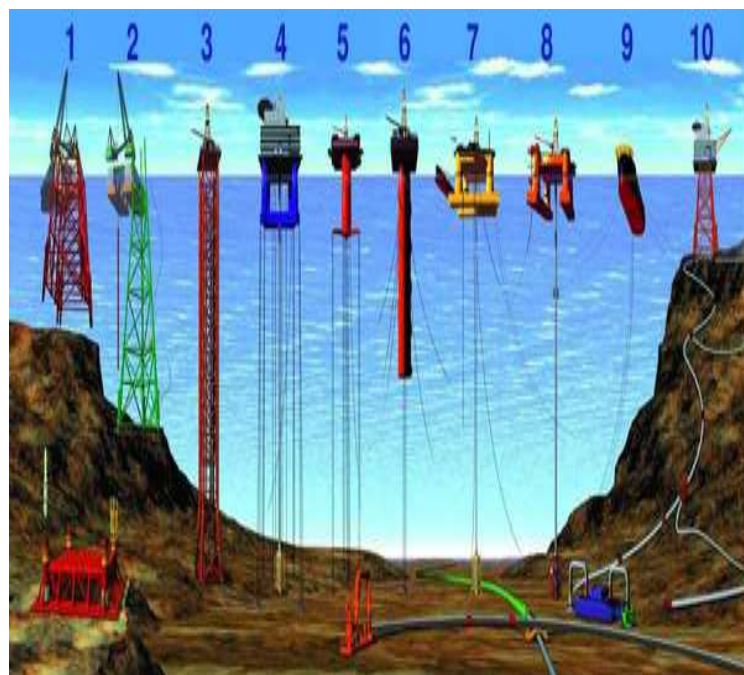


## Employment Fields

- **Petroleum drilling engineering**
- **Oil production engineering**
- **Petroleum reservoir engineering and reservoir management**
- **Design and maintenance of oil and gas transmission lines**
- **Oil and gas treatment processes**
- **Activation and maintenance of oil and gas wells**
- **Well logging operations**
- **Petroleum engineering economics**

## Program Objectives

1. **Provide students with basic knowledge in the concepts of Humanities and Social Sciences, Basic Engineering Sciences and Applied Engineering and Design to enable them to solve technical problems and develop personal skills to conduct various tasks required by the petroleum industry as being an industry which applies ever-evolving modern technologies.**
2. **Develop the students' communication skills, teamwork skills and logical and creative thinking.**
3. **Prepare a graduate capable of satisfying the requirements of industry and research locally, regionally and internationally.**

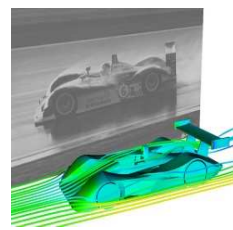




Aerospace Engineering is a branch of engineering responsible for the analysis, design and construction of aircrafts, missiles and spacecrafts. Aerospace engineering is divided into two main and interrelated branches: aeronautical engineering and space engineering. The first deals with vehicles within the Earth's atmosphere, and the second deals with vehicles operating outside the Earth's atmosphere.

### Key Features:

- Specialized aerospace engineering courses include aircraft and spacecraft structural analysis, aircraft and rocket engines, aerodynamics, astrodynamics, flight and space dynamics and control, aircraft, rockets and satellites design.
- The use of the latest computer technologies and the latest techniques in analysis and design.
- Qualifying students for the job market in aerospace companies through hands-on training.



### Program Objectives:

- Educate future leaders of Aerospace field through innovative educational programs with the optimal mix between theory and practice.
- Create study and research environment that generates inventions, technologies, and solutions to present aerospace problems, in cooperation with colleagues in the academia, industry, and government, in Egypt and worldwide.
- Provide leadership to the national, regional, and international aerospace community.

### AE Engineers:

Aerospace engineers are employed in industries in which workers design or build aircrafts, engines systems and components, or spacecrafts. They work primarily for firms that engage in manufacturing, analysis and design, research and development.

For more information, visit:

<http://aer.eng.cu.edu.eg/en/>

Cairo University, Faculty of Engineering, Giza,  
Arab Republic of Egypt.



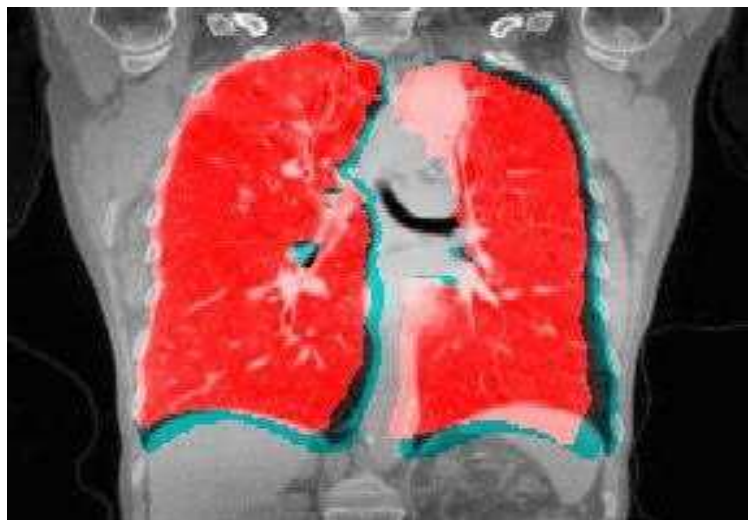
**Biomedical engineering is one of the recent engineering branches that evolved with the recent advances in modern medicine. It acts as a bridge between technology and medical sciences to design and manufacture medical equipment, devices and software. To achieve this aim, biomedical engineering integrates a variety of engineering sciences like mathematics, physics, electronics, mechanics and computer sciences with a range of medical sciences like anatomy, physiology and biochemistry.**



### **Technologies**

**Biomedical engineers have developed numerous technologies that facilities and boost medical services:**

- **Artificial replacements, e.g. prosthetic limbs, artificial heart, and dental implants.**
- **Surgical Systems and Equipment, e.g. Laser, robotic arms and interventional surgeries.**
- **Medical sensors and monitoring devices for vital signals, e.g. ECG, heart rate, blood composition.**
- **Medical Imaging, e.g. Ultrasound, X-Ray and Magnetic Resonance Imaging.**
- **Radiation Therapy, for cancer treatment.**
- **Implants, e.g. Insulin pumps, Pacemaker.**
- **Rehabilitation Devices.**



### **Career Opportunities**

- **Clinical engineering: to find and orchestrate the uses for medical products in hospitals and healthcare facilities.**
- **Equipment engineering: to design and develop tools and equipment that are used to diagnose and treat diseases.**
- **Bioinformatics: to create data algorithms to identify and classify components of a biological system, such as DNA and protein sequences.**
- **Medical software development: to develop the software used for diagnostic or therapeutic purposes or the software that drives a medical device.**
- **Research: to find new solutions for medical problems and aid with the proper design of medical products.**



For more information:

<http://bmes.cufe.edu.eg/>

Faculty of Engineering – Cairo University – Giza, Egypt



## Vision

To be the driving force for international computer engineering departments with distinguished members and graduates.

## Mission

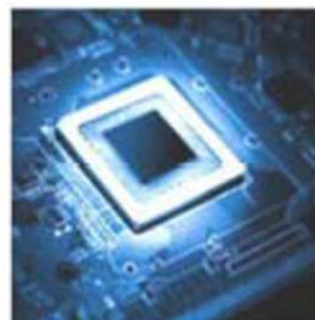
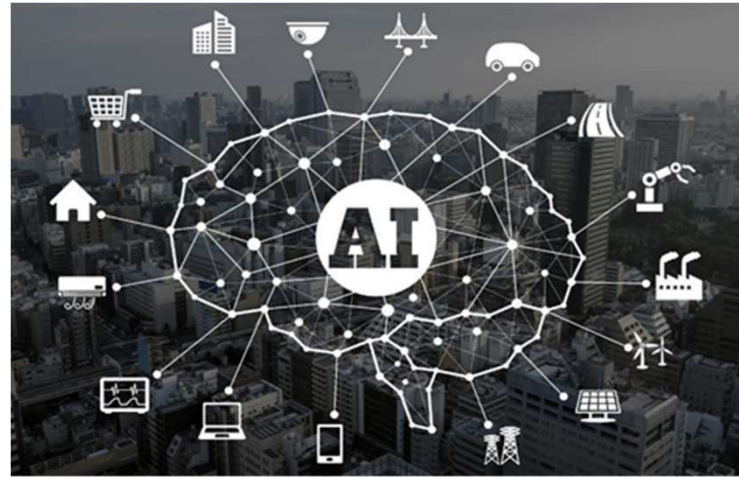
To achieve an outstanding academic level through mobilizing its students and researchers creativity abilities while keeping quality standard engineering education and actively contributing in the service of mankind.

## Goals

- Prepare quality graduates
- Attract top faculty and students
- Introduce out-of-the-box ideas in management systems
- Enhance teaching and scientific research
- Strengthen relationships between the faculty, similar departments, alumni, industry and the community
- Present technical support to CUFE in the fields related to Computer Engineering Specializations
- Make CMP-CUFE an attractive workplace

## Specializations

- Artificial Intelligence and Machine Learning
- Image Processing and Computer Vision
- Computer Graphics and Virtual Reality
- Big Data and Data Mining
- Security and Encryption
- Embedded Systems
- Software Engineering
- Computer Networks
- Wireless and Mobile Networks
- Computer Architecture
- Database Systems
- Operating Systems
- Microprocessor Design
- Parallel Processing and Cloud Computing
- Language Understanding and Translation
- Multimedia Digital Systems



For more information, please  
visit [cmp.eng.cu.edu.eg](http://cmp.eng.cu.edu.eg)