FACULTY OF ENGINEERING & TECHNOLOGY

YOUR PLACE ... YOUR PURPOSE

▸ Philae Temple, Egypt

Dean's Welcome Note

A.Badr

Professor
Mohamad Abdelrehim Badr
Dean,
Faculty of Engineering and Technology

Dear Student,

I welcome you to our Faculty, and hope that you will find it useful for your purpose of exploring these programmes. Due to the importance of the role of Engineering in developing modern societies, the faculty of Engineering and Technology has committed itself to a significant share in meeting the demand of Egypt and neighboring countries for engineers. The Faculty aims at targeting the highest level of educational and research standards. Therefore the Faculty policy attempts to attract highly qualified staff members, teaching assistants and technicians and to equip its laboratories with the latest technologies. Among measures adopted to improve the quality of teaching is the design of a well-balanced up to date curriculum and the continuous revision and development of the courses to cope with the rapid changes in the field of science and technology.

We are progressively increasing the use of technology to support learning and teaching.

We have adopted a continuous improvement process which involves all constituencies at different levels. Faculty, students, alumni and employers are taking active roles in assessing the quality of engineering education and providing valuable feedback to improve the learning environment. Our faculty and students are excited about this venture and the college is dedicated to provide all the needed support.

Social activities are also encouraged so as to create a very pleasant and productive educational environment. The Faculty of Engineering and Technology is characterized by close friendly relations that bond students and staff in one happy and cooperative family. This leads to building an impressive scientific institution that is deemed to be one of the most famous engineering faculties in the Middle East. On behalf of my colleagues I would like to welcome all of you wishing you a very successful and happy academic year.

Is "Engineering & Technology" for me?

Choosing the right career is a key decision in achieving a happy and fulfilling life.
Think carefully and choose wisely.
"Engineering & Technology" might be your right choice if you:

- Like to build and demolish.
- Have an innate curiosity about how things work.
- Are good in mathematics and physics.
- Are good at problem solving and possess logical thinking abilities.
- Enjoy working as a part of a team.
- Like to tackle challenging problems.
- Have drawing skills.
- Have time management skills.
- Want to make a difference to the lives of individuals and society as whole.

If you agree with the above fundamentals the answer is "Yes"; "Engineering & Technology" is the right choice for you.

Why Study Engineering at FUE?

The Faculty of Engineering and Technology at FUE began its academic programs for undergraduate students in 2006. The programs aim at graduating engineers capable of facing challenges that have occurred in the world's social and economic order over the past decade. Globalisation, technological advances, financial restructuring, climate change and limited resources are examples of such challenges.

Integrative science is a fact, not a theory

Life scientists draw on the expertise of chemists, physicists, engineers and computer scientists to help them observe, analyze, and simulate complex biological processes, such as how cells differentiate and grow.

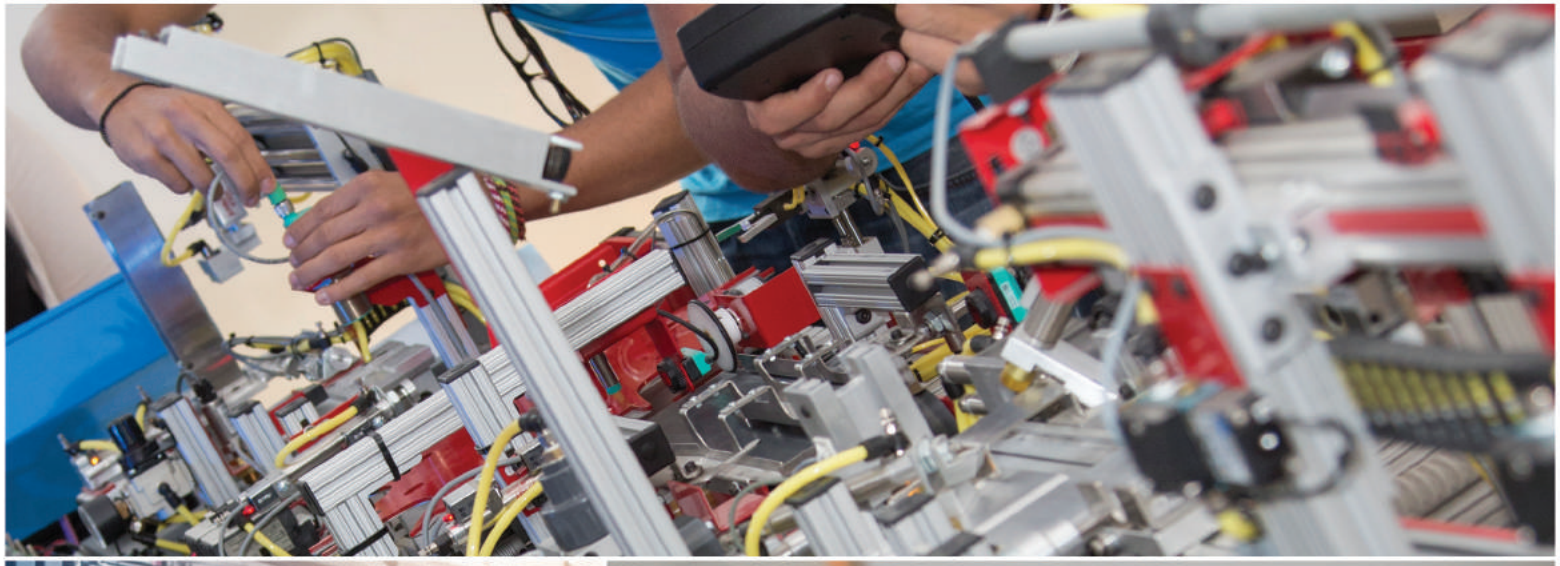
In the same way, engineers and other physical scientists take inspiration from nature, with the goal of applying some of its elegant solutions – the structure of spider silk or molecular motors – to the development of human-made materials and other engineered products.

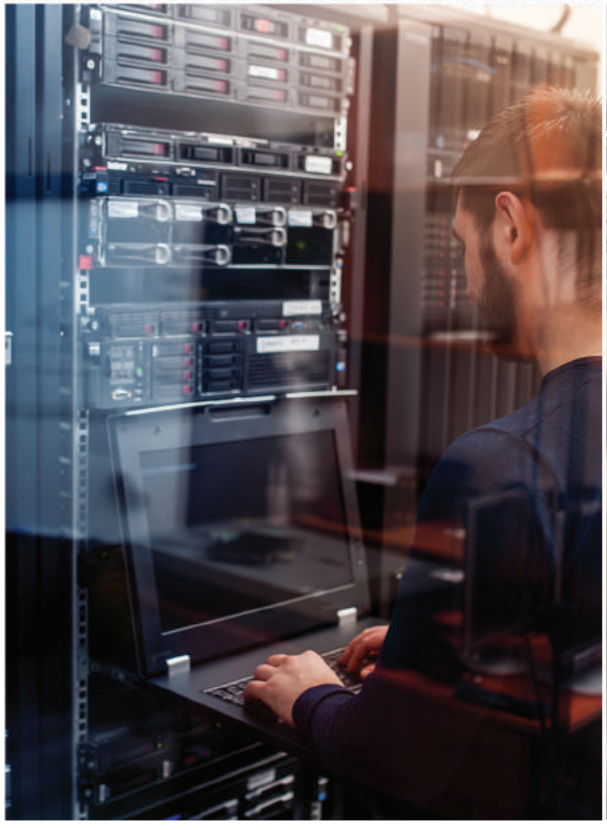
To be successful at integrative science, researches – from computer scientists to engineers to biologists – require the intellectual and physical resources to transcend existing boundaries of disciplines and collaborate with colleagues from other areas.

We supply the means. You supply the mind.

Innovation is encouraged

In addition to fostering relationships with industry and government laboratories, FUE serves as an 'incubator' for new ideas and has dedicated programmes that aid innovation and entrepreneurship for the faculty and students.





Excellence of teaching staff

The Faculty of "Engineering & Technology" at Future University in Egypt is proud to have a highly qualified and well-trained caliber of teaching staff who acquired their degree from highly reputable national and international universities. Our faculty staff is dedicated to continuous development and research and embrace new inventions and modern engineering techniques. They apply these techniques to their work and many have published their research in reputable national and international journals.

Career Opportunities

FUE offers ample and exciting opportunities for graduate students to take advantage in a variety of industries, such as automotive, construction, manufacturing, Design, power and telecommunication.

Transferable skills

In addition to the main engineering principles, graduate engineers acquire a range of transferable skills, including time management, communication, team working and research skills during their degree studies, which will be an added value once they join the work force .

Intellectual development

Engineering education develops the ability to think logically and to solve challenging problems. These skills are invaluable throughout both working and professional life.

Creative thinking

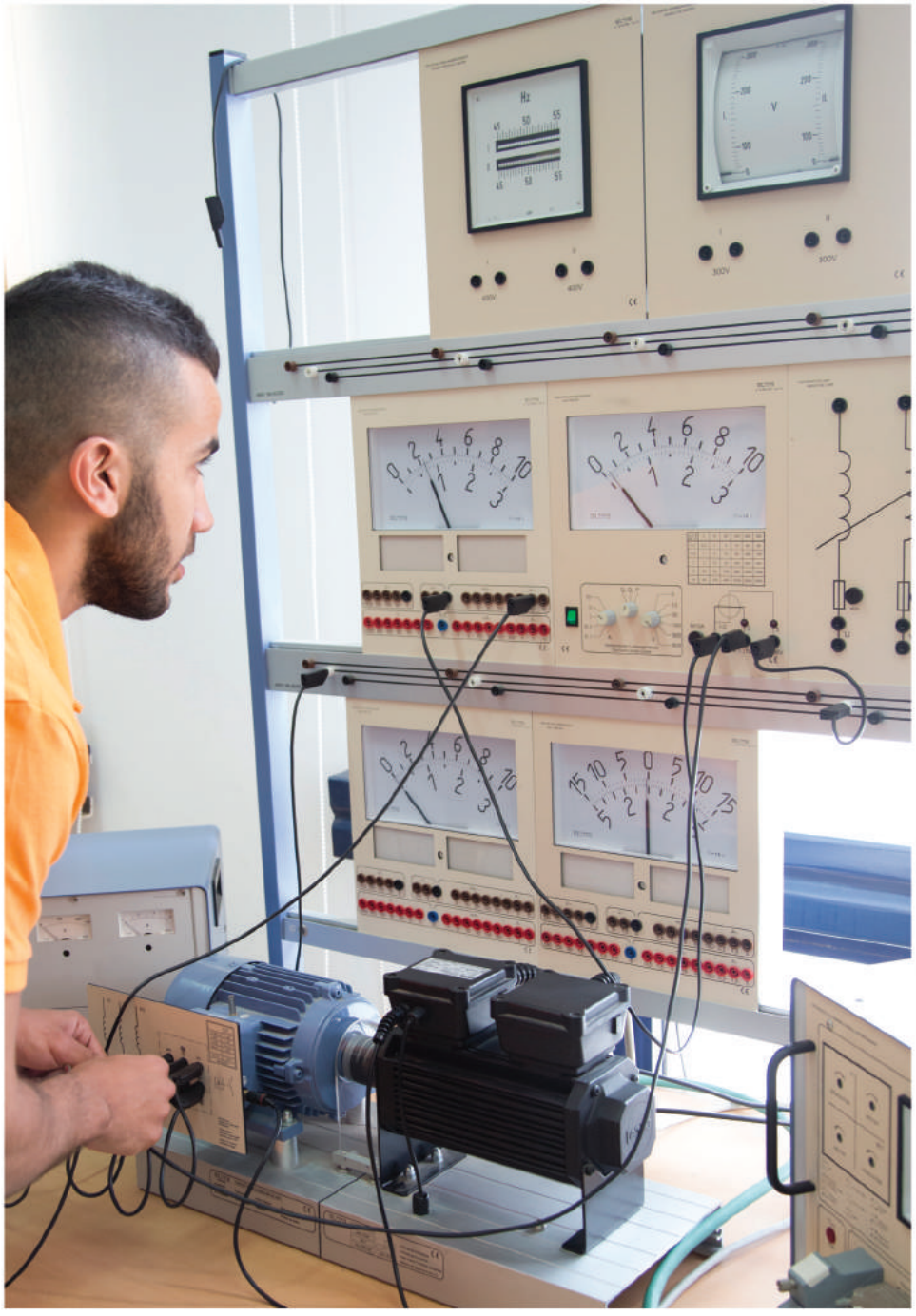
Engineering is a creative profession. We are in a time of rapid social and technologicalchange and there is an increasing demand for engineers to provide novel solutions to the problems caused by these changes.

Diversity in disciplines

The Faculty of Engineering and Technology comprises the Departments of Mechanical, Architectural, Electrical, Structural, Biomedical and Petroleum Engineering. All departments are highly rated for teaching and research.

Friendly Environment

FUE has an enviable reputation for providing a friendly and supportive environment for students.

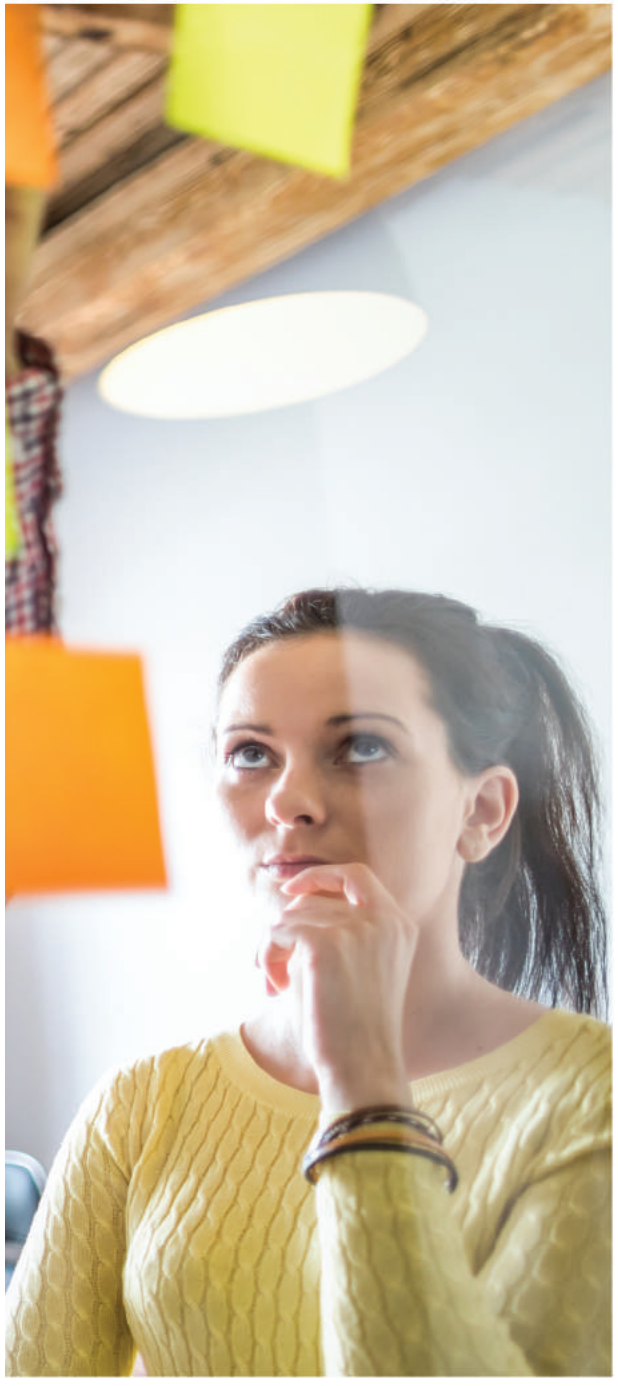


Faculty overview

The primary goal of the Faculty of Engineering and Technology is to prepare undergraduates to have the ability to contribute productivity to their profession upon graduation. To accomplish that objective, the Faculty provides students with the most advanced curricula supported by the latest technology.

Our students receive a strong foundation in one of the world's fastest progressing fields. To add further depth to their training, our students study the efficient use of computers and become familiar with the latest technologies in communication, computation and design. This rigorous program is supported by a highly qualified faculty and staff with expertise to effectively present material using modern teaching methods. Faculty of Engineering and Technology offers a wide variety of undergraduate engineering degrees, each of which prepares our students to be successful professionals in areas of demand both nationally and internationally.

As such our graduates are ready to enter the workforce and make excellent contributions to their chosen fields.



Programme Overview

All programmes in the Faculty of Engineering and Technology require the successful completion of five years (ten semesters) for obtaining the Bachelor of Science Degree along with prescribed number of credit hours.
In addition to the two regular semesters of each academic year, students may choose to join the summer course to reduce the load required during the regular semesters or to enrich their education with additional elective courses. Students are not allowed to exceed the number of credit hours per semester or take less than the minimum, without the Dean's permission and the academic advisor consultation.

Faculty Departments:

- Department of Electrical Engineering
  - Electrical Power Engineering
  - Electronics and Communication Engineering
- Department of Mechanical Engineering
  - Manufacturing and Production Engineering
  - Mechatronics Engineering
- Department of Structural Engineering
- Department of Petroleum Engineering
- Department of Architectural Engineering
  - Architectural Design
  - Interior Design
- Department of Biomedical Engineering

DEPARTMENT OF
ELECTRICAL ENGINEERING

Electrical Engineering deals with the study and application of electricity, electronics and electromagnetism. It covers a range of subtopics including power, electronics, control systems, signal processing, computers and telecommunications. Electrical power engineering deals with the problems associated with large-scale electrical systems such as power generation, transmission, utilization and control, whereas electronic and communication engineering deals with the study of small-scale electronic systems including computers and integrated circuits, satellites, fiber optics and mobile communications.

The Educational Philosophy

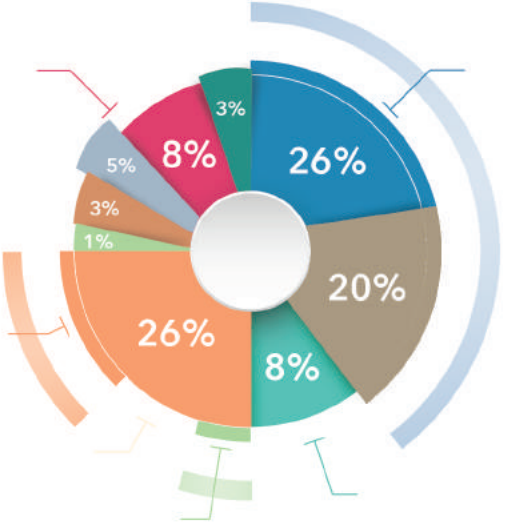
The Vision of the Electrical Engineering Department is to compete with the top Electrical Departments in Egyptian universities. Also, this vision may be extended beyond national to international universities in terms of both academic and research programs. This makes the department one of the top Electrical Engineering Departments in the Middle East and the Arab region.

The mission of Department of Electrical Engineering at FUE is to teach electrical engineering to students who have the potential to be distinguished compared to graduates from other local and international universities. The department aims at building the student's knowledge in both theoretical and practical fields.

The graduates are expected to contribute to the construction of the modern infrastructure needed in Egypt especially in the field of electrical energy, IT, communications and electronics industry.

Career opportunities

FUE Electrical Engineering graduates will be equipped to take up their professional careers in a variety of fields, such as:



- Research and innovation Centers and Institutes System
- Electrical Power system
- Security System
- Quality Control
- Power & Communications for all types of industrial and utilities
- Communications - fiber optics - microwaves - satellites

Programme Overview

FUE follows the credit hour system. The student has to successfully complete 176 credit hours to get their first degree in electrical engineering {B.Sc.}. These credit hours are distributed over five academic years for the average student. At FUE, the student joins the Electrical Engineering Department as soon as they successfully completes 34 credit hours of the basic subjects in the preparatory year (level 1). The student has to pass two years' study of compulsory courses designed to provide a solid background and broad knowledge in electrical engineering (equivalent to 70 credit hours). At the end of the two years (Levels 2 & 3), the electrical engineering student has to join one of the following two major specialization programmes, where he or she continue their studies to fulfill 72 credit hours (Levels 4 & 5):

1. Electronics and Communication Engineering
2. Electrical Power Engineering

For each programme there is a list of compulsory courses in addition to a list of elective courses. The compulsory courses provide the student with the background and the foundation of the corresponding specialization whereas the elective courses give the student the opportunity to go deeper in a narrower specialization The Electronics and Communication engineering programme began at FUE in the academic year 2009/2010. Electrical Power engineering programme began in the academic year 2012/2013.

Electronics and Communication Engineering:

Total Credit Hours Required: 176
- University Requirements : 12
- Faculty Requirements : 32
- Department Requirements: 62
- Specialization Requirement :70

Electrical Power Engineering:

Total Credit Hours Required: 177
- University Requirements : 12
- Faculty Requirements : 32
- Department Requirements: 62
- Specialization Requirement :70

Level 1
Common to All Engineering Students

First Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Tota l	CrH	
1	MTH 111	Differentiation with Applications and Alge-bra(Math .1)	3	2	5	3	-
2	MEC 121	Statics (Mech.1)	2	2	4	2	-
3	PHY 131	Properties of Matter and Thermodynamics(-Phys. 1)	3	3	6	4	-
4	GRA 141	Graphics 1	1	3	4	2	-
5	CHM 151	Chemistry 1	2	2	4	2	-
6	CSC 101	Introduction to Computers	2	1	3	2	-
7	ENG 101	English Language 1	2	0	2	2	-
Total			15	13	28	17	

Second Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Tota l	CrH	
1	MTH 112	Integration with Applications and Analyti-cal Geometry(Math.2)	3	2	5	3	MTH 111
2	MEC 122	Dynamics of Particles (Mech. 2)	2	2	4	2	MEC 121
3	PHY 132	Electricity and Magnetism (Phys.. 2)	3	3	6	4	-
4	GRA 142	Graphics 2	1	3	4	2	GRA 141
5	CMP 132	Computer Programming	2	2	4	2	CMP 101
6	MAN 121	Production Technology	2	2	4	2	-
7	ENG 102	English Language 2	2	0	2	2	ENG 101
Total			15	14	29	17	

Level 2

Common to All Electrical Engineering Students

Third Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MTH 211	Functions of Several Variables and Ordinary Differential Equations(Math.3)	3	2	5	3	MTH 112
2	PHY 232	Solid State Physics (Phys.3)	3	2	5	3	PHY 132
3	MPR 243	Thermodynamics and Fluid Mechanics	3	2	5	3	PHY 131
4	EPR 261	Electrical Circuits 1	3	3	6	4	PHY 132
5	UNV E01	University Elective Course 1	2	0	2	2	
6	HUM H03	Human Rights	2	0	2	2	-
Total			16	9	25	17	

Fourth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MTH 212	Transformations and Numerical Analysis (Math .4)	3	2	5	3	MTH 211
2	SCM 217	Civil Engineering	2	0	2	2	
3	ELE 213	Electronics	3	3	6	4	PHY 232 Co-requisite EPR 261
4	ELE 215	Logic Design and Digital Circuits	3	2	5	3	Co-requisite ELE 213
5	EPR 263	Electrical Circuits 2	3	3	6	4	EPR 261
6	MAN 381	Engineering Economics	2	1	3	2	-
Total			16	11	27	18	

Level 3

Common to All Electrical Engineering Students

Fifth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MTH 311	Complex Variable and Special Functions (Math. 5)	3	2	5	3	MTH 211
2	CMP 334	Digital Systems and Computer Organization	3	2	5	3	ELE 215, CMP 132
3	ELE 364	Electronic Circuits	3	3	6	4	ELE 213
4	EPR 341	Energy Systems	3	2	5	3	EPR 263
5	COM 362	Signal Analysis	3	1	4	3	EPR 261, MTH 211
6	UNV E02	University Elective Course 2	2	0	2	2	-
Total			17	10	27	18	

Sixth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MTH 312	Probability and Statistics (Math .6)	3	2	5	3	MTH 211
2	COM 213	Electromagnetic Waves 1	3	2	5	3	MTH 311, PHY 132
3	CMP 351	Microprocessors and Applications	3	2	5	3	CMP 334
4	EPR 364	Electrical and Electronic Measurements	3	2	5	3	EPR 261, ELE 213
5	CMP 371	Control Systems 1	3	2	5	3	MTH 212
6	GEN 313	Report Writing and Presentation Skills	2	1	3	2	-
Total			17	11	28	17	

After finishing the sixth level, the student should practice engineering training within a proper engineering foundation for not less than six weeks. A report should be submitted to the department after finishing the training which is considered as a graduation requirement.

Level 4
Electrical Power Engineering

Seventh Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	COM 414	Communication Systems	3	1	4	3	COM 362, MTH 312
2	EPR 473	PLC and Applications	3	2	5	3	CMP 334
3	EPR 421	Transmission and Distribution of Electrical Energy	3	1	4	3	EPR 263, MTH 212
4	EPR 431	High Voltage Engineering	3	1	4	3	EPR 341
5	EPR 451	Power Electronics 1	3	1	4	3	ELE 213
6	EPR 444	DC Machines and Transformers	3	3	6	4	EPR 341
Total			18	9	27	19	

Eighth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	CMP 472	Control Systems 2	3	1	4	3	CMP 471
2	EPR 411	Power System Analysis 1	3	2	5	3	EPR 421
3	EPR 445	Induction Machines	3	2	5	3	EPR 444
4	EPR 452	Power Electronics 2	3	2	5	3	EPR 451
5	EPR 412	Economics of Generation and Operation	3	1	4	3	EPR 421
6	EPR 413	Renewable Energy	3	1	4	3	EPR 341
Total			18	9	27	18	

Level 5

Electrical Power Engineering

Ninth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	EPR 551	Electric Drives	3	1	4	3	EPR 452
2	EPR 541	Synchronous Machines	3	2	5	3	EPR 445
3	EPR 511	Computer Applications in Electric Power Engineering	3	2	5	3	EPR 411
4	EPR E01	Elective 1	3	1	4	3	See List
5	EPR E02	Elective 2	3	1	4	3	See List
6	GEN 441	Law for Professional Engineers	2	1	3	2	-
7	EPR 500	Graduation Project	0	4	4	0	As Advised
Total			17	12	29	17	

Tenth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	EPR 512	Power System Analysis 2	3	2	5	3	EPR 411
2	EPR 581	Protection and Switchgear in Electrical Power Systems	3	2	5	3	EPR 431
3	EPR E03	Elective 3	3	1	4	3	See List
4	EPR E04	Elective 4	3	1	4	3	See List
5	GEN 541	Environmental Impact of Projects	2	1	3	2	-
6	EPR 500	Graduation Project	0	4	4	4	EPR 500
Total			14	11	25	18	

Registration for the graduation project is eligible when the student has no more than 42 credit hours left for graduation. Work within the graduation project should continue for two semesters. The student will be given incomplete at the end of the first semester. The final degree of the project will be given the following semester. In case the student failed in the project they are given a chance for one more semester and will be eligible to present the project by the end of that semester.

Level 4
Electronics and Communications Engineering

Seventh Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	ELE 415	Analog Signal Processing	3	2	5	3	ELE364
2	CMP 472	Control Systems 2	3	2	5	3	CMP371
3	COM 411	Communications 1	3	2	5	3	COM 362
4	COM 413	Electromagnetic Waves 2	3	2	5	3	COM 213
5	ELE 420	Electronic Devices	3	2	5	3	ELE 364
6	EPR 441	Electrical Machines	3	2	5	3	EPR 341
Total			**18**	**12**	**30**	**18**	

Eighth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	COM 415	Microwave Engineering	3	2	5	3	COM 413
2	COM 412	Communications 2	3	2	5	3	COM 411
3	ELE 412	Optical Electronics	3	2	5	3	PHY 232
4	ELE 570	Microelectronics Systems	3	2	5	3	ELE 420
5	COM E01	Elective 1	3	2	4	3	See List
6	COM 561	Digital Signal Processing	3	2	5	3	COM 362
Total			**18**	**12**	**30**	**18**	

Level 5

Electronics and Communications Engineering

No	Course		Weekly Hours				Ninth Semester
	Code	Title	Lec	Ex/ Lab	Total	CrH	Prerequisite Courses
1	ELE 514	Microwave Electronic Devices	3	2	5	3	COM 415
2	COM 527	Optical Fiber Communication Systems	3	2	5	3	ELE 412 , COM 412
3	COM 526	Data Communication Systems	3	2	5	3	COM 412
4	GEN 441	Law for Professional Engineers	2	1	3	2	
5	COM 520	Telecommunication Networks	3	2	5	3	COM 412
6	COM E02	Elective 2	3	2	5	3	See List
7	COM 500	Graduation Project	0	2	2	0	COM 412
Total			**17**	**13**	**30**	**17**	

Note: Data communication systems has been transferred to be a core course.

No	Course		Weekly Hours				Tenth Semester
	Code	Title	Lec	Ex/ Lab	Total	CrH	Prerequisite Courses
1	COM 524	Satellite Communication Systems	3	2	5	3	COM 412
2	COM 523	Mobile Communication Systems	3	1	4	3	COM 412
3	ELE 521	Electronic Systems Design	3	2	5	3	ELE 420
4	COM 521	Antenna and Propagation	3	2	5	3	COM 415
5	COM E03	Elective 3	3	2	5	3	See List
6	COM 501	Graduation Project	0	4	4	4	COM 500
Total			**15**	**13**	**28**	**19**	

DEPARTMENT OF
MECHANICAL ENGINEERING

Mechanical Engineering is the branch of Engineering that encompasses the generation and application of heat and mechanical power and the design, production and use of tools and machines. Mechanical engineers use the principles of energy, materials and mechanics to design and manufacture machines and devices of all types. They create the processes and systems that drive technology and industry.

The Educational Philosophy

The mission of the Department of Mechanical Engineering is to educate students to become professional engineers. Students must be confident in their understanding of science and technology, creative to face new challenges, have analytical skills and thirst for lifelong learning.
This should provide opportunities for students to participate and learn through mentorship within the Faculty and to serve the nation, the community and the university.
The Mechanical Engineering Department envisages FUE graduate as a competent and ethical professional in the areas of mechatronics and manufacturing engineering when compared to others who graduate from local and international universities.

Career Opportunities

These include mechanical engineers, design, development, manufacture, and research and project management in mechanical related systems such as power plants, automobile industry, aerospace industry, transportation and manufacturing industry.

This mission is served with a programme that meets the following objectives:

1. To develop an effective and stimulating environment for teaching, learning and research in Mechanical Engineering
2. To maintain and continue to enrich program that provides high quality professional education in Mechanical Engineering.
3. To provide post-professional research-based Masters and Ph.D. programs that advance the discipline of Mechanical Engineering.
4. To engage in research and other professional and scholarly activities that achieve national and international recognition, in order to enhance knowledge in education and practice.
5. To contribute to interdisciplinary and multi-disciplinary teaching and research programs with other universities, local and international.
6. To serve the public by working with citizens' groups, local, provincial and national governments, the private sector and the professions towards the general improvement of the built environment.

Programme Overview

The key characteristics of the Mechanical Engineering profession are its flexibility and individuality. The career paths of mechanical engineers are largely determined by individual choices, a decided advantage in a changing world. The foundation of Mechanical Engineering is formed by mechanics, energy and heat, mathematics, engineering sciences, design and manufacturing. Mechanics include fluids, ranging from still water to hypersonic gases flowing around a space vehicle, it involves the motion of anything from a particle to a machine or complex structure.

Mechatronics Engineering:

- Total Credit Hours Required: 176
- University Requirements: 12
- Faculty Requirements: 32
- Department Requirements: 132

Course Duration: 10 Semesters

Level 2
Common to All Mechanical Engineering Students

Third Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Le c	Ex/ Lab	Total	CrH	
1	EPR 266	Electric Circuits	3	3	6	4	PHY 132
2	MAN 221	Production Engineering 1	2	1	3	2	MAN 121
3	MAN 231	Properties of Materials	2	2	4	3	PHY 131
4	MAN 241	Mechanical Engineering Drawing	0	4	4	2	GRA 142
5	MPR 251	Engineering Thermodynamics	3	3	6	4	PHY 131
6	MTH 211	Functions of Several Variables and Ordinary Differential Equations(Math. 3)	2	2	4	3	MTH 112
Total			12	14	26	18	

Fourth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	ELE 216	Basic Electronic Circuits	2	2	4	3	PHY 132
2	GEN 313	Report Writing and Presentation Skills	2	1	3	2	None
3	MAN 232	Stress Analysis	2	2	4	3	PHY 131
4	MEC 221	Dynamics of Rigid Bodies(Mech3)	2	2	4	3	MEC 122
5	MPR 252	Fluid Mechanics	3	3	6	4	MEC 122, PHY 131
6	MTH 212	Transformation and Numerical Analysis (Math. 4)	2	2	4	3	MTH 211
Total			13	12	25	18	

Level 3

Common to All Mechanical Engineering Students

Fifth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MAN 311	Mechanical Mechanisms	2	2	4	3	MEC 221
2	MAN 321	Fundamentals of Manufacturing Processes	2	1	3	2	MAN 221
3	MAN 331	Structural Mechanics	2	2	4	3	MAN 232
4	MPR 355	Thermal Power Systems	2	2	4	3	MPR 251
5	MTH 311	Complex Variables and Special Functions (Math 5)	2	2	4	3	MTH 212
6	HUM H03	Human Rights	2	0	2	2	None
7	UNV E01	University Elective 1	2	1	3	2	None
Total			14	10	24	18	

Sixth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	ELE 366	Digital Systems	2	2	4	3	PHY 132
2	EPR 340	Electrical Machines	2	2	4	3	EPR 200
3	MAN 341	Mechanical Design 1	2	2	4	3	MAN 232 MAN 241 MAN 311
4	MAN 350	Industrial Automation (CAD/ CAM)	2	1	3	2	MAN 221 CMP 132
5	MAN 380	Modeling and Simulation	2	1	3	2	CMP 132 MTH 311
6	MPR 321	Measurements and Measuring Instruments	2	1	3	2	MPR 251 MPR 252
7	MTH 312	Probability and Statistics (Math 6)	2	2	4	3	MTH 311
Total			14	11	25	18	

Level 4

Seventh Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	CMP 470	Control Systems	2	2	4	3	MTH 212
2	ELE 410	Introduction to Microprocessors	2	2	4	3	ELE 366
3	MAN 441	Mechanical Design 2	2	2	4	3	MAN 341
4	MKT 411	Mechatronics	2	2	4	3	EPR 266 ELE 216
5	MKT 471	Robot Mechanics	2	2	4	3	MAN 311
6	MPR 459	Fluid Systems Control	2	2	4	3	MPR 252
Total			12	12	24	18	

Eighth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	CMP 456	Design of Real – Time Embedded Systems	2	2	4	2	ELE 410
2	CMP 475	Digital Control Systems	2	2	4	3	CMP 470
3	MAN 481	Quality Control	2	1	3	2	MTH 312
4	MKT 412	Mechatronics System Design	2	2	4	3	MKT 411
5	MKT 440	Programmable Logic Controllers (PLCs)	2	1	3	2	ELE 216
6	MKT 472	Robot Control	2	2	4	3	MKT 471
7	MPR 456	Heat Transfer	2	2	4	3	MPR 251
Total			14	12	26	18	

Level 5

Ninth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	EPR 442	Actuators and Power Electronics	2	2	4	3	EPR 340
2	MAN 515	Electromechanical Design	2	1	3	3	MAN 441 EPR 340
3	MAN 592	Project Management	2	1	3	2	None
4	MKT 500	Graduation Project I	0	4	4	2	As Advised
5	MKT E01	Elective 1	2	1	3	2	See List
6	MKT E02	Elective 2	2	1	3	2	See List
7	UNV E02	University Elective 2	2	0	2	2	None
Total			12	10	22	16	

Tenth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	GEN 441	Law for Professional Engineers	2	0	2	2	None
2	MAN 381	Engineering Economics	2	1	3	2	None
3	MKT 501	Graduation Project II	0	4	4	4	MKT 500
4	MKT E03	Elective 3	2	1	3	2	See List
5	MKT E04	Elective 4	2	1	3	2	See List
6	MKT E05	Elective 5	2	1	3	2	See List
7	MPR 555	Energy Conversion Systems	2	2	4	3	MPR 355
Total			12	10	22	17	

DEPARTMENT OF
STRUCTURAL ENGINEERING & CONSTRUCTION MANAGEMENT

Structural Engineering & construction management is an area of engineering that deals with planning, designing, detailing and managing all aspects that influence human lifestyle, such as residential buildings, roads, bridges, irrigation structures, water tanks,etc. Structural engineers are most commonly involved in the design of buildings and large non-building structures, but they can also be involved in the design of machinery, medical equipment and vehicles or any items, where structural integrity affects the item's function or safety. Structural engineers must ensure that their designs satisfy given design criteria, based on safety (e.g. structures must not collapse without due warning) or serviceability and performance (e.g. building sway must not cause discomfort to the occupants). Buildings are made to endure massive loads as well as changing climate and natural disasters. Structural engineering theory is based upon physical laws and empirical knowledge of the structural performance of different landscapes and materials.

Structural engineering design utilizes a relatively small number of basic structural elements to create structural systems that can be very complex. Structural engineers are responsible for making creative and efficient use of funds, structural elements and materials to achieve these goals.

Programme Overview

The Department of Structural Engineering and Construction Management at FUE offers a B.SC. Bachelor of science programme in Structural Engineering that is based on a five-year credit hour system. The programme start with a general introductory year of studying basics sciences in engineering followed – as soon as the student successfully completes 34 credit hours of the basic subjects in the preparatory year (Level 1) – by four specialised years of studying Structural Engineering and Construction Management.
Most of the Design teaching depends on one-to-one tutorials with frequent review sessions, nearly all design tutors are practicing engineers or design specialists who bring innovative design ideas to the Faculty.
Structural courses support the design work in each year and are assessed through a combination of coursework and examinations.
To attain the B.Sc. in Structural Engineering, a student has to successfully fulfill about 176 credit hours during their study.
There is a list of compulsory courses in addition to a list of elective courses. The compulsory courses provide the student with the background and the fundamentals of the corresponding specialization, whereas the elective courses give the student the opportunity to explore more deeply in a narrow specialization.

Total Credit Hours Required: 176
- University Requirments: 12
- Faculty Requirments: 32
- Department Requirments: 132

Course Duration: 10 semesters

Level 2
Structural Engineering and Construction Management

Third Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MTH 211	Functions of Several Variables and Ordinary Differential Equations (Math .3)	3	2	5	3	MTH 112
2	PHY 231	Theory of Relativity and Nuclear Physics (Phys. 3)	3	2	5	3	PHY 132
3	MEC 221	Dynamics of Rigid Bodies (Mech. 3)	2	2	5	3	MEC 122
4	SCM 211	Structural Analysis 1	3	1	4	3	MEC 121
5	SCM 221	Planimetric Surveying 1	2	1	3	2	MTH 112
6	SCM 231	Civil Engineering Drawing 1	0	4	4	2	GRA 142
7	HUM H03	Human Rights	2	0	2	2	-
Total			**15**	**12**	**27**	**18**	

Fourth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MTH 212	Transformations and Numerical Analysis (Math. 4)	3	2	5	3	MTH 211
2	MTH 214	Applied Statistics	2	2	4	2	MTH 112
3	SCM 212	Structural Analysis 2	3	1	4	3	SCM 211
4	SCM 213	Strength and Technology ofMaterials 1	3	2	5	3	-
5	SCM 222	Planimetric Surveying 2	2	1	3	2	SCM 221
6	SCM 232	Civil Engineering Drawing 2	0	4	4	2	SCM 231
7	SCM 233	Engineers and the Environment	2	0	2	2	-
Total			15	12	27	17	

Level 3

Fifth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	EPR 344	Electrical Installations and Construction Equipment	2	2	4	2	PHY 132
2	MPR 252	Fluid Mechanics	3	3	6	4	MEC 122
3	SCM 311	Structural Mechanics 1	3	1	4	3	SCM 212
4	SCM 312	Strength and Technology of Materials 2	3	2	5	3	SCM 213
5	SCM 313	Engineering Geology	2	1	3	2	-
6	SCM 321	Geo-informatics 1	2	2	4	2	SCM 222
7	GEN 313	Report Writing and Presentation Skills	2	1	3	2	-
Total			**17**	**12**	**29**	**18**	

Sixth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	SCM 314	Structural Mechanics 2	3	1	4	3	SCM 311
2	SCM 315	Reinforced Concrete 1	3	2	5	3	SCM 311
3	SCM 316	Building Construction and City Planning	2	2	4	2	-
4	SCM 322	Geo-informatics 2	2	2	4	2	SCM 222
5	SCM 351	Construction Project Management	3	1	4	3	-
6	SCM 352	Engineering Economics and Finance	2	1	3	2	-
7	UNV E01	University Elective Course 1	2	0	2	2	-
Total			17	9	26	17	

Level 4

Seventh Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	SCM 411	Structural Mechanics 3	3	1	4	3	SCM 314
2	SCM 412	Reinforced Concrete 2	3	2	5	3	SCM 315
3	SCM 413	Metallic Structures 1	3	1	4	3	SCM 314
4	SCM 461	Hydraulic Engineering	3	3	6	4	MPR 252
5	SCM 462	Irrigation and Drainage Engineering.	3	2	5	3	MPR 252
6	UNV E02	University Elective Course 2	2	0	2	2	-
Total			**17**	**9**	**26**	**18**	

Eighth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	SCM 414	Advanced Technology of Construc-tion Materials	3	2	5	3	SCM 312
2	SCM 415	Structural Mechanics 4	3	1	4	3	SCM 411
3	SCM 416	Reinforced Concrete 3	3	2	5	3	SCM 412
4	SCM 417	Metallic Structures 2	3	1	4	3	SCM 413
5	SCM 441	Soil Mechanics	3	2	5	4	SCM 313
6	SCM 451	Project Planning and Control	3	1	4	3	SCM 351
Total			18	9	27	19	

Level 5

Ninth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	SCM 511	Reinforced Concrete 4	2	2	4	2	SCM 416
2	SCM 513	Advanced Structural Analysis	3	1	4	3	SCM 411
3	SCM 521	Environmental and Sanitary Engineering	3	2	5	3	SCM 461
4	SCM 541	Foundations	3	2	5	3	SCM 441
5	SCM 551	Applied Topics In Construction Engineering	3	1	4	3	SCM 351
6	SCM E01	Elective 1	3	1	4	3	See List
7	SCM 500	Graduation Project	0	4	4	0	As Advised
Total			**17**	**13**	**30**	**17**	

Tenth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	SCM 552	Quantity Surveying And Cost Control	2	2	4	2	SCM 351
2	SCM 553	Construction Technology	2	2	3	2	---
3	SCM 581	Resource Management	2	2	3	2	SCM 351
4	SCM E02	Elective 2	3	1	4	3	See List
5	SCM E03	Elective 3	3	1	4	3	See List
6	SCM 501	Graduation Project	0	4	4	4	SCM 500
7	GEN 441	Law for Professional Engineers	2	1	3	2	-
Total			14	13	27	18	

DEPARTMENT OF
PETROLEUM ENGINEERING

Petroleum Engineering is an engineering discipline concerned with the activities related to the production of hydrocarbons, which can be either crude oil or natural gas. Exploration, producing, refining and distribution to a market are the industries related to this highly technical engineering profession. Petroleum engineering requires a good knowledge of many other related disciplines, such as geophysics, petroleum geology, formation evaluation (well logging), drilling, economics, reservoir simulation, well engineering, artificial lift systems and oil and gas facilities engineering. FUE is one of the very few universities in Egypt providing a Department of Petroleum Engineering.

The Educational Philosophy

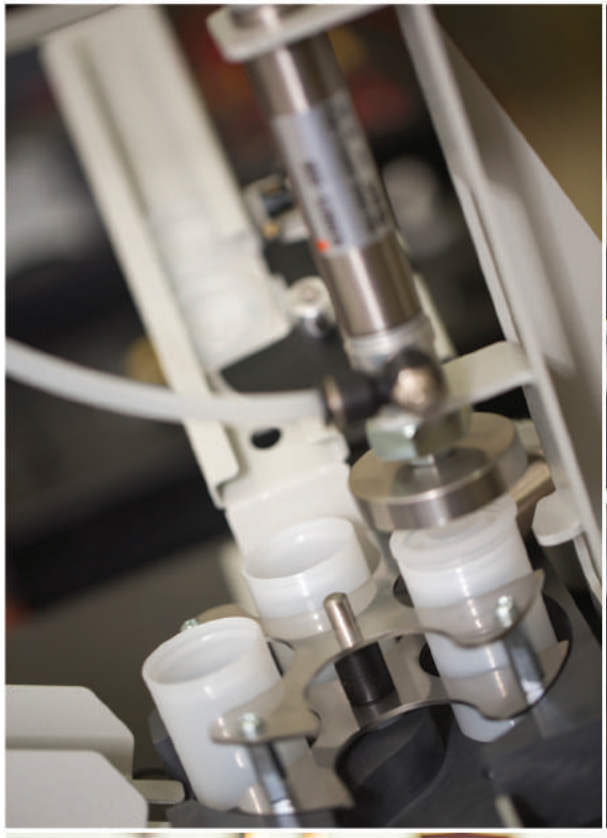
The Department's mission is to have a high quality curriculum in petroleum engineering that disseminates knowledge for the safe and efficient discovery, development, production, transportation and management of petroleum through innovation, integration work, high ethical standards awareness of industry needs. Department's vision is to be recognized and chosen as one of the leading school in the sphere of petroleum engineering in Egypt, the Arab world and throughout the Middle East.

To accomplish the mission, the Department of Petroleum Engineering, with advice from industry employers, endorses educational curriculum objectives to graduate engineers who will accomplish the following during the first few years after graduation:

1. be successful in various career paths in the petroleum industry.
2. Continue professional development through participation and leadership in professional petroleum organizations.
3. Pursue lifelong learning through continuing education or post – graduate education.
4. Progress to professional registration, work in increasing responsible engineering positions and pass the necessary professional exams.

Career opportunities

A degree in petroleum engineering can lead to many career paths. While most work directly for oil and gas production companies, the options for work are broad and encompass many industries. Petroleum engineers focus on a wide range of projects and activities. Some focus on production challenges, identifying, testing and implementing methods for improving oil and gas production. They might focus on economics, for example helping a team determine the optimum number of wells appropriate for a given operation. A petroleum engineer may focus on safety issues, or maintenance support, identifying and planning upgrades of equipment or systems. A petroleum engineer may choose to teach, or to serve as a consultant to investors, banks or other financial services firms. Petroleum engineering has historically been one of the highest paid engineering disciplines and petroleum engineers are the highest paid graduates.

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Programme Overview

The system of study in the petroleum engineering programme is a credit hours system, in which courses are offered over two semesters per year, the duration of each semester is 15 teaching weeks, also courses may be offered in a summer semester of five teaching week's duration. The education plan requires the successful accomplishment of 176 credit hours in 10 regular educational semesters in five years for obtaining the bachelor degree in Petroleum Engineering.

In the department curriculum, the first two years are spent studying Mathematics (algebra, geometry, trigonometry, calculus, probability and statistics), Basic Sciences (chemistry and physics), Introductory Engineering, Humanities and Social Sciences, courses in English and Computer and Information Technology. Petroleum engineering students also take courses such as Reservoir Petro-physics, Petroleum Engineering Systems and Physical Geology during these years. In the last three years, the Petroleum Engineering programme has included courses in Drilling and Production Systems, Geo-statistics, Well Performance, Reservoir Fluids, Petroleum Project Evaluation, Engineering Ethics and Well Completion and Stimulation.

Teaching in the Petroleum Engineering Department at FUE is supported by international partnership with **MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY, ROLLA, USA.**

Total Credit Hours Required: 176
- University Requirements: 12
- Faculty Requirements: 32
- Department Requirements: 132

Course Duration: 10 Semesters

Level 2

Third Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MTH 211	Functions of Several Variables and Ordinary Differential Equations(Math.3)	3	2	5	3	MTH 112
2	PHY 231	Physics 3	3	2	5	3	PHY 132
3	ENG H02	English Technical Writing	2	0	2	2	-
4	MPR 251	Engineering Thermodynamics	3	3	6	4	PHY 132
5	HUM H03	Human Rights	2	0	2	2	-
6	GEO 201	General Geology	2	1	3	2	-
7	PE 201	Introduction to Petroleum Engineering	2	0	2	2	-
Total			**17**	**8**	**25**	**18**	

Fourth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MTH 212	Mathematics 4(Laplace, Gauiss. Fourier)	3	2	5	3	MTH 211
2	MAN 221	Production Engineering 1	2	2	4	2	MAN 121
3	MAN 232	Stress Analysis	3	2	5	3	-
4	MAN 241	Mechanical Engineering Drawing	0	4	4	2	GRA 142
5	MPR 252	Fluid Mechanics	2	3	5	3	PHY 231
6	HUM H02	History of Petroleum Industry	2	-	2	2	-
7	PE 202	Introduction to oil well drilling	2	1	3	2	P201
Total			14	14	28	17	

Level 3

Fifth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	GEO 301	Structural Geology	2	1	3	2	GEO 201& MAN 232
2	PE 301	Properties of Petroleum Fluids	3	2	5	3	CHM 151
3	MTH 311	Mathematics 5(Statistics & Probability)	3	2	5	3	MTH 212
4	PE 302	Reservoir Rock Properties	2	3	5	3	PE 201& PE 202
5	HUM H08	Scientific Thinking	2	0	2	2	-
6	EPR 261	Electric Circuits 1	3	2	5	3	PHY 132
7	MAN 301	Rock Mechanics	2	2	4	2	MAN 232
	Total		**17**	**12**	**29**	**18**	

Sixth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MEC 221	Mechanics 3	3	1	4	3	MEC 122
2	PE 303	Petroleum Reservoir Engineering	3	2	5	3	PE 301& PE302
3	PE 304	Petroleum Reservoir Lab.	-	2	2	1	PE 301
4	SCM 221	Planemetric Surveying 1	2	1	3	2	MTH 112
5	PE 305	Drilling Engineering I	2	3	5	3	PE 202
6	GEO 302	Depositional Systems	3	1	4	3	GEO 301
7	CHM 301	Organic Chemistry	2	2	4	2	CHM 151
8	PE 306	Petroleum Refining Engineering	1	1	2	1	-
	Total		16	13	29	18	

Level 4

Seventh Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	GEO 401	Petroleum Geology	3	2	5	3	GEO 301
2	PE 401	Natural Gas Engineering	3	2	5	3	PE 303
3	PE 402	Drilling Engineering II	3	2	5	3	PE 305
4	PE 403	Advanced Petroleum Reservoir Engineering	3	2	5	3	PE 202& PE 303
5	GEN 401	Principles of Economics	3	1	4	2	-
6	PE 404	Well Testing Analysis	3	2	5	3	PE 303
Total			**18**	**11**	**29**	**17**	

Eighth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	PHY 401	Thermal analysis	3	2	5	3	PHY 132&PHY 231
2	PE 405	Well Performance and Production Systems	3	2	5	3	PE 303
3	PE 406	Well logging	3	2	5	3	PHY 231
4	PE 407	Finite Element Analysis with Applications in Petrol. Engineering	4	2	6	4	PE 303 & GEO 401
5	PE 408	Subsurface Production Engineering	3	2	5	3	PE 402
6	HUM	Humanities/ Social Science Elective	2	1	3	2	-
Total			18	11	29	18	

Level 5

Ninth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	GEN 441	Law for Professional Engineers	2	1	3	2	-
2	PE 501	Petroleum Engineering Design Project	3	2	5	3	PE 303 & PE405
3	PE	Elective	3	2	5	3	
4	PE 502	Mechanical Earth Modeling	3	2	5	3	PE 406
5	PE 503	Secondary Recovery of Petroleum	3	2	5	3	PE 303 & PE 304
6	PE 504	Artificial Lift	2	1	3	2	PE 405
7	HUM	Humanities/ Social Science Elective	2	2	4	2	
Total			18	12	30	18	

Tenth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	PE 505	Petroleum Econ and Asset Valuation	2	2	4	2	PE 303
2	PE 506	Offshore Petroleum technology	3	2	5	3	PE 305 & PE 305
3	GEN 313	Report Writing and Presentation Skills	2	1	3	2	-
4	PE 507	Graduation Project	0	9	9	3	-
5	PE	Elective	3	2	5	3	-
6	PE	Elective	3	2	5	3	-
7	HUM	Humanities/ Social Science Elective	2	2	4	2	-
Total			15	20	35	18	

DEPARTMENT OF
ARCHITECTURAL ENGINEERING

Architecture is one of the most enjoyable and creative disciplines, incorporating the exercise of imagination, organizational ability and the intelligent observation of almost every aspect of human and natural activity. Students entering the field deal with a fast-changing world in which imagination, understanding and the creative use of resources are essential in addition to the development of aesthetics and technology. In general, architecture addresses the human feelings and senses as it adds new dimensions to buildings; these are artistic, philosophical and psychological dimensions. Students of Architecture address the complex problems of designing to accommodate different human activities, considering multiple issues of climate and energy, technology and structure and combining the needs of the internal and external environment. In this sense, architectural education is a superb exercise in analysis, understanding and problem solving; furthermore, an architect is the only person trained to have a total understanding of buildings and the built environment.


STAIR DETAIL
FLOOR PLAN
SITE PLAN
3m

The Educational Philosophy

At Future University in Egypt, the main aim of the Department of Architectural Engineering in the Faculty of Engineering and Technology is to graduate qualified and well-trained architects, planners and interior designers who are capable of establishing a distinctive role between architects on both local and global scales.

The Department of Architectural Engineering at FUE creates an environment that allows its students to fully develop their skills and abilities by having them engage in a wide range of experiences to help them discover their own direction and to excel in their professional careers.

This is achieved through providing an excellent study programme, in addition to distinguished tutorial support provided by enhanced capabilities and distinctive Faculty staff who possess a broad range of experience gained from local as well as international exposure on both the academic and professional levels, to fulfil the Department's aims.

Career opportunities

All students of architecture from FUE find suitable professional job offers when they graduate; either locally or internationally. The programme is designed to prepare graduates to become mature professionals who will contribute to the socio-economic and cultural development of Egypt and the broader global community through responsible participation in the process of design, construction and interpretation of the built environment.

Progarmme Overview

The Department of Architectural Engineering at FUE offers a Bachelor of Science (B.Sc) degree in Architectural Engineering that is based on a five-year (10 semesters) credit-hour-system. The programme starts by a general introductory (preparatory) year of studying basic sciences in engineering (level 1) .

There is a list of compulsory courses as well as a list of elective courses. The compulsory courses provide the student with the background and foundation of the corresponding specialization, whereas the elective courses give the student the opportunity to expand their knowledge of some topics of their choice.

The Architectural Engineering programme started since 2006. A new programme **"The Interior Design Specialization"** is planned to start soon. Interior designers are artists who work with all other engineering disciplines, clients and builders to create beautiful interiors, make interior spaces functional and safe. They are educated in the field of design and trained artists who understand textiles, fabrics, patterns, color theory, trends, styles and aesthetics.

The Architecture Engineering program aims to develop a creative, diverse and rigorous approach to design from the outset. Most of design teaching depends on a one-to-one tutorial basis with frequent review sessions. Nearly, all design instructors and tutors are practicing architects or design professionals who bring their expertise and innovative design to the school.

Courses in Technology,History,Human studies,Urban Design and planning,and professional studies support the design courses in each year, and are assessed through a combination of studio work, course assignments, essays and examinations.

To attain the B.Sc. in Architectural Engineering, whether specialized in **Architectural Design or Interior Design**, a student has to successfully complete 175 credit hours during their study.

- University Requirements = 12 Cr. Hrs.
- Faculty Requirements =32 Cr.Hrs.
- Department Requirements = 131 Cr. Hrs.

Course Duration = 10 semesters

Level 2
ARCHITECTURAL ENGINEERING

Third Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	MTH 213	Mathematics, Statistics & Computers	2	2	4	3	-
2	ARC 211	Architectural Design 1	2	4	6	3	GRA 141 or 142
3	ARC 221	History &Theories of Architecture 1	2	0	2	2	-
4	ARC 231	Graphics & Visual Skills 1	2	2	4	3	-
5	ARC 241	Building Construction & Materials 1	2	2	4	3	GRA 141 or 142
6	SCM 214	Theory of Structures	2	2	4	3	MEC 121
Total			12	12	24	17	

Fourth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	ARC 212	Architectural Design 2	2	4	6	3	ARC 211
2	ARC 222	History & Theories of Architecture 2	2	0	2	2	-
3	ARC 232	Graphics & Visual Skills 2	2	2	4	3	ARC 231
4	ARC 242	Building Construction & Materials 2	2	2	4	3	ARC 241
5	SCM 215	Properties & Strength of Materials	2	2	4	2	-
6	SCM 223	Surveying	2	2	4	2	-
7	HUM H03	Human Rights	2	0	2	2	-
Total			14	12	26	17	

Level 3

Fifth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	ARC 311	Architectural Design 3	2	6	8	4	ARC 212
2	ARC 321	History & Theories of Architecture 3	2	0	2	2	ARC 221
3	ARC 323	Human Studies in Architecture	2	0	2	2	-
4	ARC 341	Building Construction & Materials 3	2	4	6	4	ARC 242
5	ARC XX1	Departmental Elective 1	2	2	4	3	See List
6	ARC 361	Environmental Control & Technical Installations 1	2	1	3	2	-
7	GEN 313	Report Writing and Presentation Skills	2	1	3	2	-
Total			14	14	28	19	

Sixth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	ARC 312	Architectural Design 4	2	6	8	4	ARC 311
2	ARC 322	History & Theories of Architecture 4	2	0	2	2	ARC 222
3	ARC 342	Building Construction & Materials 4	2	4	6	4	ARC 341
4	ARC XX2	Departmental Elective 2	2	2	4	3	See List
5	ARC 362	Environmental Control & Technical Installations 2	2	1	3	2	-
6	SCM 317	Reinforced Concrete for Architects	2	2	4	2	SCM 214
7	UNV E01	University Elective 1	2	0	2	2	See List
Total			14	15	29	19	

Level 4

Seventh Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	ARC 411	Architectural Design 5	2	6	8	4	ARC 312
2	ARC 421	History & Theories of Architecture 5	3	0	3	3	-
3	ARC 451	Urban Planning 1	2	2	4	3	-
4	ARC 471	Execution Designs 1	2	4	6	4	ARC 342
5	UNV E02	University Elective 2	2	0	2	2	See List
6	SCM 442	Foundations for Architects	2	2	4	3	-
Total			13	14	27	19	

Eighth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	ARC 412	Architectural Design 6	2	6	8	4	ARC 411
2	ARC 422	History & Theories of Architecture 6	3	0	3	3	ARC 421
3	ARC 452	Urban Design & Housing 1	2	2	4	3	-
4	ARC 472	Execution Designs 2	2	4	6	4	ARC 471
5	ARC 453	Landscape Architecture	2	2	4	3	-
6	SCM 418	Steel Structures for Architects	2	2	4	2	SCM 214
Total			13	16	29	19	

Level 5

Ninth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	ARC 511	Architectural Design 7	2	6	8	4	ARC 412
2	ARC 551	Urban Planning 2	2	2	4	3	ARC 451
3	ARC 552	Urban Design & Housing 2	2	2	4	3	ARC 452
4	ARC 571	Execution Designs 3	2	4	6	4	ARC 472
5	ARC XX3	Departmental Elective 3	2	2	4	3	See List
6	ARC 501	Graduation Project Studies	2	1	3	2	ARC 412
Total			12	17	29	19	

Tenth Semester

No	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec	Ex/ Lab	Total	CrH	
1	ARC XX4	Departmental Elective 4	2	2	4	3	See List
2	ARC 581	Project Management & Feasibility Studies	2	1	3	2	As Advised
3	ARC 582	Professional Practice & Legislations	2	1	3	2	As Advised
4	ARC 502	Graduation Project	0	10	10	5	ARC 501
Total			6	14	20	12	

DEPARTMENT OF
BIOMEDICAL ENGINEERING

Biomedical Engineering is the application of engineering principles and design concepts to medicine and biology. It combines the design and problem solving skills of engineering with medical and biological sciences to improve healthcare diagnosis, monitoring and therapy. Biomedical engineering has only recently emerged as its own discipline, compared to many other more established engineering fields. The Department of Biomedical Engineering serves the university, the community, and the biomedical engineering profession through education, research and design activities. The Department offers innovative educational programmes that integrate biological sciences and engineering, and apply engineering tools, methods and practices to solve problems in biology and medicine.

The Educational Philosophy

By specialising in Biomedical Engineering you will learn to apply principles and techniques from the physical and engineering sciences to medical and biological problems. You will develop a wide range of skills that may be ap plied to software development, instrumentation, imaging, mathematical modelling and high-performance computational engineering. By specializing in Biomedical Engineering you will learn to apply principles and techniques from the physical and engineering sciences to medical and biological problems. You will develop a wide range of skills that may be applied to software development, instrumentation, imaging, mathematical modeling and high-pe formance computational engineering.
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Career opportunities

There is a growing need for engineers trained in the biomedical sciences.
Biomedical engineers are employed in industry, in hospitals, in research facilities of educational and medical institutions, in teaching, and in government regulatory agencies. They often serve a coordinating or interfacing function, using their background in both the engineering and medical fields. In industry, they may create designs where an in-depth understanding of living systems and of technology is essential.
They may be involved in performance testing of new or proposed products. Government positions often involve product testing and safety, as well as establishing safety standards for devices. In the hospital, the biomedical engineer may provide advice on the selection and use of medical equipment, as well as supervising its performance testing and maintenance. They may also build customized devices for special health care or research needs. In research institutions, biomedical engineers supervise laboratories and equipment, and participate in or direct research activities in collaboration with other researchers with such backgrounds as medicine, physiology, and nursing.
Some biomedical engineers are technical advisors for marketing departments of companies and some are in management positions. Some biomedical engineers also have advanced training in other fields. For example, many biomedical engineers also have an M.D. degree, thereby combining an understanding of advanced technology with direct patient care or clinical research.

LEVEL 2

Third Semester							
NO	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec.	Ex/Lab	Total	CrH	
1	MTH211	Mathematics 3	3	2	5	3	MTH 112
2	PHY234	Biophysics 1	2	2	4	2	PHY 131,PHY132
3	CHM251	Chemistry 2	2	2	4	2	CHM 151
4	MEC222	Mechanical Engineering1	3	2	5	3	MEC 122
5	BME211	Biology 1	2	2	4	2	-
6	EPR261	Electrical Circuits 1	3	3	6	4	PHY 132
7	HUM103	Human Rights	2	0	2	2	-
Total			17	13	30	18	

Fourth Semester							
NO	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec.	Ex/Lab	Total	CrH	
1	MTH 212	Mathematics 4	3	2	5	3	MTH 211
2	PHY 235	Biophysics 2	2	2	4	2	PHY 234
3	CHM 252	Chemistry 3	2	2	4	2	CHM 251
4	MEC 223	Mechanical Engineering2	3	2	5	3	MEC 222
5	BME 212	Biology 2	2	2	4	2	BME 211
6	EPR 263	Electrical Circuits 2	3	3	6	4	EPR 261
7	UNV E01	University Elective Course 1	2	0	2	2	-
Total			17	13	30	18	

LEVEL 3

Fifth Semester

NO	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec.	Ex/Lab	Total	CrH	
1	MTH 311	Mathematics 5	3	2	5	3	MTH 212
2	CMP 232	Computer Systems 1	2	2	4	2	CMP 132
3	COM 353	Signals & Systems 1	2	2	4	2	EPR 263
4	ELE 314	Electronic Devices and Circuits 1	3	2	5	3	EPR 263
5	EPR 363	Measurements and Instruments 1	2	2	4	2	EPR 263
6	GEN 313	Report Writing and Presentation Skills	3	3	6	4	-
Total			17	13	30	18	

Sixth Semester

NO	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec.	Ex/Lab	Total	CrH	
1	BME 311	Biochemistry and Molecular Biology	2	2	4	2	CHM 252
2	BME 331	Anatomy and Physiology 1	3	3	6	4	BME 212
3	BME 351	Biomedical Measurements In-strumrntation	3	2	5	3	EPR 363
4	CMP 333	Computer Systems 2	2	2	4	2	CMP 232
5	COM 354	Signals & Systems 2	3	1	4	3	COM 353
6	ELE 315	Electronic Devices and Circuits 2	3	2	5	3	ELE 314
Total			16	12	28	17	

LEVEL 4

Seventh Semester

NO	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec.	Ex/Lab	Total	CrH	
1	MTH 411	Biostatistics	2	1	3	2	MTH 311
2	BME 431	Anatomy and Physiology 2	3	3	6	4	BME 331
3	BME 441	Clinical Engineering 1	2	1	3	2	-
4	BME 451	Medical Electronics and Measurements 1	3	2	5	3	BME 351
5	CMP 434	Computer Systems 3	2	2	4	2	CMP 333
6	MPR 243	Thermodynamics and Fluid Mechanics	3	2	5	3	PHY 132
7	UNV E02	University Elective Course 2	2	0	2	2	-
Total			17	11	28	18	

Eighth Semester

NO	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec.	Ex/Lab	Total	CrH	
1	BME 442	Clinical Engineering 2	2	1	3	2	BME 441
2	BME 452	Medical Instrumentations 1	3	1	4	3	BME 351
3	BME 453	Medical Electronics and Measurements 2	3	2	5	3	BME 451
4	BME 461	Biological Signal Processing	2	2	4	2	MTH 411
5	CMP 436	Computer Systems 4	2	2	4	2	CMP 434
6	CMP 471	Control Systems 1	3	2	5	3	MTH 311
7	COM 424	Fields and Wave Propagation	2	2	4	2	PHY 132
Total			17	12	29	17	

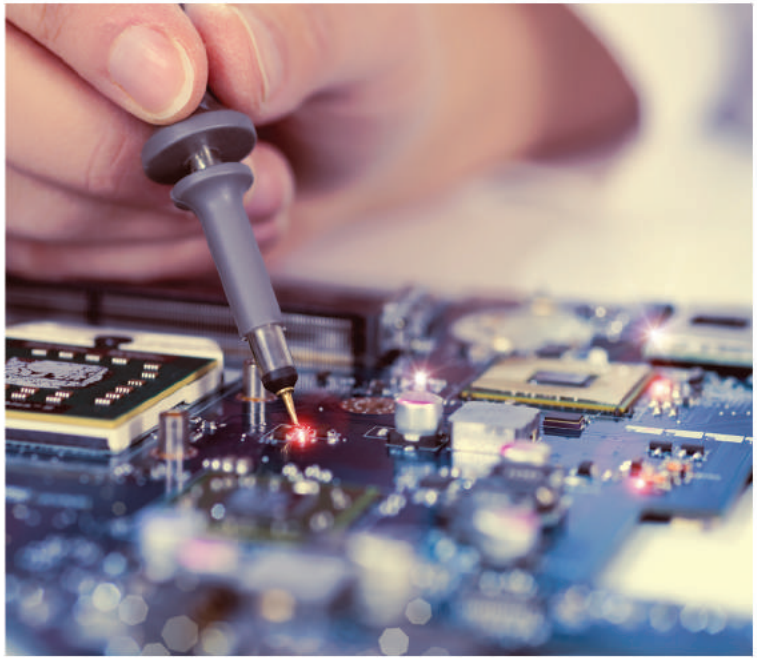
LEVEL 5

Ninth Semester

NO	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec.	Ex/Lab	Total	CrH	
1	BME 521	Biomedical Image Processing	3	1	4	3	BME 461
2	BME 551	Medical Electronic Systems 1	2	2	4	2	BME 453
3	BME 552	Medical Instrumentations 2	3	1	4	3	BME 452
4	BME 553	Analytical Instruments and Bio- analysis	3	1	4	3	BME 351
5	CMP 572	Discrete Control Systems	3	1	4	3	CMP 471
6	BME E01	Elective 1	3	1	4	3	See List
7	BME 500	Graduation Project	0	4	4	0	As Advised
Total			17	11	28	17	

Tenth Semester

NO	Course		Weekly Hours				Prerequisite Courses
	Code	Title	Lec.	Ex/Lab	Total	CrH	
1	BME 522	Medical Imaging	3	2	5	3	BME 521
2	BME 523	Biomedical Ultrasound	3	2	5	3	PHY234, BME 453
3	BME 554	Medical Electronic Systems 2	2	2	4	2	BME 551
4	BME E02	Elective 2	3	1	4	3	See List
5	BME 501	Graduation Project	0	4	4	4	BME 500
6	GEN 441	Law for Professional Engineers	2	1	3	2	-
Total			13	12	25	17	



Facilities

Future University in Egypt prides itself in providing students with exceptional facilities that ensure a comfortable and inspiring academic atmosphere that supports and encourages our outstanding educational programs. More than just a beautiful and unique architectural design on the outside, our facilities are equipped with modern amenities and technology that comprise a complete state of the art learning environment. The Faculty comprises 4 Lecture Halls with the capacity of 200 students each, in addition to 17 classrooms, 18 specialized labs, 3 drawing halls and a huge workshop.

Specialized Labs

The labs cover different interests:

1. Electrical Engineering
   - Electrical circuits, and measurements
   - Advanced Electronics
   - Communication
   - Microprocessor and Automatic Control
   - Electrical Machine and Power Electronics
   - Microwave and antenna
   - Laser and optoelectronic
   - Electrical power System analysis
   - Project and practical training
2. Civil Engineering
   - Fluid Mechanics
   - Properties and testing of materials
   - Surveying
3. Mechanical Engineering
   - Workshops: technology and production engineering - machines workshops - plumbing - blacksmith - carpentry - welding - filings - the formation of metals.
   - Thermodynamics
   - Mechatronics
4. Basic Sciences
   - Physics
   - Chemistry
   - Mechanical Vibrations

Training

A Special practical engineering training program is mandatory for student graduation. At least 12 weeks of practical training must be accomplished during summer periods of study. The Faculty of Engineering and Technology in cooperation with HR training coordinators at FUE provides excellent training opportunities for students through their official and personal contacts with key persons in industry, transportation and major engineering firms. Evaluation reports must be issued to all trainees and in addition departmental evaluation is necessary to ensure the quality of the training program.

In this context, an agreement of Cooperation was signed between Future University and the Bavarian Auto Group. The agreement aims to support and achieve a high technical standard of training for mechanical engineering students. Electronics and communication students are trained at the factories of Bahgat Group and other highly qualified firms. Students of Architectural Engineering are trained at selected highly reputable architectural consultation offices and well known construction companies and firms, both in design offices and in site supervision. Structure Engineering and Construction Management students are trained at the Arab Contractors Company and reputable expertise houses in the field of infrastructures and quality control laboratories.

Research

The Faculty of Engineering and technology not only aims at graduating engineers whose qualifications are compatible with the needs of major Egyptian and international employers but also aims at building a strong research community. This will contribute to international research priorities and help to ensure that FUE attains worldwide recognition. Senior students are normally required to submit researches in different subjects related to the course they are studying. They learn how to utilize different tools of research and how to handle research problems.

Advanced courses may require implementation of student research into real working models. In the final year of study all students are involved in the graduation project in which most of the knowledge they attained in basic areas of engineering are integrated.

Consultancy & Development Centre

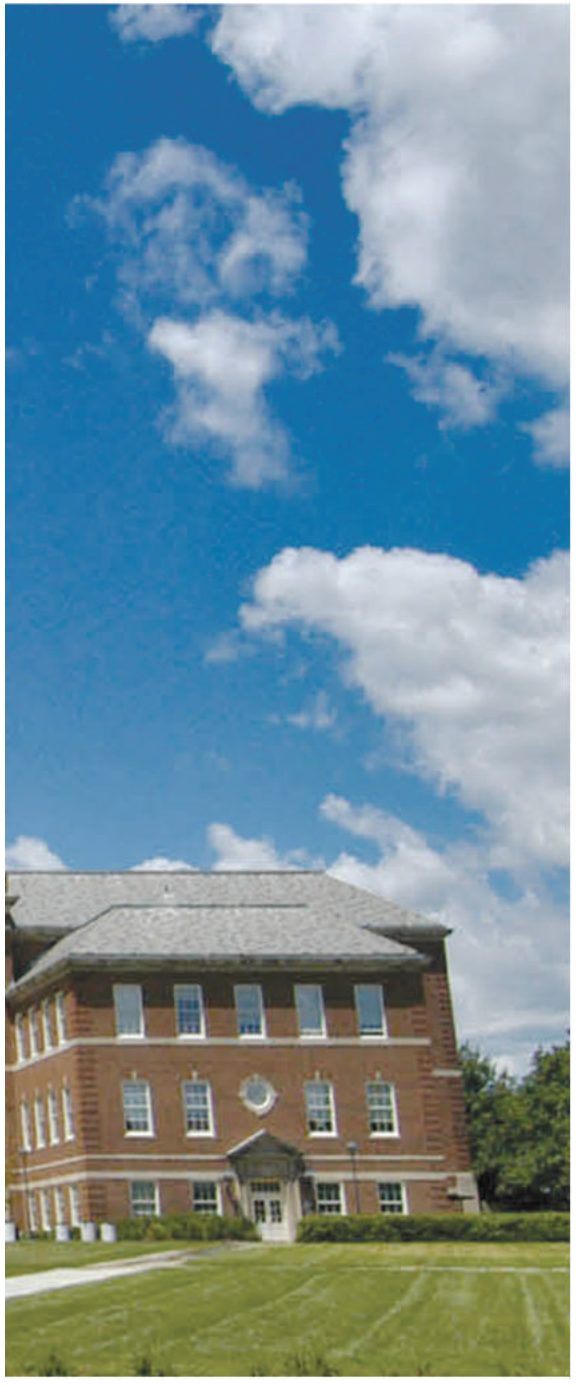
An Engineering Consultancy & Development Center (ECDC) has been established at the Faculty of Engineering and Technology to offer the engineering consultations, technical studies, and scientific engineering researchers keeping in mind the essential role of the University to serve its community and to contribute in the development of the society through the most advanced and highly technologically engineering profession.

Research Centers

FET, like other scientific colleges, needs to adapt to future changes. The real challenge for FET is to participate in the development of life in Egypt and to overcome the difficulties that might face the success of this development. Due to the lack of energy and the energy crisis, the research strategy at FET will focus on the new and renewable energy and energy conservation. For this purpose, a Research Center for New and Renewable Energy and Energy Conservation is being established utilizing the capabilities of the high caliber staff in the Faculty incorporating a well-equipped research laboratory.

AGREEMENTS & PARTNERSHIPS

Future University in Egypt has signed many academic co-operation agreements with some of the world's most distinguished universities. The agreements include faculty and student exchange, continuing education, awarding certificates for programmes taught on campus. These agreements aim to promote the academic, scientific, technical and cultural relations between FUE and its counterparts, through but not restricted to, academic exchanges, scientific research, professional internships and technical cooperation.



University of Cincinnati, USA

- Exchange of students .
- Exchange of faculty and staff members.
- Joint research activities & knowledge transfer.
- Joint organization of seminars & academic meetings.
- Exchange of academic materials & pursuit of joint certificates.
- Joint organization of special academic & non-academic programs .
- Publication of the results of collaborative research projects..
- Consultation regarding quality assurance protocols, assessment of student-learning outcomes, and modern pedagogies.
- Consultation regarding development of new FUE programs & enhancement of existing programs.
- Consultation on FUE achievement of international educational standards for all Faculties.
- Use of library facilities at both universities.

Missouri University of Science and Technology, USA

For Department of Petroleum Engineering Only

- Facilitating recruitment and exchange of faculty, research and visiting Professors.
- Students training.
- Exchange of academic material publication of the results of collaborative research projects.


Future
UNIVERSITY
F U E

Educational Technology

FUE provides all students with the tools and technology to attain knowledge , skills, perspective and abilities to serve in management positions and play leading roles in helping organizations achieve their goals in the " Information Age" FUE 's primary mission is providing leadership and support in the appropriate use of technology for teaching learning and research. We fulfill our mission by:

- Creating opportunities to enable the faculty to expand their use of technology for teaching and learning
- Participating in research opportunities to better educate faculty , staff, and students in the use of emerging technologies as they relate to teaching and learning
- Enhancing the curriculum through the use of instructional design, which aims to maximize the efficiency and effectiveness of teaching and learning practices
- Managing and implementing university- wide technology that is designed to support teaching, learning , and research

Our students use real world tools that help prepare them for lifelong learning and the evolving demands of the global workforce and marketplace.