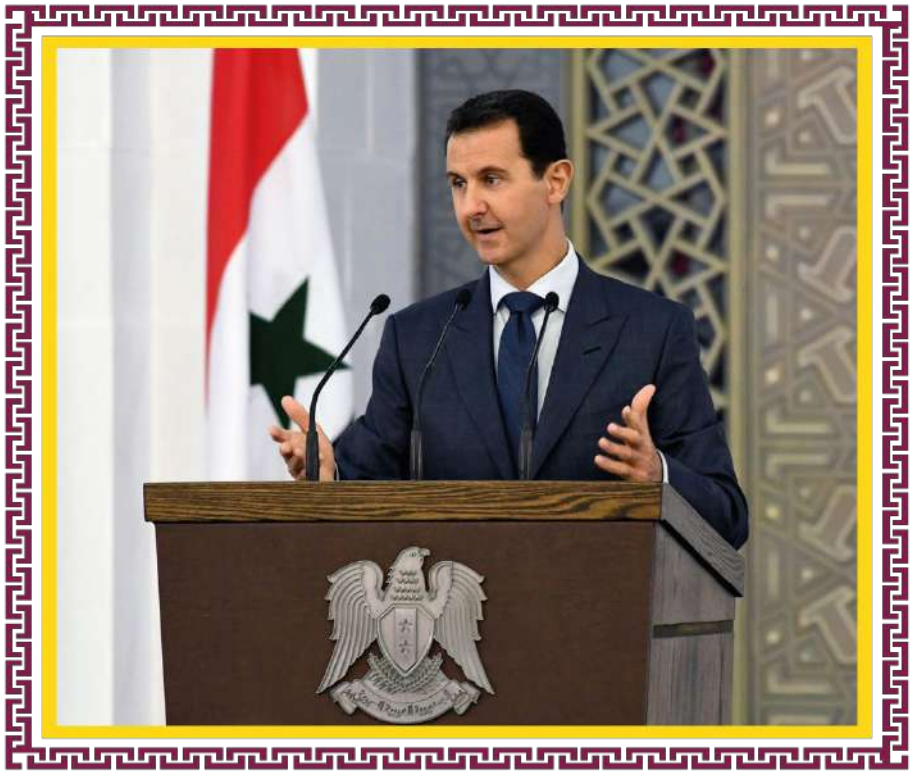


“I welcome all of you teachers; soldiers in the battle of building the human being, the mind and the intellect...

Soldiers in defending our identity, culture and belonging through fortifying our children with awareness, science and knowledge.”

Mr. President Bashar Al-Assad

"Our Children, The Students of The Faculty of Mechanical and Electrical Engineering, The Future's Bright Hope"

On my behalf and on behalf of all college staff, I am pleased to welcome you into your college, The Faculty of Mechanical and Electrical Engineering, which we seek to be distinguished in the field of engineering education through the comprehensive quality of its various scientific departments, which contributes in achieving economic, social and human development. The faculty is keen on providing programs and specializations to meet the labor market's needs and contribute to building up the knowledge economy by providing academic needs and modern labs, as well as the presence of a select group of elite faculty members.

And we can say that we are constantly striving to achieve a set of values, including:

1-Supplying the student with the foundations of engineering knowledge and advanced scientific research methods.

2-Developing the student's personality, to make him/her capable of innovation, taking risks and teamwork.

3-Countiously developing and updating the academic curricula in light of contemporary global trends.

4-Strengthining the cooperation between the faculty and other universities and scientific research centers.

5-Focusing on the most important issues of concern to society and the labor market.

6-Providing students with the necessary support and encouraging creativity and innovation.

7-Prepare graduates and establish them on a conscious human vision in line with continuous development.

Dear students, you will find from us everything that will help you to pave your life's way and build a bright future, especially since The Faculty of Mechanical and Electrical Engineering at Damascus University is replete with many modern labs and designated halls for seminars and conferences to accommodate the requirements of the students and the educational and training procedure, with its performance being in harmony and at the highest level.

This prospectus was updated in conjunction with the first fiftieth anniversary of the establishment of The Faculty of Mechanical and Electrical Engineering, and its transformation from an industrial higher institute into what it is now.

With my best wishes of success to all the faculty staff and excellence to its students.

Dean of The Faculty of Mechanical and Electrical Engineering

Dr. Moustafa Al-Mawaldi

General Overview

The Faculty of Mechanical and Electrical Engineering was established in /1963/ as an industrial higher institute based on the Republican Decision 4No. /99/ of the year 1963, transformed into its current form in 1972 based on the Legislative Decree No. /38/ of the year 1972 and affiliated to Damascus University.

The Faculty of Mechanical and Electrical Engineering is one of the educational and research establishments in the higher education sector, the faculty developed immensely and made qualitative leaps over the past few years as it continues to provide various fields of industrial production, communication, and calculations, biomedical engineering, renewable energies with specialists with scientific and practical qualifications to keep pace with the global technological evolvement and progress.

The Faculty of Mechanical and Electrical Engineering is considered to be one of the distinguished university colleges in Syria in terms of diversity and distinction of majors and the number and quality of the students. There are 9 scientific departments in the faculty at the meantime divided into 14 different specified sections within scientific departments. The faculty also has 18 postgraduate programs in numerous majors.

The faculty's scientific plan aims to prepare engineers in various fields of mechanical, electrical, electronic, computers and automation, biomedical, textile industries and their techniques, nuclear, renewable energies and heavy machines engineering and habilitating them with high standards of knowledge and skills that keep up with the global scientific and cultural development, as well as the education, laboratory and administrative staff in the college working on developing and enabling the spirit of creativity, excellence and teamwork among the faculty graduates and their good application and use of the diverse scientific knowledge.

Our Vision :

- For the faculty to become a pioneer in higher education and theoretical, applied scientific research that is employed to serve the society and labor market in Syria and other countries.
- That The Faculty of Mechanical and Electrical Engineering at Damascus University become a source of engineering consultations and services in various technical disciplines.

The Faculty of Mechanical and Electrical Engineering at Damascus University aims to achieve the following:

1- Preparing engineers in various fields of mechanical, electrical, electronic, computer and automation, textile and biomedical engineering necessary for the national economy sectors national economy and services, and qualifying them with a high level of knowledge and skills that keep pace with the progress of science, technology, and global civilization.

2- Advancing and participating in scientific research and studies in the faculty's specialization field, especially those aimed at finding solutions to various issues facing economic and social development in the Syrian Arab Republic and the Arab world.

3- Advancing scientific studies in the faculty's specialization field and cooperating with several scientific, industrial and service institutions to find optimal solutions to the issues facing these establishments.

4- Developing the means and methods of research and education, including the development and translation of university educational literature, and the establishment of laboratories necessary for scientific research, in connection with the faculty's disciplines.

5- Contributing to the qualification, training and continuing education courses by providing short educational courses and training workshops for graduates.

6- Initiating rules and values that promote building a contemporary Arab society and fueling the national spirit of students.

7- Cultivating the student's personality, scientifically and socially integrated education, developing his love for work and scientific research, the ability to creative thinking and collaborative teamwork, in addition to being well versed in the use of informatics developments and their industrial applications.

8- Guiding students towards the optimal choice in the activities they will practice.

9- Encouraging cultural, artistic, social and sports activities.

10- Strengthening cultural and scientific bonds with Arab and foreign universities and organizations.

11- Achieving the highest level of interaction between the university and society.

Organizational Structure

Type	Description
Space	/500/ dunums, with over 76,750 square meters of total floor area
Number of Floors	30
Number of Classrooms	61
Number of Teaching Stands	36
Number of Postgraduate Teaching Halls	8
Number of Professors' Offices	451 educational staff
Number of Administrative Offices	Approximately 50 offices
Number of Laboratories for The Undergraduate Level	88
Number of Laboratories for The Postgraduate Level	Consistent with the number of courses
Number of Warehouses	6
Number of WCs	In every floor
Number of Canteens	5

Faculty Management

The Faculty of Mechanical and Electrical Engineering is managed by:

- Faculty's Dean.
- Faculty's Vice Dean for Administrative and Student Affairs.
- Faculty's Vice Dean of Academic Affairs.

The Faculty Council:

This council consists of the following members as follows:

1- Faculty's Dean — as Chairman

2- Faculty's Vice Dean for Administrative and Student Affairs — as a Member

3- Faculty's Vice Dean of Academic Affairs — as a Member

4- The Heads of Departments in the Faculty, which are:

- Department of General Mechanical Engineering — as a Member
- Department of Mechanical Design Engineering — as a Member
- Department of Electronics and Communications Engineering — as a Member
- Department of Electric Power Engineering — as a Member
- Department of Biomedical Engineering — as a Member
- Department of Computer and Automation Engineering — as a Member
- Department of Textile Industries Mechanical Engineering and Their Techniques — as a Member
- Department of Automobiles and Heavy Machines Engineering — as a Member
- Department of Basic Sciences — as a Member
- Damascus University Branch Representative for the Teachers Union — as a Member
- The Department Chair in the Faculty — as a Member
- The Chairman of the Student Body at the College, representing the National Union of Syrian Students — as a Member
- Postgraduate Students Representative — as a Member

Departments and Administrative Offices:

- Department Chair Office
- Department of Examinations
- Department of Student Affairs
- Engineering Office
- Postgraduate Studies Office
- Scientific Research Office
- Monitoring Office
- Registrar's Department
- Planning and Statistics Department
- Follow-up office

The following persons have successively held the administration of the faculty:

• Prof. Fayez Al-Nasser	1963-1971
• Prof. Burhan Aldeen Al-Daghestani	1971-1972
• Dr. Mohammad Yahya Rustom	1972-1973
• Dr. Jameel Abu Jahjah	1973-1974
• Dr. Shouqi Al-Batal	1974-1978
• Dr. Fuad Azar	1978-1980
• Dr. Aspiro Elias	1980-1983
• Dr. Muhammad Ali Othman	1983-1985
• Dr. Mohammad Ghanem	1985-1988
• Dr. Nazeih Abu Saleh	1988-1991
• Dr. Nadim Mukhayber	1991-2000
• Dr. Faisal Al-Abbas	2000-2007
• Dr. Hashem Warkozek	2007-2011
• Dr. Jamal Al-Abbas	2011-2012
• Dr. Hussein Ali Teeneh	2012-2016
• Dr. Mohammad Mazen Mahayri	2016-2018

- Dr. Mohammad Firas Al-Hinnawi 2018-2020
- Dr. Moustafa Al-Mawaldi 2020-up to the present date

The Current Faculty Council Consists of the Following Members:

Dr. Moustafa Al-Mawaldi	Faculty's Dean
Dr. Mustafa Al-Hazouri	Vice Dean for Administrative Affairs
Dr. Talal Hamoud	Vice Dean for Academic Affairs
Dr. Ayman Al-Khabbaz	Head of the General Mechanical Engineering Department
Dr. Khaled Sharaf	Head of the Mechanical Design Engineering Department

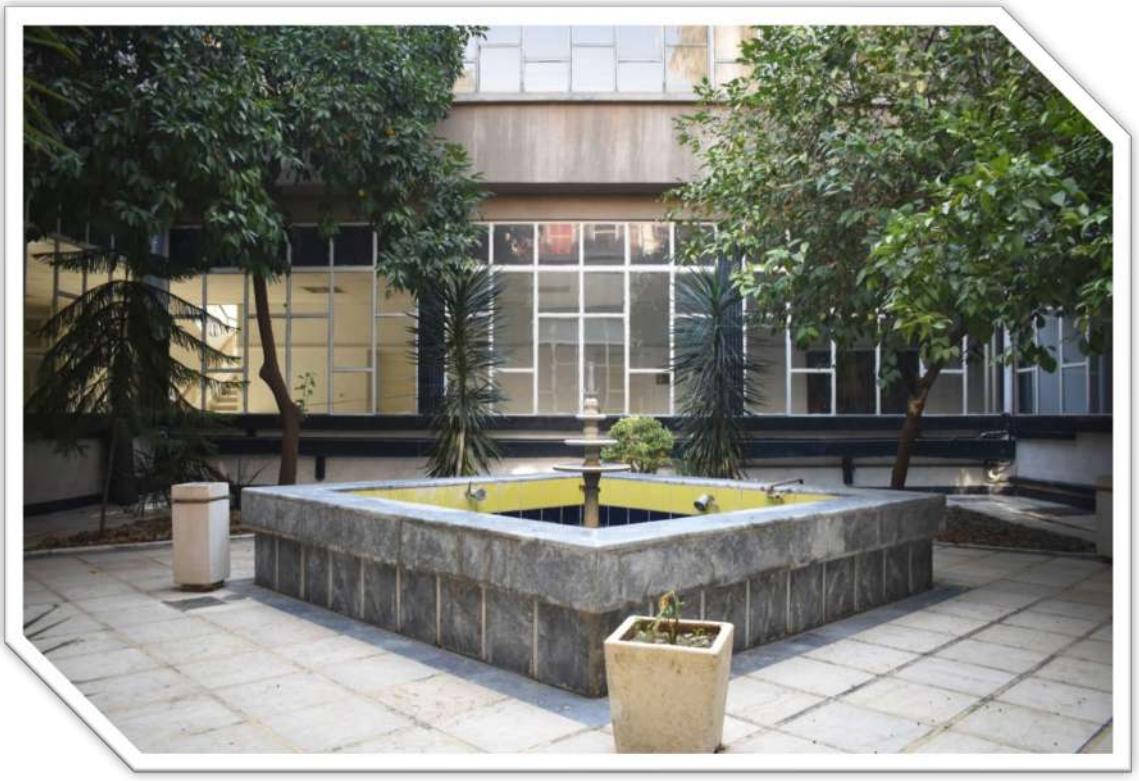
Dr. Nidal Zaidan	Head of the Electronics and Communications Engineering Department
Dr. Ali Al-Sayyid	Head of the Electric Power Engineering Department
Dr. Rasha Masoud	Head of the Biomedical Engineering Department
Dr. Raouf Hamdan	Head of the Computer and Automation Engineering Department
Dr. Taher Qaddar	Head of the Department of Textile Industries Mechanical Engineering and Their Techniques
Dr. Jumah Shahada	Head of the Automobiles and Heavy Machines Engineering
Dr. Mohammed Nour Shammeh	Head of the Basic Sciences Department
Dr. Abdullah Samiz	Branch Representative for the Teachers Union
Mr. Mohammad Tahir	Department Chair in the Faculty
Dr. Ghassan Haddad	Director of the Institute of Mechanical and Electrical Engineering
Eng. Hani Laila	Postgraduate Students Representative
Colleague Mohamed Salameh	The Chairman of the Student Body at the College, representing the National Union of Syrian Students

Teaching Staff:

Most of them are doctoral degree holders, who have studied and graduated from various countries, ranging from Japan in the far east to the United States of America in the far west. This diversity in educational institutions has enriched the scientific level of graduates and the scientific and professional work carried out by the faculty.

The Technical Staff and Its Role in the Teaching Process:

The technical staff, consisting of executives, engineers, craft teachers, assistant engineers, and lab technicians, supports the teaching process by assisting in laboratories and specialized workshops teaching processes.



Studying at the Faculty

Undergraduate Studies:

A. General Education Program:

General education at the faculty is subject to the following general rules for admission and registration in the first academic year:

- At the end of each academic year, the Higher Education Council, based on the proposal of the University of Damascus Council, determines the capacity of the new students who can be accepted into the Faculty of Mechanical and Electrical Engineering at the University of Damascus, Including Syrian nationals and Palestinians residing in Syria, along with the specific conditions for their admission in the upcoming academic year. The Higher Education Council also proposes the capacity of Arab and foreign students who can be accepted from outside of the Syrian Arab Republic, along with their specific admission requirements. A decision is then issued by the Minister based on this proposal .
- The following can be applied regarding the selection process:
  - All Syrian students, including their counterparts, who have obtained a Syrian high school diploma in the same year.
  - All Syrian students, including their counterparts, who possess non-Syrian high school diplomas equivalent to the Syrian high school diploma, after excluding the grades of specific subjects (religious education, physical and martial education, fine arts and music, behavior and attendance if applicable), and deducting 10% from the grade of non-Syrian high school diplomas in the same year of the admission.
  - Arab students who are Syrian-born and are currently residing in Syria, and have studied within the territory of the Syrian Arab Republic since the sixth grade until obtaining the Syrian high school diploma sequentially, are treated as equals to the Syrian students exclusively in the general selection process.

- Arab and foreign students, the children of Syrian mothers, who are married to non-Syrians or their equivalents and are residing in Syria, who have studied within the territory of the Syrian Arab Republic since the sixth grade until obtaining the general Syrian high school diploma sequentially and the mother was residing in Syria during her child's study period, are treated on an equal basis as the Syrian students in the general and parallel selection processes, as well as in university fees .

B. **Parallel education program:**

Syrian students and those who are subject to the same laws, as well as children of Syrian mothers who meet the aforementioned conditions and have obtained the Syrian General high school diploma in the same year, are eligible to apply exclusively. The announcement of their acceptance is made after the general selection process.

Students admitted to the parallel education program continue their studies at the college alongside and in the same classes as students accepted through the general selection process.

Student Enrollment:

A. Undergraduate:

The Academic Program	Number of Admitted Students (This Year)		Number of Graduates (This Year)		Number of Transfer Students from other Universities (This Year)	Number of Transfer Students to Other Universities (This Year)	Number of Dismissed Students (Within the Last Years)	Number of Students whose Enrollment has been Revoked (Within the Last Years)
	General	Parallel	General	Parallel				
Computer and Automation Eng.	1559	750	182	41	146	15	433	60
General Mechanical Eng.	739	394	73	26	55		268	50
Mechanical Design Eng.	1201	529	132	34	53		251	28
Textile Industries and Their Technology Eng.	396	158	36	5	1	-	70	25
Automobiles and Heavy Machines Eng.	354	184	23	6	-		160	16
Biomedical Eng.	893	315	76	29	2		158	60
Electronics and Communications Eng.	2019	973	250	91	90		353	108
Electric Power Eng.	1249	632	196	57	56		241	65
Total	**8410**	**3935**	**968**	**289**	**403**	**15**	**1934**	**412**

B. - Postgraduate Degrees:

The postgraduate stage is divided into two scientific stages:

- **Master's Degree**

Article 1:

The Faculty of Mechanical and Electrical Engineering at Damascus University awards a Master's degree in various specializations as specified in the previous sections.

Article 2:

For enrollment in the Master's degree program, the following conditions must be met:

1- The student must have obtained a Bachelor's degree from one of the government universities in the Syrian Arab Republic with a minimum grade of "Good" or its equivalent from a faculty or a higher institute recognized by the College Council according to the regulations set by the Higher Education Council.

2- The student must successfully pass an examination in the foreign language under the provisions of paragraph (b) of Article 142 of the Executive Regulations of the Universities Organization Law.

Article 3:

Obtaining a Master's degree requires:

a- 1- The student must continue his study and successfully complete all courses in the first year as specified by each department.

a- 2- A minimum of four courses, as determined by each department from the core curriculum, must be taken. Among these four courses, the Research Methods course must be included. Additionally, three courses from the specialization curriculum must be completed. In total, each Master's program should consist of no less than seven courses, with a cumulative total of at least 28 credit hours.

a- 3- The topics for each of the courses mentioned in Provision 1 above are determined by a decision from the college council based on the proposal of the relevant department council.

a- 4- The final grade for each course consists of two components: one for assessments throughout the year and the other for the final examination. At the beginning of each academic year, the college council determines the weightage of the assessments for all

courses based on the recommendations of the department councils, with the stipulation that the weightage of continuous assessment should not be less than 40%

a- 5- A student who fails in the first year has the right to retake the courses in which they failed through one year. In the event of failing in any course of these courses, the student is dismissed from the Master's degree program. The student who fails is considered registered in the following academic year.

b- 1- After passing all courses in the first year, the student must proceed with research with a topic approved by the University Council based on the recommendation of the department council and the approval of the faculty committee. The research preparation period should not be less than one academic year from the date of the University Council's approval of the research topic.

b- 2- The student is granted a maximum period of three months from the date of announcing the results of course examinations to register their research topic. The Research and Graduate Studies Council is authorized to decide on this matter. If the student does not register for their topic within this period, their enrollment is permanently cancelled.

b- 3- The student is required to present a seminar on the progress of their research every four months in front of a committee appointed by the related department council. If satisfactory results are not achieved by the end of the last four months, the student's enrollment is cancelled, and their Master's degree registration is revoked.

b- 4- The student must present the research findings in the form of a thesis that is accepted by the judging committee and undergo a public defense of the thesis.

Article 4:

a. In each specialization within the Master's degree program, one or at most two of the core courses are taught in a foreign language (English).
b. At the beginning of each academic year, the course or courses that will be taught in a foreign language (English) are determined by a decision from the college council based on the recommendation of the relevant department council.
c. The Master's degree system outlined above operates on a semester basis, and the Scientific Research course is considered an annual course.

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- PhD Degree

Article 5:

The following requirements are necessary for enrolling in a Ph.D. program:

a) The student must have obtained at least a "Good" grade in their Master's degree in the required specialization from one of the government universities in the Syrian Arab Republic or from a faculty or higher institute that is recognized by the University Council according to the PhD degree table.
b) The student must successfully pass an examination in a foreign language under the provisions of paragraph (b) of Article /146/ of the Executive Regulations of the University Organization Law.

Article 6:

To obtain a PhD degree, The student is required:

a. The student must prepare an innovative research on a topic approved by the University Council based on the proposal of the department council and the approval of the relevant faculty council. This research should span a minimum of two years from the date of the University Council's approval of enrollment in the PhD program.
b. The requirement is that the student should publish two research papers related to the thesis topic in a specialized research journal or obtain the journal's approval for their publication.
c. The student must present the research findings in the form of a thesis that is accepted by the judging committee and undergo a public defense of the thesis.

Article 7:

Master's and PhD students are required to conduct their research under the supervision of a supervisor in the faculty's laboratories. It is also permissible to conduct research in laboratories and facilities of scientific institutions that have cooperation agreements with the university in the field of scientific research after appointing a co-supervisor from that scientific institution (if applicable).

Article 8:

For anything not explicitly mentioned in this decision, the provisions of the University Organization Law, the Executive Regulations, and the decisions of the Higher Education Council related to this matter shall apply.

Acceptance of students in postgraduate studies.

- **Syrian students' acceptance:**

  Admission of students into various diploma programs is conducted through a selection process carried out by the faculty for this purpose. Typically, priority is given to students with higher academic performance in their undergraduate studies. Accepted students are required to pay nominal fees determined annually by the Higher Education Council.

- **Non-Syrian students' acceptance:**

  Admission of Arab and foreign students is based on a special selection process. Typically, priority is given to students with higher academic performance in their undergraduate studies, taking into consideration the university or higher institute from which they graduated. Non-Syrian students accepted are required to pay fees determined annually by the Higher Education Council.

The following tables illustrate the number of enrolled students and the number of degrees awarded at the master's and PhD levels:

Department	Academic Degree (Master / PhD)	Specialization	Number of Enrolled Students (Within the Last Three Years)	Number of Awarded Degrees (This Year)
General Mechanical Engineering	Master	Renewable Energy Engineering	11	11
		Thermal Engineering	14	
		Refrigeration Engineering	16	
		Fluid Engineering	18	
	PhD	Renewable Energy Engineering	-	2
		Thermal Engineering	1	
		Refrigeration Engineering	5	
		Fluid Engineering	4	
Mechanical Design Engineering	Master	Industrial Engineering	11	12
		Materials Science and Engineering	25	
		Machine Design and Construction	5	
		Production Automation Engineering	20	
	PhD	Industrial Engineering	3	1
		Materials Science and Engineering	8	
		Machine Design and Construction	3	
		Production Automation Engineering	4	
Electronics and Communications Engineering	Master	Advanced Communications	20	22
		Applied Electronics	23	
	PhD	Advanced Communications	14	5
		Applied Electronics	9	

Department	Academic Degree (Master / PhD)	Specialization	Number of Enrolled Students (Within the Last Three Years)	Number of Awarded Degrees (This Year)
Electric Power Engineering	Master's	Electrical Power Systems Engineering	20	8
		Renewable Energy Engineering	16	
	PhD	Electrical Power Systems Engineering	13	2
		Renewable Energy Engineering	5	
Biomedical Engineering	Master	Biomedical Engineering	29	4
	PhD	Biomedical Engineering	3	4
	Qualification and specialization	Audiology	17	7
Computer Engineering and Automation	Master	Computer and Network Engineering	16	14
		Control and Automation Engineering	12	
		Robotics Engineering	7	
	PhD	Computer and Network Engineering	9	5
		Control and Automation Engineering	3	
		Robotics Engineering	11	
Mechanical Engineering of Textile Industries and Their Technology	Master	Textile Technology	8	2
		Spinning Technology	7	
		Facility Management	3	
	PhD	Textile Technology	-	2
		Spinning Technology	3	
		Facility Management	3	
Automobiles and Heavy Machines Engineering	Master	Vehicles and Engines Engineering	9	3
	PhD	Vehicles and Engines Engineering	3	1

Scientific and Professional Activities

The scientific and professional activities carried out by the Faculty of Mechanical and Electrical Engineering have been diverse, these activities have been in harmony with the scientific plan followed by the faculty members, and it was necessary to connect the theoretical aspect of knowledge with several scientific activities such as scientific research, occupational work, and collaborative projects with industrial and economic institutions.

The following are some of the outstanding achievements carried out by the faculty showcasing its excellence:

- Faculty members obtaining patents, and local and international awards.
- Faculty's students receiving local or international awards (scientific, cultural, sports).
- Faculty employees and students' participation in activities of national and international nature.
- Faculty staff members selection for national and international positions.

Exhibitions and Conferences

1. **The Annual Exhibition of the Faculty of Mechanical and Electrical Engineering:**

The Faculty of Mechanical and Electrical Engineering at Damascus University organizes its exhibition annually within its premises. The deanship of the faculty (Dr. Mohammad Firas Al-Hanawi) launched the idea aiming to develop and embrace creative ideas and practical projects for students and support them to become marketable products, in addition, it creates opportunities for communication between industrial companies and students, thereby contributing to providing them with greater employment opportunities.

The idea of the project exhibition started in 2018 and evolved into an annual event. It has now become a national-level exhibition in its fifth season in 2022.

- **2018 Exhibition:**

  The exhibition was held under the slogan **"Hand in Hand, Let's Rebuild Syria Together"** with the participation of **46 projects** from the faculty. The organizing committee was led by Dr. Moustafa Al-Mawaldi under the generous patronage of the president of Damascus University

- **2019 Exhibition:**

  The exhibition was held under the slogan **"Research and Applied Projects for Reconstruction"**. The number of projects has increased to **70**, with the participation of the Applied College. The organizing committee was led by Dr. Moustafa Al-Mawaldi.

- **2020 Exhibition:**

The exhibition was held under the slogan **"Community partnership for a bright tomorrow"**, with **120 participating projects**. In addition, **the Faculty of Information Technology Engineering, the Applied College, the Higher Institute of Applied Science and Technology,** and some private universities (**Syrian Private University**, **Al-Sham Private University**, **International University for Science & Technology**) also participated. The organizing committee was led by Dr. Ghaith Warkozek.

- **2021 Exhibition:**

  The exhibition was held under the slogan **"Working for the Building of Hopeful Syria"** with the participation of **151 projects** and the involvement of **the Faculty of Information Technology Engineering, the Applied College, the Higher Institute of Applied Science and Technology,** and the participation of some private universities (**Syrian Private University**, **Al-Sham Private University**, **Arab International University**, **Union University**). The organizing committee was led by Dr. Mohammad Saed Sabek.

- **2022 Exhibition:**

  Under the generous patronage of the Minister of Higher Education and Scientific Research, Prof. Dr. Bassam Ibrahim, and with the support of Prof. Dr. Mohammad Osama Al-Jabban, the President of Damascus University, and the National Union of Syrian Students, which sponsors all student activities, the exhibition was held under the slogan **"Together for Innovation and Construction"** with the participation of **192 projects.**
  The most notable feature of this year's exhibition is its transformation into a national-level exhibition, with the participation of our government universities **(Aleppo**, **Al-Baath**, **Hama**, **Tishreen)**, **the Faculty of Information Technology Engineering, the Applied College, the Higher**

Institute of Applied Science and Technology, and some private universities (**AL-Rasheed University**, **Arab International University**, **University of Kalamoon**, **Syrian Private University**, **Al-Wataniya Private University**, **International University for Science & Technology**). The organizing committee was chaired by Dr. Mustafa Al-Hazouri

2. The Annual International Conference on Biomedical Engineering

The Faculty of Mechanical and Electrical Engineering organizes the Annual International Conference on Biomedical Engineering within its premises on an annual basis. The first international conference on Biomedical Engineering, titled **"Biomedical Engineering and its Role in Healthcare Development"** took place at Damascus University Conference Center **(Rida Said Hall)** from **May 16** to **May 18, 2022**.

This is the first-ever international conference of its kind in the field of Biomedical Engineering at Damascus University. It provides an opportunity for communication with scientific research centers and other Arab and foreign universities, facilitating the exchange of research and expertise in various areas of Biomedical Engineering. **The conference serves as a bridge between the Biomedical Engineering department and various medical faculties** to encourage collaborative research that integrates scientific disciplines for the advancement of healthcare in the Syrian Arab region.

The conference includes **various scientific events,** special sessions, and scientific lectures delivered by distinguished researchers and professors in the fields of Biomedical Engineering and Medicine.

Dr. Rasha Masoud

Head of the Biomedical Engineering Department

Dr. Mohammad Firas Al-Hinnawi

Vice President of Damascus University for Scientific Research and Postgraduate Studies Affairs

Dr. Moustafa Al-Mawaldi

Dean of The Faculty of Mechanical and Electrical Engineering

Head of the Department:

The department head is responsible for leading the specialized department and implementing decisions related to the department and its council. They are also responsible for ensuring the proper organization of classes, lectures, scientific exercises, teaching activities, and scientific research within the department. The department head works to continuously improve the curriculum and scientific research standards within the department. Additionally, the department head is required to submit a report on the department's scientific activities and the members of educational and laboratory bodies to the faculty's dean and the department's general section.

The department head is appointed for a two-year term by a decision from the minister, chosen from among the department's faculty members, following consultation with the university president and the faculty's dean.

The Department Council:

The Department Council consists of:

1- The Head of Department, who presides over the council.
2- Three professors, three assistant professors, and three lecturers from the department. The Head of Department nominates them periodically at the beginning of each academic year based on seniority in the position.
3- One member of the technical staff appointed by the dean on a rotating basis for one year.

The Department Council Discusses the Following Matters:

1. Implementing the decisions of the college council following applicable laws and regulations.
2. Developing projects related to the department's activities for presentation to the faculty council.
3. Compiling the annual report on the department's activities.
4. Proposing the academic courses to be taught by the department and suggesting their curricula.
5. Allocating lessons and lectures among the department's faculty members and lecturers.

Faculty Library

The faculty has a central library that covers an area of over 2000 square meters. It is located on the third floor of the new building near the administrative building. The library is divided into a book hall, a reading hall, and administrative offices for the library staff. It is equipped with a computer network connected to the university's network and the Syrian higher education network. It is available to students for inquiries and book borrowing.

This library contains a large number of Arabic and foreign scientific books and references that are relevant to the faculty's specialties, with a total of more than 16,000 books and references. Additionally, it holds various engineering scientific journals and publications.

Department of General Mechanical Engineering

Overview:

1- The department was established in the academic year 1972-1973 at the Faculty of Mechanical and Electrical Engineering at the University of Damascus.

2- The Master's program in the department was introduced in the academic year 1994-1995.

3- The postgraduate studies system in the department was approved in the academic year 2007/2008, under decision number 38 in 2007. Its accreditation was subsequently reaffirmed under decision number 34 in the year 2013.

4- The floor area allocated to the department in the complex of the Faculty of Mechanical and Electrical Engineering is more than 6000 square meters.

5- The total number of students in the department for all five years is approximately 1700, distributed across the five years.

The Department's Message :

Providing students with the principles of modern engineering knowledge and advanced scientific research methods in the fields of Mechanical Forces Engineering and Renewable Energy Engineering. Aiming to elevate the level of mechanical engineers through postgraduate studies and scientific research. Additionally, it emphasizes the importance of building interactive relationships with both public and private sector institutions to address their challenges and meet their needs.

Certificates Awarded by the Department:

a. **Bachelor's degree in mechanical engineering in two specializations (Mechanical Power and Renewable Energy Engineering) spans a duration of five years.**

b. **The Master's degree is awarded in the following specializations:**

English	Arabic
Renewable Energy	الطاقات المتجددة
Refrigeration Engineering	هندسة التبريد
Thermal Engineering	الهندسة الحرارية
Fluid Mechanics	ميكانيك الموائع
Rigid Bodies Mechanics	ميكانيك الأجسام الصلبة

c. **PhD Program in the Following Specializations:**

English	Arabic
Renewable Energy	الطاقات المتجددة
Refrigeration Engineering	هندسة التبريد
Thermal Engineering	الهندسة الحرارية
Fluid Mechanics	ميكانيك الموائع
Rigid Bodies Mechanics	ميكانيك الأجسام الصلبة

The Scientific Teaching Staff of the Department:

1. Faculty Members:

• The teaching staff in the department features 22 faculty members.

• Displayed in the following table are the esteemed members of the faculty, showcasing their distinguished names alongside their respective areas of expertise:

No.	Name	Precise Specialization	Country of Certificate	Academic Degree	Email
1	Dr. Ayman Al-Khabbaz (Head of the Department)	Associate Professor	Ukraine	PhD in Thermal Turbine Machines	aykhmbt@gmail.com ayman.khabbaz@damascusuniversity.edu.sy
2	Prof. Dr. Jamal Al-Abbas	Professor	Russia	PhD in Violent Machines	jamal.abas@hotmail,com
3	Prof. Dr. Ghassan Zaidan	Professor	Russia	PhD in Hydraulic Machinery	ghassanzedan@hotmail.com
4	Prof. Dr. Hussein Tineh	Professor	Russia	PhD in Gas Dynamics	habtina60@gmail.com
5	Prof. Dr. Wajih Naama	Professor	Germany	PhD in Refrigeration Systems Engineering	wajihnaimeh@gmail.com
6	Prof. Dr. Ali Khalouf	Professor	Russia	PhD in Fluid Mechanics	alikhallouf1959@gmail.com
7	Prof. Dr. Wad Imran	Professor	Russia	PhD in Technology Sciences (Machine Dynamics and Vibrations)	w-omran@hotmail.com
8	Prof. Dr. Issa Murad	Professor	Poland	PhD in Power Stations	isamrad@gmail.com
9	Prof. Dr. Nasr Yassin	Professor	Russia	PhD in Thermodynamics	dr.nasser58@hotmail.com
10	Prof. Dr. Atef Amer	Professor	Ukraine	PhD in Refrigeration and Air Conditioning Systems	atefamer75@gmail.com atef.amer@damascusuniversity.edu.sy

11	Dr. Asim Qadah	Associate Professor	Bulgaria	PhD in Gas and Fluid Dynamics	phd.kaddah@gmail.com
12	Dr. Bassam Badran	Associate Professor	USA	PhD in Gas and Fluid Dynamics	badranphd@gmail.com
13	Dr. Ghassan Madlal	Associate Professor	Egypt	PhD in Heating, Ventilation, and Air Conditioning (HVAC) Engineering	ghassan.moudallal@damascusuniversity.edu.sy gmudallal@yahoo.com
14	Dr. Mohammad Seif Al-Din Al-Halak	Associate Professor	Germany	PhD in Systems and Control Engineering	msdhallak@hotmail.com
15	Dr. Hamza Makarem	Associate Professor	Russia	PhD in Fluid Mechanics	hamzamkarem122@gmail.com
16	Dr. Hussein Hamza	Associate Professor	Russia	PhD in Machine Dynamics and Resistance	hossenhamza6@gmail.com
17	Dr. Said Shaqeer	Associate Professor	France	PhD in Wind Turbine Dynamics	said.chkir@gmail.com said.chkir@damascusuniversity,edu,sy
18	Dr. Fawaz Al-Yousef	Lecturer	Russia	PhD in Automatic Control of Gas Turbines	-
19	Dr. Hassan Al-Qawzi	Lecturer	Russia	PhD in Technical Sciences / Body Mechanics	hassan.kouzy@damascusuniversity.edu.sy
20	Dr. Thanaa Hassan	Lecturer	Russia	PhD in Technical Sciences / Energy and Environmental Science	thanahassan@gmail.com
21	Dr. Sulaiman Al-Awaaj	Lecturer	Egypt	PhD in Mechanical Engineering / Fluid Mechanics	slyman66@gmail.com s.aawaj@damascusuniversity.edu.sy
22	Dr. Baraa Hamadi	Lecturer	Syria	PhD in Solar Energy and Renewable Energies / Energy Systems Economics	hamadibaraah@gmail.com

2. Delegated Teaching Assistants:

No.	Name	Academic Degree	Specialization	Current Situation
1	Eng. Osama Abu al-Dhahab	Master in Thermal Engineering	Power Stations	External Delegation
2	Eng. Adham Saftli	Bachelor in Mechanical Engineering	Automatic Control of Refrigeration	External Delegation
3	Eng. Baida Boudqa	Master in Renewable Energy	Steam Generators	External Delegation
4	Eng. Rawad Deeb	Master in Thermal Engineering	Thermal Measurements	External Delegation
5	Eng. Ali Jreisheh	Master in Nuclear Energy	Gas Dynamics	External Delegation
6	Eng. Feras Al-Joujou	Master in Renewable Energy	Heating and Cooling Using Renewable	External Delegation
7	Eng. Mazen Othman	Bachelor in Mechanical Engineering	Solar Heating Systems	External Delegation
8	Eng. Ahmed Hijazi	Bachelor in Mechanical Engineering	Refrigeration Engineering	Internal Delegation
9	Eng. Rawaa Tarabulsi	Bachelor in Mechanical Engineering	Renewable Energy	Internal Delegation
10	Eng. Amama Jumaa	Bachelor in Mechanical Engineering	Renewable Energy	Internal Delegation

3. Technical Staff:

No.	Name	Academic Degree	Specialization	Academic Position
1	Dr. Rania Awari	PhD	Refrigeration Engineering	Operations Supervisor
2	Eng. Raghdah Sikkir	Diploma	Solar Energy	Operations Manager
3	Eng. Ahmad Iyad Al-Sharbaaji	Diploma	Solar Energy	Operations Manager
4	Eng. Raghad Al-Dahim	Master	Solar Energy	Operations Officer
5	Dr. Ahmed Amaireh	PhD	Refrigeration Engineering	Operations Officer
6	Eng. Mohammad Yaman Al-Sabbagh	Master	Refrigeration Engineering	Operations Officer
7	Eng. Radwan Abu Al-Shawareb	Bachelor	Mechanical Engineering	Operations Supervisor
8	Eng. Sonia Mustafa	Diploma	Renewable Energy	Operations Officer
9	Eng. Reem Hamido	Bachelor in Mechanical Engineering	Mechanical Engineering	Operations Officer
10	Eng. Amar Al-Tawia	Bachelor in Mechanical Engineering	Mechatronics	Operations Officer

4. Delegated Engineers:

No	Name	Academic degree	Specialization
1	Eng, Linda Farah Abu Dawood	Bachelor in Mechanical Engineering	General Mechanics
2	Eng. Terez Mahna	Bachelor in Mechanical Engineering	General Mechanics
3	Dr. Khaldoun Al-Deeb	PhD in Fluid Mechanics and Aerodynamics of Wind Turbines.	Fluid Mechanics
4	Eng. Ahmed Malbanji	Bachelor in Nuclear Engineering.	General Mechanics

Heads of the Department Since Its Establishment:

Prof. Dr. Ghazi Al-Droubi	1975 – 1976
Prof. Dr. Simon Abyad	1976 - 1979
Prof. Dr. Nadeem Mekhaiber:	1979 - 1983
Prof. Dr. Abdou Shahada:	1983 - 1985
Prof. Dr. Ghassoub Seraqbi	1985 - 1988
Prof. Dr. Simon Abyad	1988 - 1997
Prof. Dr. Ali Salami	1997 - 2003
Prof. Dr. Ali Subh	2003 - 2007
Prof. Dr. Ahmed Fayez Al-Zibak	2007 - 2009
Prof. Dr. Mohammed Saeed Al-Jarrah	2009 - 2013
Prof. Dr. Ali Khalouf	2013 - 2017
Prof. Dr. Ghassan Zaydan	2017 - 2021
Prof. Dr. Ayman Al-Khabbaz	2021 – present

The scientific Research Plan and Projects Presented by The General Mechanical Engineering Department.:

General Mechanical Engineering and Thermal Engineering:

1. Thermal Equipment and Machinery
2. Refrigeration and Its Machinery
3. Thermal Storage and Its Applications
4. Fluid Machinery and Hydroelectric Stations
5. Machinery Dynamics and Vibrations

Renewable Energy Engineering.:

1. Solar Energy and Its Applications
2. Wind Energy and Its Applications
3. Biomass Energy and Its Applications
4. Geothermal Energy and Its Applications

The Research Units in the Department of General Mechanical Engineering:

Two research units have been established:

Unit of General Mechanical and Thermal Engineering.

Unit of Renewable Energy Engineering.

Educational Plan:

First Year-Mechanical Forces Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematics (1)	4	2	6	1-Mathematics (2)	4	2	6
2-Physics (1)	4	2	6	2-Physics (2)	2	2	4
3-Descriptive Engineering	2	2	4	3-National Education	2	-	2
4-Chemistry	4	2	6	4-Engineering Representation and Design (1)	2	2	4
5-Engineering Mechanics (Balance)	2	2	4	5-Engineering Mechanics (Movement)	2	2	4
6-Foreign Language (1)	4	-	4	6-Introduction to Computers and Programming	2	2	4
7-Workshops	-	4	4	7-Arabic Language	2	-	2
				8-Foreign Language (2)	4	-	4
Total	20	14	34	Total	20	10	30

Second Year-Mechanical Forces Specialization							
First Semester				Second Semester			
Subject	Theoretical	Practical	Total Hours	Subject	Theoretical	Practical	Total Hours
1-Mathematics (3)	4	2	6	1-Mathematics (4)	4	2	6
2-Engineering Mechanics (Kinematics)	4	2	6	2-Materials Resistance (1)	4	2	6
3-Engineering Representation and Design (2)	2	2	4	3-Thermodynamics (1)	2	2	4
4-Programming (1)	2	2	4	4-Programming (2)	2	2	4
5-The Science and Properties of Materials	4	2	6	5-Manufacturing Methods (1)	2	2	4
6-Civil Engineering	2	-	2	6-Foreign Language (4)	4	-	4
7-Foreign Language (3)	4	-	4				
Total	22	10	32	Total	18	10	28

Third Year-Mechanical Forces Specialization							
First Semester				Second Semester			
Subject	Theoretical	Practical	Total Hours	Subject	Theoretical	Practical	Total Hours
1-Materials Resistance (2)	4	2	6	1-Electric Machines Control	4	2	6
2- Manufacturing Methods (2)	2	2	4	2-Machine Elements Design (1)	4	2	6
3-Fluid Mechanics (1)	4	2	6	3-Fluid Mechanics (2)	4	2	6
4-Thermodynamics (2)	4	2	6	4-Theory of Machines	4	2	6
5-Fundamentals of Electrical Engineering	2	2	4	5--Internal Combustion Engines (1)	2	2	4
6-Mechanical Measurements	2	2	4				
Total	18	12	30	Total	18	10	28

Fourth Year-Mechanical Forces Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Machine Elements Design (2)	4	2	6	1-Fluid Machinery	4	2	6
2-Machine Dynamics and Vibrations	4	2	6	2-Heat and Mass Transfer	4	2	6
3-Internal Combustion Engines (2)	2	2	4	3-Thermal Machines (1)	4	2	6
4-Gas Dynamics	4	2	6	4-Steam Generators	2	-	2
5-Industrial Electronics	2	2	4	5-Occupational Safety	2	-	2
6-Computer-Aided Design and Manufacturing	2	2	4	6-Practical Project	-	4	4
Total	18	12	32	**Total**	16	10	26

Fifth Year-Mechanical Forces Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Finite Elements and Their Applications	2	2	4	1-Power Generation Stations	4	2	6
2-Thermal Machines (2)	2	2	4	2-Renewable Energies	4	2	6
3-Refregeration Engineering	4	2	6	3-Automatic Control	4	2	6
4-Heating, Ventilation, and Air Conditioning Engineering	4	2	6	4-Industrial Organization and Project Management	2	-	2
5-Graduation Project	2	2	4	5-Modeling and Simulation in Mechanical Systems	2	2	4
				6- Graduation Project	2	2	4
Total	14	10	24	**Total**	18	10	28

***For the Renewable Energy specialization, the first three years (first, second, and third) are common with the Mechanical Forces specialization.**

Fourth Year-Renewable Energy Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1- Heat and Mass Transfer	4	2	6	1-Wind Energy (1)	2	-	2
2- Heating, Ventilation, and Air Conditioning Engineering	4	2	6	2-Fluid Machinery	4	2	6
3-Renewable Energies (1)	4	2	6	3-Renewable Energies (2)	4	2	6
4-Furnaces, Heat Exchangers, and Thermal Equipment Technology	3	1	4	4-Power Generation Stations	4	2	6
5-Refrigeration Engineering	4	2	6	5-Solar Cells	4	-	4
6-Energy and Environment	2	-	2	6-Energy Efficiency of Buildings.	4	2	6
Total	21	9	30	**Total**	22	8	30

Fifth Year-Renewable Energy Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Solar Heating Systems	2	2	4	1-Solar Concentration Systems and Electricity Generation	4	2	4
2-Thermal Energy Storage (1)	2	1	3	2- Thermal Energy Storage (2)	2	1	2
3- Wind Energy (2)	2	2	4	3-Thermal Cooling Systems	4	2	4
4-Economics of Energy Systems	2	2	4	4-Automatic Control	4	2	4
5-Numerical Methods in Mechanical Engineering r	4	-	4	5-Applications of Heat Pumps	2	1	2
6-Graduation Project	-	4	4	6- Graduation Project	-	4	4
Total	12	11	23	**Total**	16	12	28

Department's Laboratories:

No.	Laboratory's Name	Most Significant Equipment in the Laboratory and Available Tests
1	**Thermodynamics**	**Experiments in Thermodynamics Lab:** 1. "Marcet Boiler" experiment 2. Calibration Experiment The Blanchard's Micrometer Experiment
2	**The Fluid Mechanics and Machinery**	**Experiments in Fluid Mechanics Lab:** 1. Venturi Apparatus: The aim is to verify the Bernoulli's equation. 2. Jet Flow over a Plate: To verify the linear momentum principle. 3. Comparison of Different Flowmeters: Comparing the performance of various volumetric flow meters for flows in pipes. 4. Hydraulic Jump: Determining the different hydraulic jump coefficients as volumetric flow rate measuring devices in open channels. 5. Device for Studying Frictional and Local Losses in Pipe Flow. 6. Reynolds Apparatus: Study of Laminar and Turbulent Flows. 7. Tank Discharge Device from a Side Opening: To study the effect of the orifice shape on the discharge rate. 8. A water channel for studying flow around various geometric shapes, aimed at the in-depth kinematic analysis of flows, and delving into the realms of modeling and simulation. 9. Device for Determining the Point of Impact of Liquid Pressure Force on a Flat Surface. 10. Device for Determining the Height of the Calculated Buoyancy Center for a Floating Body and Determining the Stable Floating Position. **The Contents of the Fluid Machinery Laboratory:** 1. A platform for testing German-made pumps suitable for centrifugal, reciprocating, and gear pumps, and for connecting the pumps with the computer and the color laser printer. 2. One Hydraulic Cart. 3. Experiment: Centrifugal Pump Connection. 4. Experiment: Pelton Wheel with Measurement of Rotational Speed (Tachometer). 5. Experiment Platform for Axial Fan with Computer and Color Laser Printer.

<table>
<tr><td></td><td></td><td>6. Experiment Platform for Centrifugal Fan with Computer and Color Laser Printer.
7. A room with a regular board (shared in the Fluid Mechanics Lab).
8. Display screens with computers (shared with the Fluid Mechanics Lab).</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Refrigeration and Air Conditioning Lab (1)</td><td>Contents of the LG Refrigeration and Air Conditioning Lab:</td></tr>
<tr><td>1. Oxy-Acetylene Welding Equipment.
2. Copper Pipe Preparation Equipment (Cutting and Deburring) for Welding.
3. Set of Temperature and Pressure Gauges Specifically for Air Conditioning Devices.
4. A Set of Current and Voltage Gauges.
5. Air Velocity Gauge.
6. Electronic Scale.
7. Freon 22 Canister.
8. Heat Transfer Coefficient Measurement Device for Free Convection (Master's Project).
9. Double Dry and Wet Cooling Tower (Master's Project)
10. Computer, Video Projector, and Portable Projection Screen.
11. A Variety of Modern Variable Refrigerant Flow (VRF) Air Conditioning Systems.
12. A Set of Air Conditioning Equipment (Ducts, Supply and Return Vents).
13. Display Boards and Sectional Explanations.
Educational Centralized Control System (BMS).</td></tr>
<tr><td>4</td><td>Refrigeration and Air Conditioning Lab (2)</td><td>Saltwater Refrigeration and Air Conditioning Lab
The equipment available in the lab includes:
1. Air Handling Unit.
2. The airflow for this unit is 1800 m3/h. Air Handling Units can be designed with air flows ranging from 1000 m3/h to 100000 m3/h. The unit can be equipped with additional components such as Heat Recovery Units, HEBA FILTER absolute filters, or coils that operate on other heat sources, etc...
3. Water Chiller
4. Hot Water Cylinder.
5. Water Boiler
6. Fan Coil Units:
These units consist of coils through which heat exchange occurs between water and air, and a fan to distribute air throughout the conditioned space. The heat transfer medium (water) flows through the coil pipes. These units come in various shapes and designs, which are:
▪ Wall-mounted fan coil unit.
▪ Vertical flow fan coil unit.
▪ Ceiling concealed fan coil unit.
▪ Ceiling exposed fan coil unit.
▪ Cassette fan coil unit.</td></tr>
</table>

		▪ Duct Split Unit. ▪ Psychometric Char.
5	**Computer Modeling and Simulation**	- Illustrating the benefits of the MATLAB program in control through modeling a delayed transfer function. - Displaying the response shape of either the step response or the ramp response function. - Studying the stability of control systems using MATLAB involves two main stages. The first stage is plotting the Nyquist function, and the second stage is plotting the Bode function. Following this, a discussion of the stability of both methods is conducted.
6	**Power Stations**	- This training laboratory is designed to serve as a resource for training engineers and enhancing the skills of professionals working in various state institutions in the field of thermal engineering. The attached workshops can be utilized for the implementation of comprehensive training models, particularly in the context of postgraduate studies. - Additionally, graduate students can independently execute projects with the assistance of the technical staff in the lab. - The technical staff consists of six engineers. The lab also features a fully equipped classroom with 20 computers connected to a computer network. Additionally, the room is equipped with a video projector. - It also includes a complete research-oriented power generation station consisting of a steam generator, a steam turbine with an electric generator, a water condenser, and a cooling tower. The measurement tools are interconnected through digital similarity transformers and a data acquisition card linked to the computer. This allows for data collection, recording, and the computation of necessary parameters and objectives. The station is supplemented with multiple water treatment units (ion exchanger, RO, ion exchanger). Additionally, it also houses a wide range of measuring and calibration devices utilized for research purposes. - The lab is utilized for instructing fourth-year students in the subject of boilers, as well as fifth-year students in the subject of electric power stations. - It also serves as a practical resource for postgraduate courses in the Thermal Engineering department. It is equipped to accommodate a variety of experiments related to thermodynamics and gas dynamics.

7	**Gas Dynamics**	- Open Air Wind Tunnel: It operates at low speeds and is used for educational purposes. - The Water Hammer Experiment.
8	**Wind Energy**	- A 5 kW Chinese-made wind turbine connected to the electrical grid, serving as an experimental model. It has a low safety factor, and the wind speed in the area doesn't reach the appropriate nominal start-up speed for grid connection. - A locally made 1 kW wind turbine (PhD project) installed on top of the modern building at the faculty. - Savonius Wind Turbine (Multi-layered): A graduation project utilized for training purposes, operating at low speeds. - Helix Wind Turbine (Graduation Project): It doesn't require high speeds or direction control. The maximum power is up to 1500 Watts. It's made from lightweight and inexpensive local materials. It operates on wind or solar energy or both together. It has a small and elegant design. Efficiency can be increased through some enhancements. It's suitable for use with rural homes. It has low cost and only requires battery replacement every 3 years. It can be placed in residential areas or streets since it doesn't produce loud noise like other turbines. It's on a 5:1 scale of the real model.
9	**Solar Thermal Energy**	**The equipment available in the laboratory:** 1. Chinese-made water-in-glass type collector comprising 30 tubes with a cylinder capacity of 350 liters. 2. Chinese-made U-pipe type collector consisting of 30 tubes. 3. Chinese-made Vacuum Tube Device. 4. German-made Direct Flow Collector, 2 m^2, Quantity: 1, located in the storage room. 5. German-made Direct Flow Collector, 30 tubes, 3 m^2, Quantity: 3, located in the storage room, and one in the laboratory hall. 6. German-made Flat Collector, 2.3 m^2, Quantity: 2, located in the laboratory hall. 7. Domestically Manufactured Flat Collector, Quantity: 2, located in the laboratory hall. 8. Domestically Manufactured Flat Collector, Quantity: 2, with a tank located on the roof of the laboratory building. 9. Section of a Domestically Manufactured Flat Collector.

		10. Diverse Measurement Devices for Measuring the Following Parameters: Dry Bulb Temperature, Wet Bulb Temperature, Volume Flow, Relative Humidity, Pressure, Solar Radiation Intensity. 11. Ready-to-Use Heat Transfer Fluid for Solar Thermal Systems with Antifreeze. 12. Mobile Aluminum Bases. 13. Experimental Laboratory Circuit for Heating Closed Swimming Pool Water (Implemented by a Master's Researcher) 14. Solar Box Cooker with Realistic Dimensions (Implemented by a Master's Researcher). 15. Concentrated Solar Cooker with Realistic Dimensions (Implemented by a Master's Researcher).
10	**Dynamics and Control**	- Experiment One: Cam Experiment. - Experiment Two: Slider-Crank Mechanism - Experiment Three: Coefficient of Friction for Belts - Experiment Four: Determination of Transmission Efficiency for Gear Train - Experiment Five: Quick Return Mechanism - Experiment Six: Governor Experiment - Experiment Seven: Unbalance in Rotating Masses - Experiment Eight: Hartnell Governor

Fluid Mechanics Lab:


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Fluid Machinery Lab:

Gas Dynamics Lab:

LG Refrigeration and Air Conditioning Lab:


LG V-NET network solution
Central Control System
System 1
System 2


LG
LG


LG


LG

Saltwater Refrigeration and Air Conditioning Lab:


CHAPPÉE

Power Stations Lab:

Solar Power Lab:

Thermodynamics and Heat Transfer Lab:

Department of Mechanical Design Engineering

Overview:

- **The Mechanical Design Engineering department was established in 1975.**
- **The department prepares engineers to work in the following engineering fields:**

Machine design, operating machines, casting and its machines, production technology, maintenance of production means.

- **The Mechanical Design Engineering department consists of:**

1. Division of Mechanical Design Engineering and Production.
2. Division of Mechanical Design Engineering and Material Science.

Certificates Awarded by the Department:

A. **Bachelor's Degree in Mechanical Engineering, specializing in Mechanical Design Engineering in the Production Division and Mechanical Design Engineering in the Material Science Division, with a duration of five years.**

B. **The department confers Master's degrees in the following specializations:**

1. Production Automation Engineering
2. Industrial Engineering.
3. Machine Design and Construction Engineering.
4. Material Science Engineering.

The Scientific Teaching Staffs of the Department:

A. Faculty Members:

- The teaching staff in the department features 16 faculty members. Their respective areas of expertise are provided in the following table:

No.	Name	Precise Specialization	Current Situation	Academic Degree
1	Dr. Khaled Sharaf (Head of the Department)	Thermo-Electric Processes and Their Equipment's	Actively Employed	Associate Professor
2	Dr. Mohamed Ali Salama	Metallurgy, Welding Technology, and Steel Constructions	Actively Employed	Professor
3	Dr. Ghassan Haddad	Mechanical Engineering: Production Processes Automation	Actively Employed	Professor
4	Dr. Mahmoud Bani Al-Marja	Automated Control and Production Automation	Actively Employed	Professor
5	Dr. Mohamed Bassam Al-Khabaz	Precision Machinery Design	Actively Employed	Associate Professor
6	Dr. Essam Qarqout	Production Engineering: Machine Construction Technology	Actively Employed	Associate Professor
7	Dr. Abdulwahab Al-Wattar	Machine Parts Design	Actively Employed	Associate Professor
8	Dr. Basel Sanoufa	Economic Engineering	Actively Employed	Associate Professor
9	Dr. Mohamed Nader Zeidan	Production Engineering - Machine Building Technology	Actively Employed	Professor
10	Dr. Mahlab Dawood	Metallurgical Engineering	Actively Employed	Associate Professor
11	Dr. Mohamed Sameer Al-Barzaoui	Resistance of Plastic Materials	Actively Employed	Associate Professor
12	Dr. Hassan Hadla	Iron-Based Metals	Actively Employed	Associate Professor
13	Dr. Mohammad Muath Al-Khayyat	Industrial Engineering	Actively Employed	Lecturer
14	Dr. Mahmoud Al-Hanawi	Industrial Engineering	Actively Employed	Associate Professor
15	Dr. Mohamed Bassam Abu Harb	Finite Element Method (FEM) in Numerical Mechanics	Actively Employed	Lecturer
16	Dr. Wissam Dib	Polymer Engineering (Plastics)	Actively Employed	Lecturer

B. Technical Staff:

No.	Name	Country of Certificate	Current Situation	Academic Position
1	Eng. Yassar Dakhil Allah	Syria	Actively Employed	Operations Supervisor
2	Eng. Mohammed Ram Hamdani	Syria	Actively Employed	Operations Manager
3	Eng, Iman Jamea	Syria	Actively Employed	Operations Supervisor
4	Eng. Layla Nazam	Syria	Actively Employed	Operations Supervisor
5	Dr. Samer Hussam Aldeen	Syria	Actively Employed	Operations Officer
6	Eng. Shatha Hamza	Syria	Actively Employed	Operations Officer
7	Eng. Mohammad Al-Nabulsi	Syria	Actively Employed	Operations Officer
8	Eng. Eman Al-Sharaihi	Syria	Actively Employed	Operations Officer
9	Eng. Maala Maala	Syria	Actively Employed	Operations Officer
10	Dr. Jalaa Al Younes	Syria	Actively Employed	Operations Officer
11	Eng. Sherine Abu Sika	Syria	Actively Employed	Operations Officer
12	Eng. Paula Butros	Syria	Actively Employed	Operations Officer
13	Eng. Nour al-Din al-Baqai	Syria	Actively Employed	Operations Officer

14	Eng. Walaa Al-Aasi	Syria	Actively Employed	Operations Officer
15	Eng. Hassan Al-Imam	Syria	Unpaid Leave for an Academic Year	Operations Officer
16	Eng. Rasha Al-Kayali	Syria	Actively Employed	Operations Officer
17	Eng. Duaa Majzoub	Syria	Actively Employed	Operations Officer
18	Eng. Alaa Omar Basha	Syria	Unpaid Leave for an Academic Year	Operations Officer
19	Dr. Mohammad Thaer Al-Jawhari	Syria	Unpaid Leave for an Academic Year	Operations Officer
20	Laila Attia	Syria	Actively Employed	Operations Officer
21	Dima Zakaria	Syria	Unpaid Leave for an Academic Year	Operations Officer
22	Zainab Al-Ghobsha	Syria	Actively Employed	Operations Officer

C. Delegated Engineers:

No	Name	Country of Certificate	Current Situation	Academic Position
1	Eng. Reem Mohammed	Syria	Actively Employed	Designated Engineer
2	Eng. Nadine Yezbek	Syria	Actively Employed	Designated Engineer
3	Eng. Noor Elshater	Syria	Actively Employed	Designated Engineer
4	Eng. Rahma Kharouf	Syria	Actively Employed	Designated Engineer

Heads of the Department Since Its Establishment:

- Dr. Mohamed Khaled Fattahi 1975-1976
- Dr. Jameel Abu Jahjah 1976-1977
- Dr. Nazih Abu Saleh 1977-1979
- Dr. Abdulaziz Arrar 1979-1980
- Dr. Nazih Abu Saleh 1980-1985
- Dr. Fouad Azar 1985-1993
- Dr. Rashdi Al Najjar 1993-1999
- Dr. Mohamed Rashid Al Sharbaji 1999-2001
- Dr. Mu'taz Jawish 2001-2003
- Dr. Nazih Abu Saleh 2003-2007
- Dr. Mohamed Ali Salama 2007-2011
- Dr. Mahmoud Bani Al Marja 2011-2015
- Dr. Jamal Nammoura 2015-2017
- Dr. Ghassan Haddad 2017-2021
- Dr. Khaled Sharaf 2021-present

The Main Scientific Research Topics of the Department:

The scientific research in the department revolves around several core topics:

1- Metallurgical and Materials Engineering.

2- Industrial Engineering and Quality Management.

3- Industrial Automation and Mechatronics.

These researches have been conducted through:

- Scientific research forms for faculty members and scientific research units in the department.
- Master's theses.
- Doctoral theses.

Scientific Research Units in the Department:

a) Industrial Control and Automation Unit:

- Computer-aided design and manufacturing using modeling and simulation in production processes.
- Utilizing artificial intelligence in mechanical engineering applications.
- Production control and automation.
- Applications of Robot Deployment in Production Processes.
- Loading and Distribution of Workpieces for operating machines.
- Flexible and agile production lines.

b) **The unit of Materials Science and Engineering (and their testing):**

- Metal and alloys casting
- Plastic materials and their testing.
- Metal alloys and their testing.
- Welding and welded joints technology.
- Heat treatments of metals and their alloys.
- Calibration and mechanical measurements.
- Metal surface engineering.

c) **Machine Design and Construction Unit**

- Transmission machines and mechanisms and improving their efficiency.
- Operating equipment and industrial production lines.
- Handling and transportation equipment in industrial production.
- Improving machine efficiency through redesigning certain parts.
- Metal forming and working.
- Vibrations studies.
- Constructing machines with binary or multi-axis programming.
- Replacing machine parts with lighter ones - reducing cross-sectional dimensions.

d) **Maintenance Engineering and Industrial Engineering Unit**

- Estimating the service life of machines.
- Industrial project management.
- Renewal and repair of machine components.
- Early detection of malfunctions.
- Industrial handling methods.

Educational Plan:

A. Design and Production Division:

First Year-Design and Production Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematics (1)	4	2	6	1-Mathematics (2)	4	2	6
2-Physics (1)	4	2	6	2-Physics (2)	2	2	4
3-Descriptive Engineering	4	2	6	3-National Education	2	-	2
4-Chemistry	2	2	4	4-Engineering Representation and Design (1)	2	4	6
5-Engineering Mechanics (Balance)	4	2	6	5-Engineering Mechanics (Movement)	2	2	4
6-Foreign Language (1)	4	-	4	6-Foreign Language (2)	4	-	4
7-Workshops	-	4	4	7-Arabic Language	4	-	4
				8-Introduction into Computers and Programming	2	2	4
Total	22	14	36	**Total**	22	12	35

Second Year-Design and Production Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematics (3)	4	2	6	1-Mathematics (4)	4	2	6
2-Programming (1)	2	2	4	2-Materials Resistance (1)	4	2	6
3-Civil Engineering	2	-	2	3-Thermodynamics (1)	2	2	4
4- Engineering Representation and Design (2)	2	4	6	4-Programming (2)	2	2	4
5-Engineering Mechanics (Kinematics)	2	2	4	5-Manufacturing Methods (1)	2	2	4
6-Foreign Language (3)	4	-	4	6-Foreign Language (4)	4	-	4
				7-The Science and Properties of Materials	2	2	4
Total	16	10	26	**Total**	20	12	32

Third Year-Design and Production Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Metallurgy and Casting	2	2	4	1-Electric Drives and Control	2	2	4
2-Materials Resistance (2)	4	2	6	2-Machine Elements Design (1)	2	2	4
3-Manufascturing Methods (2)	2	2	4	3-Manufacturing Methods (3)	2	2	4
4-Fundamentals of Electrical Engineering	2	2	4	4-Theory of Machines	4	2	6
5-Industrial Electronics	2	2	4	5-Metrology	2	2	4
6-Thermodynamics (2)	2	2	4	6-Fluid Mechanics (2)	2	2	4
7-Fluid Mechanics (1)	2	2	4				
Total	16	14	30	**Total**	14	12	26

Fourth Year-Design and Production Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Hydraulic Control Elements and Systems	2	2	4	1-Casting and its Machinery	2	2	4
2-Machine Elements Design (2)	4	2	6	2-Transportation and Lifting Machinery	4	2	6
3-Machine Dynamics and Vibrations	4	2	6	3-Automation and Production Control	4	2	6
4-Finite Elements and Their Applications	2	2	4	4-Computer-Aided Design and Manufacturing	2	4	6
5-Forming and its Machinery	2	2	4	5-Engineering Design Project	-	4	4
6-Thermal and Hydraulic Machinery	2	2	3	6-Thermal Processing	2	2	4
Total	16	12	28	**Total**	14	16	30

Fifth Year-Design and Production Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Maintenance of Production Equipment	2	2	4	1-Production Planning and Methods	2	2	4
2-Operational Machinery	2	2	4	2-Plastic Engineering	4	2	6
3-Machinery and Production Lines Design	2	2	4	3-Industrial Organization and Project Management	2	2	4
4-Engineering Economics	2	2	4	4-Design of Guides and Supports	2	2	4
5-Metal Cutting Theory	2	2	4	5-Computer-Aided Engineering Applications	2	2	4
6-Graduation Project	2	2	4	6-Graduation Project	2	2	4
7-Industrial Heating and Ventilation	4	2	6				
Total	16	14	30	**Total**	14	12	26

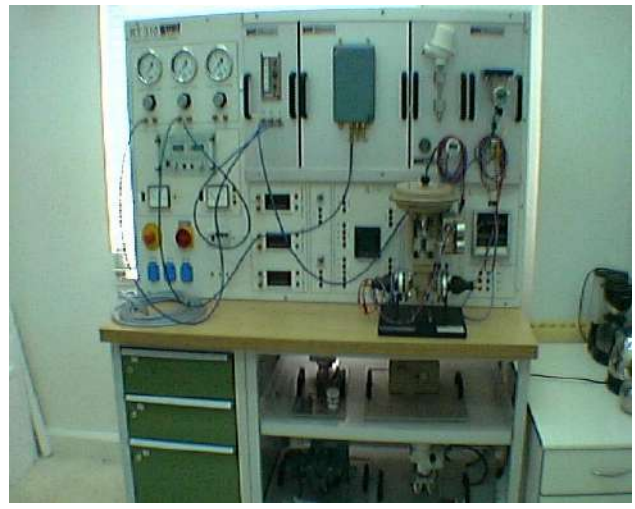
B. <u>Materials Science Division:</u>

- The first four years (first, second, third and fourth) are common with the Design and Production division.

Fifth Year-Materials Science Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Metal Alloys and Their Casting	4	2	6	1-Ceramic Materials	4	2	6
2-Composite Materials	2	2	4	2-Plastic Engineering	4	2	6
3-Surface Engineering	2	2	4	3-Fracture Mechanics and Failure Analysis	2	2	4
4-Industrial Organization and Project Management	2	2	4	4-Powder Metallurgy	2	2	4
5- Materials Physics and Chemistry	2	2	4	5-Materials Selection and Testing	2	2	4
6-Graduation Project	2	2	4	6-Graduation Project	2	2	4
Total	14	12	26	**Total**	16	12	28

Department's Laboratories:

1- Machining and Milling Workshop Lab.
2- Blacksmithing and Welding Workshop Lab.
3- Foundry and Modeling Lab.
4- Modern Plumbing Lab.
5- Plate and Welding Lab.
6- Carpentry and Modeling Workshop Lab.
7- Operating Machines Lab.
8- Formation Lab.
9- Lost Wax Lab.
10- Plastic Lab.
11- Mechanical Measurement Lab.
12- Sand Lab.
13- Paint and Coating Lab.
14- Mechanical Properties Lab.
15- Metallurgical Lab.
16- Material Resistance Lab.
17- Computer Numerical Control Lab (CNC)
18- Automatic Control and Industrial Automation Lab.



19- Dynamics of Machinery and Vibration Lab.

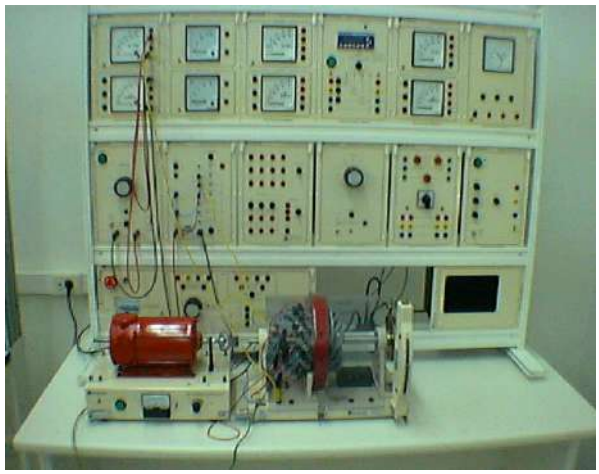
20-Non-Destructive Testing Lab (NDT).

21- Destructive Testing Lab (DT).

22- Heat Treat Lab.

23- Computer-Aided Design Lab (CAD).

24- Transportation and Lifting machines Lab.



And there are numerous laboratories under establishment and development (The New Measurements Lab, Laser Applications Lab, Rapid Modeling Lab, etc.).

Department of Electronics and Communications Engineering

Overview:

The department was established in the academic year 1972 at the Faculty of Mechanical and Electrical Engineering at Damascus University. The Master's program was introduced in the academic year 1995-1996.

The Department's Message:

The mission of the Department is to contribute to the Syrian Arab Republic's job market by providing trained and qualified engineering expertise in the fields of electronics and communications, with the aim of achieving sustainable community development. The faculty members in the department work diligently to keep up with the rapid advancements in these engineering disciplines and modify the curricula accordingly to maintain a competitive academic standard for the department's graduates

Certificates Awarded by the Department:

a. **Bachelor's degree in Electronics and Communications Engineering**

b. **Master's degree is awarded in the following specializations:**

English	Arabic
Applied Electronics Engineering	هندسة الإلكترونيات التطبيقية
Advanced Communications Engineering	هندسة الاتصالات المتقدمة

c. **Ph.D. degree is awarded in the following specializations:**

English	Arabic
Applied Electronics Engineering	هندسة الإلكترونيات التطبيقية
Advanced Communications Engineering	هندسة الاتصالات المتقدمة

The Scientific Teaching Staffs of the Department:

A. Faculty Members:

The teaching staff in the department features 10 faculty members. Their respective areas of expertise are provided in the following table:

No.	Name	Precise Specialization	Country of Certificate	Academic Degree	Email
1	Dr. Nidal Zaidan	Electronic Circuit Design	France	Lecturer	nidal.zaidan68@gmail.com
2	Dr. Faris Abboud	Printed Micro Circuit Technology (Microchips)	France	Professor	f.abboud20@gmail.com
3	Dr. Mohammed Al-Mohammed Al-Hussein	Optical Communication	Bologna	Professor	DR-mmh@scs-net.org
4	Dr. Mohammed Khaled Shahin	Satellite Communication	France	Associate Professor	mkchahine@gmail.com
5	Dr. Adel Khudur Ali	Digital Signal Processing in Industrial Communication Channels	Russia	Associate Professor	adelkh@mail.ru
6	Dr. Talal Hamoud	Image processing and figure recognition	Egypt	Associate Professor	Talal64syr@yahoo.com
7	Dr. Mohammed Mihoub	Industrial Communication Systems	Egypt	Lecturer	Mohmay4@gmail.com
8	Dr. Hafsa Al-Hamawi	Microwaves	Egypt	Lecturer	hafsa@scs-net.org
9	Dr. Jumana Abu Jeib	Optical and Laser Communication Systems	France	Lecturer	Jouman0@yahoo.fr

10	Dr. Hussein Taybawi Bhabouh	Integrated Circuits	Egypt	Lecturer	htbahbouh65@yahoo.com

B. Delegated Teaching Assistants:

No.	Name	Specialization	Current Situation	Email
1	Eng. Mohammed Loay Al-Jassim.	Communication Network Systems Modeling and Simulation	Internal Delegate	Loayph96@gmail.com

C. Technical Staff:

No.	Name	Academic Degree	Academic Position
1	Eng. Ammar Muhammad Yasser Al-Daqqaq	Bachelor in Electronics and Communications Engineering	Operations Supervisor
2	Dr. Hala Amjad Amin	Ph.D. in Electronics and Communications Engineering	Operations Officer
3	Eng. Hanadi Mazhar Shahin	Bachelor in Electronics and Communications Engineering	Operations Officer
4	Eng. Shaza George Ternjian	Bachelor in Electronics and Communications Engineering	Operations Officer
5	Eng. Rana Ahmed Soufan	Bachelor in Electronics and Communications Engineering	Operations Officer
6	Eng. Fatima Diab Omar	Master in Electronics and Communications Engineering	Operations Officer
7	Eng. Iman Mohammed Ali Omar	Master in Electronics and Communications Engineering	Operations Officer
8	Eng. Amar Bashar Al-Ghmeian	Master in Electronics and Communications Engineering	Operations Officer

9	Dr. Eng. Tareq Ziad Kanaan	Ph.D. in Electronics and Communications Engineering	Operations Officer
10	Eng. Walaa Riyadh Safour	Master in Electronics and Communications Engineering	Operations Officer
11	Eng. Elham Radi Abu Bakr	Bachelor in Electronics and Communications Engineering	Operations Officer
12	Eng. Dima Mufeed Maamari	Bachelor in Electronics and Communications Engineering	Operations Officer
13	Eng. Mai Rafiq Haddad	Bachelor in Electronics and Communications Engineering	Operations Officer

D. Delegated Engineers

No	Name	Academic Degree	Specialization
1	Eng. Taher Tawbar	Bachelor's	Electronics and Communications Engineering
2	Eng. Abeer Ghosen	Bachelor's	Electronics and Communications Engineering
3	Eng. Iman Al-Jazairi	Bachelor's	Electronics and Communications Engineering
4	Eng. Roula Hafez Kayal	Bachelor's	Civil Engineering

Heads of the Department Since Its Establishment:

– Dr. Ahmed Omar Yousef	1975 – 1976
– Dr. Motawa' Al-Ashhab	1976 – 1978
– Dr. Hassan Risha	1978 – 1980
– Dr. Ahmed Al-Azraq	1980 – 1983
– Dr. Taj Al-Din Jirkees	1983 – 1985
– Dr. Motawa' Al-Ashhab	1985 – 1987
– Dr. Hassan Risha	1987 – 1989
– Dr. Hadi Al-Arfi	1989 – 1992
– Dr. Hasan Abu Al-Nour	1992 – 1996
– Dr. Jabr Al-Ramheen	1996 – 1998
– Dr. George Senge	1998 – 2001
– Dr. Issam Abboud	2001 – 2004
– Dr. Mazen Al-Muhayri	2004 – 2005
– Dr. Abd Al-Razzaq Al-Badawiya	2005 – 2009
– Dr. Nadeem Shahin	2009 – 2013
– Dr. Adel Khodor	2013 – 2017
– Dr. Fawaz Mufdi	2017 – 2020
– Dr. Nidal Zidan	2020 – present

The Department of Electronics and Communications Engineering Presents its Research Plan and Projects as Follows:

- The postgraduate program in the Department of Electronics and Communications Engineering aims to supply both public and private national institutions with specialized scientific expertise, which helps, on one hand, in developing the research, industrial, and operational infrastructure within these institutions and on the other hand, contributes to locally qualifying these cadres, thereby saving on the financial costs allocated to this aspect. The availability of highly specialized scientific personnel locally contributes to stimulating scientific research at the national level and enhances opportunities for communication between various research centers.
- The Department of Electronics and Communications Engineering has introduced several research themes with the goal of aligning the university with the community. This initiative aims to address various challenges encountered in national production institutions . Furthermore, the department, through these research themes, aims to establish a national research culture that emphasizes the significance of scientific research in the economic and scientific development of society. The department also endeavors to extend its network of communication to government universities and various research centers across the nation, aiming to promote the idea of collaboration and exchange of experiences and knowledge in the field of scientific research. This is expected to have a positive impact on the course and progress of scientific research. The faculty members in the department make diligent efforts to propose research topics of national significance. These topics are prioritized within the department's research agenda. Following that, general research topics related to the development of modern communication infrastructure and electronic sciences are addressed. These topics are often explored by research centers in various

laboratories around the world. The research fields in the department focus on the following topics:

1) Reliability of Electronic Systems.
2) Software/Hardware Design of Electronic Systems.
3) Mobile Communication Systems
4) Optical Communication Systems.
5) Visual Communications.
6) Information Security in Communication Systems.
7) Microscale communications.

Units of Scientific Research in the Department:

The scientific research unit in the Department of Electronics and Communications Engineering was established in the academic year 2000-2001.

- **Distribution of faculty members within the research units:**

Applied Electronics	Advanced Communications
Dr. Nadeem Shaheen	Dr. Fariz Aboud
Dr. Abd Al-Razzaq Al-Badawiya	Dr. Mohammad Al-Hussein
Dr. Talal Hamoud	Dr. Mohammad Khaled Shaheen
Dr. Nidal Zidan	Dr. Talal Hamoud
Dr. Hussein Tayawi Bahbouh	Dr. Adel Khodor Ali
	Dr. Mohammad Mayhoub
	Dr. Hafsa Al-Hamawi
	Dr. Juman Abu Jib

Educational Plan::

First Year - Electronics and Communications Engineering							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematics (1)	4	2	6	1-Mathematics (2)	4	2	6
2-Physics (1)	4	2	6	2-Physics (2)	4	2	6
3-Engineering Mechanics	2	2	4	3-Arabic Language	2	-	2
4-Engineering Representation and Design	2	4	6	4-Introduction into Computers and Programming	2	2	4
5-Foreign Language (1)	4	-	4	5-Specialized Workshops (electrical and electronic)	-	4	4
6-Chemistry	2	2	4	6-Fundamentals of Electrical Engineering	2	2	4
7-National Education	2	-	2	7-Foreign Language (2)	4	-	4
Total	20	12	32	**Total**	18	12	30

Second Year - Electronics and Communications Engineering							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematics (3)	4	2	6	1-Mathematics (4)	4	2	6
2-Electrical Circuits (1)	4	2	6	2-Measurements and Electrical measuring instruments	4	2	6
3-Electrical Material Properties	2	-	2	3-Electrical Circuits (2)	2	2	4
4-Programing (1)	2	2	4	4-Programing (2)	2	2	4
5- Fundamentals of Electronic Engineering	4	2	6	5-Electromagnetic Fields	4	2	6
6-Foreign Language (3)	4	-	4	6-Foreign Language (4)	4	-	4
Total	20	8	28	**Total**	20	10	30

Third Year - Electronics and Communications Engineering							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematics (5)	4	2	6	1-Electronic Circuits (2)	4	2	6
2-Electronic Circuits (1)	4	2	6	2-Fundamentals of Communication Engineering	4	2	6
3-Control (1)	4	-	4	3-Logical and Digital Systems	4	2	6
4-Logical Circuits	3	2	5	4-Measurements and Electronic measuring instruments	2	2	4
5-Algorithms and Data Structures	3	1	4	5-Control (2)	2	2	4
6-Electric Power Systems	2	-	2	6-Industrial Electronics	2	2	4
Total	20	7	27	**Total**	18	12	30

Fourth Year - Electronics and Communications Engineering							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1- Electronic Circuits (3)	4	2	6	1- Communication Systems (1)	4	2	6
2-Signal Processing (1)	2	2	4	2- Signal Processing (2)	2	2	4
3- Computer Structure and Organization	2	2	4	3-Microprocessors and their Systems	4	2	6
4-Prevalence of Waves and Antennas	4	2	6	4- Microwave and Millimeter Wave Technology	4	2	6
5- Micro Electronics	4	2	6	5- Electroacoustics	4	-	4
				6- Designing Electronic Circuits Using Simulation	2	2	4
Total	16	10	26	**Total**	20	10	30

Fifth Year - Electronics and Communications Engineering							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1- Communication Systems (2)	4	2	6	1-Information Communications Networks	2	2	4
2-Information and Coding Theory	2	-	2	2-Optical Communication Systems	2	2	4
3-Television and Visual Communications	4	2	6	3-Modern Communications Systems	4	2	6
4-Economy and Business Administration	4	-	4	4-Radar and Sonar Engineering	4	2	6
5-Graduation Project	2	2	4	5-Graduation Project	2	2	4
Total	16	6	22	**Total**	14	10	24

Department's Laboratories:

No.	Laboratory's Name	Most Significant Equipment in the Laboratory and Available Experiments
1	**Electronic Engineering Fundamentals**	• **Equipment:** Signal Generators - Signal Markers - Direct Voltage Sources - Various Meters. • **Experiments:** - Applications of Semiconductor Diodes and Transistors
2	**Electronic Circuits Lab (1)**	• **Equipment:** Computers - Signal Generators - Signal Generators - Direct Voltage Sources - Multiple Meters. • **Experiments:** Applications of Amplifiers using BJT & FET Transistors
3	**Digital Circuits**	• **Equipment:** Continuous DC Power Supplies, Computers, Various Applications for Combinatorial and Sequential Circuits
4	**Logic Systems**	• **Equipment:** Programmable Logic Circuits (FPGA) Utilizing Quartus 2 Software, Computers, Design Applications for Logical Circuits using VHDL Language, and Simulation using Model Sim Software.
5	**Electronic Circuits Lab (2)**	• **Equipment:** Computers - Signal Generators - Signal Oscilloscopes - DC Voltage Sources - Various Multimeters • **Experiments:** Oscillators and Applications of Operational Amplifiers (441|447)

6	**Electronic Circuits Lab (3)**	• **Equipment:** A Variety of Signal Indicators, Frequency Generators, and Power Supply Units • **Experiments:** - Power Amplifiers, Active Filters, Transformer Amplifiers
7	**Specialized Software**	• **Equipment:** Desktop Computers (14 units) with Microwind and DSCH Software for designing highly integrated integrated circuits. • **Experiments:** Designing Basic Circuits at the Layout Level
8	**Fundamentals of Telecommunications Engineering + Digital Communications**	• **Equipment:** Signal Tracers - Signal Generators - Frequency Counters – Voltmeters – Test Panels - Various Applications for Digital and Analog Modulation
9	**Television and Visual Communications**	• **Equipment:** Signal Tracers - Television Signal Generators - Frequency Counters - Voltmeters - Test Panels
10	**Electronic Measurements**	• **Equipment:** Computers, Handcrafted Arduino Kits, Elevator Model • **Experiments:** Designing Measurement Devices using Arduino
11	**Signal Processing**	• **Equipment:** Computers Equipped with MATLAB Software • **Experiments:** Training on the Use of MATLAB Software for Signal, Audio, Image, and Video Processing
12	**Advanced Communications and Telecommunications Systems**	• **Equipment:** Training Platforms with Analog and Digital Signal Generators, Amplifiers, Analog and Digital Oscilloscopes, Frequency Dividers, Filters, Noise Generators, Signal Modulators, and Computer Software for Time and Frequency Domain Signal Visualization

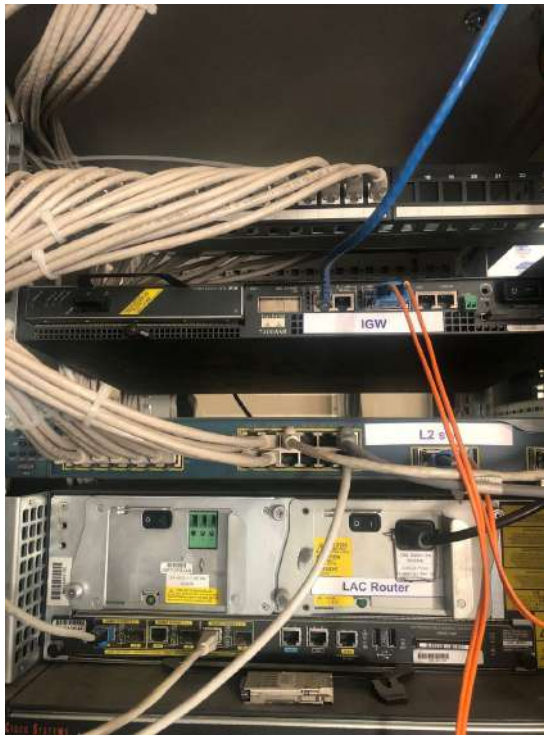
		• **Experiments:** Various Applications of Analog and Digital Signals Including Modulation, Encoding, Scattering, and Bit Error Rate Calculation within the Channel
13	**Digital Transmission (Microwave-Optical)**	The purpose of this laboratory is to familiarize the student with the practical components of the optical and microwave digital transmission network, as well as the services it provides. It aims to acquaint the student with various types of optical cables, their splicing, and measurements. The laboratory is equipped with several devices, including Digital Synchronous Digital Hierarchy (SDH) MUX units, POINT-TO-POINT Microwave Link connections, an optical fusion splicing machine, and an array of optical measurement instruments such as Optical Time-Domain Reflectometer (OTDR) for measuring attenuation in optical cables, identifying faults and interruptions. These equipment have been utilized to conduct a range of experiments, including trials of the optical digital transmission system, experiments with the microwave digital transmission system, simulation of an optical transmission line with attenuation, as well as experiments involving splicing of optical cables and their subsequent measurements.
14	**Packet Data Network (PDN) Exchange**	The aim of this laboratory is to acquaint the student with the practical components of the Public Data Exchange Network and the Internet Service Provider network. It seeks to provide an understanding of the various services offered, with a particular focus on ADSL service. The laboratory is equipped with network infrastructure including DSLAM equipment, as well as LAC and LNS devices. Additionally, there is an array of servers dedicated to the service provider, such as Proxy, DNS, and Radius servers, along with a Main Distribution Frame (MDF) for connecting subscriber lines to the DSLAM equipment. These resources have been utilized to conduct a series of experiments, including the establishment of an ADSL digital subscriber line and the customization of subscriber speed. Furthermore, there are specialized experiments designed to familiarize the student with the Internet Service Provider servers and how to configure their settings.

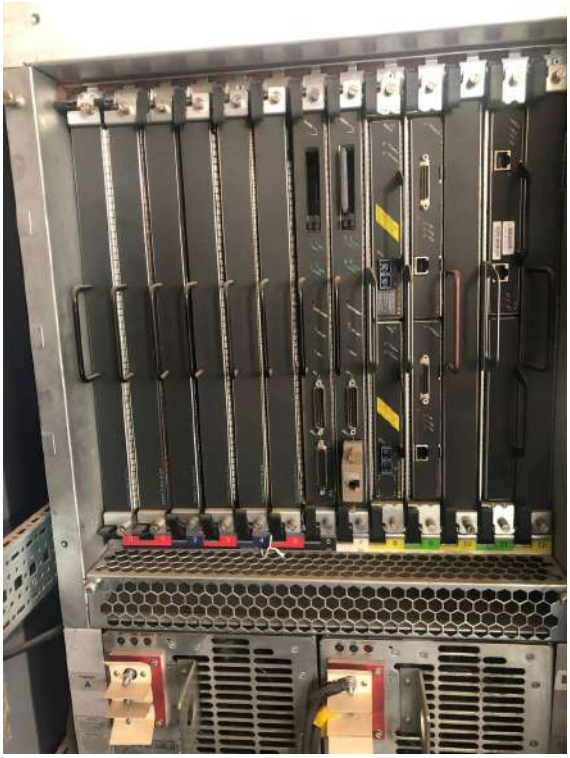
15	**Private Mobile Communications (TETRA)**	The objective of this laboratory is to acquaint the student with the Private Mobile Communication Network TETRA, focusing on its components, functionalities, and the services it provides. The laboratory is equipped with various tools including Base station, Signal Repeaters, and diverse TETRA terminals. These resources have been utilized for several experiments, including familiarizing the student with the TETRA communication station (BS), its components, and configuring its settings. Additionally, the laboratory aims to educate the student about the signal repeaters used within the network and their purpose.

Pictures from the Department's Laboratories:

Packet Data Network (PDN) Exchange Lab:

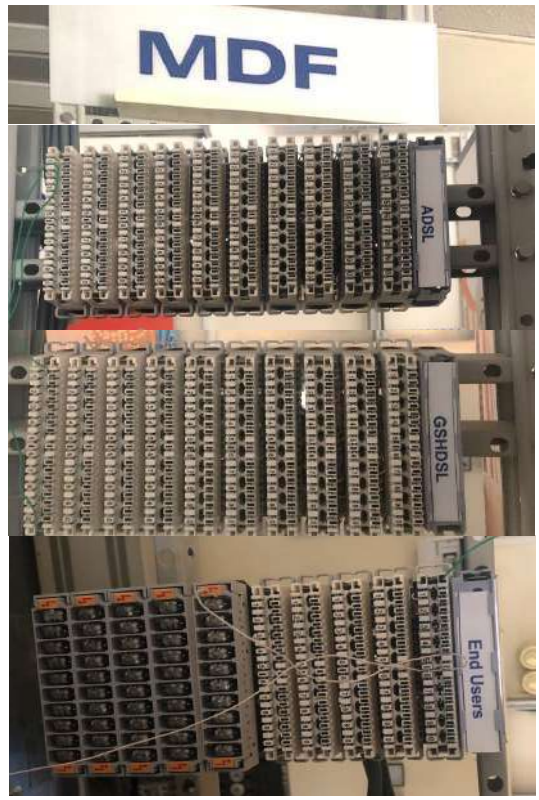

HUAWEI
PDN Network


IGW
LAC Router



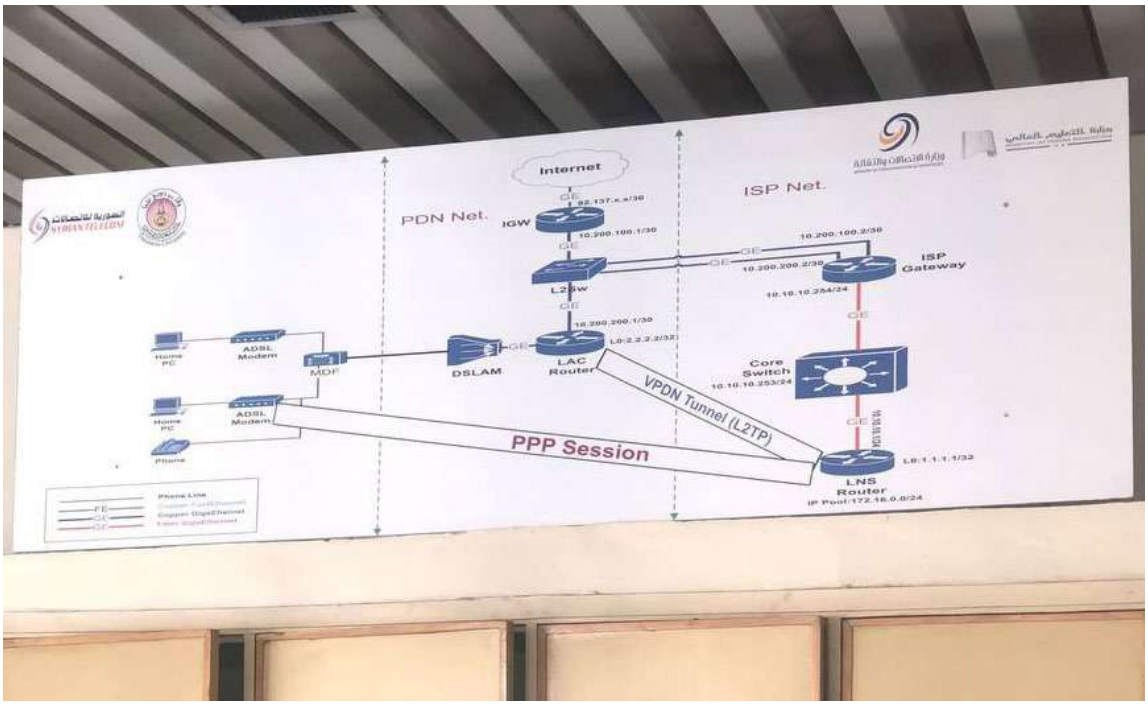

LAC Router

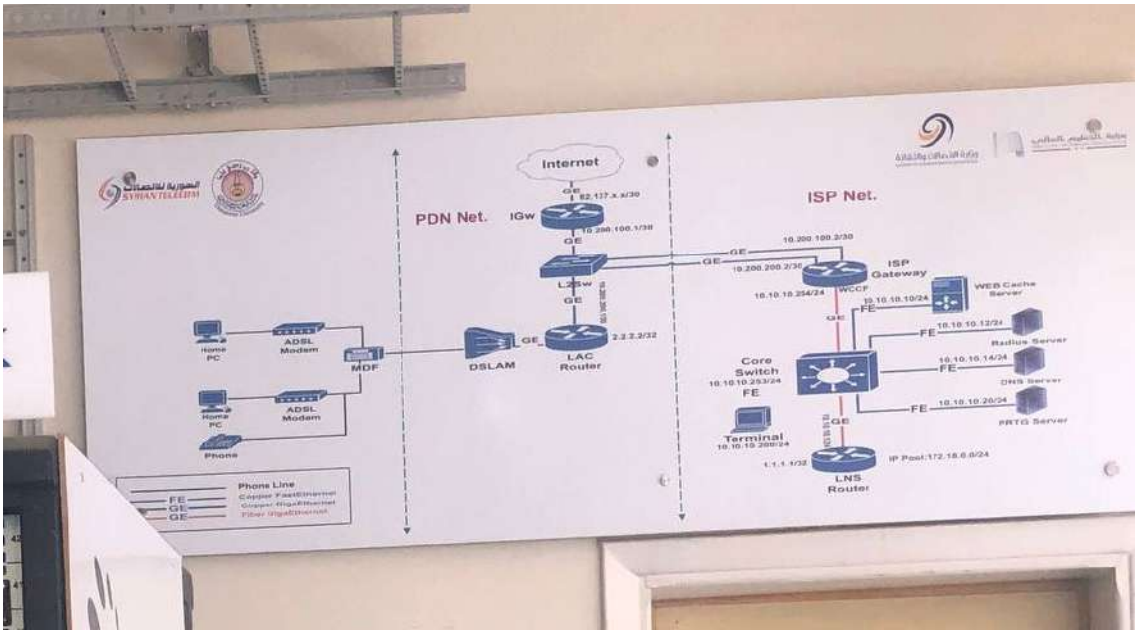

DSLAM


MDF
ADSL
GSHDSL
End Users

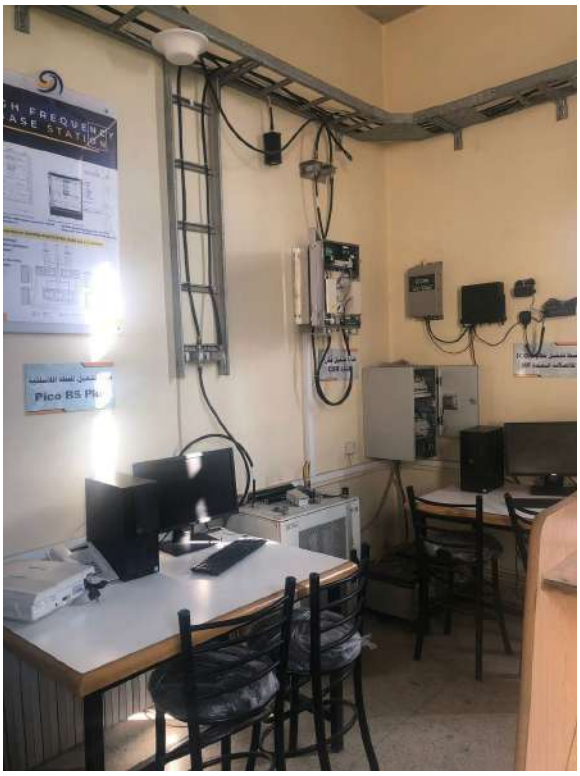

MDF
DSLAM
PDN Network


MDF
DSLAM
PDN Network


Internet
PDN Net.
ISP Net.
IGW
ISP Gateway
L2Sw
LAC Router
DSLAM
MDF
Home PC
ADSL Modem
Core Switch
LNS Router
VPDN Tunnel (L2TP)
PPP Session
Phone Line


Internet
PDN Net.
ISP Net.
IGw
ISP Gateway
L2Sw
LAC Router
DSLAM
MDF
Home PC
ADSL Modem
Core Switch
LNS Router
WEB Cache Server
Radius Server
DNS Server
PRTG Server
Terminal
Phone Line

Private Mobile Communications (TETRA) Lab:



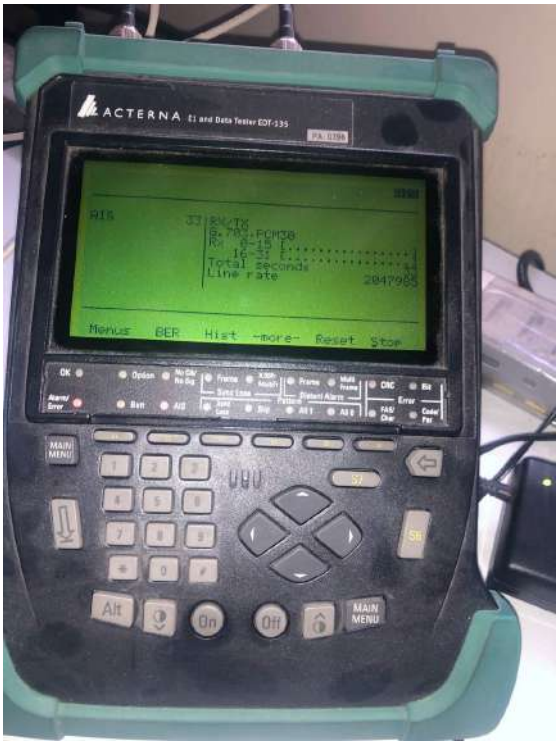

Panasonic


Tektronix DPO 4054 Digital Phosphor Oscilloscope


IFR 2945B Communications Service Monitor
AEROFLEX

Digital Transmission (Microwave-Optical) Lab:


STRUKTEL


ACTERNA
Menus BER Hist -more- Reset Store


HEAT
RESET
SET


SINGLEMODE
ON/OFF
CHARGE
1300 λ/nm 1550
(PULL)
SET ATTEN.
BN 2200/01
OPTISCHER ABSCHWÄCHER
OPTICAL ATTENUATOR 3 ... 60 dB
OLA-25
Wandel & Goltermann


AVAYA
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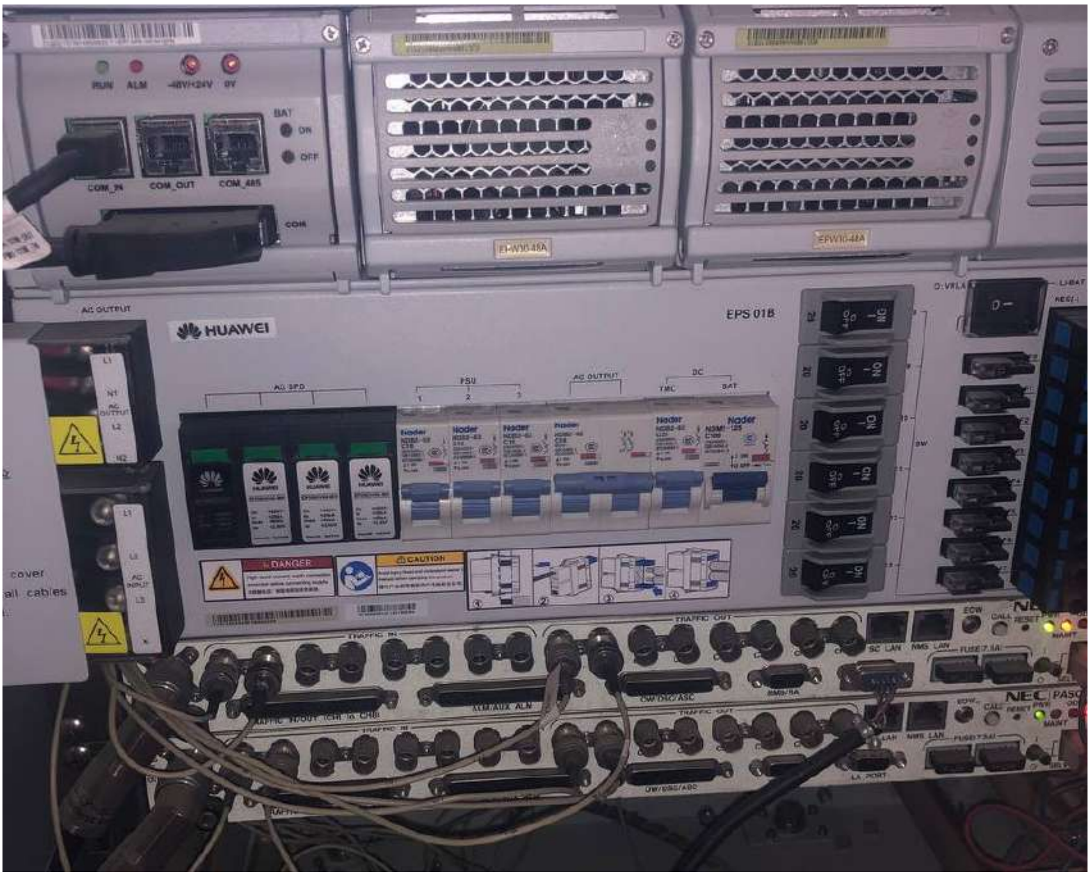
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Electronic Engineering Fundamentals Lab:

Department of Electrical Power Engineering

Overview:

The department was established in the academic year 1976 at the Faculty of Mechanical and Electrical Engineering at Damascus University. The department's Renewable Energies division was established in the 2007 academic year.

The Department's Message:

- Providing students with the fundamentals of modern engineering knowledge and advanced scientific research methods, and elevating the level of electrical engineers through postgraduate research, and building strong interactive relationships with public and private entities to solve their problems and meet their needs.
- Preparing qualified engineers in all electrical engineering and renewable energies disciplines and train them in modern ways to use modern systems, devices and equipment and constantly renewing their expertise.
- Serving the community with its outstanding research in various fields that contributes to the scientific development of the industrial enterprises, and push the community towards technical literacy.
- Gaining the confidence of the market and collaborate with all scientific and industrial authorities competent to solve the problems of Syrian electric power by developing the student's personality so that he is able to innovate, challenge, solve problems, lead, make decisions, learn self, work together, compete locally, regionally. and provide a humanitarian vision conscious of the role of applied science in the promotion of civilization and continuous development within the framework of comprehensive development.
- Preparing engineers in the following fields:

- Electrical Machinery Engineering and Driving - High Voltage Engineering - Electrical Power Stations Engineering (Generation - Conversion - Distribution) - Renewable Energies (Solar - Wind) - Electrical Grid Engineering and Protection - Electronics Power - Automated Control and Industrial Automation.
- Providing qualitative studies in biological scientific, industrial and service projects.
- Establishing distinct training centers to cover the needs of the labor market and the requirements of local, Arab and international development.
- Contributing to Syria's reconstruction and renovation.

Certificates Awarded by the Department:

a. Bachelor's degree in Electrical Power Engineering

b. Bachelor's degree in Renewable Energies Engineering

c. Master's degree is awarded in the following specializations:

English	Arabic
Master in Electrical Energy Engineering	هندسة الطاقة الكهربائية
Master in Renewable Energies Engineering	هندسة الطاقات المتجددة

d. Ph.D. degree is awarded in the following specializations:

English	Arabic
Ph.D. in Electrical Energy Engineering	هندسة الطاقة الكهربائية
Ph.D. in Renewable Energies Engineering	هندسة الطاقات المتجددة

The Scientific Teaching Staffs of the Department:

1. Faculty Members:

- The teaching staff in the department features 24 faculty members. Their respective areas of expertise are provided in the following table:

No.	Name	Precise Specialization	Country of Certificate	Academic Degree	Email
1	Dr. Ali Al-Sayed (Department Head)	High Voltage Engineering	Syria	Associate Professor	dr_alsayed@yahoo.com
2	Dr. Mustafa Al-Hazouri	Electrical Network Design	Poland	Professor	mhaz19902@hotmail.com
3	Dr. Nadeem Mukhul	Electric Power Systems	Poland	Professor	nam1960@scs-net.org
4	Dr. Obay Salman	Electrical Measurements and Instrumentation, and Electrical Drives	Germany	Professor	oubai-s@scs-net.org
5	Dr. Hassan Swaydan	High-Voltage Electrical Networks	Russia	Professor	hsweadan@yahoo.com
6	Dr. Nabil Al-Faqih	Planning and Organizing Electrical Networks Using Computers	Germany	Professor	fakihna53@gmail.com
7	Dr. Abbas Sandoq	Special Electrical Machines	Syria	Professor	abbassandouk@gmail.com
8	Dr. Abdullah Samiz	Automated Control Systems	Poland	Professor	samiz59@hotmail.com
9	Dr. Mohammed Saleh Al-Iyoubi	Economics of Electric Power - Nuclear Power Stations	Russia	Professor	ayoubi-msaleh@gmail.com
10	Dr. Abd Al-Basset Sharaf	Coordination Systems in Electric Power Networks	Russia	Associate Professor	sharaf-a@scs-net.org
11	Dr. Salam Mahmoud	Electromagnetic Field Theory	Russia	Associate Professor	salamalimahmoud@ gmail.com
12	Dr. Jamal Al-Naseer	High Voltage Engineering	Germany	Associate Professor	jamalnasseir@yahoo.de

13	Dr. Mohammed Ammar Sa'ati	Transient Operating Conditions in High Voltage Networks	Syria	Associate Professor	-
14	Dr. Ghaith Warkozek	Applications of Artificial Intelligence in Electrical Networks	France	Associate Professor	ghaith.warkozek@gmail.com
15	Dr. Raed Al-Shar'	Control and Representation of Electronic Converters and Electric Motors	France	Associate Professor	raedsharra@gmail.com
16	Dr. Mohammad Ayman Al-Arqasousi	Electricity Generation from Wind Energy	Syria	Lecturer	Dr.ayman.arksosi@gmail.com
17	Dr. Fuad Saleh	Distributed Electricity Generation	France	Lecturer	Fouad.salha@yahoo.com
18	Dr. Waseem Saeed	Fuel Cell Engineering	Syria	Lecturer	Wsaeed56@hotmail.com
19	Dr. Reem Al-Munawar	High Voltage Engineering	China	Lecturer	-
20	Dr. Kamal Naji	Electric Machines and Their Control	Ukraine	Professor	-
21	Dr. Mohammed Ali Mala Othman	Electrical Network Substations Engineering	Bulgaria	Professor	-
22	Dr. Hashem Warkozek	Power Electronics	France	Professor	-
23	Dr. Hakob Boghos	Electric Machines and Their Control	Russia	Professor	-
24	Dr. Mohammed Moussa	Electric Fields and Their Measurement Techniques	Bulgaria	Professor	-

2. Delegated Teaching Assistants:

No.	Name	Specialization	Current Situation
1	Eng. Hala Haj Issa	Solar Cells	External Delegation
2	Eng. Abeer Zein	Solar Cell Engineering	Internal Delegation
3	Eng. Noorah Al-Muharriz	Solar Power	Internal Delegation
4	Eng. Omar Kahil	Drive Machines	Internal Delegation
5	Eng. Paula Milanah	Electric Power Stations	Internal Delegation
6	Eng. Abdou Al-Qasim	Power Electronics	Internal Delegation
7	Eng. Raneem Al-Rashidat	High Voltage	Not Delegated
8	Eng. Hayfaa Dayyab	Fuel Cells	Not Delegated

Besides, a total of 12 faculty members holds acting positions as supervisors and managers, in addition to 5 assigned engineers for teaching purposes.

3. Laboratory Technicians:

- A number of lab technicians and craft instructors, totaling 15, work in the department's laboratories

Heads of the Department Since Its Establishment:

Dr. Ehsan Al-Fahed	1975 – 1976
Dr. Ali Hamza	1976 - 1977
Dr. Elias Jabbour	1977 - 1978
Dr. Kamal Naji	1978 - 1978
Dr. Ehsan Al-Fahed	1978 - 1979
Dr. Mohamed Hashem Abu Al-Khair	1979- 1980
Dr. Samih Al-Jabi	1980 - 1982
Dr. Mohamed Hashem Abu Al-Khair	1982 - 1985
Dr. Mohamed Ali Othman	1985 - 2000
Dr. Hashem Warqouzq	2000 - 2005
Dr. Samih Al-Jabi	2005 - 2009
Dr. Ali Al-Jazi	2009 - 2013
Dr. Abdullah Samyaz	2013 – 2018
Dr. Mustafa Hazouri	2018 – 2020
Dr. Ali Al-Sayed	2020 – present

Scientific Research Units in the Department:

Three research units have been formed in the department:

- Electrical Machines, Electric Drive, and Automation Control Unit.
- High Voltage Unit.
- Electrical Networks and Renewable Energies Unit,

considering that all department members are included in all units.

The scientific research in the department revolves around several fundamental topics:

- ✓ Design and Automation of Electrical Networks
- ✓ Distributed Generation and Intelligent Electrical Networks
- ✓ Applications of Artificial Intelligence in Electric Machines Control
- ✓ Techniques for Integrating Renewable Energy Sources into Electrical Networks
- ✓ Testing High Voltage Equipment
- ✓ Electric Vehicles
- ✓ Electric Energy Storage Systems
- ✓ Fault Diagnosis in Cables using Artificial Intelligence
- ✓ Robotics in Electrical Engineering
- ✓ Reliability of Electrical Systems
- ✓ Information Security in Electrical Networks
- ✓ Intelligent Control in Electrical Networks
- ✓ Development of postgraduate research and orienting it to serve the national economy.

Educational Plan:

First Year - Electric Power Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematics (1)	4	2	6	1-Mathematics (2)	4	2	6
2-Physics (1)	4	2	6	2-Physics (2)	4	2	6
3-Engineering Mechanics	4	-	4	3-Chemistry	2	2	4
4-Engineering Representation and Design	4	-	4	4-Programming (1)	2	1	3
5-Foreign Language (1)	4	-	4	5-Specialized Workshops	2	3	5
6-Arabic Language	2	-	2	6-National Education	2	-	2
7-Introduction to Computers	2	-	2	7-Foreign Language (2)	4	-	4
Total	24	6	30	**Total**	18	10	28

Second Year - Electric Power Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematics (3)	4	2	6	1-Mathematics (4)	4	2	6
2-Thermodynamics and Thermal Machines	3	1	4	2-Electrical Circuits (1)	4	2	6
3-Probability and Statistics	2	1	3	3-Materials Resistance and Properties	4	2	6
4-Programing (2)	2	2	4	4-Programing (3)	2	2	4
5-Fundamentals of Electrical Engineering	4	2	6	5-Fluid Mechanics and Hydraulic Machinery	3	1	4
6-Foreign Language (3)	4	-	4	6-Foreign Language (4)	4	-	4
Total	19	8	27	**Total**	21	9	30

Third Year - Electric Power Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Electronics (1)	4	2	6	1-Electronics (2)	4	2	6
2-Electric Machines (1)	4	2	6	2-Electric Machines (2)	4	2	6
3-Electrical Material Properties	2	-	2	3-Logical and Digital Systems	2	2	4
4-Electrical Circuits (2)	4	2	6	4-Electromagnetic Fields	4	2	6
5-Measurements and Electrical Measuring Instruments	2	2	4	5-Automatic Control (1)	2	1	3
6-Occupational Safety	2	-	2	6-Communication Theory	2	-	2
Total	18	8	26	**Total**	18	9	27

Fourth Year - Electric Power Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Power Electronics (1)	4	1	5	1-Power Electronics (1)	4	1	5
2-Electric Machines (3)	4	1	5	2-Electric Machines (4)	4	2	6
3-Electrical Stations and Equipment (1)	2	1	3	3-Electrical Stations and Equipment (2)	3	1	4
4-High Voltage Engineering and Electromagnetic Fields	3	1	4	4-High Voltage Engineering (1)	3	2	5
5-Electric Power Systems (1)	3	1	4	5-Electric Power Systems (2)	3	1	4
6- Automatic Control (2)	4	1	5	6-Electric Drive (1)	3	1	4
Total	20	6	26	**Total**	20	8	28

Fifth Year - Electrical Power Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Electrical Network Analysis	4	1	5	1-Electrical Networks Design	4	1	5
2-High Voltage Engineering (2)	4	1	5	2-Coordination and Automation Systems	3	1	4
3-Electric Drive (2)	4	1	5	3-Network Economics	3	1	4
4-Design of Electrical Machines	3	1	4	4-Energy Management and Efficiency	3	1	4
5-Modeling and Simulation for Electric Power Systems	2	1	3	5-Protection of Electric Power Systems	4	1	5
6-Graduation Project	3	1	4	6-Graduation Project	3	1	4
Total	20	6	26	**Total**	20	6	26

***For the Renewable Energies specialization, the first three years (first, second, and third) are common with the Electric Power specialization.**

Fourth Year – Renewable Energies Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Power Electronics (1)	4	1	5	1-Power Electronics (1)	4	1	5
2-Electric Machines (3)	4	2	6	2-Electrical Machines Control	4	1	5
3-Renewable Energies (1)	4	2	6	3-Renewable Energies (2)	3	1	4
4-Applications of Heat Pumps	1	1	2	4-High Voltage Engineering (1)	3	1	4
5-Electric Power Systems (1)	3	1	4	5-Electric Power Systems (2)	3	1	4
6-Automatic Control (2)	4	1	5	6-Wind Energy (1)	2	2	4
7-Energy and Environment	3	1	4				
Total	23	9	32	**Total**	19	7	26

Fifth Year – Renewable Energies Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Electrical Network Analysis	4	1	5	1-Decentralized Energy Supply	3	1	4
2-High Voltage Engineering (2)	4	1	5	2-Electricity Energy Storage	3	1	4
3-Wind Energy (2)	3	1	4	3-Network Economics	3	1	4
4-Modeling and Simulation for Electric Power Systems	2	1	3	4- Solar Cells (Photovoltaic Conversion)	4	1	5
5- Hydropower and Thermal Power Stations	4	2	6	5-Protection of Electric Power Systems	4	1	5
6-Graduation Project	3	1	4	6-Graduation Project	3	1	4
Total	20	7	27	**Total**	20	6	26

Department's Laboratories:

No.	Laboratory's Name	Most Significant Equipment in the Laboratory and Available Tests
1	**High Voltage Labs**	**Equipment:** – High Vortage Transformer: (5x) S_N: 200 KVA, 100 kV/ 500 V, 40 A/ 0.08 A PEO: 8/100, 50 Hz, – Control and drive System of the transformer: WPT 4,4 /100, GPT 6/120, WPT 4,4 /100, GPT 6/125, (3x) WPT 4,4/35, GPT 6/45 – Oil Test Equipment TüR, WPOT 0,25/ 60 kV. Schering-Bridge Lab HV transformer: GPT 6/12,5. – Control and drive system: TüR-WPT 4,4 /10. Impulse generator Rated voltage: 2x0.22/100/0.22 kV Rated current: 2x11,4/0,50/22,7 A Rated output: 5 kVA., 220/100 kV. – Control & drive system: Power input: 220 V/ 25 A Rated voltage: 0-230 V. Rated current: 0-21,7 A. Controlled output: 0-5 kVA. – Impulse voltmeter: MTU7 0.05 kVA, U= 220 V – Ferranti Transformer: 5/10 kVA 220/75 kV 220/150 kV

		Control and system: input: 200/250 V. 75 A **Experiments:** 1. Network breakers 66KV - 20KV. 2. Low Voltage Network Breakers (MCBs) in all sizes. 3. Low Voltage Network Breakers - MCCBs of all Ratings. 4. Low Voltage Cables of all Cross-Sections. 5. High Voltage Cables of all Cross-Sections. 6. End Boxes for Electrical Cables. 7. Cable Junction Boxes. 8. High Voltage Surge Arresters. 9. Silicone Insulators. 10. Porcelain Insulators. 11. Power Transformers of all Capacities. 12. Lighting Devices of all Types.
2	**Protection and Analysis of Electrical Networks.**	**Equipment:** 1. Synchronous Generator Grid Connection Simulator Module. 2. Module simulating a breaker with a generator connected to the grid along with all protections. 3. Contactor. 4. Overcurrent Protection. 5. Time Delay Relay. 6. Three-Phase Power Supply Source. 7. Module simulating a transmission line. 8. Set of Ammeter and Voltmeter Gauges.
3	**Laboratory for Electrical Machine Design**	– Designing both the generator and the motor is done using the computer with the help of MATLAB. – Designing a three-phase induction motor. – Designing a three-phase synchronous generator.
		Equipment: 1. Permanent Magnet DC Machine 2. Multi-purpose DC Machine 3. Single-phase Induction Motor 18. DC Motor Excitation Regulator 19. DC Generator Excitation Regulator

4	**Electric Machines Labs**	4. Three-phase Synchronous Machine with Salient Poles 5. Three-phase Induction Motor with Wound Rotor 6. Three-phase Induction Motor with Shorted Rotor 7. Electro-magnetic Braking Unit 8. Braking Regulator 9. Direct Current (DC) Power Supply Unit 10. Three-phase Alternating Current (AC) Power Supply Unit 11. Excitation Unit for Synchronous Machine 12. Direct Current (DC) / Alternating Current (AC) Power Supply Unit 13. Overcurrent Protection Circuit Breaker 14. Four-pole Circuit Breaker 15. Reverse Rotation Circuit 16. Y/Δ (Star/Delta) Starting Circuit 17. DC Machine Starter	20. Wound Rotor Induction Motor Starter 21. Resistive Load for DC Generator 22. Resistive Loads 23. Inductive Loads 24. Capacitive Loads 25. Digital DC Current Meters 26. Digital AC Current Meters 27. Digital DC Voltage Meters 28. Digital AC Voltage Meters 29. Three-phase Power Meter (Wattmeter) 30. Power Factor (Cosϕ) Meter 31. Digital Speedometer 32. Power Analysis Meter 33. Reactive Power Compensator 34. Fuse Unit 35. Single-phase Transformer 36. Three-phase Transformer
5	**Power Systems Lab (1) and (2)**	**Equipment:** 1. Ammeters and Voltmeters. 2. Auto-transformers. 3. Symmetrical Components Filters (Positive and Negative Sequence Filters). 4. Zero-sequence Filter consisting of current transformers, potential transformers, ammeters, and voltmeters. 5. Power System Model: Generator Panel, Transformer Panel, Busbar Panel, Transmission Lines Panel, Network Panel, Loads Panel, Protection Panel, Control Panel. 6. Device for analyzing symmetrical components and a recorder for signals.	
6	**Electrical Fundamentals Lab**	**Equipment:** 1. Ammeters, Voltmeters, and Watt meters. 2. Variable Resistors.	

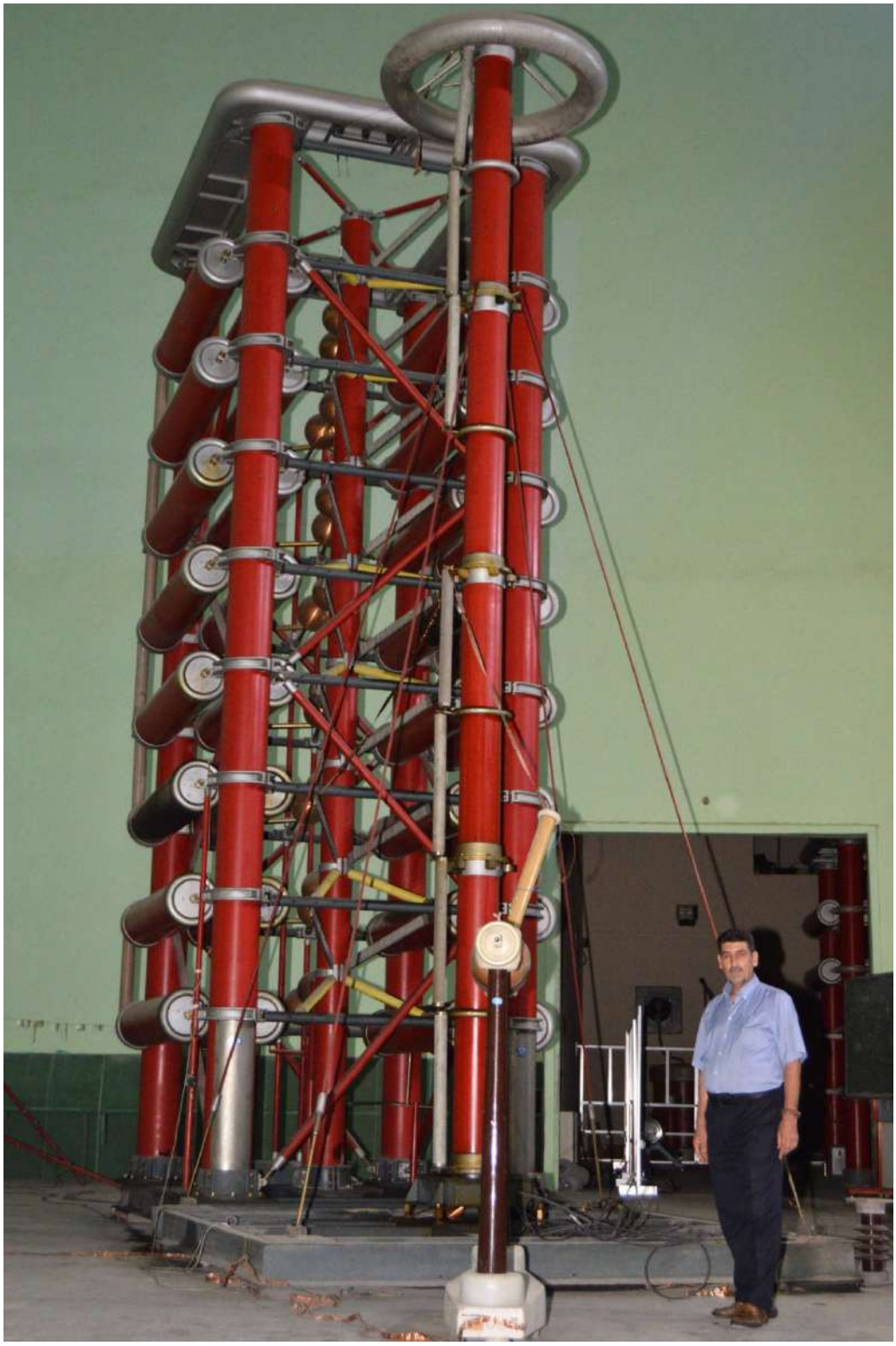
		3. Variable Inductors. 4. Variable Capacitors. 5. Direct and Alternating Power Sources.
7	**Automated Control Labs**	1. Module for Circuit Breakers, Contactors, and Switches. 2. Module for Starting the Induction Motor in Star-Delta Configuration. 3. Module for Proportional Integral (PI) Controller for Temperature Control. 4. Module for Linear Controllers.
8	**Electric Drive Labs 1 and 2**	**Equipment:** 1. Module for Driving the Three-Phase DC Motor. 2. Model for Controlling the DC Motor using Proportional Integral Controller. 3. Model for Driving Electric Motors (Universal Motor, Single-Phase Capacitor-Start Motor, Three-Phase Induction Motor). 4. Module for Driving the Induction Motor. 5. Module for Driving the Stepper Motor. 6. Model for Starting the Synchronous Motor.
9	**Power Electronics Labs 1 and 2**	**Equipment:** 1. Module incorporating Thyristor Elements (Quantity: 1). 2. Module for Rectifier Bridges (Quantity: 1). 3. Voltage Multiplier (Quantity: 1). 4. Three-Phase Load Bank (Quantity: 1). 5. Various Motors and Loads of Different Ratings. 6. Ammeter, Voltmeter, and Signal Tracers.
10	**Electric Circuits Lab**	1. Ammeter, Voltmeter, and Wattmeter. 2. Four-Pole Circuits. 3. Fourier Analysis. 4. Three-Phase Alternating Current Sources. 5. Three-Phase Loads. 6. Single-Phase Sources. 7. Single-Phase Loads.

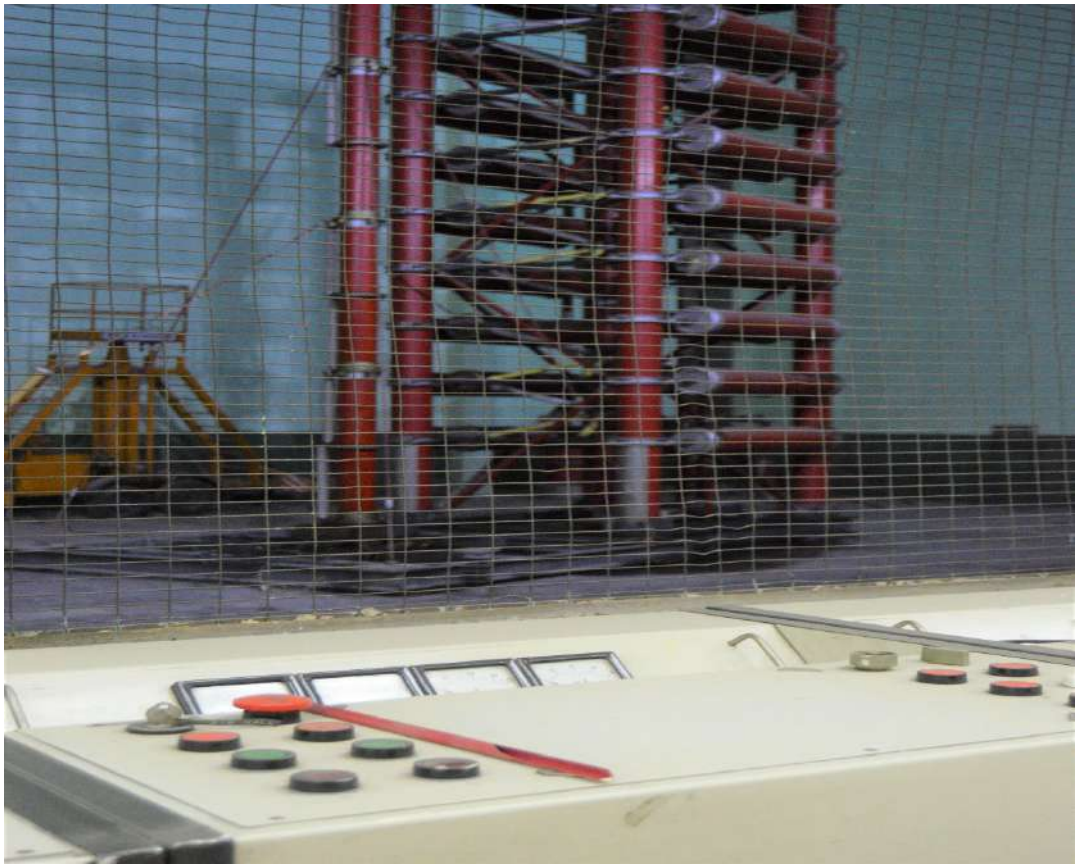
11	**Renewable Energies Lab (Solar Cells)**	**Equipment:** 1. Field performance testing to ascertain the instantaneous power output achievable from the panels. 2. Determination of the nominal power rating of the panel under standard operating conditions and its comparison with brochures. 3. Insulation resistance testing for the panels by assessing the insulation resistance value. 4. Insulation testing for the junction boxes within the panel and examination of the bypass diodes. 5. Thermal imaging to identify areas of elevated temperature. 6. Assessment of the thermal performance of the panels. 7. Measurement of installation angles and determination of losses resulting from deviations from optimal values. 8. Analysis of the operation of photovoltaic circuits and identification and diagnosis of faults. 9. Testing of solar inverters of various types and determining their efficiency. 10. Testing of solar lighting devices.

Pictures from the Department's Laboratories:

High-Voltage Alternating Current (AC) Generator with a 1 MV Output

An Impulse Electrical Generator with a 2.4 MV Output






20mA

Department of Biomedical Engineering

Overview:

The department was established in the 1986-1987 academic year, at the Faculty of Mechanical and Electrical Engineering at Damascus University. The Master's Program was first inducted into the department in the 1996-1997 academic year.

The Department's Message:

The department aims to transfer and disseminate knowledge and techniques into various fields of biomedical engineering, by graduating biomedical engineers equipped with the knowledge and the skills that enable them to deal with all issues related to this field and its applications effectively and competently, which ensures that the department can meet the requirements of the growing labour market and contribute to the development of society. Essentially, the department's graduates work in various governmental and private organizations such as hospitals, medical companies, educational institutions, and research centers.

The postgraduate studies in the department also aim to keep pace with the qualitative and rapid development in biomedical engineering research and keep abreast with international research by conducting high-level original scientific researches.

Certificates Awarded by the Department:

A. **Bachelor's Degree in biomedical Engineering.**
B. **Master's Degree in Biomedical Engineering.**
C. **Ph.D. in Biomedical Engineering.**

The Scientific Teaching Staffs of the Department:

A. Faculty Members:

• The teaching staff in the department features 17 faculty members. Their respective areas of expertise are provided in the following table:

No.	Name	Precise Specialization	Country of Certificate	Academic Degree	Email
1	Dr. Maan Ammar	Information Engineering	Japan/1989	Professor	Maan_ammar@yahoo.com
2	Dr. Mohammad Firas Al-Hinnawi	Optical devices	UK/1991	Professor	Drmfh61@yahoo.com
3	Dr. Ahmad Khadour	Electronic Computers	1987 Czech/	Professor	drahmadkhadour@yahoo.com
4	Dr. Nikola Abo Issa	Nuclear Physics	Russia/1989	Professor	nicolanu@scs-net.org
5	Dr. Rasha Massoud	Biomedical Control	UK/ 2007	Professor	rqies@yahoo.com
6	Dr. Zuheir Marmar	Prosthetics, Splints, Orthotics, Biomechanics	1993 UK/	Professor	zmarmar@windowslive.com

7	Dr. Moustafa Al-Mawaldi	Prosthetics, Splints, Orthotics, Biomechanics	UK/1993	Associate Professor	mmoustafa2959@gmail.com
8	Dr. Hanan Mukhaiber	Hospital Engineering	UK/2005	Associate Professor	hmukhaiber@yahoo.co.uk
9	Dr. Hani Amasha	Medical Electronics	UK/ 1992	Associate Professor	haniamasha@hotmail.com
10	Dr. Mamdouh Mounif	Maintenance of Medical devices	Austria/2000	Associate Professor	monif65@hotmail.com
11	Dr. Ayman Sabouni	Laboratory Equipment	France/1995	Associate Professor	asabouni@scs-net.org
12	Dr. Bassam Lala	Signal Processing	Poland/1993	Associate Professor	Dr.bassamlala@gmail.com
13	Dr. Safa Sarakbi	Hematology Medical Equipment	Syria/2007	Associate Professor	Safa.sarakbi@gmail.com
14	Dr. Wael Imam	Biostatistics	France/1998	Lecturer	waelalemam@gmail.com
15	Dr. Nisreen Sulayman	Medical image Processing	Syria/2015	Lecturer	sulayman.nisreen@gmail.com

16	Dr. Faten Ajeeb	Biomechanics	Syria/2013	Lecturer	seba.f1999@gmail.com
17	Dr. Abdulrahman Abushuukur	Bio-Signal Processing	Romania/2005	Lecturer	abushuukurabdulrahman@gmail.com

B. Delegated Teaching Assistants:

No.	Name	Academic Degree	Current Situation	Email
1	Dana Malo	Bachelor in Biomedical Engineering	External Delegation	malo.dana@hotmail.com
2	Sahar Almahfouz Nasser	Bachelor in Biomedical Engineering	External Delegation	sahar.almahfouz.nasser@gmail.com
3	Ahmad Ziad Qara Bolad	Bachelor in Biomedical	External Delegati	-

C. Technical Staff:

No.	Name	Academic Degree	Specialization	Academic Position	Email
1	Khalida Salhany	Bachelor in Biomedical Engineering	Biomedical Engineering	Operations Officer	khsalhany74@gmail.com

2	Mohamad Hamoud	Bachelor in Biomedical Engineering	Biomedical Engineering	Operations Manager	mohamadhamoud1970@gmail.com
3	Kassem Fares	Bachelor in Biomedical Engineering	Biomedical Engineering	Operations Manager	Kassem1970@Gmail.com
4	Sanaa Alawabdeh	Bachelor in Biomedical Engineering	Biomedical Engineering	Operations Supervisor	Sanaaawabeda@gmail.com
5	Zubaida Sobh	Master in Biomedical Engineering	Biomedical Engineering	Operations Supervisor	Zubaidasobh@gmail.com
6	Fadi Ibrahim	Bachelor in Biomedical Engineering	Biomedical Engineering	Operations Supervisor	Fadibrah@gmail.com Fadi.kibrahim@damascusuniversity.edu.sy
7	Zeina Haddad	Ph.D. in Biomedical Engineering	Biomedical Engineering	Operations Officer	zeine8.haddad@damascusuniversity.
8	May Yousef	Bachelor in Biomedical Engineering	Biomedical Engineering	Operations Officer	may.juneidi@gmail.com

9	Raghad Sawaf	Bachelor in Biomedical Engineering	Biomedical Engineering	Operations Officer	Raghad.soryaa@gmail.com
10	Zeina Shaheen	Bachelor in Biomedical Engineering	Biomedical Engineering	Operations Officer	Zeinashaheen5@gmail.com
11	Doaa Hmra	Master in Biomedical Engineering	Biomedical Engineering	Operations Officer	bme.doaahmra@gmail.com
12	Bayan Mawed	Master in Biomedical Engineering	Biomedical Engineering	Operations Officer	Bmaweed@gmail.com
13	Rawan Baroudi	Bachelor in Biomedical Engineering	Biomedical Engineering	Operations Officer	-

D. **Delegated Engineers:**

N	Name	Academic degree	Email
1	Amal Alromhein	Bachelor in biomedical Engineering	amalrom70@gmail.com
2	Bareaa Zabach	Ph.D. in biomedical Engineering	bareaa75@yahoo.com bareaazabach@gmail.com

3	Rufaida Hussain	Ph.D. in biomedical Engineering	rufaidahussain@gmail.com
4	Hanan Abu Hayleh	Master in biomedical engineering	hananhayleh@gmail.com
5	Raghad Turkya	Bachelor in biomedical engineering	roroturk61@gmail.com
6	Esraa Al Dawood	Bachelor in biomedical engineering	esraa.aldawood95@gmail.com

Heads of the Department Since Its Establishment:

- Prof. Abdo Shehada **1986-1987**
- Prof. Nadim Shaheen **1987-1992**
- Prof. Ali Salami **1992-1996**
- Prof. Maan Ammar **1996-2001**
- Prof. Zuheir Marmar **2001-2009**
- Prof. Mohammad Firas Al-Hinnawi **2009-2013**
- Prof. Moustafa Al-mawaldi **2013-2017**
- Prof. Hani Amasha **2017-2021**
- Prof. Rasha Massoud **2021-present**

The Department of Biomedical Engineering Presents its Research Plan and Topics as Follows:

The scientific research strategy includes a number of basic research topics, encompassed by departmental doctoral and master's research as well as faculty members' research, and these topics are:

1. **Biomedical Engineering Modeling, Simulation, and Control.**
2. **Hospital Administration and Engineering.**
3. **Medical Rehabilitation Engineering.**
4. **The Usage of Medical Image Processing to Aid in Diagnosis.**
5. **Medical Equipment, Measurements, and Processing of Bio-Signals.**
6. **Safety in Medical Engineering.**
7. **Medical Informatics and Bioinformatics.**

Scientific Research Units in the Department:

The department established the following scientific research units:

a) **Hospital Engineering and Management Unit, which includes the following research topics:**
   1. Artificial intelligence for hospital engineering and management
   2. Design of different hospital departments.
   3. Safety in medical engineering
   4. Modeling and simulation of healthcare processes.
   5. Operations' management in different hospital departments
   6. Evaluating the performance and quality of health institutions
   7. Medical gas network.
   8. Medical records and biostatistics

b) **The Biomechanics, Prosthetics, and Rehabilitation Unit, which includes the following research topics:**
   1. Bio-fluid Mechanics.
   2. Biomedical materials.
   3. Gait analysis.

4. Design and development of prosthetics
5. Rehabilitation engineering for people with special needs (motor disabilities)

c) The Medical Equipment Unit, which includes the following research topics:

1. Rehabilitation facilities for people with special needs.
2. Design and implementation of medical diagnostic and treatment devices.
3. Management and maintenance of medical devices.
4. Nanotechnologies in medical engineering.
5. Radiology devices and nuclear medicine devices.
6. Medical electronics and biometrics.

d) Computer in Medicine Unit, which includes the following research topics:

1. Artificial intelligence.
2. bio-Signal Processing
3. Medical image processing.
4. Computer vision.
5. Modeling and simulation in medical engineering.
6. Robots in medicine.
7. Bioinformatics.

Educational Strategy

Biomedical Engineering – First Year							
First Semester				Second Semester			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematics (1)	4	2	6	1-Mathematics (2)	4	2	6
2-Physics (1)	4	2	6	2-Physics (2)	2	2	4
3-Engineering Mechanics	2	2	4	3-Engineering Representation and Design	2	4	6
4-Biochemistry	3	3	6	4-Programming (1)	4	2	6
5-Introduction to Computers and Programming	2	2	4	5-Workshops	-	4	4
6-Foreign Language (1)	4	-	4	6-Foreign Language (2)	4	-	4
7-National Education	2	-	2	7-Arabic Language	2	-	2
Total Hours	20	12	32	Total Hours	20	12	32

Biomedical Engineering – Second Year							
First Semester				Second Semester			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematics (3)	4	2	6	1-Mathematics (4)	4	2	6
2-Thermodynamics	2	2	4	2-Principles of Electrical Engineering	4	2	6
2-Anatomy and Physiology	4	2	6	3-The Science and Properties of Materials	2	2	4
3-Programming (2)	4	2	6	4-Bio-fluids mechanics	4	2	6
4-Foreign Language (3)	4	-	4	5-Electronics (1)	2	2	4
5-Principles of Biomedical Engineering	2	2	4	6-Foreign Language (4)	4	-	4
Total Hours	20	10	30	Total Hours	20	10	30

Biomedical Engineering – Third Year							
First Semester				Second Semester			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Electromagnetic Fields	2	2	4	1-Biomechanics	4	2	6
2-Electrical Circuits	4	2	6	2-Logical Circuits	4	2	6
3-Electronics (2)	4	2	6	3-Electrical Machines	2	2	4
4-Measurements and Measuring Devices	4	2	6	4-Biomedical Materials	2	2	4
5-Machines Elements	4	2	6	5-Radiation Physics and its applications	4	2	6
6-Biostatistics	2	2	4	6-Medical Electronics and Bio Measurements (1)	2	2	4
Total Hours	20	12	32	Total Hours	18	12	30

Biomedical Engineering – Fourth Year							
First Semester				Second Semester			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1- Microprocessors	4	2	6	1-Prosthetics and Orthotics	4	2	6
2-Medical Electronics and Bio Measurements (2)	2	2	4	2-Simulation and Modelling in Biomedical Engineering	2	2	4
3-Medical Equipment (1)	2	2	4	3-Medical Equipment (2)	2	2	4
4-Automatic control	4	2	6	4-Safety in Medical Equipment	2	2	4
5-Bio Signal Processing	4	2	6	5-Medical Image Processing (1)	4	2	6
Total Hours	16	10	26	Applied project	2	3	6
				Total Hours	16	14	30

Biomedical Engineering – Fifth Year							
First Semester				Second Semester			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Biomedical Control	4	2	6	1-Nuclear Medicine	4	4	8
2-Medical Equipment (3)	2	2	4	2-Medical Information Systems	4	2	6
3-Medical Imaging System and Image Processing (2)	4	2	6	3-Maintenance Strategies	2	2	4
4-Hospital Engineering	2	2	4	4-Hospital Administration	2	2	4
5-Artificial Organs	2	2	4	5-Graduation thesis	2	4	6
6-Graduation thesis	2	2	4	Total Hours	14	14	28
Total Hours	16	12	28				

Department's Laboratories:

The following labs are available at the department:

No.	Laboratory's Name	Most Significant Equipment in the Laboratory and Available Tests
1	Biomechanics	- TV cameras to measure human movement in 3D space - A set of markers (balls of infrared reflective material) - Force plates to measure the reaction forces between the foot and the ground - Electromyography device - Foot and ground pressure strain gauge - Joint kinesimeter (electronic goniometer) - Metabolic Energy expenditure device
2	Medical Image Processing	16 Computers
3	Medical Electronics and Biometrics	- Bio-signals acquisition and processing boards from AD-Instruments - Bio-signals acquisition and processing boards from K & H company - Computer - Laser printer - Oscilloscope - Digital and analog multimeters
4	Medical Equipment	The laboratory contains a set of outdated medical equipment provided by the hospitals of the Ministry of Higher Education.
5	Computer in Medicine Lab	20 Computers
6	Student's Projects Lab	Students' Previous Projects

The laboratories and workshops of other departments are also utilized for some courses mentioned in the study plan. In addition, students are trained in some healthcare facilities and through production camps.

Description of the Department's Laboratories:

A. Biomechanics Laboratory (Motion Analysis Laboratory):

- Lab Supervisor(s): Prof. Moustafa Al-Mawaldi and Prof. Zuheir Marmar.
- Co-Supervisor: Dr. Rufaida Hussain.

- Available Devices:

- Six TV cameras measure human movement in 3D space.
- A set of markers (balls of infrared reflective material).
- Two force plates are used to measure the reaction forces between the foot and the ground.
- Electromyography device.

Plantar Pressure Measurement Device:

Electro Goniometer (joint range of motion measurement device):

Oxygen Measurement Device (while walking):

- The lab covers the biomechanics curriculum that is taught to third-year students in the department of biomedical engineering. In this lab, students conduct practical experiments using the above-mentioned devices to measure several parameters, including reaction forces between the ground and the foot, the angles of ankle and knee joints, shoulders rotational movement, the pressure field that acts between the foot and the ground, measuring the energy consumption during walking, etc.

- In general, this laboratory is considered one of the important laboratories for master's and doctoral research works such as:
  - The effects of high heels on the gait parameters for a healthy person.
  - Evaluating the performance of different knee replacement types by measuring the energy consumption during walking
  - Reducing the negative effects of diabetic feet by studying the pressure that acts between the feet and the ground.
  - The effects of muscles on the movement of an affected knee joint during walking in the sagittal plane.
  - Evaluating the performance of the knee joint by analyzing the human gait before and after the total replacement of the knee joint (for people with Osteoarthritis).
  - Studying the effects of flat feet on human gait analysis.
  - Studying the effects of high heel shoes on the ground reaction forces (GRF) during walking.
  - Evaluating lower limb surgeries for Spastic Cerebral Palsy patients using gait analysis.

B. Medical Electronics and Biometrics Lab:

- **Lab Supervisor(s): Dr. Eng. Hani Amasha.**
- **Co-Supervisor: Eng. Mohamad Hamoud.**
- The laboratory provides an environment for students third and fourth-year to conduct two sets of experiments to familiarize themselves with the electrical graphs resulting from the various organs in the human body. At the same time, the student is exposed to the application of the mechanisms of measuring some bio-variables.
- **Available Devices:**

1. *(2)* Bio-signal acquisition and processing boards from AD-Instruments Co. with a designated software, connectors and accessories to obtain and measure Bio-signals such as:
   a. Cardiograph.
   b. Brain Waves.
   c. Blood Pressure.
   d. Body Temperature.
   e. Muscle Signals.
   f. Breathing.

2. *(5)* Bio-signals acquisition and processing boards from K & H Co. with KL-700 softwares, through which educational experiments can be conducted for medical electronics and biometrics courses such as (ECG, EMG, EOG, EEG):
    a. Cardiograph.
    b. Brain Waves.
    c. Blood Pressure
    d. Pulse Rate.
    e. Muscle Signals.
    f. Breathing.
    g. Body Immunity.
3. *(5)* Computers; one for each acquisition board, on which the software are installed.
4. *(5)* Laser Printers; one for each acquisition board for printing results and graphs.
5. *(5)* Oscilloscopes; one for each acquisition board to show the results and to compare it with the display on the computer screen.
6. *(5)* Digital Multimeters; one for each acquisition board to show the results and compare it with the display on the computer screen.
7. Some of the old assets in the laboratory, such as supply units and signal generators, used to serve projects' students.
8. Some acoustic meters which have been obtained recently to conduct experiments on sound. (The experiments are currently being prepared).

- **The laboratory serves an unlimited number of postgraduate research studies and primarily caters to the practical aspect of teaching the following courses:**
    - Medical Electronics (third year)
    - Biometrics (fourth year)
    - Bio-Signal Acquisition and Processing (Master of Medical Engineering)
    - Applied and graduation projects.

C. Medical Image Processing Lab:

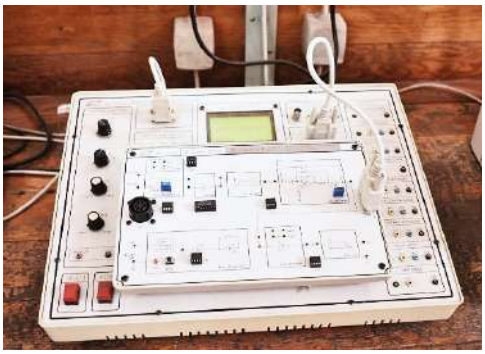
- **Lab Supervisor(s): Prof. Maen Ammar and Dr. Nasreen Suleiman.**
- **Co-Supervisor: M. Kassem Fares.**
- **Available Devices:**
    - *(17)* **Computers.**

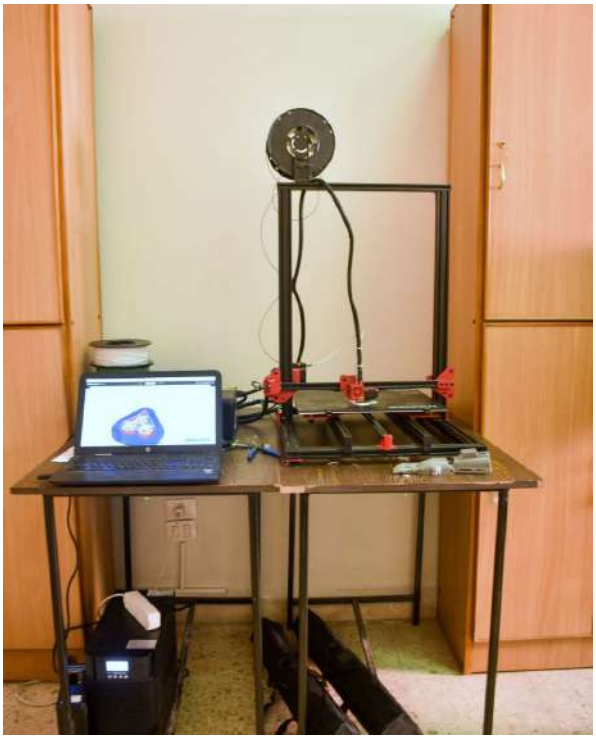
- **Courses Served:**

Subject	Year	Semester
Image Processing (1)	Fourth	Second
Image Processing (2)	Fifth	First
Programming (1)	First	Second
Programming (2)	Second	First
Signal Processing	Fourth	First
Medical Information Systems	Fifth	Second
Biomedical Control Laboratory	Fifth	First
Modeling and Simulation	Fourth	Second

D. Computer in Medicine Laboratory:

- **Lab Supervisor(s): Prof. Bassam Lala.**
- **Co-Supervisor: Eng. Fadi Ibrahim.**
- **Available Devices:**
    - *(20)* computers, which is a supporting lab to the medical image processing lab, and it also serves the same courses.



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Department of Computer Engineering and Automation

Overview:

- The department was established in the academic year 2001 at the Faculty of Mechanical and Electrical Engineering at Damascus. The department introduce the master program in the academic year 2009.
- In the fourth and fifth years, the department branches into two divisions:
  - Computer Engineering.
  - Control Engineering and Automation.
- Computer and Automation Engineering merges the fields of Computer Science, Computer Engineering, and Electrical Engineering. It is based on the study of digital systems design, encompassing both hardware and software. The hardware (HW) component focuses on electronic design in terms of the used components and their interconnections, while the software (SW) component concentrates on programming electronic devices and ensuring interfaces for communication with other electronic devices.

The Department's Message:

- Offering a distinguished specialization in Computer and Automation Engineering meets the desires of all students wishing to keep up with excellent education in this field.
- Providing students with academic and technical knowledge about computer systems, their standards, and various applications.
- Providing students how to deal with computers and control systems, and equipping them with the necessary skills to design and utilize them.

- Developing research and educational methods, creating and improving books and publications, translating them, and establishing the necessary laboratories for scientific research in the field of specialization.
- Consolidating the foundations and values that contribute to building a contemporary Arab society and fostering a sense of national pride among students.

Certificates Awarded by the Department

a. **Bachelor's degree in Electrical Engineering (duration of 5 years) with the following specializations:**

- Computer and Networks Engineering.
- Control Engineering and Automation.

b. **The Master's degree is awarded in the following specializations:**

English	Arabic
Computer Engineering and Network	هندسة الحواسيب وشبكاتها
Control Engineering and Automation	هندسة التحكم والأتمتة
Robot Engineering and Programming	هندسة الروبوت وبرمجته

c. **Ph.D. degree in the Same Previous Specializations.**

The Scientific Teaching Staffs of the Department:

A. Faculty Members:

- The teaching staff in the department features 16 faculty members. Their respective areas of expertise are provided in the following table:

No.	Name	Precise Specialization	Country of Certificate	Academic Degree	Email
1	Dr. Raouf Hamdan	Computer Vision and Digital Image Processing	France	Lecturer	raoufhmdan@gmail.com
2	Dr. Samir Karaman	Information Processing in Computers	Romania	Professor	Samir61mk@gmail.com
3	Dr. Aghyad Al-Qutaan	Artificial Intelligence and Robotic Systems	Egypt	Associate Professor	aghiadkhalkatan@gmail.com
4	Dr. Akram Mazkoor	Sports Cybernetics and Programming	Russia	Lecturer	akrammazkour2004@yahoo.com
5	Dr. Bassam Mohammed	Design of Specialized Microprocessors and Control Systems	Russia	Associate Professor	bassam.mouhamad@gmail.com
6	Dr. Mohamed Taj Al-Din Al-Husseini	Computer Architecture and Control Systems	Ukraine	Lecturer	t.husayni@gmail.com
7	Dr. Jamal Al-Yassin	Computer Organization and Structure	Russia	Associate Professor	jmalalyasyn949@gmail.com
8	Dr. Raafa Khazm	Remote Driving and Measurement	Egypt	Lecturer	raafahg@gmail.com

9	Dr. Mohammed Mazen Al-Muhairi	Computer Architecture and Organization	Russia	Associate Professor	mazendr@hotmail.com
10	Dr. Mamoun Younis	Engineering of Computers, Systems and Computer Networks	Belarus	Associate Professor	Myyounes60@gmail.com
11	Dr. Mufid Haddad	Interconnection Networks in Electronic Computers	Russia	Lecturer	cipsc@scs-net.org
12	Dr. Hiyam Khaddam	Digital Control	Egypt	Lecturer	jhiamal@gmail.com
13	Dr. Wadee Shahin	Software and Mathematical Assurance of Computers	Armenia	Lecturer	Wadee.shaheen67@gmail.com
14	Dr. Wasim Al-Samara	Networks and Data Switching and Distribution Centers	Russia	Associate Professor	wasalsamara@mail.ru
15	Dr. Yasser Al-Diban	Information Theory	Egypt	Lecturer	ydiban817@gmail.com
16	Dr. Yazan Aslan	Automatic Control and Signal Processing	France	Lecturer	yazanaslan@yahoo.fr

B. Delegated Teaching Assistants:

No.	Name	Academic Degree	Specialization	Current Situation
1	Eng. Dania Qarah Bala	Bachelor's degree in Computer Engineering	Information Security	External delegate to India
2	Eng. Sami Al-Issa	Bachelor's degree in Control and Automation Engineering	Robotic Systems	Currently under appointment as a faculty member
3	Eng. Issa Bador	Bachelor's degree in Computer Engineering	Software Engineering	External delegate to India
4	Eng. Mehdi Aliwi	Bachelor's degree in Control and Automation Engineering	Industrial Control	Internal delegate
5	Eng. Hadeel Al-Ghafri	Bachelor's degree in Computer Engineering	Wireless Networks	External delegate to Iran

C. Technical Staff:

No.	Name	Academic Degree	Specialization	Academic Position	Email
1	Eng. Mohammed Kamal Al Nahlawi	Bachelor in Computer Engineering	Computer Engineering	Operations Manager	-
2	Eng. Hassna Mohammed	Bachelor in Electronic Engineering	Master in Computer Engineering and Control Systems	Operations Manager	mohamad-ha71@hotmail.com
3	Eng. Badr Al Mufshi	Bachelor in Computer Engineering	Computer Engineering	Operations Manager	-
4	Eng. Khalil Abd Al Ghaffur	Bachelor in Computer Engineering	Computer Engineering	Operations Supervisor	-
5	Eng. Abeer Sawan	Bachelor in Electronic Engineering	Master in Computer Engineering and Control Systems	Operations Supervisor	abeersawan@yahoo.com

6	Eng. Maysoon Abu Saria	Bachelor in Biomedical Engineering	Master in Biomedical Engineering	Operations Supervisor	maysonas72@hotmail.com
7	Eng. Mohammed Arfan Al Khateeb	Bachelor in Computer Engineering	Computer Engineering	Operations Supervisor	-
8	Eng. Raw'a Abu Al Shamat	Bachelor in Computer Engineering	Computer Engineering	Operations Supervisor	-
9	Eng. Mehran Salloum	Bachelor in Electrical Engineering	Electronic Engineering	Operations Officer	mehran.salloum@gmail.com
10	Eng. Raed Al Fayoumi	Bachelor in Computer Engineering	Computer Engineering	Operations Officer	-
11	Eng. Johnny Rabbat	Bachelor in Electronic Engineering	Master in Computer Engineering and Control Systems	Operations Officer	johnnyrabbat@gmail.com
12	Eng. Bushra Abdullah	Bachelor in Information Technology Engineering	Diploma in Computer Engineering and Control Systems	Operations Officer	-
13	Eng. Futoon Al Shar'	Bachelor in Electronic Engineering	Electronic Engineering	Operations Officer	ftnjhd@gmail.com
14	Eng. Maisaa Abda	Bachelor in Electrical Engineering	Electronic Engineering	Operations Officer	missoabdo78@gmail.com
15	Eng. Mohammed Anas Orfahly	Bachelor in Electronic Engineering	Electronic Engineering	Operations Officer	anasorfahly79@gmail.com
16	Eng. Enas Al Khayat	Bachelor in Computer Engineering	Computer Engineering	Operations Officer	-

17	Eng. Rawan Kurdi	Bachelor in Computer Engineering	Computer Engineering	Operations Officer	-
18	Eng. Kristin Zenieh	Bachelor in Computer Engineering	Master in Computer Engineering and Networks	Operations Officer	eng.c.zenieh@hotmail.com
19	Eng. Raneem Kiwan	Bachelor in Electronic Engineering	PhD in Computer Engineering and Networks	Operations Officer	engreem16@gmail.com
20	Eng. Nisreen Al Soos	Bachelor in Automation and Control Engineering	Automation and Control Engineering	Operations Officer	engness@gmail.com
21	Eng. Kenaz Areesha	Bachelor in Electronic Engineering	Diploma in Programming and Operating Systems	Operations Supervisor	kenaz.393@gmail.com
22	Eng. Raghdah Al Aseel	Bachelor in Electronic Engineering	Master in Computer Engineering and Control Systems	Operations Manager	ralassil@yahoo.com
23	Dr. Osama Bahbooh	Bachelor in Computer Engineering	Computer Engineering	Operations Supervisor	-
24	Eng. Mohammed Ghassan Al Hourani	Bachelor in Electronic Engineering	Electronic Engineering	Operations Supervisor	Ghassanpc1@gmail.com
25	Eng. Ahmed Al Qassas	Bachelor in Computer Engineering and Control	Master in Computer Engineering and Control	Operations Officer	Kassasahmad@ymail.com
26	Eng. Lama Al Maghribi	Bachelor in Electronic Engineering	Diploma in Computer Engineering and Control Systems	Operations Officer	Lamarjt10@gmail.com
27	Eng. Abeer Haj Ibrahim	Bachelor in Computer Engineering	Computer Engineering	Operations Officer	-

28	Eng. Maher Al Nedaiwi	Bachelor in Automation and Control Engineering	Automation and Control Engineering	Operations Officer	-
29	Eng. Kefah Al Debs	Bachelor in Control Systems and Industrial Electronics Engineering	Diploma in Control Systems and Industrial Electronics Engineering	Operations Officer	Kefahaldbs1973@gmail.com
30	Eng. Maya Taqi	Bachelor in Computer Engineering	Computer Engineering	Operations Officer	-
31	Eng. A'ida Al Janadi	Bachelor in Informatics Engineering	Master in Information Security	Operations Supervisor	aidajanadi2021@gmail.com

D. Delegated Engineers

No	Name	Academic Degree	Specialization
1	Eng. Mazen Al Naser	Bachelor in Electronic Engineering	Electronic Engineering
2	Eng. Afaf Al Zuhouri	Bachelor in Computer Engineering	Computer Engineering
3	Dr. Eng. Safaa Abu Fakhr	Bachelor in Automation and Control Engineering	Control Engineering

Heads of the Department Since Its Establishment:

- Dr. Mohammad Mazen Mahayri	2003 – 2006
- Dr. Salem Marzouk	2006 – 2010
- Dr. Mamoun Younes	2010 – 2014
- Dr. Samir Karaman	2014 – 2018
- Dr. Raouf Hamdan	2019 – Present

The Scientific Research Plan and Topics Offered by the Department:

- In the field of computer networks and distributed systems:
  1- Computer networks.
  2- Network and information security.
  3- Distributed and cloud computing.
  4- Embedded systems.
- In the field of automation and robotic systems:
  1- Automatic control.
  2- Artificial intelligence and machine learning.
  3- Computer vision.
  4- Robotics programming.

Research Units in the Department:

Two research units were established in the Department in 2022:

1- Computer Networks and Distributed Systems.

2- Automation and Robotic Systems.

Educational Plan:

C. Computers Division:

First Year - Computers Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematical Analysis (1)	4	2	6	1-Mathematical Analysis (2)	3	2	5
2-Linear Algebra	4	2	6	2-Fundamentals of Electrical Engineering	4	2	6
3-Physics (1)	2	2	4	3-Physics (2)	2	2	4
4-Engineering Mechanics	2	2	4	4-Programming (1)	4	2	6
5-Introduction to Computers and Programming	4	2	6	5-Specialized Workshops (Electrical and Electronic)	-	4	4
6-National Education	2	-	2	6-Arabic Language	2	-	2
7-Foreign Language (1)	4	-	4	7-Foreign Language (2)	4	-	4
Total	22	10	32	**Total**	19	12	31

Second Year - Computers Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathematical Analysis (3)	4	2	6	1-Discrete Mathematics	2	2	4
2-Numerical Analysis	3	2	5	2-Logical Circuits	3	2	5
3-Programming (2)	4	2	6	3-Algorithms and Data Structure	3	2	5
4-Electrical Circuits (1)	4	2	6	4-Measurements and Electrical measuring instruments	2	2	4
5-Engineering Representation and Design	2	2	4	5-Fundamentals of Electronic Engineering	4	2	6
6-Electromagnetic Fields	3	1	4	6-Electrical Circuits (2)	2	2	4
7-Foreign Language (3)	4	-	4	7-Foreign Language (4)	4	-	4
Total	24	11	35	**Total**	20	12	32

Third Year - Computers Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Electronic Circuits (1)	4	2	6	1-Electronic Circuits (2)	2	2	4
2-Digital and Logical Systems	4	2	6	2-Microprocessors and their Systems	4	2	6
3-Automatic Control Theory	3	1	4	3-Fundamentals of Communication Engineering	4	2	6
4-Computer Architecture and Organization	4	2	6	4-System Analysis	4	-	4
5-Probability and Statistics	2	2	4	5-Automatic Control Systems	4	2	6
6-Operations Research	2	-	2	6-Electronic Measurements	2	2	4
Total	19	9	28	**Total**	20	10	30

Fourth Year - Computers Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Computer Peripheral Units	2	2	4	1- Advanced Computer Architectures	4	2	6
2-Operating Systems	4	2	5	2- Software Engineering	2	2	4
3-Encoding Theory	2	-	2	3- Embedded Systems	4	2	6
4-Artificial Intelligence	4	2	6	4-Computer Networks and Data Communication	4	2	6
5- Signal Processing	4	2	6	5- Database Management	2	2	4
6-Digital Communications	4	2	6				
Total	20	10	30	**Total**	18	9	27

Fifth Year - Computers Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Advanced Computer Networks	4	2	6	1-Engineering Economics and Business Management	4	-	4
2-Neural Networks	2	2	4	2-Information and Network Security	2	2	4
3-Modern Communication Systems	4	2	6	3- Computer Vision	3	1	4
4-Reliability and Quality Standards	2	-	2	4- Graduation Project	2		4
5- Computer Network Programming	4	2	6				
6-Graduation Project	2	2	4				
Total	14	8	22	**Total**	15	7	22

D. Automation and Control Division:

- The first three years (first, second, and third) are common with the computers division.

Fourth Year – Automation and Control Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Computer Peripheral Units	2	2	4	1- Industrial Electronics	3	1	4
2-Operating Systems	4	2	6	2-Software Engineering	2	2	4
3-Special Electrical Machines	2	2	4	3- Float Control	2	2	4
4-Nonlinear Control	3	1	4	4-Computer Networks and Data Communication	4	2	6
5-Artificial Intelligence	4	2	6	5-Database Management	2	2	4
6-Digital Communications	4	2	6	6-Signal Processing	4	2	6
Total	19	11	30	**Total**	17	11	28

Fifth Year – Automation and Control Specialization							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Advanced Computer Networks	4	2	6	1-Engineering Economics and Business Management	4	-	4
2-Neural Networks	2	2	4	2- Computer Vision	3	1	4
3-Industrial Computer Networks and Their Protocols	4	2	6	3-Expert Systems	3	1	4
4-Reliability and Quality Standards	2	-	2	4- Graduation Project	2	2	2
5-Robotic Systems and Programmable Machines	4	2	6				
6-Graduation Project	2	2	4				
Total	18	10	28	**Total**	12	4	16

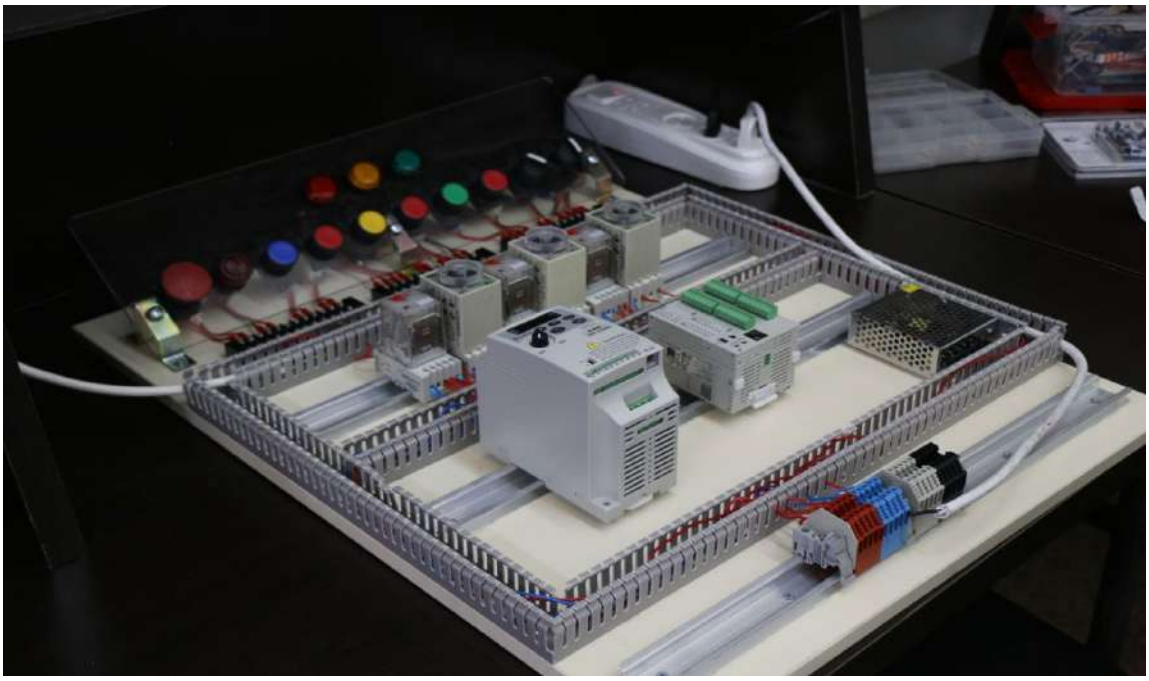
Department's Laboratories:

No.	Laboratory's Name	Most Significant Equipment in the Laboratory and Available Tests
1	**Peripheral Units, (A+), and Advanced Architectures**	**Equipment:** - A diverse set of computer hardware. - RAMs - Hard Disks, - Motherboards - Graphics cards - Processors - Computer Cases **Experiments:** - Experiments on computer hardware, including maintenance and installation of various computer components. - Practical Exercises on Software - Labview
2	**Computer Networks**	**Equipment:** - 20 Computers - A set of routers, switches, networking equipment, and a network connectivity cabinet. **Experiment:** - Experiments on connecting computer networks and communication protocols between them. - Experiments and measurements for courses on networks and data transmission.
3	**Software Laboratories (1 - 2 - 3 - 4)**	**Equipment:** In each lab, there are 30 computers serving the practical needs of the following courses for all departments of the college: - Introduction to Computers and Programming - Programming 1 - Programming 2

		In addition to the Algorithms and Data Structures course for the Telecommunications and Computer Engineering departments. **Experiments:** Exercises and diverse programs in programming languages (C++, Java).
4	**Control Systems**	**Equipment:** - Several boards (kits) primarily based on PID controller (Proportional-Integral-Derivative controller) used in Control Systems 1 course - Control platforms used for conducting various experiments in Control Systems 2 course. - Servo motors. **Experiments:** - Fundamentals and Principles of Servo Motors - Controlling the Angular Rotation of a Servo Motor - Fluid Level Control in a Tank - Room Temperature Control - Controlling the Intensity of a Light Source to Maintain a Specific Level Fan Speed Control
5	**Computer Architecture (Float Control Lab - Microprocessors Lab)**	**Equipment:** - 20 Computers MATLAB **Experiments:** Designing Floating Controllers for Linear and Nonlinear Systems
6	**Operating Systems - Database Systems**	**Equipment:** - 30 Computers - Linux Operating System - MySQL Database System **Experiments:** - A set of exercises to familiarize with the Linux operating system, its advantages, and its core applications. A set of experiments related to MySQL database management.

7	**Network Programming**	**Equipment:** - 20 Computers **Experiments:** - Programming applications using well-known network protocols such as UDP, TCP, HTTP, FTP, ICMP. - Programming Web Services and their applications. Programming Applications for Multimedia Content Transfer over the Internet.
8	**Ibn Sina (Artificial Intelligence – Computer Vision)**	**Equipment:** - 20 Computers **Experiments:** - Artificial Intelligence Lab: A collection of experiments related to the Prolog programming language. The aim is to educate students on the core concepts of artificial intelligence, including knowledge base construction and queries. Computer Vision Lab: Teaching students the key algorithms for image processing.
9	**Projects**	**Equipment:** - 20 Computers **Experiments:** - Signal Processing Experiments using MATLAB. Completion of graduation projects for department students.
10	**Software Engineering**	**Equipment:** - 20 Computers - StarUML software. **Experiments:** The laboratory aims to teach students how to conduct a comprehensive analytical study with all its diagrams (State Diagram, Class Diagram, Activity Diagram, Interaction Diagrams, etc.) for any system and draw it using the UML language in order to automate it.

11	**Embedded Systems (Industrial Control Lab – Industrial Networks Lab)**	**Equipment:** - Delta PLC SS2 -- Delta PLC SX2 -- Delta PLC SV -- Delta PLC SE -- Delta HMF. - VFD EL. (Quantity 11) - Arduino Uno. (Quantity 20) Raspberry Pi. (Quantity 3) ARM Controller. (Quantity 20) - 25 Relays - 30 Contactors - 30 Timers - 12 Circuit Breakers **Experiments:** A set of experiments related to the components of industrial networks available in the lab, along with several tests on these components in the field of industrial control.



Overview :

- The department, previously known as Textile Engineering, was established in the academic year 2000/2001 at the Faculty of Mechanical and Electrical Engineering. The first graduates were the class of 2004/2005.
- The Master's program in the Department was launched in the academic year 2008/2009.
- The department undertakes the task of preparing scientific cadres consisting of engineers specialized in various aspects of textile industries technologies, capable of leading and developing production processes in industrial fields.
- The allocated floor area for the Department in the complex of the Faculty of Mechanical and Electrical Engineering exceeds 6000 square meters.
- There are about 450 students in the Department throughout all five years.
- The Department strives to achieve the visions and goals of Damascus University in education, scientific research, community service, industrial development, and strengthening cooperation between the department and other textile engineering departments in different universities, scientific research centres, public and private textile factories, and industries relying on textile products.

The Department's Message :

Providing students with the fundamentals of modern engineering knowledge and advanced scientific research methods, elevating the expertise of textile engineers through graduate studies and research, and establishing strong interactive relationships with both public and private textile factories to address their challenges and meet their needs.

Certificates Awarded by the Department :

a. Bachelor's degree in Mechanical Engineering of Textile Industries and Their Technology, which is a five-year program.

b. Master's degree is awarded in the following specializations:

English	Arabic
Weaving Technology	تكنولوجيا نسيج
Spinning Technology	تكنولوجيا الغزل
Management of Textile Enterprises	إدارة المنشآت النسيجية
Qualification and Specialization in Fashion Manufacturing Technology	ماجستير التأهيل والتخصص في تكنولوجيا تصنيع الأزياء

c. Ph.D. degree is awarded in the same previous specializations.

The Scientific Teaching Staffs of the Department:

A. Faculty Members:

The number of members of the teaching committee in section /5/ is as follows:

No.	Name	Precise Specialization	Country of Certificate	Academic Degree	Email
1	Prof. Taher Kaddar (Head of Department)	Ph.D. in Textile Technology Engineering	Romania	Professor	dr.t-kadd@mail.sy
2	Dr. Bassel Younes	Ph.D. in Textile Process Programming in Textile Industries	United Kingdom	Associate Professor	younesbasel@yahoo.co.uk b.younes@damasuniv.edu.sy
3	Dr. Khalil Al Halabi	Ph.D. in Textile Measurement Devices	Turkey	Lecturer	cu.jaramana@gmail.com
4	Dr. Abdul Kabeer Al Katani	Ph.D. in Textile Technology Engineering-2000	Russia	Lecturer	Abdalkabeeralkitanee@gmail.com
5	Dr. Bilal Za'rour	Ph.D. in Nonwoven Materials Technology-2021	China	Lecturer	Bilalzaarour121@hotmail.com

B. Delegated Teaching Assistants:

No.	Name	Academic Degree	Specialization	Current Situation	Email
1	Eng. Abdul Rahman Al-Sokari	Bachelor in Textile Engineering – Damascus University	Textile Technology	Delegated to Russia	Abdaabdalrhman.sukkari@gmail.com
2	Eng. Walaa Al-Samara	Bachelor in Textile Engineering Master in Textile Facilities Management - Damascus University	Ready-Made Clothes Technology	Actively Employed	walaa.e.samara@hotmail.com
3	Eng. Abeer Al-Asoud	Bachelor in Textile Engineering Master in Spinning Technology Engineering - Damascus University	Preparation of Raw Materials Used in Textile Industries	Returned from a delegation to China (Actively Employed)	abeeralassod@outlook.com
4	Eng. Jomana Al-Moghosh	Bachelor in Textile Engineering – Damascus University	Knitting Technology	Internally Delegated to Damascus University	en.jo.alm@gmail.com
5	Eng. Nisreen Al-Kanakry	Bachelor in Textile Engineering – Damascus University	Textile Technology	Delegated to Hungary	nesren.kanakri@hotmail.com
6	Eng. Rhonda Malou	Bachelor in Textile Engineering – Damascus University	Ready-Made Clothes Technology	Delegated to Russia	-

C. Technical Staff

No.	Name	Academic Degree	Academic Position	Email
1	Dr. Wiam Al-Khatib	Ph.D. in Spinning Technology Engineering – Damascus University	Operations Officer	weaamkhateeb@hotmail.com
2	Eng. Majed Barakat	Ph.D. in Textile Technology Engineering – Damascus University	Operations Officer	majd.b.eng@gmail.com
3	Dr. Ghandi Ahmed	Ph.D. in Spinning Technology Engineering – Damascus University	Operations Officer	ghandi_ahmad@hotmail.com

4	Dr. Mohammed Yaser Jouha	Ph.D. in Spinning Technology Engineering – Damascus University	Operations Officer	yaserjoha195@gmail.com
5	Eng. Wael Al-Nawaqeel	Master in Textile Technology Engineering – Damascus University	Operations Officer	eng_w.nichola@yahoo.com
6	Eng. Mohanad Abbas	Bachelor in Textile Engineering – Damascus University	Operations Officer	am.198481@hotmail.com
7	Eng. Heba Hamdan	Bachelor in Textile Engineering – Damascus University	Operations Officer	heba.hamdan94@hotmail.com
8	Eng. Mona Al-Khatib Abu Fakher	Bachelor in Textile Engineering – Damascus University	Operations Officer	rajyzyd@gmail.com
9	Eng. Rama Aqbiq	Bachelor in Textile Engineering – Damascus University	Operations Officer	akbekrama@gmail.com
10	Eng. Heba Al-Jaber	Bachelor in Textile Engineering – Damascus University	Operations Officer	angleparadias@gmail.com
11	Eng. Ahmed Ballan	Bachelor in Textile Engineering – Damascus University	Operations Officer	Ahmad-ballan2685@gmail.com
12	Eng. Ghufran Baleedi	Bachelor in Textile Engineering – Damascus University	Operations Officer	Ghofran.blidi@gmail.com
13	Eng. Mohammed Waseem Al-Bouqaa'i	Bachelor in Textile Engineering – Damascus University	Operations Officer	en.wassimbukai@gmail.com
14	Eng. Ali Al-Hussien	Bachelor in Textile Engineering – Damascus University	Operations Officer	ali.moussa.alh@gmail.com
15	Eng. Afraa Hasan	Bachelor in Textile Engineering – Damascus University	Operations Officer	3fofehasan@gmail.com
16	Eng. Alaa Youssef	Bachelor in Textile Engineering – Damascus University	Operations Officer	aalaayusuf5@gmail.com
17	Eng. Afraa Khattab	Bachelor in Textile Engineering – Damascus University	Operations Officer	afraakh.16@gmail.com
18	Eng. Shaymaa Yaghmour	Bachelor in Textile Engineering – Damascus University	Operations Officer	ygmour3@gmail.com

D. Delegated Engineers:

No.	Name	Academic Degree	Email
1	Eng. Moa'tasem Dawood	Bachelor in Textile Engineering – Damascus University	mutasemdawod@gmail.com
2	Eng. Salam Mohamud	Bachelor in Textile Engineering – Damascus University	salam_blondy@yahoo.com
3	Eng. Hala Abdoush	Bachelor in Textile Engineering – Damascus University	Ehalaabdoush@gmail.com
4	Eng. Anwar Abou Shaqir	Bachelor in Textile Engineering – Damascus University	en.anwaraboshkeer@gmail.com
5	Eng. Nermin Al Najjar	Bachelor in Textile Engineering – Damascus University	engneronaj@gmail.com
6	Eng. Moureed Qassem	Bachelor in Textile Engineering – Damascus University	-

Heads of the Department Since Its Establishment:

- Prof. Dr. Jamal Abu Jehjah 2000 – 2001
- Prof. Dr. Abdulmoueen Khadour 2001 – 2003
- Prof. Dr. Ma'an Al Hourani 2003 – 2007
- Prof. Dr. Issa Mourad 2007 – 2011
- Prof. Dr. Hussine Al Teina 2011 – 2012
- Prof. Dr. Ali Khalouf 2012 – 2013
- Prof. Dr. Wajeeh Naema 2013 – 2017
- Assistant Professor Dr. Bassel Younes 2017 – 2020
- Prof. Dr. Taher Rajab Qaddar 2020 – present

The Department of Mechanical Engineering of Textile Industries and Their Technology Presents its Research Plan and Topics as Follows:

- **The department is committed to fulfilling the academic mission undertaken by the Faculty of Mechanical and Electrical Engineering at Damascus University, thereby contributing to the service of our beloved Syria by focusing on the most important issues that concern society and the labour market. The most important research topics that the department is focusing on in order to advance the textile industry in the upcoming phase are:**
    1- Natural, Industrial, Synthetic and Nano Fiber Preparation Technology
    2- Spinning Technology
    3- Textile Technology
    4- Dyeing and Printing Technology
    5- Design and Manufacturing Technology for Ready-Made Clothes.
    6- Nonwoven Fabrics and Nanofiber Network Technology
- **The department also offers studies and consultations in the following industrial areas:**
    1- Studying the possibility of rehabilitating textile facilities affected during the current crisis.
    2- Utilizing alternative energy sources in the textile industries.
    3- Evaluating the impact of government incentives on establishing an environmentally friendly textile industry.
    4- Studying the feasibility of local manufacturing for some replacement parts and accessories for spinning and textile machines.
    5- Utilizing waste heat generated from the final fabric processing operations to provide energy sources.
    6- Manufacturing environmentally friendly textiles based on local agricultural resources.
    7- Studying and developing Syrian national standards.
- **The fields in which the Section collaborates with other departments are:**
    1- Researching high-quality raw materials and supporting related research.
    2- Harnessing renewable energy in the textile industries
    3- Enhancing the current state of the machinery used and automating it.
    4- Developing production lines and ensuring auxiliary production supplies.
    5- Encouraging and assisting innovators and adopting their ideas.

- **Linking research projects with the practical aspect in the industry and enriching the department with industry insights by involving managers and industrialists who provide their ideas, problems, and data related to facility development, thus contributing to scientific research with community needs.**
- **The chance of possible collaborations with industrial chambers by organizing joint courses and developing future plans with industrialists who are the true partners in industry development and connecting scientific research with the practical aspect.**

Units of Scientific Research in the Department:

The Scientific Research Unit was established in the Department during Department Session No. 5 held on 26/10/2021 for the academic year 2021-2022. It operates according to the following rules:

The unit is led by: the department's head.

Unit members: include all faculty members.

The research topics of the unit are as follows:

- **First field:** Fibers, Nanomaterials, Nonwoven, and Spinning Technology.
- **Second field:** Textile and Knitting Technology, Design, and Ready-made Clothes Manufacturing.
- **Third field:** Dyeing, Printing, and Finishing.

Educational Plan:

First Year - Mechanical Engineering of Textile Industries and Their Technology							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Linear Algebra	2	2	4	1-Mathemtical Analysis (2)	4	2	6
2-General Chemistry	4	2	6	2-Modern Physics	2	2	4
3-Statics	2	2	4	3-Engineering Drawing	2	2	6
4-Foreign Language (1)	4	-	4	4-Kinematics	2	2	4
5-Arabic Language	4	-	4	5-Fundamentals of Programming	2	2	4
6-Mathematical Analysis (1)	2	2	4	6-Foreign Language (2)	2	-	2
7-General Physics	2	2	4	7-National Education	2	-	2
Total	20	10	30	**Total**	16	12	28

Second Year - Mechanical Engineering of Textile Industries and Their Technology							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mathemtical Analysis (3)	2	2	4	1-Manufacturing Methods and Specialized Workshops	2	4	6
2-Computer Aided-Design	2	4	6	2-Polymer Chemistry and Technologies	4	2	6
3-Programming (1)	2	2	4	3-Programming (2)	2	2	4
4-Materials Science	2	2	4	4-Natural Textile Raw Materials	2	2	4
5-Foreign Language (3)	4	-	4	5-Fundamentals and Electrical Circuits	2	2	4
6-Organic Chemistry	2	2	4	6-Foreign Language (4)	4	-	4
7-Motion Science	4	2	6	7-Probability and Statistics	2	2	4
Total	20	10	30	**Total**	18	14	32

Third Year - Mechanical Engineering of Textile Industries and Their Technology							
First Semester				Second Semester			
Subject	Theoretical	Practical	Total Hours	Subject	Theoretical	Practical	Total Hours
1-Machine Theory	4	2	6	1-Textile Preparations	4	2	6
2-Electrical Machines and Power Systems	4	2	6	2-Machine Elements and Design	4	2	6
3-Synthetic and Structural Textile Raw Materials	2	2	4	3-Machine Dynamics and Vibrations	2	2	4
4-Spinning Technology (1)	4	2	6	4-Spinning Technology (2)	4	2	6
5-Materials Resistance	4	2	6	5-Thermodynamics and Heat Transfer	2	2	4
6-Fluid Mechanics	2	2	4	6-Principles of Electronic Engineering	2	2	4
Total	20	12	32	**Total**	18	12	30

Fourth Year - Industrial Textile Engineering and Technologies.							
First Semester				Second Semester			
Subject	Theoretical	Practical	Total Hours	Subject	Theoretical	Practical	Total Hours
1- Spinning Machinery Mechanics.	4	2	6	1- Mechanics of Textile Machinery.	4	2	6
2- Dyeing and Printing Technology.	4	2	6	2- Mechanics of Preparation and Finishing Machinery.	2	2	4
3- Industrial Electronics.	2	2	4	3- Textile Structures (2).	2	2	4
4- Textile Technology.	4	2	6	4- Automatic Control.	2	2	4
5- Textile Structures (1).	2	2	4	5- Operations Research.	2	2	4
				6- Programming and Design of Spinning Factories.	4	2	6
				7- Production Project.	-	4	4
Total	18	12	30	**Total**	16	16	32

Fifth Year - Specialization: Industrial Textile Engineering and Technologies.							
First Semester				**Second Semester**			
Subject	**Theoretical**	**Practical**	**Total Hours**	**Subject**	**Theoretical**	**Practical**	**Total Hours**
1-Mechanics and Technology of Knitting.	2	2	4	1-Machinery and Technology for Ready-Made Clothes.	4	2	6
2-Textile Processes Automation.	2	2	4	2-Industrial Economics.	2	2	4
3-Mechanics and Technology of Nonwoven Materials.	2	2	4	3-Occupational Safety.	2	2	4
4- Programming and Design of Textile Factories.	2	2	4	4-Textile Facilities Management.	2	2	4
5- Measurements and Quality Control in Textile Industries.	4	2	6	5-Bachelor's Degree Project.	-	4	4
6- Bachelor's Degree Project.	-	4	4	6-Nanotechnology and Advanced Technologies in Textile Industries.	2	2	4
Total	14	14	28	**Total**	12	14	26

Department's Laboratories:

The department oversees the following labs:

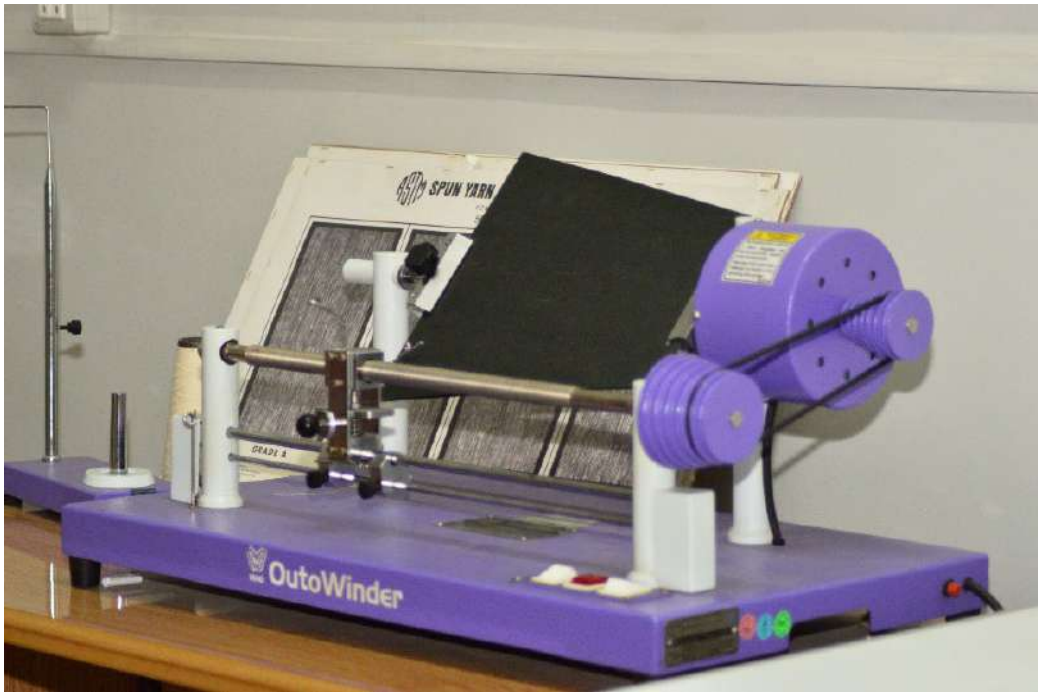
No.	Laboratory's Name	Most Significant Equipment in the Laboratory and Available Tests
1	**Fiber and Yarn**	- Microscope for examining fibers and their dimensions. - Apparatus for measuring wool softness. - Device for measuring cotton softness. - Electronic carding machine. - Device for measuring the count (yarn + roving). - Device for testing the tensile strength of combed sliver. - Device for single yarn strength testing. - Raw Cotton Impurities Analyzer. - Oil Content Analyzer for Staple Fibers and Yarns. - Number of Turns Measuring Device. - Fiber Length Tester. - Yarn Appearance Tester. - Evenness Tester.
2	**Fabric**	- Air Permeability Measuring Device. - Water Permeability Measuring Device. - Friction and Abrasion Measurement Device (Martindale). - Fabric Thickness Measurement Device. - Circular Sample Cutter. - Strength and Elongation Tester. - Fabric Microscope and its Components. - Tear Resistance Measurement Device. - Fabric Bending Angle Recovery Measurement Device. - Bursting Strength Measurement Device. - Fabric Wrinkle Resistance Measurement Device.
3	**Spinning Machines and Technology**	- Laboratory Drawing Machine. - Laboratory Spinning Machine. - Section of a Recycling Machine.

4	**Dyeing**	- Testing dyes to determine their practical value and compare this value with the price, concentration, fixatives, and compatibility. - Testing auxiliary materials. - Testing dyed samples. - Testing final processing operations.
5	**Fibers and Nanotextile Products**	- Nanofibers and nanotextile products (under preparation).
6	**Project**	- Student projects and research.

The labs and workshops affiliated with other departments are also utilized according to the nature of each of the courses outlined in the curriculum.

Pictures from the Department's Laboratories:

Fiber and Yarn Lab:

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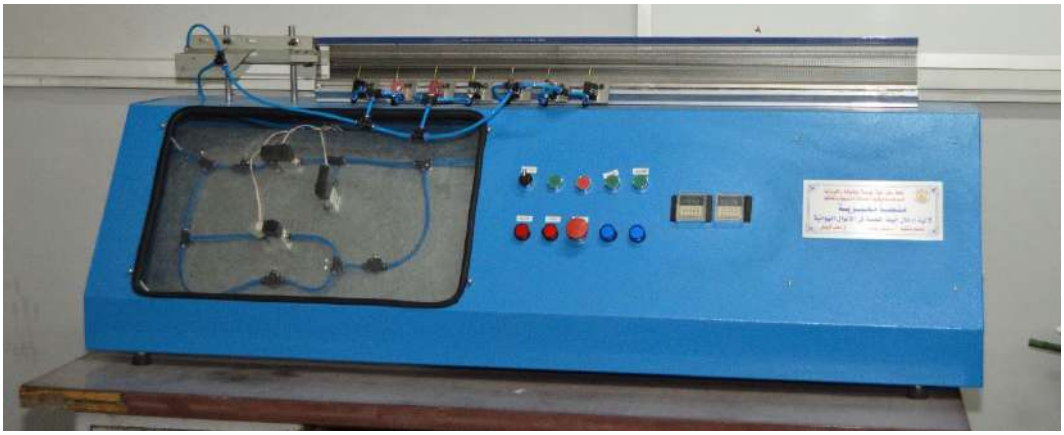


Coagulation Bath

Fabric Lab:


MESDAN LAB


MESDAN LAB


MESDAN LAB
MESDAN LAB


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Automy
Loom

Dyeing Lab:

Department of Automobiles and Heavy Machines Engineering

Overview:

The department was established in the academic year 2009-2010 at the Faculty of Mechanical and Electrical Engineering at Damascus University.

The department introduced the master program in the academic year 2004-2005.

It is one of the modern educational and research departments that has recently emerged in the higher education sector in the Syrian Arab Republic.

The number of students in the department for all five years is approximately 400-500 students.

The Department's Message:

Th department aims to prepare a generation engineer holding a Bachelor's degree in Mechanical Engineering, specializing in Automotive and Heavy Machinery Engineering. This generation should be capable of keeping pace with modern scientific advancements, contributing to meeting the requirements of the job market, and fulfilling the needs of various societal institutions. The department's vision also extends to enriching society with graduates holding higher degrees (Master's and Ph.D.).

As for the department's messages, it involves working towards the development of education in quantity and quality in line with the objectives of Damascus University. This entails ensuring that the curriculum and research align with scientific progress in all facets of contemporary human life and its activities.

Certificates Awarded by the Department

a. Bachelor's degree in Automobiles and Heavy Machines Engineering.

b. The Master's degree is awarded in the following Specializations:

English	Arabic
Master in Motor Vehicles and Engines Engineering	ماجستير هندسة الآليات والمحركات

c. Ph.D. degree is awarded in the following Specializations:

English	Arabic
Ph.D. in Mechanical Engineering – Specialization: Vehicle and Engine Engineering	دكتوراه في الهندسة الميكانيكية - اختصاص هندسة الآليات والمحركات

The Scientific Teaching Staffs of the Department:

A. Faculty Members:

The teaching staff in the department features 8 faculty members. The areas of expertise of the faculty members are provided in the following table.

No.	Name	Precise Specialization	Country of Certificate	Academic Degree	Email
1	Dr. Jumaa Shahada	Automotive Engineering	Belarus	Associate Professor	de.jumshihada@gmail.com
2	Dr. Muslim Toumah	Construction and Road Mechanisms	Russia	Professor	msallam.toma@yahoo.com
3	Dr. Mohammed Saeed Al-Saqib	Construction and Road Mechanisms	Russia	Associate Professor	mhdsaedsabek@gmail.com
4	Dr. Munir Al-da'as	Transportation Planning	Germany	Associate Professor	mouniraldaas123@gmail.com

5	Dr. Tha'er Salam	Internal Combustion Engines	Russia	Lecturer	d.thaer64@gmail.com
6	Dr. Nada Barkat	Construction and Road Mechanisms	India	Lecturer	nadabarakat@gmail.com
7	Dr. Riyadh Qubaisi	Vehicle Technology	Germany	Lecturer	rayad.kubaisi@gmail.com
8	Dr. Firas Al-Qattan	Modeling and Simulation of Mechanical Systems	France	Operations Manager	feras.alkatan@gmail.com

B. Delegated Teaching Assistants

No.	Name	Academic Degree	Specialization	Current Situation
1	Eng. George Al-Khouri	Bachelor in Automobiles and Heavy Machines Engineering	Hydraulic Systems in Automobiles	External Delegation
2	Eng. Mohamed Qutaiba Al-Sharawi	Master in Machinery and Engines Engineering	Modern Systems in Automobiles	Internal Delegation
3	Eng. Mazen Mahmah	Bachelor in Automobiles and Heavy Machines Engineering	Modern Systems in Automobiles	Internal Delegation

C. Technical Staff

No.	Name	Academic Degree	Specialization	Current Situation
1	Eng. Adnan Toubji	Bachelor in Mechanical Engineering	Machinery	Operations Manager
2	Eng. Ahmed Al-Sayyad	Bachelor in Mechanical Engineering	Machinery	Operations Manager
3	Eng. Leena Jalbout	Bachelor in Mechanical Engineering	Machinery	Operations Manager
4	Eng. Maisaa Surrour	Bachelor in Mechanical Engineering	General Mechanics	Operations Supervisor

D. Delegated Engineers

No.	Name	Academic Degree	Specialization
1	Eng. Ahmed Al-Houry	Bachelor in Agricultural Engineering	Rural Engineering

Heads of the Department Since Its Establishment:

- Dr. Ahmed Fayez Al-Zibq 2009 - 2011
- Dr. Mohammed Saeed Al-Saqib 2011 - 2015
- Dr. Tawfiq Issa 2015 - 2016
- Dr. Jumaa Shahada 2016 - 2017
- Dr. Mohammed Saeed Al-Saqib 2017 - 2021
- Dr. Jumaa Shahada 2021 - Present

The Scientific Research Plan and Fields of Research Projects Offered by the Department:

1- Design and test internal combustion engines and performance enhancements.

2- Design and test various types of vehicles.

3- Design and test heavy machinery of all types.

4- Develop the maintenance and repair centers.

5- Test alternative fuels and oils, such as hydrogen, natural gas, and liquefied petroleum gas.

6- Plan transportation.

Research Units in the Department:

The scientific research unit (Vehicle Research) was established in the Department of Automobiles and Heavy Machines Engineering during the department's session number 17, held on January 17, 2022, for the academic year 2021-2022.

Educational Plan:

First Year - Automobiles and Heavy Machines Specialization							
First Semester				Second Semester			
Subject	Theoretical	Practical	Total Hours	Subject	Theoretical	Practical	Total Hours
1-Mathmatics (1)	4	2	6	1-Mathmatics (2)	4	2	6
2- Physics (1)	4	2	6	2- Physics (2)	2	2	6
3-Chemistry	4	2	6	3- Introduction into Computers and Programming	2	2	4
4-Descriptive Engineering	2	2	4	4-Engineering Drawing (1)	2	2	4
5-Specialized Workshops	-	4	4	5-Mechanical Engineering (Motion)	4	2	6
6-Mechanical Engineering (Equilibrium)	2	2	4	6-National Education	2	-	2
7-Foreign Language (1)	4	-	4	7-Arabic Language	2	-	2
				8- Foreign Language (2)	4	-	4
Total	20	14	34	Total	22	10	32

Second Year - Automobiles and Heavy Machines Specialization							
First Semester				Second Semester			
Subject	Theoretical	Practical	Total Hours	Subject	Theoretical	Practical	Total Hours
1-Mathmatics (3)	4	2	6	1-Mathmatics (4)	4	2	6
2-Mechanical Engineering (Kinematics)	4	2	6	2-Manufacturing Methods (1)	2	2	4
3-Engineering Drawing (2)	2	2	4	3-Thermodynamics (1)	4	2	6
4-Materials Science and their Properties	4	2	6	4-Materials Resistance (1)	4	2	6
5-Programmign (1)	2	2	4	5-Programming (2)	2	2	4
6-Foreign Language (3)	4	-	4	6-Foreign Language (4)	4	-	4
Total	20	10	30	Total	20	10	30

Third Year - Automobiles and Heavy Machines Specialization							
First Semester				Second Semester			
Subject	Theoretical	Practical	Total Hours	Subject	Theoretical	Practical	Total Hours
1-Fluid Mechanics (1)	4	2	6	1-Fluid Mechanics (2)	2	2	4
2-Thermodynamics (2)	2	2	4	2-Machine Elements Design (1)	4	2	6
3-Materials Resistance (2)	4	2	6	3-Heat and Mass Transfer	2	2	4
4-Manufacturing Methods (2)	2	2	4	4-Electrical Machines and their Control	4	2	6
5-Machine Theory	4	2	6	5-Internal Combustion Engines (1)	4	2	6
6-Mechanical Measurements	2	2	4	6-Fuels and Mineral Oils	2	2	4
Total	18	12	30	Total	18	12	30

Fourth Year - Automobiles and Heavy Machines Specialization							
First Semester				Second Semester			
Subject	Theoretical	Practical	Total Hours	Subject	Theoretical	Practical	Total Hours
1-Internal Combustion Engines(2)	4	2	6	1-Construction and Roadways Machinery	4	2	6
2- Computer-Aided Design and Manufacturing (CAD/CAM)	2	2	4	2-Internal Combustion Engines Design	4	2	6
3-Automotive Engineering (1)	2	2	4	3-Automotive Engineering (2)	2	2	4
4-Principles of Electronic Engineering	2	2	4	4-Locomotive Engineering	2	2	4
5-Machine Elements Design (2)	4	2	6	5-Modeling and Simulation	2	2	4
6-Dynamics of Machines and Vibrations	4	2	6	6-Applied Project	-	4	4
Total	18	12	30	Total	14	14	28

Fifth Year - Automobiles and Heavy Machines Specialization							
First Semester				Second Semester			
Subject	Theoretical	Practical	Total Hours	Subject	Theoretical	Practical	Total Hours
1-Electrical and Electronic Systems in Automobiles	2	2	4	1-Modern Systems in Automobiles	2	2	4
2-Finite Elements and Their Applications	2	2	4	2-Maintainance and Repair	4	4	8
3-Hydraulic and Pneumatic Systems.	2	2	4	3-Transportation Planning	4	-	4
4-Automatic Control	4	2	6	4-Transportation and Lifting Machines	2	2	4
5-Graduation Project	2	2	4	5-Graduation Project	2	2	4
Total	12	10	22	Total	14	10	20

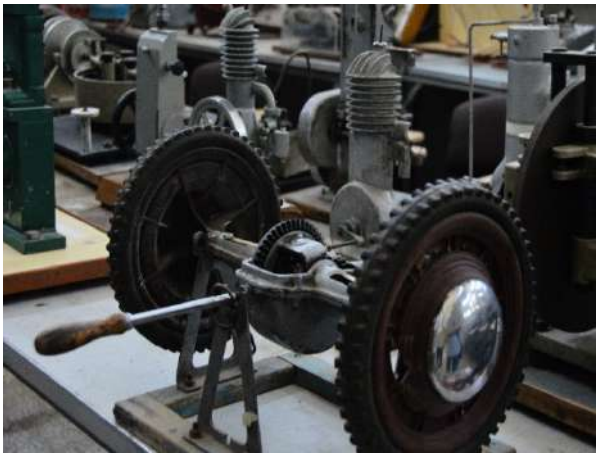
Department's Laboratories:

The Department of Automotive and Heavy Machines Engineering consistently strives to strike a balance between theoretical and practical aspects when delivering the curriculum courses for the department, and this is in line with the famous Arabic saying: "Theory without practice is madness, and practice without theory is useless", In this regard, the department works on training students through the following workshops and labs:

No.	Laboratory's Name	Most Significant Equipment in the Laboratory and Available Tests
1	**Automotive Mechanics (Machinery Workshop)**	- Car model with an engine - Tractor model with an engine - A set of models for suspension, braking, cooling, and lubrication systems...
2	**Modern Automotive Systems**	- An engine platform for testing engine performance curves - Devices for measuring gas emissions resulting from gasoline/diesel fuel combustion. - Device for measuring gas emissions resulting from the combustion of diesel or heavy fuel in power stations (source emissions). **The laboratory can provide the following tests and examinations:** • Measuring the Gas Emissions Resulting from the Combustion of Gasoline/Diesel Fuel. • Measuring the Gas Emissions Resulting from the Combustion of Diesel Fuel or Heavy Fuel in Power Stations (Source Emissions).

3	**Modern Automotive Systems**	- Device for Examining Electronic Systems in Modern Vehicles, Identifying Incidents, Determining Causes, and Remediation Methods. - Device for Testing and Ultrasonically Cleaning Gasoline Fuel Injectors, Including the Replacement of the Injector Filter and the Injector-Specific Inhibitor. - Examination of the Car Engine Control Unit by Connecting it to a Special Simulation Device and Conducting a Simulation Process for the Car's Sensors. - Programming Car Keys and Reading the Key Code (Secret Code) - Ignition Files Inspection Device for Car Engines. - Ignition Spark Plug Leakage Inspection Device - Device for Inspecting the Technical Condition of the Car's Battery. **The laboratory can provide the following tests and examinations:** - Examining the electronic systems of modern automobiles, identifying occurring malfunctions, determining their causes, and devising preventive measures. - Inspecting and cleaning gasoline injectors using ultrasonic waves, along with replacing the injector filter and the associated inhibitor. - Inspecting the car engine control unit by connecting it to a dedicated simulation device and conducting a simulation process for the car's sensors. - Programming car keys and reading the key code (secret number).

		- Examination device for ignition coils of car engines. - Examination device for checking leakage from ignition spark plugs. - Device for examining the technical condition of the car's battery and estimating its technical lifespan. - Inspecting the condition of the brake fluid and determining the moisture content in the fluid. - Inspecting and diagnosing the electrical circuits and connections of the car. - The ability to program control units of certain modern cars.
4	**Maintenance and Repair Engineering**	- Engine models and sections. - Models and Cross-Sections of Gearboxes. - Models and Cross-Sections of Transmission Systems.

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Department of Basic Sciences

Overview:

The department was established in the academic year 1986-1987 at the Faculty of Mechanical and Electrical Engineering at Damascus University, with the aim of teaching all the core subjects at the faculty, which are Mathematics, Physics, Chemistry, Linguistics, and Culture.

The Department's Message:

The main purpose of the Basic Sciences Department is to supervise the teaching process of all basic science courses (Mathematics, Physics, Chemistry) and humanities courses (Arabic, Culture, English, French) for students in all engineering departments. The department's curriculum forms the foundation for all specializations in the first and second years to enhance students' overall knowledge level. Additionally, it facilitates scientific research in these fields as supplementary and fundamental courses for all technical engineering disciplines at the faculty to understand applied sciences in subsequent years.

Certificates Awarded by the Department:

The Department does not confer any degrees; instead, it serves as a support department for all other departments and for students in the first and second years in general. It also offers some essential courses for third-year students and master's students.

The Scientific Teaching Staffs of the Department:

A. Faculty Members:

- The teaching staff in the department features 15 faculty members. Their areas of expertise are provided in the following table.

No.	Name	Precise Specialization	Country of Certificate	Academic Degree	Email
1	Dr. Mohammad Noor Shamma (Head of the Department)	Mathematical Analysis	Russia/1994	Professor	shamman01@yahoo.com
2	Dr. Moaz Abdel Majeed	Mathematical Analysis	Russia/1992	Professor	Moaaz64@gmail.com
3	Dr. Nazir Hilal	Applied Mathematics	Bulgaria/1987	Associate Professor	nazzier@scs-net.org
4	Dr. Emad Fattash	Numerical Analysis and Programming	Russia/1991	Associate Professor	fattash.i@gmail.com
5	Dr. Mohammad Alaa Al-Din Hadda	Physiochemistry	Russia/1995	Associate Professor	dr.a.houda@hotmail.com
6	Dr. Marwan Dankria	Electrochemistry	Egypt/2000	Associate Professor	dank-1962@ hotmail.com
7	Dr. Emad Asaad	General Physics	France/2003	Associate Professor	am.as18@yahoo.com
8	Dr. Muneer Turk	Differential Equations	Russia/1995	Associate Professor	mounirtr@scs-net.org
9	Dr. Aws Salman	Physical Sciences	Switzerland /2007	Associate Professor	Awos.alsaman@gmail.com
10	Dr. Qusay Kanafani	Image Processing - Applied Mathematics	France/2003	Associate Professor	qosai_kanafani@yahoo.fr
11	Dr. Ibrahim Kayyali	Mathematical Analysis	Russia/1993	Associate Professor	-
12	Dr. Osama Al-Ajami	Physiochemistry	Russia/1995	Associate Professor	ajamiosama@yahoo.com
13	Dr. Hussam Hamama Kamarji	Applied Mathematics	Türkiye/1996	Associate Professor	hkamarji@hotmail.com
14	Dr. Zuhair Fawakherji	Physiochemistry	Russia/1992	Lecturer	zuherfa@yahoo.com

15	Dr. Alaa Abu Al-Ainin	Mathematical Analysis	Syria/2018	Lecturer	-

B. Delegated Teaching Assistants:

No.	Name	Academic Degree
1	Obaida Ba'aj	Master in Mathematics
2	Batoul Muhna	Master in Mathematics

C. Technical Staff

No.	Name	Specialization	Academic Degree
1	Eng. Fatima Al Sheikh Abdo	Physics	Operations Officer
2	Eng. Huda Al-Ali	Computers	Operations Officer
3	Eng. Noor Al-Ali	Computers	Operations Officer
4	Eng. Reham Al-Wais	Chemistry	Operations Officer
5	Eng. Ziad Lathqani	Physics	Delegated Engineer
6	Eng. Mahmoud Al-Jasem	Administrative Supervisor (Physics)	Delegated Engineer
7	Eng. Mohamed Hisham Faroun	Physics	Delegated Engineer
8	Eng. Yasmin Al Shehadat	Administrative Supervisor (Chemistry)	Delegated Engineer

D. Administrative and Laboratory Staff Members:

No.	Name	Specialization	Job Rank
1	Baraa Al-Tahan	Physics	Administrative
2	Raghad Maqsood	-	Administrative
3	Samar Hamadi	Chemistry	Administrative
4	Maher Suliman	-	Administrative
5	Samer Al-Atarsh	Physics	Craftsman
6	Yaser Mardini	Physics	Craftsman
7	Tahseen Fatoum	Physics	Laboratory Technician
8	Maryam Hasan	Chemistry	Laboratory Technician
9	Nabigha Dahdal	Chemistry	Laboratory Technician
10	Basel Shannan	Chemistry	Laboratory Technician
11	Rweida Issa	Physics	Laboratory Technician

Heads of the Department Since Its Establishment:

- Dr. Hassan Slouta	1975 - 1986
- Dr. Rajaa Al-Sabouni	1986 - 1991
- Dr. Adnan Al-Muhasib	1991 - 1995
- Dr. Imad Fattash	1995 - 1998
- Dr. Azar Al-Shayeb	1998 - 2000
- Dr. Imad Fattash	2000 - 2003
- Dr. Moa'az Abd al-Majeed	2003 - 2007
- Dr. Imad Fattash	2007 - 2011
- Dr. Habib Dhoumat	2011 - 2015
- Dr. Shukri Abu Arabi	2015 - 2019
- Dr. Imad Fattash	2019 - 2021
- Dr. Mohammad Nour Shamma	2021 -present

The Department of Basic Sciences Presents its Research Plan and Topics as Follows:

In the Department of Basic Sciences, several scientific research groups are continuously active, and this activity is distributed across the scientific specializations within the scope of the Department of Basic Sciences at the Faculty of Mechanical and Electrical Engineering, which include Mathematics, Physics, and Chemistry.

Thus, in the field of mathematics, research is continuously conducted to find mathematical and computational solutions for numerous research and applied problems, especially in the discipline of building multi-task systems that can be controlled and adjusted. Additionally, research works are conducted in various modern contemporary directions in mathematical analysis and control theory.

In the field of physics, research is focused on studying the optical and electrical properties of insulators and semiconductors.

Emphasis is placed on applied research in the field of chemistry, particularly in the environmental sector and the treatment of industrial pollution problems. Also currently, a contract is being signed for the Environmental Chemistry Laboratory to address industrial pollution issues in the educational and research field, in collaboration with civil society organizations.

Furthermore, researchers in the department collaborate with researchers from various departments within the Faculty of Mechanical and Electrical Engineering to find mathematical solutions for some modern applied problems.

Units of Scientific Research in the Department:

In the Department of Basic Sciences, a number of scientific research units are active, namely:

1- **A scientific research unit in applied mathematics for engineers** led by Dr. Mohamed Noor Shamma, consisting of Dr. Qusay Kanfani, Dr. Ibrahim Kayyali, and Dr. Alaa Abu Al-Ainin.

2- **A scientific research unit in applied physics for engineers**, headed by Dr. Aws Al-Salman, and includes Dr. Emad Asaad.

3- **A scientific research unit in applied chemistry in engineering**, led by Dr. Osama Ajami, and includes Dr. Mohamed Alaa Eddin Hadda, Dr. Marwan Dankria, and Dr. Zuhair Fawakherji

Department's Laboratories:

1- **The Physics Lab for First-Year Students - All Specializations.**

2- **The Physics Lab (Light) for First-Year Students - All Specializations.**

Physics Practical Experiments (Second Semester)

1- **Ohm's Law Experiment:**
Power Supplies + Standard Resistors + Variable Resistors

2- **Lissajous Curves Experiment:**
Power Supply Unit + Oscilloscope

3- **Mild's Experiment:**
Electric Shaker + Weights
Naphthalene Fusion Experiment:
Test Tubes + Naphthalene + Paraffin Wax

4- **Measurement of Unknown Resistance - Wheatstone Bridge Experiment:**
Power Supplies + Ohmmeters + Voltmeters

5- **Cathode Ray Oscilloscope Experiment**:
Cathode Ray Oscilloscope + 9-Volt Batteries

6- **Gamma Ray Absorption Experiment:**
Radioactive Source + Geiger-Müller Counter + Timer

7- **Determination of Planck's Constant Experiment:** Mercury Vapor Lamp + Photoelectric Cell + Light Filters

8- **Characteristic Curves of a Solar Cell Experiment:** Solar Cell + AVO Multimeter + Light Source

9- ***The Electrical-Thermal Double* Experiment:** Heat Balances + Test Tubes

3- The Chemistry Lab:

- For first-year students in all specializations (except for Computer Engineering and Automation).
- As well as for second and third-year students in the Department of Mechanical Engineering of Textile Industries and Their Technology.

- The list of experiments scheduled for the Organic Chemistry Lab (First Semester):

The First Session: includes the following: a. Regulations and safety procedures in the Organic Chemistry Laboratory. b. Solid material separation, separation of liquid mixture components. c. Determining the melting point (Second Semester).
The Second Session: *Element Detection in Organic Matter* a. Experiment (1-3): Carbon and Hydrogen Detection. b. Experiment (2-3): Nitrogen Detection. c. Experiment (3-2): Detection of Nitrogen, Both Nitrated and Non-Nitrated. d. Experiment (2-4): Sulfur Detection.
The Third Session: *Detection of Halogens* a. Experiment (3-6): Halogen Detection by Sodium Fusion.
The Fourth Session: *Detection of the Aldehyde Function* a. Experiment (4-1): Tollens' Reagent Test. b. Experiment (4-2): Fehling's Reagent Test. c. Experiment (4-5): Reaction of Naphthalene with Formaldehyde and Acetaldehyde.
The Fifth Session: *Detection of the Alcohol Function* a. Experiment (5-1): Reaction with Metallic Sodium and Formation of Alcohols. b. Experiment (5-3): Reaction with Hydrochloric Acid in the Presence of Lucas Reagent. c. Experiment (5-4): Detection of the Primary Alcohol Function. d. Experiment (5-6): Reaction of Multifunctional Alcohols with Copper Hydroxide.

The Sixth Session: *Detection of Fats and Determination of Some Chemical Indications for Them*

a. Experiment (8-3): Fats Saponification Test.
b. Experiment (8-7): Detection of Adulteration in Olive Oil.
c. Experiment (8-9): Determination of Acid Index.
d. Experiment (8-10): Determination of Iodine Number or Iodine Value.

The Seventh Session: *Qualitative Detection of Phenols and Naphthalenes*

a. Experiment (6-1): Reaction with Iron (III) Chloride and Formation of Colored Complexes.
b. Experiment (6-2): Dissolution of Phenols and Naphthalenes and Their Acidic Properties.
c. Experiment (6-4): Proof of the Acidic Nature of Phenols and Naphthalenes.

The Eighth Session: *Detection of Carboxylic Acids and Their Derivatives*

a. Experiment (7-1): Detection of Formic Acid.
b. Experiment (7-2): Detection of Acetic Acid.
c. Experiment (7-3): Detection of Citric Acid.

The Ninth Session: A practical examination at the end of the semester, including the theoretical principles related to the experiments conducted, is conducted by the practical session supervisors.

4- Organic Chemistry and Polymers Lab for Textile Industries Students:

- The list of experiments scheduled for the Biochemistry Lab:

First Session	• Some notes about laboratory work and safety in the chemistry lab. • Introduction to concentration units (mass percent concentration, volume percent concentration, molarity, and normality), and how to prepare chemical solutions.
Second Session	Calibration of Acid with Base.
Third Session	1- Qualitative Detection of Carbohydrates. 2- Detection of Simple Carbohydrates. 3- Special Reactions for Detecting Monosaccharides.
Fourth Session	Oxidation-Reduction Reactions: 1-Fehling's reaction 2-Tollens' reaction
Fifth Session	Detection of Fats (Lipids): 1-Solubility Test 2-Saponification Test 3-Acidity Test.
Sixth Session	Determination of Some Chemical Constants of Fats: 1-Acid Value 2-Iodine Value
Seventh Session	Detection of Fat-Soluble Vitamins: 1-Qualitative Detection of Vitamin A 2-Qualitative Detection of Vitamin D 3-Qualitative Detection of Vitamin E
Eighth Session	Qualitative Detection of Water-Soluble Vitamins: 1-Qualitative Detection of Vitamin C 2-Qualitative Detection of Vitamin B
Ninth Session	The chemical and physical properties of proteins. 1- Isolating Casein from Milk. 2- Protein Precipitation in: a-Salts b-Acids c-Organic Solvents.
Tenth Session	A practical examination at the end of the semester includes the theoretical principles related to the experiments conducted, determined by the professors supervising the practical sessions.

5- Computer Laboratory for the Study of Applied Mathematics and Statistics – All Specializations:

Number of computers: 23, along with one projector, and Laboratory Activities:

During the First Semester:	On the program "MATLAB", a practical material is provided for the subject of Numerical Analysis
During the Second Semester:	The laboratory operates on the MAPLE+MATLAB software, providing practical material for the subject of Discrete Mathematics.

- Laboratory work is a complementary component to theoretical lessons, and the lab work grade, along with the theoretical written exam grade, are combined to evaluate the student's performance in a single course.
- The Physics and Chemistry laboratories are currently being expanded and updated to accommodate the needs of the new specializations within the faculty. The laboratories for Organic Chemistry and Polymers, Optics Physics, and Computer Science were established and put into service in the academic year 2010/2011.
- The students are divided into groups that take turns entering the laboratory, and the laboratory's capacity is determined by the number of students in each group.
- The teaching staff, which includes experienced supervisors with master's degrees, specialized engineers from outside the university, and laboratory assistants (laboratory staff members), provide supervision and guidance on the practical aspects within the laboratories.

The Scientific Research Published by Faculty Members (will be introduced later)

Table of Contents