Eastern Mediterranean University

"Virtue, Knowledge, Advancement"

FACULTY OF ENGINEERING

2024/2025
ACADEMIC YEAR

MECHANICAL ENGINEERING DEPARTMENT

ENERGY SYSTEMS ENGINEERING PROGRAM

me.emu.edu.tr

THE WORLD UNIVERSITY RANKINGS 2024 TOP 800

QS STARS RATED FOR EXCELLENCE 2019 TEACHING

QS STARS RATED FOR EXCELLENCE 2019 FACILITIES

QS STARS RATED FOR EXCELLENCE 2019 INCLUSIVENESS

QS STARS RATED FOR EXCELLENCE 2019 INTERNATIONALIZATION

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Welcome Note by Head of Department

Dear Students,

I would like to welcome you to the Department of Mechanical Engineering. I am pleased that you have chosen our department and I hope that you would find the university experience in our department exceedingly rewarding. Our department has a distinguished record in both teaching and research. Our Mechanical and Mechatronics Engineering BS programs are accredited by ABET. Faculty members have excellent academic credentials and are highly regarded. Our distinguished faculty and well-equipped modern laboratories cover all the core disciplines of Mechanical Engineering. Thanks to several generous endowments provided to us from the industry, business sector, equipment, and scholars on our campus each year.

Together we strive to provide you with high-quality engineering education and hope that all our graduates have a strong education and practical background, with teaming and leadership skills. We believe in a broad education which instills a sense of lifelong learning, community and leadership values in students, together with an appreciation of global issues. We encourage students to express and improve themselves with their knowledge and skills to respond to engineering problems in wide range of areas. We are dedicated to preparing our graduates to be leading contributors in response to the dire needs of industry, academia, and government, by providing them high quality education through continuous improvement of the program. Our curriculum undergoes regular revisions to ensure local relevance with a global perspective. Our vision is to graduate creative problem-solvers who can tackle issues from a variety of perspectives. Our mission is to empower you with sound knowledge of the foundations of mechanical engineering along with effective communication, analytical, and problem-solving skills and thus prepare you as competent engineers who can adapt to new circumstances in professional life.

As a department our vision is to be recognized nationally and internationally for excellence in mechanical engineering education, graduating world-class mechanical engineers, and supporting innovative research. We aim to be the first choice in the Middle East region for students starting their engineering education, and for employers that hire mechanical engineers.

On extra-curricular activities level, the department has two student organizations (Society of Mechanical Engineering Students, SMES and a student chapter of American Society of Mechanical Engineers, ASME) through which we urge our family of students, faculty, staff, teaching assistants, and lab technicians to get actively involved and to act together and share their knowledge and experiences.

We aim to provide academic guidance to help you with program requirements, course prerequisites, course sequencing, etc., as well as provide career guidance to help you choose a meaningful and gratifying job after graduation. All our faculty members, staff and I look forward to working closely with you during your education here in the Mechanical Engineering Department. You will notice that our department has a very friendly atmosphere, and we always promote a close knit community of students and faculty. Please make good use of this document and I encourage you to contact our faculty and staff if you have any questions regarding the department and our programs.

Sincerely

Assoc. Prof. Dr. Murat ÖZDENEFE
Chair of Department

Assoc. Prof. Dr. Murat ÖZDENEFE
Chair of Department
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1- GENERAL INFORMATION

1.1 Mechanical Engineering Department

The Department of Mechanical Engineering (ME) is one of the first three departments established in this University. The graduate program of the department was started in 1990. The Department offers programs of study leading to the degrees of Bachelor of Science (B.S.) in Mechanical. Mechatronics & Energy Systems Engineering, Master of Science (M.S.), and Doctor of Philosophy (Ph.D.) in Mechanical Engineering. The Mechanical Engineering Department has the largest population of international students in EMU at present. In 2011, the Mechanical Engineering program was fully accredited by ABET (Accreditation Board for Engineering and Technology). ABET is a non-profit organization and accreditation board that accredits programs in engineering, applied science, computing etc. ABET assures the quality of university programs, college or institutions. It is required by ABET that our engineering programs meet the quality standards set by ABET. ABET accreditation provides vast number of opportunities to students, institutions, programs and employers, for example, it helps students and parents to choose among quality assured programs. Engineers, who graduated from an ABET accredited engineering program, are distinguished from others as employers seek for well-prepared engineers. Institutions or colleges continuously improve the quality of their programs for better outcomes.

1.2 Eastern Mediterranean University Mission Statement

The Eastern Mediterranean University has set as a mission becoming a university acting in line with universal values, guided by internationally recognized academic educational criteria, providing solutions for regional and international problems with a sense of social responsibility, raising graduates who have internalized multiculturalism, free thought, tolerance and participation as well as carrying out work to make international improvements in the fields of production, science, arts and sports. This statement is published in the University website: http://ww1.emu.edu.tr/en/about-emu/mission-and-vision/c/594 https://www.emu.edu.tr/en/about-emu/mission-and-vision/594

1.3 Faculty of Engineering Mission Statement

- Contribute to the betterment of our society through the pursuit of innovative education, active learning and cutting-edge scientific research.
- Maintain our regional leadership in engineering education and research, and develop close relationships with and provide knowledge, services and technology to all related communities in its area.
- Provide opportunities and create an esteemed academic environment for the exchange of diversity of cultures, social, political and ideological knowledge and professional talents among the students as well as the faculty.
- Assure quality and foster systematic pursuit of improvement in quality of education to graduate engineers with abilities to analyze and interpret data, design and conduct experiments, apply knowledge to solve engineering problems in a global, economic, environmental, societal context with focus on social, political, ethical, health and safety, manufacturability, and sustainability in a life-long learning capacity.

This statement is published in the Faculty website: http://eng.emu.edu.tr/

1.4 Departmental Mission Statement

The mission of the Mechanical Engineering Department is to cultivate the creation integration, transfer and application of knowledge relevant to the disciplines of Mechanical, Mechatronics and Energy Systems Engineering. The aim of our programs is to encourage students to express and improve themselves with their knowledge and skills to respond to engineering problems in a wide range of areas. The programs are dedicated to preparing the graduates to be leading contributors in response to the needs of industry and society. Also, the purpose of the post graduate programs is to contribute to the technological improvement to serve national and international communities. Through continuously developing our educational and research programs, students graduating as engineers become professional leaders who can apply their knowledge and skills to work on the engineering problems encountered by community and industry. This statement is published in the Department website. https://me.emu.edu.tr/en/about-us/mission-and-vision

1.5 Mission of the Program

The mission of the Energy Systems Engineering Program is to cultivate on the creation, integration, transfer and application of knowledge relevant to the discipline of Energy Systems Engineering. The aim of the Energy Systems Engineering program is to educate, train and equip the students with the knowledge and skills which will enable them to respond to engineering problems in the different areas of energy such as energy science and technology, renewable and conventional energy systems as well as energy planning and management. The program will also be dedicated to prepare the graduates to be leading contributors in response to the needs of industry

and society. The curriculum is designed in such a way that the knowledge related with the aforementioned fields will be covered throughout the curriculum. Educational effectiveness will be ensured through continuously evolving the curriculum in light of the contemporary developments.

1.6 Program Educational Objectives

In conformity with the mission of Mechanical Engineering Department, the educational objectives of the undergraduate program in Energy Systems Engineering are to provide a high-standard education and training to its students so that they have the knowledge and skills to enter careers in the field of energy. Beyond 3 to 5 years after graduation, the program will enable the graduates to attain the following program educational objectives (PEO):

PEO1: Perform successfully in energy systems engineering and related fields.
PEO2: Attain advancement in their career through professional growth in industry or academia.
PEO3: Assume leadership roles in the profession by demonstrating technical and scientific competence.
PEO4: Fulfill professional responsibilities, conforming to ethical and environmental values.

1.7 Student Outcomes

The program ensures the student outcomes '1' through '7' in its curriculum, and the outcomes are evaluated through direct and indirect assessments. Upon completion of the BS in Energy Systems Engineering Program at the Department of Mechanical Engineering, Eastern Mediterranean University, the graduates have the following knowledge, understanding, and capabilities:

1. **an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics**
2. **an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors**
3. **an ability to communicate effectively with a range of audiences**
4. **an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts**
5. **an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives**
6. **an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions**
7. **an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.**

1.8 Department Website

The following information is made available on the department's homepage (me.emu.edu.tr):

1. About Us: https://me.emu.edu.tr/en/about-us
   a. Chairman's Message: https://me.emu.edu.tr/en/about-us/chairmans-statement
   b. Mechanical Eng. Academic Staff: https://me.emu.edu.tr/en/about-us/staff/academic-staff
   c. Administrative Staff: https://me.emu.edu.tr/en/about-us/staff/administrative-staff
   d. Technician Staff: https://me.emu.edu.tr/en/about-us/staff/administrative-staff
   e. Research Assistants: https://me.emu.edu.tr/en/about-us/staff/research-assistants
   f. News: https://me.emu.edu.tr/en/about-us/news/news
   g. Announcements: https://me.emu.edu.tr/en/about-us/news/announcements
2. Facilities: https://me.emu.edu.tr/en/facilities
   a. Laboratories: https://me.emu.edu.tr/en/facilities/laboratories
   b. Library: https://me.emu.edu.tr/en/facilities/library
3. ABET: https://me.emu.edu.tr/en/abet
   a. Program Educational Objectives: https://me.emu.edu.tr/en/abet/program-educational-objectives
   b. Student Outcomes: https://me.emu.edu.tr/en/abet/student-outcomes
   c. Enrollment Statistics: https://me.emu.edu.tr/en/abet/enrollment-statistics
   d. Mission and Vision: https://me.emu.edu.tr/en/abet/mission-and-vision
4. Programs: https://me.emu.edu.tr/en/programs
   a. Programs Handbook: https://me.emu.edu.tr/en/programs/programs-handbooks
   b. Programs Description and Curriculum:

i. BS Mechanical Engineering https://me.emu.edu.tr/en/programs/under-graduate/mechanical-engineering
ii. BS Mechatronics Engineering https://me.emu.edu.tr/en/programs/under-graduate/mechatronics-engineering
iii. BS Energy Systems Engineering https://www.emu.edu.tr/en/programs/energy-systems-engineering-undergraduate-program
iv. BS Mechanical Engineering - Industrial Engineering Double Major Program: https://me.emu.edu.tr/en/programs/under-graduate/mechanical-engineering-industrial-engineering-double-major
v. BS Mechanical Engineering - Mechatronics Engineering Double Major Program: https://me.emu.edu.tr/en/programs/under-graduate/mechanical-engineering-mechatronics-engineering-double-major
vi. BS Mechatronics Engineering - Mechanical Engineering Double Major Program: https://me.emu.edu.tr/en/programs/under-graduate/mechatronics-engineering-mechanical-engineering-double-major
vii. BS Industrial Engineering - Mechanical Engineering Double Major Program: https://me.emu.edu.tr/en/programs/under-graduate/industrial-engineering-mechanical-engineering-double-major
viii. BS Electrical and Electronic Engineering - Mechatronics Engineering Double Major Program: https://me.emu.edu.tr/en/programs/under-graduate/electrical-and-electronic-engineering-mechatronics-engineering-double-major
ix. MS Mechanical Engineering: https://me.emu.edu.tr/en/programs/graduate/ms-master-of-mechanical-engineering-with-thesis
x. PhD Mechanical Engineering: https://me.emu.edu.tr/en/programs/graduate/phd-mechanical-engineering

c. Semester Course List: https://me.emu.edu.tr/en/programs/courses
d. Course Descriptions:
i. Mechanical Engineering https://me.emu.edu.tr/en/programs/under-graduate/mechanical-engineering
ii. Mechatronics Engineering: https://me.emu.edu.tr/en/programs/under-graduate/mechatronics-engineering
iii. Energy systems Engineering:https://www.emu.edu.tr/en/programs/energy-systems-engineering-undergraduate-program/1793

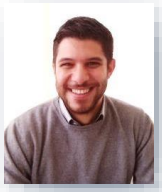
5. Students: https://me.emu.edu.tr/en/students
   a. Prospective Students: https://me.emu.edu.tr/en/students/prospective-students
   b. Student Services: https://me.emu.edu.tr/en/students/student-services-office
   c. Student Portal: https://me.emu.edu.tr/en/students/student-portal
   d. Graduation Procedures: https://me.emu.edu.tr/en/students/graduation-procedures
   e. Registrar EMU : https://me.emu.edu.tr/en/students/registrars-office
   f. Academic Calendar: https://me.emu.edu.tr/en/students/academic-calendar
   g. Honor and High Honor List: https://me.emu.edu.tr/en/students/honor-and-high-honor-list
   h. Psychological Counseling Guidance and Research Center: https://me.emu.edu.tr/en/students/psychological-counseling-guidance-and-research-center
   i. Alumni Communication and Career Research Directorate: https://me.emu.edu.tr/en/students/alumni-communication-and-career-research-directorate
6. Industrial Training: https://me.emu.edu.tr/en/industrial-training
7. Capstone Team Projects: https://me.emu.edu.tr/en/capstone-design-projects
8. Research https://me.emu.edu.tr/en/research
   a. Research Centers: https://me.emu.edu.tr/en/research/research-centers
   b. Research Interests: https://me.emu.edu.tr/en/research/research-interests
   c. Research Assistants: https://me.emu.edu.tr/en/research/research-assistants

9. COVID-19 Action Plan and Guidelines: https://me.emu.edu.tr/en/covid19-action-plan-and-safety-guidelines
10. The Department has also recently established the following social media accounts:

- LinkedIn: https://www.linkedin.com/school/emu-mechanical-engineering-dept/
- YouTube: https://www.youtube.com/channel/UCarSun8__dV4tcwWzO1Npsg
- Twitter: https://twitter.com/mesocial9
- Instagram: https://www.instagram.com/emu_mechanical_department/

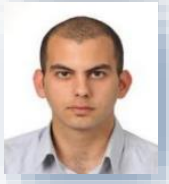
1- STAFF

2.1. Academic Staff
Full Time Faculty Members



Murat ÖZDENEFE

Chair of the Department, Associate Professor of Mechanical Engineering. Dr. Özdenefe gained his BSc. from Mechanical Engineering Department, Çukurova University. Dr. Özdenefe then received his MSc. in Mechanical Engineering Department, Eastern Mediterranean University. He completed His PhD in School of Mechanical, Aerospace and Civil Engineering, The University of Manchester with the PhD. project "Phase Change Materials and Thermal Performance of Buildings in Cyprus". Dr. Özdenefe's research interests are: Building Heat Transfer, Building Thermal Performance Simulation, Phase Change Materials, Energy Auditing, Passive Buildings.
Extension No: 1210; Office No: ME 201A | E-mail: murat.ozdenefe@emu.edu.tr



Devrim AYDIN

Vice Chair of the Department, Associate Professor of Mechanical Engineering. Dr. Aydin gained his BSc. and MSc. from Mechanical Engineering Department, Yildiz Technical University. He completed His PhD. in Institute of Sustainable Energy Technology, Engineering Faculty, The University of Nottingham with the PhD. project "Investigation of innovative thermochemical energy storage processes and materials for building applications". Dr. Aydin's research interests are: Thermal energy storage, adsorption/absorption materials and processes, evaporative cooling, desiccant systems, power cycles, low carbon buildings, drying systems, solar energy systems and water harvesting technologies.
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Uğur ATİKOL

Professor of Mechanical Engineering. Dr. Atikol is a Professor of Mechanical Engineering. He received his B.S degree from the University of Leicester and M.Sc. degree from the University of Manchester. He completed his Ph.D. in Eastern Mediterranean University. Dr. Atikol`s research interests are Energy Management, Planning and Utilization, Solar Energy and Desalination. He has been the director of EMU Energy Research Center since 2004.
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Hasan HACISEVKI

Professor of Mechanical Engineering. Dr. Hacisevki received his B.S, M.S and Ph.D. degrees from Eastern Mediterranean University. Dr. Hacisevki`s research interests include Experimental studies in Fluid Dynamics, Automotive Engineering and Mechanical Design.
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Qasim ZEESHAN

Professor of Mechanical Engineering. Dr. Qasim Zeezhan received his B.E. Mechanical Degree from National University of Sciences and Technology (NUST), Pakistan. He received his MS and PhD in Flight Vehicle Design from Beihang University (BUAA), China. His research interests include Aerospace Vehicle Design, Multidisciplinary Design and Optimization (MDO), Manufacturing Systems Engineering, Industry 4.0, Machine Learning and application of Modern Meta-Heuristic Optimization Techniques, and Composite Materials.
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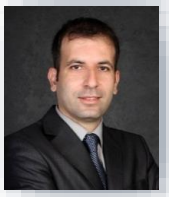

Babak SAFAEI

Associate Professor of Mechanical Engineering. Dr. Babak Safaei is director of Nanotechnology and Multifunctional Structures Research Center (NMSRC) at Eastern Mediterranean University. He also has an honorary position as Visiting Associate Professor at University of Johannesburg, South Africa. He received his PhD. degree in Mechanical Engineering from Department of Mechanical Engineering at Tsinghua University. His research interests focus on Computational Mechanics; Micro and Nano Mechanics; Advanced Manufacturing; Design of Lightweight Structures; Composite and Nano Composite Materials; Lithium-Ion Batteries, Nonlocal Theories and Mechanical Vibration.
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Cafer KIZILÖRS

Lecturer in Mechanical Engineering. Dr. Cafer Kizilörs received his B.S, M.Sc. and PhD degrees from Eastern Mediterranean University. His current research interests include Statics, Dynamics, Fracture Mechanics and Materials.
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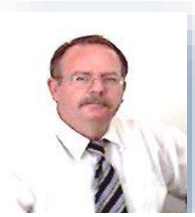
Emeritus Faculty Members



Fuat EGELİOĞLU

Professor Emeritus of Mechanical Engineering. Dr. Egelioglu received his B.S degree from Bogazici University and received his M.Sc. and Ph.D. degrees from Eastern Mediterranean University. His research interests include Energy Savings, Renewable Energy and Energy Conversion.
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Ibrahim SEZAİ

Professor Emeritus of Mechanical Engineering. Prof. Sezai received his B.Sc. and M.Sc. degrees from Middle East Technical University, and second M.Sc. from UMIST, University of Manchester, UK. Furthermore, he received his Ph.D. from Eastern Mediterranean University. Prof. Sezai`s current research interests include Computational Heat and Fluid Flow, Solar Energy, Flow through Porous Media and Crystal Growth.
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Part Time Faculty Members

Barış HACIŞEVKI

Part time Lecturer in Mechanical Engineering. Barış Hacışevki was born in Nicosia/Cyprus. He completed his high school education at Turk Maarif College. Later, he completed Bachelor's Degree in Mechanical Engineering at Eastern Mediterranean University. After a short job experience as a sales engineer at Borusan Oto, he moved to the UK to study for a postgraduate degree in Engineering Business Management. Succeeding the postgraduate degree, he moved back to Cyprus to work for Cypri-Cola Company. His role was production and maintenance engineer for the Coca-Cola production plant. Lastly, he left the Cypri-Cola Company in order to start his engineering design office. His area of work consists of the design of plumbing and HVAC systems for the buildings. He is currently a board member and treasurer at Cyprus Turkish Chamber of Mechanical Engineers.
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2.2. Teaching Assistants

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GARSHASP KEYVAN SARKON	CE136	1160	23600110@emu.edu.tr
HUSSAIN ALI FARAJ MOHAMMED SHAWISH	ME025	1089	hussain.shawish@emu.edu.tr
MAHMOUD NOURELDIN AHMED MAHMOUD	CE138	1066	24500411@emu.edu.tr
OSINACHI MBAH	ME019	2598	osinachi.mbah@emu.edu.tr
YASSEER HAMED HAMED ELMOGHAZY	ME200A	1614	yasser.elmoghazy@emu.edu.tr
ZUMMURD ATEF MUHAMMAD AL MAHMOUD	ME017	2590	zummurd.mahmoud@emu.edu.tr

2.3. Administrative and Technical Staff

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Zafer MULLA	ME 008	1248	zafer.mulla@emu.edu.tr
Hasan EGELİOĞLU	ME 116	2592	
Habibe ÖĞÜT	ME 007	2185	
Zehra EKİZ	ME 007	2185	

3- FACILITIES

Main building of the Mechanical Engineering Department was built in 1982 initially as a single floor building. The upper two floors have been added later in 1992. The upper two floors are mainly used for classrooms, staff offices and administrative offices. Also, there is a Restaurant located on ground floor for serving students and staff. Mostly during first and second year of undergraduate engineering education in Mechanical Engineering Program, students are required to take mathematics, basic science and other engineering as well as general education courses. These courses are offered by other departments which have separate buildings within the campus. Mechanical Engineering Department's Building is approximately (about 2000 m^2 floor are. The Mechanical Engineering building includes the following facilities:

- 28 staff and assistant offices
- 11 Experimentation laboratory
- 5 Classrooms
  - ME111, ME112, ME113, ME114 and ME115
- 2 Computer laboratories (ACAD 1 and ACAD 2)
- 1 Seminar room (MESEM 1)
- 1 Amphitheater (MESEM 2)
- 1 Mechanical Workshop and workshop office
- 1 ASME student union room
- 1 Capstone Project study room
- 1 Secretarial/administrative office
- 1 Archive room
- 1 Department chair office
- 1 Building admin office
- 1 Department Library
- 1 Restaurant

Offices, Classrooms and Laboratories

Main building of the Mechanical Engineering Department was built in 1982 initially as a single floor building. The upper two floors have been added later in 1992. The upper two floors are mainly used for classrooms, staff offices and administrative offices. Also, there is a Restaurant located on ground floor for serving students and staff. Mostly during first and second year of undergraduate engineering education in Mechanical Engineering Program, students are required to take mathematics, basic science and other engineering as well as general education courses. These courses are offered by other departments which have separate buildings within the campus.

Offices (Administrative, Faculty, Clerical, Teaching Assistants)

On ground floor there are twelve fully equipped and air conditioned offices for assistants. The department research assistants are the current graduate students. Their offices are equipped with individual modern computers with network connection and air conditioning facilities. Also, free Wi-Fi services are also provided inside and outside the building. All computers are connected to the central printing machine of the department. These offices are provided with large desks, office chairs and bookshelves.

Cleaners and workshop technicians are also located on ground floor. There is one office for student union (ASME club) and one for EMU's Academic union.

On the first floor there are ten individual offices for the faculty members and two rooms for ABET documentation. These offices are furnished with a large desk, one ergonomic office chair, two or more visitor chairs and a large bookshelf. The bookshelves are sufficiently large to take course textbooks, and research documents. Two large lockers underneath the shelves provide safe area for exam papers and questions whenever necessary. Each office is equipped with a phone, at least with a notebook and/or desktop PC, a tablet for conducting online courses, and a network connection with printing facility through central printing machine. Some faculty member offices are equipped with individual printers and scanners. Faculty members arrange meetings with their colleagues, students, and assistants for advisory, supervisory, or one-to-one teaching purposes conveniently in their offices without loss of time to search a safe and private room in the building. On second floor there are two tower rooms. One of which is for department administration where there is one office for Chairperson and one for Department's secretary and one for collecting department documents. The other one is split into three faculty member offices.

Classrooms

There are five lecture rooms located at first floor level. All classrooms are equipped with network connection and a data projector. These classrooms are named as ME111, ME112, ME113, ME114 and ME115. They are also offered to other departments, in particular to the Computing & Technology and English literature departments. There are two Seminar rooms equipped with video projection and audio facilities. These rooms are named as MESEM1 and MESEM2. MESEM2 is used for lecturing, seminars and award ceremonies.

There are two computer rooms named as ACAD1 and ACAD2. These rooms are used as classrooms for computer based classes, computer laboratory sessions or when available as computer facilities for the students.

Laboratories

The Mechanical Engineering Department is well equipped with laboratory equipment and facilities for undergraduate experimentation and/or demonstrations. Some of these laboratories are also used for graduate courses and research purposes as well. The total floor area allocated for laboratories is about 1360 m2. With the addition of about 110 m2 computer lab spaces and 390 m2 of mechanical workshop, the total reaches to about the half of the total building area.

Mechanical Workshop – ME008

The Department's workshop include well-equipped machines. The workshop also has designated working stations for sheet metal and welding tasks. The workshop is equipped with various size of lathes, milling machines, drilling machines, surface and cylindrical grinding machines and tool grinding machine. The welding shop has a number of arc and gas welders including Arc and TIG/MIG welding and spot-welding sets. Oxy-acetylene welding set and plasma cutter do exist too. These stations are available for use by students and staff under supervision. Also, there is a precise temperature controlled 1200 ^{o}C electric furnace for heat treatment purposes.

Mechanics of Materials Laboratory – ME014

This laboratory contains more than 20 different student units, allowing various experimentations on both frames and structures, and on stress analysis. The equipment list includes: combined bending and torsion apparatus, torsion testing machine, strut buckling apparatus; thin and thick walled cylinder apparatus, polariscope with test models, universal testing and electronic tensile testing machines, dilatometer equipment, creep and stress rupture testing machine, and several other auxiliary equipment involving experimental stress analysis through electrical strain gauges. The equipment related to static analysis of beams and structures include apparatus for conducting experiments such as: bending moment, shearing force and influence line; continues beam; frames and structures; elastic beams; reaction of beams; deflection of beams; and two-hinged arch. Kinematics and dynamics laboratories also share the laboratory space.

The main student units for experimentation in the dynamics section of the laboratory include: universal bench for forced and free vibration tests, centrifugal force, slipping friction, journal friction, gyroscope, conservation of angular momentum, plate clutch friction, compression of springs, extension of springs, cam analysis machine, and Coriolis component of acceleration apparatus. On the kinematics side, there are some 40 ‘working model’ pieces that can be used to demonstrate some fundamental principles of kinematics, such as guidance of motion through constraints, motion and path generation, and functioning of some common linkage mechanisms, geared mechanisms, and cam mechanisms. The Universal tensile testing equipment in the Mechanics of Materials laboratory is used for standard tests required by industry and construction companies.

Advanced Composite Laboratory – ME016

This laboratory is newly established and equipped laboratory of the department. This laboratory will give service to research projects and to area elective courses to a certain extend. Facilities available in this laboratory for experimentation and demonstration to undergraduate students include: a CNC Milling machine, a vacuum machine for composite part production, a 3D composite printing machine and a 3D scanner.

Aerodynamics Laboratory – ME017

This laboratory has two subsonic wind tunnels, an air flow bench, complete with air flow test sets, 3 off TSI Flowpoint 1500 velocity transducers total 6 channels Hot Wire Anemometry and measuring system, a hotwire probe soldering bench, a probe calibration apparatus, viewing and recording instruments, enabling to perform various aerodynamic tests and compressible fluid flow experiments. The larger wind tunnel (50 cm x 50 cm test section) completely designed and constructed as a Master’s thesis project, under the supervision of two Mechanical Engineer’s departmental academics. This tunnel enables the use of reasonably larger test models. The large wind tunnel may reach up to 30 m/s and small wind tunnel reaches up to 50 m/s free stream velocities. The laboratory is adequate for both undergraduate and graduate studies and research.

Fluid Mechanics and Automotive Laboratory – ME020

The Fluid Mechanics laboratory has a number of set-ups for the demonstration and study of basic fluid mechanics principles. These include experimental apparatus such as: flow measuring, boundary layer experiment set up, center of pressure, free and forced vortex, friction losses in pipe bends, calibration of pressure gauge sets, dynamic behavior of stirred tanks, orifice flow, impact of water jets, stability of floating bodies, minor and major loss measuring test rigs and a bench for the measurement of properties of liquids and gases. Most of the equipment is generally well maintained, and adequate for undergraduate courses.

The laboratory also contains Francis and Pelton turbine systems, axial and radial flow pump systems, centrifugal pump system, a Pelton Impact Turbine with friction brake system, a gravimetric hydraulics bench unit, and various sizes of other pumps for demonstration and experimentation, also impact of jet test rigs are present. Series and Parallel pump systems were equipped with digital pressure sensors and flow measuring devices and computerized by Master students. The use of the automotive laboratory in undergraduate courses is limited to the demonstration of I.C. engines and vehicle components such as chassis and body structures, steering and suspension systems, axles, braking systems with ABS, cooling systems, air-bag safety system, electronic components, sensors and actuators, automotive A/C system, gearbox and differential units and different gasoline injection and diesel engines. The Automotive Laboratory, on the other hand, is well equipped to conduct experiments such as performance tests on both two and four stroke petrol and diesel engines test rig, as well as studying the effects of timing and compression ratio of petrol and diesel engines on specific fuel consumption.

In terms of demonstration purposes, two car engines were modified and updated by the capstone team project groups. One Austin Mini engine is converted to Electronic ignition, Electric fan cooling and downdraught carburetion. The second engine was converted to electric fan cooling and a turbo charger was installed to increase output power.

Manufacturing, Materials Science and Metrology Laboratory – ME024

The Manufacturing section of the laboratory contains a universal tensile testing machine, ultrasonic plastic welding machine, plastic extrusion machine, automatic metallurgy cutting machine, CNC Compact 3 Axis Milling Machine, CNC Engraving Machine.

The laboratory has also testing facilities for determining various properties of engineering materials, such as strength, hardness. The equipment available includes: metallurgical microscopes, hardness tester, impact tester, and tensile testing machines; other equipment is also available for corrosion studies, carbon content determination, and a machine for the measurement of creep. The auxiliary equipment includes universal polisher, electric furnaces, notching machine, compressor and various accessories. The sand casting equipment with mechanical sieve shaker, sand mixer, sand rammer, density indicator, permeability meter, universal sand strength machine, rapid sand washer, speedy moisture tester and alike. This equipment is also utilized in simple sand-casting applications in workshop practices.

Metrology portion of the laboratory enables roundness, flatness, and straightness tests; and the performance of checks on the accuracy of measuring instruments and machine tools. Optical instruments such as auto-collimators, angle-dekkors, interferometers, the alignment telescope, and the measuring microscope, are also available for experimentation. The laboratory is well equipped with numerous measuring instruments and slip gauges, and is quite adequate for instruction. The laboratory space is completely isolated and fully air conditioned for dust, humidity and temperature control.

Thermal Sciences Laboratory – ME025

This laboratory contains test and demonstration equipment on heating, thermodynamics, air conditioning and solar energy, ranging from small scale to large scale. Some benches are modular and allow connection of different modules for comparative studies. The student units in this laboratory include: Marcet boiler, absolute zero temperature apparatus, air conditioner laboratory unit, an experimental cooling tower, thermal radiation apparatus, force convection apparatus, thermal conductivity apparatus, and other auxiliary equipment such as data acquisition systems, heat flux sensors, thermocouples, etc. There are also two units of Photovoltaic-Thermal (PV/T) training sets. Many new experimental test rigs with digital data acquisition systems were also purchased within last year. Some of these equipment are: heat recovery type air conditioning training test kit, water to water type heat pump training set, Universal IAQ instrument + air velocity and IAQ probes and U value measurement kit.

Automation - I Laboratory – ME029

Experimental set ups existing in Automation – I laboratory are used in Mechatronics Engineering Program. The equipment includes: PLC Trainer Set and Compact Flexible Process Line. The model Flexible Process Line with one machine tool simulates a flexible manufacturing line with one machine tool, as used for example in serial production of line of carrying cube box. Multiple PLC trainer sets are available for students to practice the design and implementation of ladder logic programs to hardware (PLC system). The equipment includes: Intel i3 Computer Stations (x10), PLC-Trainer AC500 with CPU and programming software.

Automation - II Laboratory – ME028

Automation – II laboratory is used for undergraduate and graduate studies, as well as research. The lab includes a conveyor system where two robotic arms and RFID based Automated Storage and Retrieval System (AS/RS) integrated to the system. One robot is PLC controlled. The equipment includes: Robot Arm, Robotica, Conveyor with Flexible Transport Components, Genba; Modicon TSX 37 Micro PLC, Telemechanique, Barcode Reader, SIEMENS PLC, SCARA Robot Arm.

Computing resources

The ME department building has LAN and wireless network facilities. Department have two computer laboratories and all computers are open to serve students, from 08:00 am in the morning until 17:00 p.m. All Department students have passwords to access their Student Portal; and use the internet. Computer laboratories are in very good condition for supporting the educational objectives and outcomes of the program. LAN services are provided by the University's Computer Center. It is located in a central building in campus. The Computer Center supplies all the server-system services that help provide academic and administrative functions as well as Intranet and Internet services. All EMU members have a lifelong right to access Internet services like e-mail, web, ftp and the like. The Computer Center has Campus License Protocols with well- known software companies. All buildings on campus are connected to the central switch over Gigabit Ethernet. Each building has network switches connecting the end users, which are either connected directly to the center or a main switch at the building. There are about 6000 end users on campus. About 5000 of these are active at one time. The campus network includes wireless networks at various locations. The Center has important engineering and business software packages. The Center offers professional training to the University members or to external bodies. The center is also an authorized training center for CNAP, Microsoft IT Academy and ECDL programs and Pearson Vue, Prometric and ECDL certification center

Computer Laboratories within the department

The Department has two computer laboratories, which are mainly used for undergraduate studies. These are called AutoCAD Laboratories and also serving as Internet laboratory. Computer laboratories are also used for Solid Works application. The Student Computer Laboratories have total 56 terminal based modern computers. The AutoCAD Laboratories are used primarily for computer programming, engineering graphics, engineering drawing and computer aided design courses. The Internet laboratory is allocated for the general computer needs of the students, which may include access to the Internet; writing of laboratory reports, homework, engineering graphics drawing assignments, and project reports. There are different number of softwares used in computer laboratories and by staff of the Department. Software updates are done usually during at the end sessions of semesters. All faculty members and assistants have modern computers installed together with necessary software to help support their instruction and other scholarly activities. They can use cable or wireless network services supplied by the university. In each classroom is supported with a modern computer, a data projector in order to support delivery of lecture courses. All these computer facilities are utilized towards achieving the outcomes of courses, and the educational objectives of the program, which may at different levels for each different course. Students are also encouraged to prepare their presentations with Microsoft PowerPoint and use Microsoft Word and Excel to prepare their laboratory reports; or to draw charts or graphs for their assignments. All the software such as AutoCad, SOLID WORKS, ANSYS, MATLAB MS OFFICE etc. necessary to meet the curriculum requirements is supplied by the University's Computer Center.

Department's Library and Study Room

The Department library is located in the ground floor corridor. The books have been acquired over the years from the donors and faculty. The library is open Monday through Friday from 8:00 am to 5:00 pm. There is a collection of more than 330 textbooks in the areas of engineering, mathematics and science and copy of all Capstone projects. The collection also contains around 100 M.S. thesis and Ph.D. dissertation reports of mechanical engineering graduates. Undergraduate, graduate students and staff can borrow these sources for a certain time period under control of library assistant. All staff and students may also use all facilities of main university library.

4- PROGRAM CURRICULUM

4.1 Courses

The Bachelor of Science (B.S.) program offers a wide range of courses in the curriculum which cover all the key areas of Energy systems engineering. The coursework covers the core subjects in thermal and fluid science, material science, mechanics, design and manufacturing. A wide range of area elective courses offered to students in their *senior* year enables them to specialize in their areas of interest. According to the requirement, courses are supplemented with tutorials and experimental work. Moreover, students are required to spend a total of *eight weeks* in industry to gain practical experience. The breadth and depth of the Energy Systems engineering program curriculum enables our graduates to choose from a variety of career options in research, development, design, production, sales, and management in the industry.

Subject Areas in Energy Systems Engineering

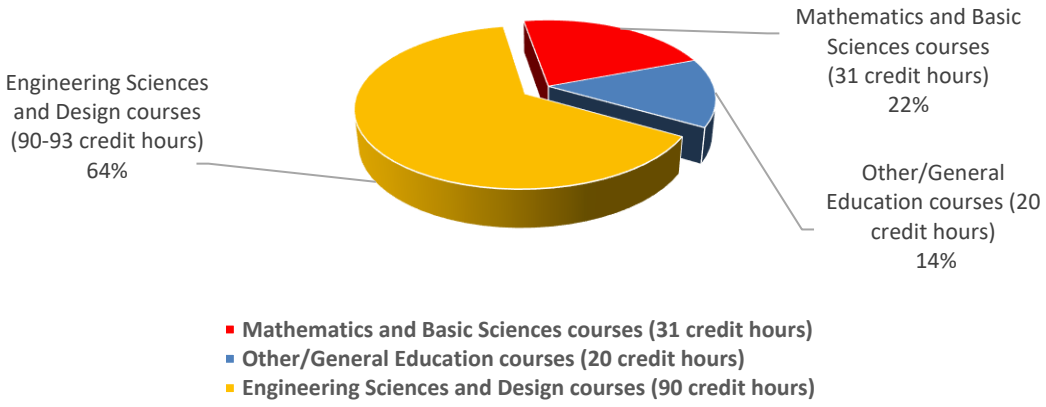
Consistent with the other engineering programs at Eastern Mediterranean University, Energy Systems Engineering BS curriculum begins with courses of mathematics and basic sciences. These courses eventually are applied in engineering sciences and design courses. Ability of communication; oral and written, understanding ethical and professional issues and recognition of working in multicultural environment are mostly gained with general education courses. Engineering design activities start during the third year in various courses and progress in-depth during the fourth year as the students' technical skills increase. The design experience culminates with Capstone Design sequence, which builds upon the fundamentals of mathematics, science, engineering, communication skills, humanities and social sciences, economics, ethics, safety, reliability, industrial applicability, ergonomics and social impact as well as engineering standards. This helps the students to prepare themselves for their future career in an integrative manner. Energy Systems Engineering curriculum involves 3 area elective courses i.e. Area Elective that are specially designed, aiming to give profound knowledge in particular areas.

Curriculum Course Categories

Courses in Energy Systems Engineering Program curriculum is sub grouped under three subject areas namely:

- Mathematics and Basic Sciences
- Engineering Sciences and Design
- General Education

Mathematics and Basic Sciences courses (31 credit hours) comprise 22% of the total credit hours (141-144), Engineering Sciences and Design courses (90 credit hours) constitute 64% of the total credit hours and the General Education courses (20 credit hours) are 14% of the total credit hours in the Mechanical Engineering Program. Total credit hours and percentages of each subject area can be seen in Figure.



Total credit hours and percentages of each subject area of Mechanical Engineering Program

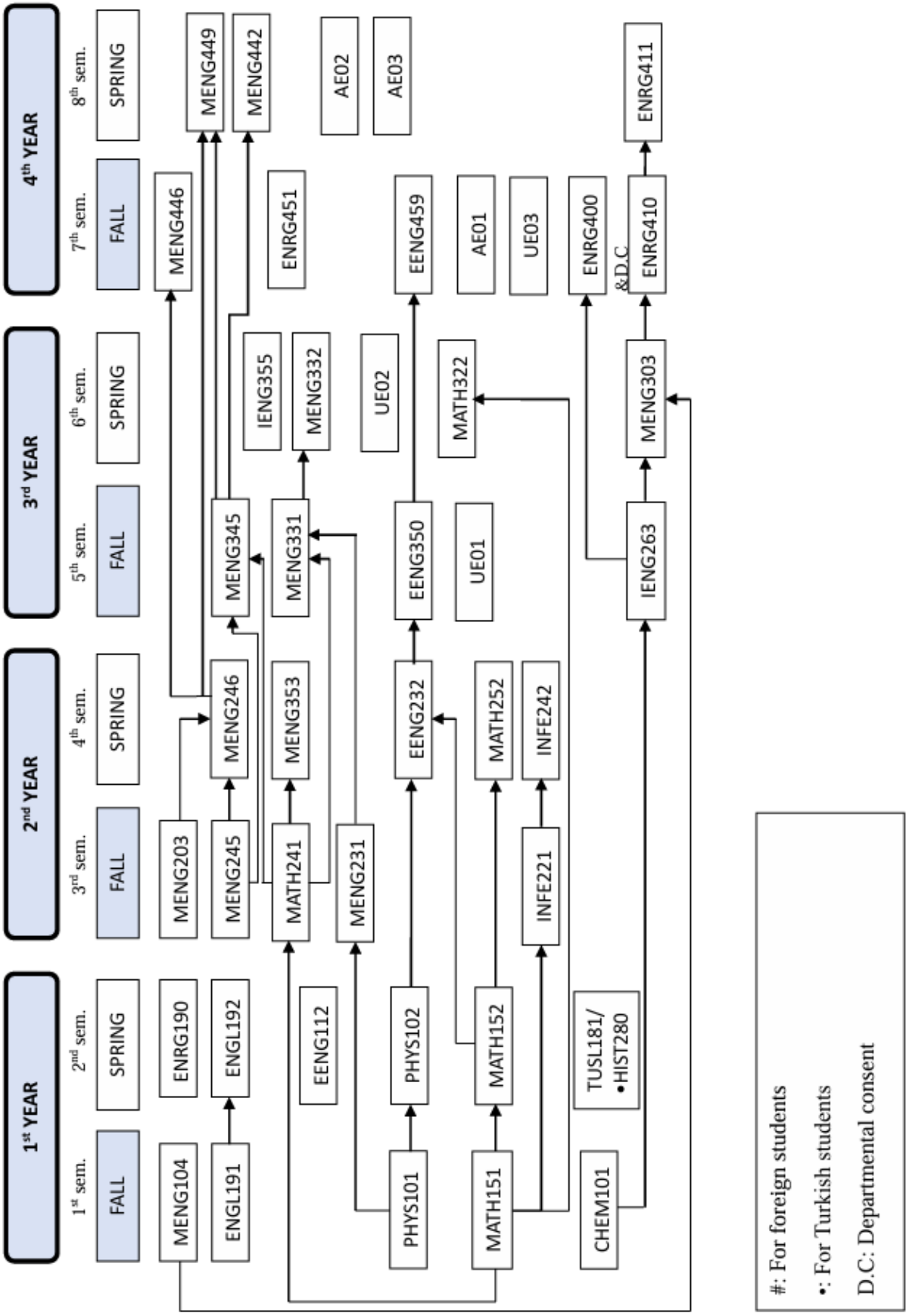
The following list provides information on each course in the following order: Semester, Reference Code, Course Code, Full Course Title, Credit (weekly lecture hours, laboratory hours and tutorial hours) and Prerequisite Courses.

Energy Systems Engineering Curriculum

Semester	Ref Code	Course Code	Full Course Title	Course Category	Credit				Prerequisites	ECTS
					Lec	Lab	Tut	Total		
1	2N711	MENG104	Engineering Graphics	AC	2	3	0	**3**		8
1	2N712	ENGL191	Communication in English-I	UC	3	1	0	**3**		4
1	2N713	MATH151	Calculus-I	FC	4	0	1	**4**		6
1	2N714	PHYS101	Physics-I	FC	4	1	0	**4**		6
1	2N715	CHEM101	General Chemistry	AC	4	0	1	**4**		6
			1st Semester Total Credits					**18/18**		
2	2N721	ENRG190	Introduction to Energy Systems Engineering	AC	1	0	1	**1**		4
2	2N722	EENG112	Introduction to Programming	UC	4	1	0	**4**		8
2	2N723	ENGL192	Communication in English- II	UC	3	1	0	**3**	ENGL191	4
2	2N724	MATH152	Calculus-II	FC	4	0	1	**4**	MATH151	6
2	2N725	PHYS102	Physics-II	FC	4	1	0	**4**	PHYS101	6
2	2N726	TUSL181 HIST280	Turkish as a Second Language*/ History of Turkish Reforms#	UC	2	0	0	**2**		2
			2nd Semester Total Credits					**18/36**		
3	2N731	INFE221	Electrical Circuits	AC	4	1	0	**4**	MATH151	8
3	2N732	MENG203	Experimental Methods for Engineers	AC	1	3	0	**2**		3
3	2N733	MENG245	Thermodynamics-I	AC	3	1	0	**3**		5
3	2N734	MENG231	Engineering Mechanics	AC	3	0	1	**3**	PHYS101	6
3	2N735	MATH241	Ordinary Differential Equations And Linear Algebra	AC	4	0	1	**4**	MATH151	6
			3rd Semester Total Credits					**16/52**		
4	2N741	EENG232	Electromagnetics- I	AC	4	0	1	**4**	MATH152, PHYS102	7
4	2N742	INFE242	Electronics	AC	4	1	0	**4**	INFE221	8
4	2N743	MENG246	Thermodynamics-II	AC	3	1	0	**3**	MENG245, MENG203	5
4	2N744	MENG353	Fluid Mechanics	AC	4	1	0	**4**	MATH241	6
4	2N745	MATH252	Mathematical Methods for Engineers	AC	4	0	1	**4**	MATH152	6
			4th Semester Total Credits					**19/71**		
5	2N751	EENG350	Electromechanical Energy Conversion	AC	4	1	0	**4**	EENG232	7
5	2N752	MENG331	Mechanical Vibrations	AC	4	1	0	**4**	MENG231, MATH241	7
5	2N753	MENG345	Heat Transfer	AC	4	1	0	**4**	MENG245, MATH241	7
5	2N754	IENG263	Material And Manufacturing Processes	AC	4	1	0	**4**	CHEM101	6
5	2N755	UE01	University Elective-01 (Non-skill based)	UE				**3**		4
			5th Semester Total Credits					**19/90**		
6	2N761	MENG332	Systems Control	AC	4	1	0	**4**	MENG331	8
6	2N762	MENG303	Computer Aided Engineering Design	AC	2	3	0	**3**	MENG104, IENG263	8
6	2N763	IENG355	Ethics in Engineering	AC	3	0	0	**3**		4
6	2N764	MATH322	Probability & Statistical Methods	FC	3	0	1	**3**	MATH151	5
6	2N765	UE02	University Elective-02 (Non-skill based)	UE				**3**		4
			6th Semester Total Credits					**16/106**		
7	2N771	ENRG400	Industrial Training	FC	0	0	0	**0**	IENG263	1
7	2N772	ENRG410	Introduction To Capstone Design	FC	1	0	1	**1**	MENG303, D.C.**	1
7	2N773	ENRG451	Energy Sustainability	AC	3	0	1	**3**		5
7	2N774	EENG459	Renewable Energy Systems	AC	4	1	0	**4**	EENG350	6
7	2N775	MENG446	Thermal Power Engines	AC	4	1	0	**4**	MENG246	7
7	2N776	AE01	Area Elective-01	AE				**3/4**		6
7	2N777	UE03	University Elective-03 (Non-skill based)	UE				**3**		4
			7th Semester Total Credits					**19/125**		
8	2N781	ENRG411	Capstone Team Project	FC	1	4	0	**3**	ENRG410	6
8	2N782	MENG449	Introduction to Energy Management	AC	4	1	0	**4**	MENG246, MENG345	6
8	2N783	MENG442	Solar Energy Engineering	AC	4	1	0	**4**	MENG345	6
8	2N784	AE02	Area Elective-02	AE				**3/4**		6
8	2N785	AE03	Area Elective-03	AE				**3/4**		6
			8th Semester Total Credits					**19/144**		

*For Ff oreign Students # For Turkish Students ** Departmental Consent

Table 4.1 Prerequisite Flowchart for the Mechanical Engineering Curriculum



4.2 Course Descriptions

Engineering Sciences and Design: Area Core Courses

1. **MENG104 Engineering Graphics**
Principles of engineering graphics with the emphasis on laboratory use of AUTOCAD software. Plane Geometry, geometrical constructions, joining of arcs, Dimensioning principles, principles of orthographic projection, isometric and oblique drawing, principles of sectioning, reading engineering drawing from blueprints.
Credits: (2 /3 /0) 3 *Prerequisites: None* *ECTS credit: 8*
Abbreviated Title: Engineering Graphics *Category: Area Core Course* *Teaching Language: English*
Keywords: Acad, Orthographic, Sectioning, dimensioning

2. **ENRG190 Introduction to Energy Systems Engineering**
This course aims to familiarize first year energy systems engineering students by introducing them to the fundamentals of discipline; job opportunities for energy system engineers; basic study skills; an overview of fundamentals laws and principles of energy systems engineering; ethical issues; and the importance of computers and language skills for effective communication.
Credits: (1 / 0 / 1) 1 *Prerequisites: None* *ECTS credit: 4*
Abbreviated Title: Int to Energy Systems *Category: Area Core Course* *Teaching Language: English*
Keywords: Introduction to Energy Systems, Standards, ethics, communication.

3. **MENG203 Experimental Methods for Engineers**
Introduction to basic concepts (calibration standards, dimensions and units, the generalized measurement). Experimental data, error and uncertainty analysis. Basic electrical measurements and sensing devices. Displacement and area measurements. Pressure measurement. Flow measurement. Temperature measurement. Report writing and presentations.
Credits: (2 / 1 / 0) 2 *Prerequisites: None* *ECTS credit: 3*
Abbreviated Title: Experimental Methods for Engineers *Category: Area Core Course* *Teaching Language: English*
Keywords: Analysis of Experimental Data, Displacement and Area Measurement, Pressure Measurement, Flow Measurement

4. **MENG231 Engineering Mechanics**
Review of vector algebra. Principle of mechanics. Static equilibrium of particles and rigid bodies. Distributed force systems. Elements of structures, beam, trusses, cables. Friction. Review of particle dynamics, force, energy and momentum methods. Planar kinematics and kinetics of rigid bodies. Energy methods. Particle and rigid body vibrations.
Credits: (3 / 0 / 1) 3 *Prerequisites: PHYS101* *ECTS credit: 6*
Abbreviated Title: Engineering Mechanics *Category: Area Core Course* *Teaching Language: English*
Keywords: Mechanics, statics, dynamics, Newton laws, Work, Energy, Momentum

5. **MENG245 Thermodynamics-I**
Basic concepts and definitions. Properties of pure substances. The first law of thermodynamics: closed and open systems. The second law of thermodynamics. Entropy. Second-Law analysis of engineering systems.
Credits: (3 / 1 / 0) 3 *Prerequisites: None* *ECTS credit: 5*
Abbreviated Title: Thermodynamics-I *Category: Area Core Course* *Teaching Language: English*
Keywords: Basic Concepts of Thermodynamics, First Law of Thermodynamics, Second Law of Thermodynamics, entropy

6. **MENG246 Thermodynamics-II**
Gas power cycles. Vapor and combined power cycles. Refrigeration cycles. Thermodynamic property relations. Gas mixtures. Gas-vapor mixtures and air conditioning. Chemical reactions. Chemical and phase equilibrium. Thermodynamics of high-speed fluid flow.
Credits: (3 / 1 / 0) 3 *Prerequisites: MENG245 & MENG203* *ECTS credit: 5*
Abbreviated Title: Thermodynamics-II *Category: Area Core Course* *Teaching Language: English*
Keywords: Power generation, Refrigeration and Air conditioning, Combustion, Entropy

7. **MENG353 Fluid Mechanics**
Fluid static's and forces on submerged bodies Introduction to kinematics of fluid flow. Energy, continuity and momentum equations. Navier Stokes equations. Viscous flow through closed conduits. Fundamentals of boundary layer analysis. Dimensional analysis. Potential flow. Introduction to hydraulic machinery.
Credits: (4 / 1 / 0) 4 *Prerequisites: MATH207 or MATH241* *ECTS credit:6*
Abbreviated Title: Fluid Mechanics *Category: Area Core Course* *Teaching Language: English*
Keywords: Dimensional analysis, fluid statics, fluid dynamics, fluid kinematics, internal and external flow

8. **MENG331 Mechanical Vibrations**
Discretized Lumped Parameter Modeling of systems. Free and forced vibrations of single degree-of-freedom systems. Multi degree-of freedom systems. Determination of natural frequencies and Mode Shapes. Continuous systems. Finite Element Method. Vibration Measurement and Control. Balancing of rotating machinery and reciprocating engines.
Credits: (4 / 1 / 0) 4 *Prerequisites: MENG233 and MATH207 or MATH241* *ECTS credit: 7*
Abbreviated Title: Mechanical Vibrations *Category: Area Core Course* *Teaching Language: English*
Keywords: Vibration, Mechanisms, Modal Analysis

9. **MENG332 Systems Control**
Introduction to control systems, control principles, and control system components. Mathematical Modeling of physical systems. Transfer functions and block diagram. Transient response analysis. Stability Analysis. Steady state response and error. State-space modelling and analysis. Design of control systems.
Credits: (4 / 1 / 0) 4 *Prerequisites: MENG331* *ECTS credit: 8*
Abbreviated Title: Systems Control *Category: Area Core Course* *Teaching Language: English*
Keywords: Mechanical Engineering Control, Mechanical Engineering Controllers, Control Principles, Mechanical Devices and Elements

10. **MENG345 Heat Transfer**
Introduction to heat transfer. Heat conduction equation. 1D steady state conduction in solids, analysis of fins and multidimensional steady

	state heat conduction: shape factor method. Transient heat conduction. Numerical methods in conduction. Convection heat transfer; external flow, internal flow and free convection. Boiling and condensation. Heat exchangers. Thermal radiation. *Credits: (4 / 1 / 0) 4* *Prerequisites: MENG245 and MATH207* *ECTS credit: 7* *Abbreviated Title: Heat Transfer* *Category: Area Core Course* *Teaching Language: English* *Keywords: Conduction, Convection, Radiation, Heat Exchangers*
11.	**MENG303 Computer Aided Engineering Design** Design Process, Engineering Specifications, Project Planning, Concept Generation, Evaluation & Selection, Material and Manufacturing Process Selection, Design for Manufacturability and Assembly, Design for Cost, Design for Environment, Design for Reliability, Design for Test and Maintenance, Human Factors in Design, CAD Modeling and Analysis. *Credits: (2 /3/ 0) 3* *Prerequisites: MENG104 and MENG364* *ECTS credit: 8* *Abbreviated Title: Computer Aided Engineering Design* *Category: Area Core Course* *Teaching Language: English* *Keywords: Mechanical Engineering Design, CAE, CAD, CAM*
12.	**ENRG410 Introduction to Capstone Design** The objective of the capstone design course is to provide students with a realistic independent design experience that allows them to integrate and apply the basic disciplinary material they have learned during their engineering program to design a new product, device or process within multiple realistic constraints, while conforming to relevant standards, ethical issues and environmental policies. Research topics, may be principally experimental, theoretical, applied or simulation, will be chosen in consultation with a project supervisor. *Credits: (1 / 0 / 1) 1* *Prerequisites: MENG303 and D.C*** *ECTS credit: 1* *Abbreviated Title: Int to Capstone Design* *Category: Faculty Core Course* *Teaching Language: English* *Keywords: Design Process, Teamwork, Capstone Team Design Project, Senior Design Introduction*
13.	**ENRG400 Industrial Training** This is a period comprising a minimum of 40 days' training to be completed in an industrial organization by all students who are effectively in their junior or senior year. Students should obtain approval of the Summer Practice Committee before commencing training. Following This training, students will be required to write a formal report and present their work to the Summer Practice Committee. The aim of the training is to give students opportunity to observe real world engineering practices in a firm, to enhance the students' engineering knowledge acquired in class through field experience, to develop the students' job-related skills, to enable students to appreciate interdisciplinary team work, and to allow the students to explore their career interests. *Credits: (0 / 0 / 0) 0* *Prerequisites: IENG263* *ECTS credit: 1* *Abbreviated Title: Industrial Training* *Category: Faculty Core Course* *Teaching Language: English* *Keywords: Practical Training, Summer Practice, Industrial Organization, Summer Training*
14.	**ENRG411 Capstone Team Project** The objective of the capstone design course is to provide students with a realistic independent design and development experience that allows them to integrate and apply the basic disciplinary material they have learned during their engineering program to solve practical design problems by synthesizing a new product, device or process within multiple realistic constraints. Projects are implemented conforming to relevant standards, ethical issues and environmental policies. Research topics, may be principally experimental, theoretical, applied or simulation, will be chosen in consultation with a project supervisor. *Credits: (1 / 4 / 0) 3* *Prerequisites: ENRG410* *ECTS credit: 6* *Abbreviated Title: Capstone Team Project* *Category: Faculty Core Course* *Teaching Language: English* *Keywords: Capstone Team Design, Special Project, Graduation Project*
15.	**ENRG451 Energy Sustainability** This course offers students the ability to understand the economic, environmental and social aspects of energy sustainability, as well as the ability to evaluate climate change and energy security issues. Students also leave the class with the ability to perform streamlined life cycle assessments, carbon/water/energy footprints, economic assessments, and mass and energy balances. *Credits: (3 / 0 / 1) 3* *Prerequisites: -* *ECTS credit: 5* *Abbreviated Title: Energy Sustainability* *Category: Area Core Course* *Teaching Language: English* *Keywords: Energy, Sustainability,*
16.	**MENG442 Solar Energy Engineering** Introduction to solar energy and sun-earth geometric relations. Solar radiation measurement and radiation intercepted/absorbed by surfaces. Heat transfer topics in solar thermal design. Solar energy collector systems and energy storage. Solar energy process economics. F-chart design method and photovoltaics. *Credits: (4 / 1/ 0) 4* *Prerequisites: MENG345* *ECTS credit: 6* *Abbreviated Title: Solar Energy* *Category: Area Core Course* *Teaching Language: English* *Keywords: Solar energy, solar radiation, solar collectors, photovoltaics*
17.	**MENG446 Thermal Power Engines** Application of the basic principles of thermodynamics, fluid mechanics and heat transfer; fuels, combustion, nuclear reactors, steam generating units; steam and gas turbines, pumps, blowers and compressors; design of power cycles and the associated component parts. *Credits: (4 / 1/ 0) 4* *Prerequisites: MENG246* *ECTS credit: 7* *Abbreviated Title: Thermal Power Engines* *Category: Ares Core Course* *Teaching Language: English* *Keywords: Power, Engines*
18.	**MENG449 Introduction to Energy Management** Fundamentals of energy; energy audit and energy audit report; energy auditing on mechanical and electrical systems; energy efficiency in buildings with an emphasis on passive and active solar energy use; project work on energy audit/energy-efficient design of buildings. *Credits: (4 / 1/ 0) 4* *Prerequisites: MENG246 (or MENG244) and MENG345* *ECTS credit: 6* *Abbreviated Title: Introduction to Energy Management* *Category: Area Core Course* *Teaching Language: English* *Keywords: Energy, Audit*
19.	**EENG112 Introduction to Programming** Internal data representation, integers, reals, characters. Problem solving and algorithm design. Program structures. Sequencing, selection

	and iteration. Pseudo-code, flow-charts and other techniques. High-level programming environments. Variables, expressions and assignments. Introducing C programming. Structured programming; sequential, selective and repetitive structures. Function definition and function calls. Prototypes and header files. Recursive functions. Arrays and pointers. Dynamic memory management. Parameter passing conventions. Multi-dimensional arrays. Conditional compilation, modular programming and multi-file programs. Exception handling. File processing. Formatted I/O. Random file access. Index structures and file organization. *Credits: (4,1,0) 4* *Prerequisites: None* *ECTS: 8* *Abbreviated Title: Intro. to Programming* *Category: University Core Course* *Teaching Language: English* *Keywords: Algorithms, flow-charts, data types, functions, arrays, pointers, file processing.*
20.	**INFE221 Electrical Circuits** Circuit variables and circuit elements. Some circuit simplification techniques. Techniques of circuit analysis. The operational amplifiers. Capacitors and Inductors. The natural and force response of first and second order circuits. Sinusoidal steady-state analysis. *Credits: (4,1,0) 4* *Prerequisite: MATH151* *ECTS credit: 8* *Abbreviated Title: Elec. Circuits* *Category: Area Core Course* *Teaching Language: English* *Keywords: Kirchhoff's laws, Ohm's law, Thevenin and Norton equivalents, Inductance and capacitance, RL, RC and RLC circuits* *Department offering the course: Department of Electrical & Electronic Engineering*
21.	**EENG232 Electromagnetics - I** Review of vector calculus. Electrostatics in vacuum. Coulomb's and Gauss's laws. Electrostatic potential. Poison's and Laplace's equations. Conductors in the presence of electrostatic fields. Method of images. Dielectrics; polarization. Dielectric boundary conditions. Capacitance. Electrostatic forces by the virtual work principle. Steady currents. Ohm's and Joule's laws. Resistance calculations. Magnetostatics in vacuum. Ampere's force law. Biot-Savart law. Magnetic vector potential, Ampere's circuital law. Magnetic boundary conditions. Magnetic dipole. Magnetization. Hysteresis curve. Self and mutual inductance. Magnetic stored energy. Magnetic forces by the virtual work principle. *Credits: (4,0,1) 4* *Prerequisites: MATH152, PHYS102* *ECTS credit: 7* *Abbreviated Title: Electromagnetics - I* *Category: Area Core Course* *Teaching Language: English* *Keywords: Coulomb's and Gauss's laws, Poison's and Laplace's equations, Dielectrics*
22.	**INFE242 Electronics** Semiconductor devices, basic amplifier concepts, diodes, P-N junction diodes, Schottky diodes, Bipolar Junction Transistors (BJTs), Field Effect Transistors: MOSFETs, JFETs, transistor biasing. *Credits: (4,1,0) 4* *Prerequisite: INFE221* *ECTS credit: 8* *Abbreviated Title: Electronics* *Category: Area Core Course* *Teaching Language: English* *Keywords: Diodes, BJT, MOSFET and JFET structures.* *Department offering the course: Department of Electrical & Electronic Engineering*
23.	**EENG350 Electromechanical Energy Conversion** Magnetic circuits, single phase transformers, three phase transformers, electromechanical energy conversion principles, rotating magnetic field, torque production, synchronous machines, induction motors, DC machines, steady state operating characteristics, speed control. *Credits: (4,1,0) 4* *Prerequisites: EENG232* *ECTS credit: 7* *Abbreviated Title: Electromech. Energy Conversion* *Category: Area Core Course* *Teaching Language: English* *Keywords: Magnetic circuits, Transformers, Synchronous machines, Induction machines, DC machines* *Department offering the course: Department of Electrical & Electronic Engineering*
24.	**EENG459 Renewable Energy Systems** Physical and technological principles behind producing power from direct solar (solar thermal and photovoltaic), indirect solar (biomass, hydro, wind, and wave) and non-solar (tidal and geothermal) energy sources. Environmental impacts, economics, and future developments of renewable energy technologies. Real world applications and recent innovations. Renewable energy project development in the context of feasibility study, energy capacity and efficiency calculations, use of technical and economical parameters, and payback calculations. *Credits: (4,1,0) 4* *Prerequisites: EENG350* *ECTS credit: 6* *Abbreviated Title: Renewable Energy Systems* *Category: Area Core Course* *Teaching Language: English* *Keywords: Solar thermal, Photovoltaic, Biomass, Hydro, Wind, Wave, Tidal, Geothermal.* *Department offering the course: Department of Electrical & Electronic Engineering*
25.	**IENG263 Materials and Manufacturing Processes** Materials and properties; structure and manufacturing properties of metals; material selection based on mechanical properties for manufacturing; metal casting; bulk deformation processes (rolling, extrusion, forging); sheet-metal forming; machining processes (turning, drilling and milling); abrasive machining, finishing; welding processes; processing of plastics; tooling safety. *Credits: (4 / 1 / 0) 4* *Prerequisites: CHEM101* *ECTS: 6* *Abbreviated Title: Materials & Manuf. Proces.* *Category: Area Core Course* *Teaching Language: English* *Keywords: Materials, properties, manufacturing, structure, metals, casting, deformation, rolling, extrusion, forging, sheet-metal, machining, turning, drilling, milling, abrasive, finishing, welding, plastics, safety* *Department offering the course: 26 – Department of Industrial Engineering*
26.	**IENG355 Ethics in Engineering** This course is designed to introduce moral rights and responsibilities of engineers in relation to society, employers, colleagues and clients. Analysis of ethical and value conflict in modern engineering practice. Importance of intellectual property rights and conflicting interests. Ethical aspects in engineering design, manufacturing, and operations. Cost-benefit-risk analysis and safety and occupational hazard considerations. *Credits: (3 / 0 / 0) 3* *Prerequisites: None* *ECTS credit:4* *Abbreviated Title: Ethics in Engineering* *Category: Area Core Course* *Teaching Language: English* *Keywords: Ethical issues, moral values, morality, professional responsibility, code of ethics, conflict of interest, engineering practice* *Department offering the course: 26 – Department of Industrial Engineering*
	Departmental Consent**

Engineering Sciences and Design: Area Elective Courses

1.	**ENRG444 Energy Storage** The aim of this course is to introduce the basics of different energy storage technologies, their engineering applications to the students. The students will learn the fundamental principles of energy storage design, their integration with energy conversion devices as well as performance analyses of energy storage systems. At the successful completion of the course, students will develop an understanding of the mechanical, thermal, thermomechanical, and electrochemical energy storage technologies including their design, operation, maintenance, and reliability. *Credits: (4 / 0/ 1) 4* *Prerequisites: (MENG244) or (MENG245) and (MATH322) ECTS credit: 6* *Abbreviated Title: Energy Storage* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Energy, Batteries, Mechanical, thermomechanical*
2.	**ENRG446 Nuclear Energy Engineering** Nuclear Energy Engineering is meticulously structured to impart an understanding of the fundamentals of nuclear physics, the operation of nuclear reactors, reactor dynamics, control mechanisms, and the role of nuclear energy in the global energy landscape. Students will explore the engineering challenges associated with the design, analysis, control, safety, and management of nuclear power plants. The curriculum covers topics from the basic atomic and nuclear physics to more advance subjects such as reactor design, radiation safety, power regulation and control, thermal-hydraulics, waste management, and the sociopolitical aspects of nuclear energy use. *Credits: (4 / 0/ 1) 4* *Prerequisites: MENG246, MENG353, and MENG332 ECTS credit: 6* *Abbreviated Title: Nuclear Energy* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Nuclear Energy, Nuclear Fission, Nuclear Safety*
3.	**ENRG455 Wind Energy Engineering** The aim of this course is to introduce students to wind energy, wind resource, and its characteristics. The students will learn the fundamental principles underlying the energy conversion process from wind, with a particular emphasis on a multidisciplinary view of the problem. At the successful completion of the course, students will develop an understanding of the aerodynamics, mechanics, components, materials and manufacturing, and control of wind turbines, as well as of the design, operation, maintenance, and reliability of wind turbines with an overall knowledge of all principal aspects of wind energy technology, from economic to environmental issues as well as the relevant international wind turbine standards. *Credits: (4 / 0/ 1) 4* *Prerequisites: (MENG332) and (MENG353)* *ECTS credit: 6* *Abbreviated Title: Wind Energy* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Wind Energy, Wind Turbines. Wind Resource Assessment*
4.	**MENG422 Automotive Engines** Internal combustion engines; two stroke and four stroke engines; spark ignition engines; compression ignition engines; basic engine parts; valve trains and timing diagrams; lubrication systems; cooling systems; fuel injection systems and ignition systems; advanced engineering- materials in automotive field. *Credits: (4 / 1/ 0) 4* *Prerequisites: MENG246 or MENG244* *ECTS credit: 6* *Abbreviated Title: Automotive Engines* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Engine, piston, valve, spark plug*
5.	**MENG424 Reliability Engineering** Introduction to Reliability. Failure data. Reliability, Availability, Maintenance, and Safety (RAMS). Reliability Prediction & Modelling, Reliability Block Diagrams, Redundancy, Fault tree analysis. Failure Mode and Effect Analysis (FMEA). Risk Management. Design for Reliability. Standards, codes and regulations on reliability. *Credits: (4 / 1/ 0) 4* *Prerequisites: MATH322* *ECTS credit: 6* *Abbreviated Title: Reliability Engineering* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Probability, Reliability, Risk*
6.	***MENG441*** **Internal Combustion Engines** Air standard cycle analysis; chemical stoichiometry and dissociation, chemical equilibrium; calculation of temperature rise in a combustion reaction with dissociation; combustion in SI engines; combustion in diesel engines; mixture requirements for SI and diesel engines; performance characteristics of internal combustion engines; turbocharging; supercharging of internal combustion engines. *Credits: (4 / 1/ 0) 4* *Prerequisites: MENG246 or MENG244* *ECTS credit: 6* *Abbreviated Title: I. C. Engines* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Spark ignition, Diesel engines, combustion*
7.	**MENG443 Heating, Ventilation and Air Conditioning** Indoor environment and thermal comfort. External environment and climatic design. Heat loss calculations, heating systems and design. Hydraulic design. Cooling load calculations. Ventilation systems and duct sizing. Psychometrics and air conditioning systems. *Credits: (4 / 1/ 0) 4* *Prerequisites: MENG246, MENG353 and MENG345* *ECTS credit: 6* *Abbreviated Title: Heating, Ventilation and Air Conditioning* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Heating, Cooling, Air Conditioning, Ventilation*
8.	**MENG445 Thermal System Design** Analysis, design and optimization of thermal systems using microcomputers; modeling of thermal systems and components; analysis of thermal system component characteristics and their effect on overall system performance; relationship among thermal sciences in design process; safety, reliability and economic considerations of thermal system. *Credits: (4 / 1/ 0) 4* *Prerequisites: MENG345* *ECTS credit: 6* *Abbreviated Title: Thermal System Design* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Thermal System, Analysis*
9.	**MENG452 Hydraulic Machinery** Similarity relations and general theory; Pelton wheel; Francis turbine and propeller turbine; centrifugal pumps; axial and mixed pumps; pump combination; cavitation in hydraulic machines.

	Credits: (4 / 1/ 0) 4 *Prerequisites: MENG353* *ECTS credit: 6* *Abbreviated Title: Hydraulic Machinery* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Pump, turbine, cavitation*
10.	**MENG453 Gas Dynamics** Introduction; integral forms of conservation equations; differential forms of conservation equations; one-dimensional flow; oblique shock and expansion waves; quasi one-dimensional flow; unsteady wave motion; linearized flow; numerical techniques. *Credits: (4 / 1/ 0) 4* *Prerequisites: MENG246* *ECTS credit:6* *Abbreviated Title: Gas Dynamics* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Shock wave, nozzle*
11.	**MENG547 Energy Management and Utilization** Energy consumption, conservation and resources. Energy audits, economic analysis. Management and organization of conservation programs. Analysis of thermal-fluid systems. Energy conservation in combustion systems, steam and condensate systems. Heat exchangers, heat recovery and insulation. Energy conservation in industrial system, industrial cogeneration. Power circuits, electrical machinery, electrical energy conservation. Industrial energy use profiles. *Credits: (3 / 0/ 0) 3* *Prerequisites: MENG246 (or MENG244) and MENG345* *ECTS credit: 6* *Abbreviated Title: Energy Management* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Energy, Audit*
12.	**MENG548 Power Generation Systems** Thermal power plants, steam power plants, solar thermal power plants, Organic Rankine Cycle, Gas Turbines, Carbon dioxide power cycles, Diesel power plants, other power generating systems, Economic analysis of power plants, power plant simulation and performance analysis. *Credits: (3 / 0/ 0) 3* *Prerequisites: MENG246 (or MENG244) and MENG345* *ECTS credit: 6* *Abbreviated Title: Power Generation Systems* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Energy, Audit*
13.	**EENG453 Advanced Electrical Energy Conversion - II** Single phase induction motors, universal series motors, stepping motors, brushless dc motors, shaded pole motors, brief introduction to microcontrollers as a tool for speed control applications; transient analysis of synchronous, induction and dc machines, effect of armature reaction and commutation arcs on the performance of dc motors, transient analysis using MATLAB and SIMULINK, speed control techniques, the use of microcontrollers in machine control applications. *Credits: (4/ 1/ 0) 4* *Prerequisites: EENG350* *ECTS credit: 6* *Abbreviated Title: Advanced Electrical Energy Conversion* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Magnetic circuits, Transformers, Synchronous machines, Induction machines, DC machines* *Department offering the course: Department of Electrical & Electronic Engineering*
14.	**EENG451 High Voltage Techniques** Electrical Field Analysis: experimental and computational methods, electrical breakdown in gases, Townsend's breakdown criterion, Paschen's law, Streaner-Kanal mechanisms, breakdown in non-uniform field and corona, electrical breakdown of dielectric liquids and solids, insulating materials, dielectric measurements, generation and measurement of high AC, DC and impulse voltages and currents, electrostatic generators, testing transformers and series resonant circuits, impulse voltage and current generator circuits, sphere and uniform field gaps, electrostatic generating and peak voltage measuring voltmeters. *Credits: (4/ 1/ 0) 4* *Prerequisites: EENG350* *ECTS credit: 6* *Abbreviated Title: High Voltage Techniques* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Electrode systems, Breakdown behavior, Approximated field calculations, Electrical breakdown in gases, Townsend's breakdown criterion, Paschen's law* *Department offering the course: Department of Electrical & Electronic Engineering*
15.	**EENG455 Renewable Energy: Photovoltaics** Introduction to renewable energy resources with main emphasis on photovoltaic energy conversion. Solar insolation. Short review of semiconductor properties. Generation, recombination and the basic equations of the device physics. P-n junction and silicone solar cell. Efficiency limits, losses, and measurements. Current fabrication technologies. Design of cells and modules. Other materials. Applications. *Credits: (4/ 1/ 0) 4* *Prerequisites: EENG245* *ECTS credit: 6* *Abbreviated Title: Renewable Energy: Photovoltaics* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Photovoltaic energy conversion, Solar insolation, Solar cells and modules* *Department offering the course: Department of Electrical & Electronic Engineering*
16.	**EENG456 Power Generation and Distribution** Introduction to electric energy generation, power plants and electric economy, frequency and voltage control, protection co-ordination. Calculations of voltage drop in medium and low voltage distribution systems. Selection criteria of cross-section of lines and cables. Compensation. Network faults and short circuit current calculations. *Credits: (4/ 1/ 0) 4* *Prerequisites: EENG350* *ECTS credit: 6* *Abbreviated Title: Power Gen. and Distrib.* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Energy generation, Power plants and electric economy, Frequency and voltage control, DC distribution systems, Ac Distribution systems* *Department offering the course: Department of Electrical & Electronic Engineering*
17.	**EENG457 Power System Analysis I** Per-unit system; Review of three-phase circuits, transformers and synchronous machines; Modelling of transmission lines; Short, medium length and long transmission lines; Transmission line transients; Network impedance and admittance models; Network calculations; Power Flow solutions. *Credits: (4/ 1/ 0) 4* *Prerequisites: EENG350* *ECTS credit: 6* *Abbreviated Title: Power System Analysis-I* *Category: Area Elective Course* *Teaching Language: English*

	Keywords: Modeling of transmission lines, Per-unit systems, Network calculations, Power flow *Department offering the course: Department of Electrical & Electronic Engineering*
18.	**EENG458 Power System Analysis II** Economic operation of power systems; Symmetrical three-phase fault analysis; Symmetrical component theory; Unsymmetrical fault analysis; Fault analysis using bus admittance matrix method; Protection systems, over current, directional, ratio, differential, distance and pilot relays; Stability analysis of power systems. *Credits: (4/ 1/ 0) 4* *Prerequisites: EENG457* *ECTS credit: 6* *Abbreviated Title: Power System Analysis-II* *Category: Area Elective Course* *Teaching Language: English* *Keywords: Economic dispatch, Fault analysis, Overview of protection systems, Power system stability* *Department offering the course: Department of Electrical & Electronic Engineering*
19.	**CIVL437 Environmental Impact Assessment** Planning and management of impact studies. Description of environmental settings. Environmental indices and indicators, affected environment. Prediction and assessment of impacts on air, surface water, soil and ground water, noise, biological, cultural, visual and socioeconomic environments. *Credits: (3/ 1/ 0) 3* *Prerequisites: None* *ECTS credit: 6* *Abbreviated Title:* *Category: Area Elective Course* *Teaching Language: English* *Keywords:* *Department offering the course: Department of Civil Engineering*
20.	**CIVL410 Environmental Sustainability in Engineering** This course will introduce students to the concept of sustainability and help students to understand the role of the civil engineer in sustainable development. This course includes the investigation of climate and air quality problems and of possible solutions; overview of water supply, quality and treatment and of water resources management issues; sustainable development issues surrounding agricultural and forestry resources; an investigation of current patterns of energy use and of sustainable energy options; use of recyclable materials in constructions; explore environmentally sustainable development options for industry and creating a sustainable built environment. *Credits: (3/ 1/ 0) 3* *Prerequisites: None* *ECTS credit: 6* *Abbreviated Title:* *Category: Area Elective Course* *Teaching Language: English* *Keywords:* *Department offering the course: Department of Civil Engineering*

** Departmental Consent

Mathematics and Basic Sciences Courses

1.	**MATH151 Calculus-I** Limits and continuity. Derivatives. Rules of differentiation. Higher order derivatives. Chain rule. Related rates. Rolle's and the mean value theorem. Critical Points. Asymptotes. Curve sketching. Integrals. Fundamental Theorem. Techniques of integration. Definite integrals. Application to geometry and science. Indeterminate forms. L'Hospital's Rule. Improper integrals. Infinite series. Geometric series. Power series. Taylor series and binomial series. *Credits: (4 / 0 / 1) **4*** *Prerequisites: None* *ECTS credit: 6* *Abbreviated Title: Calculus-I* *Category: Faculty Core Course* *Teaching Language: English* *Keywords: Limits, Continuity, Derivatives, Differentiation, Chain Rule, Rolle's Theorem, Mean Value, Integrals, Taylor Series* *Department offering the course: 41 – Department of Applied Mathematics & Computer Science*
2.	**PHYS101 Physics-I** Families of physical quantities having different dimensions, units and rules of mathematics. Vector mathematics and calculus, their applications to motion. Newton's laws. Integrals of the second law, work-energy, impulse-momentum, conservation of energy and momentum, applications. Rotations. Static equilibrium. *Credits: (4 / 1 / 0) **4*** *Prerequisites: None* *ECTS credit: 6* *Abbreviated Title: Physics-I* *Category: Faculty Core Course* *Teaching Language: English* *Keywords: Measurements, units, vectors, kinematics, dynamics, Newton's laws, work and energy, linear momentum, rotational kinematics, dynamics, static equilibrium.* *Department offering the course: Department of Physics*
3.	**MATH152 Calculus-II** Vectors in R3. Lines and Planes. Functions of several variables. Limit and continuity. Partial differentiation. Chain rule. Tangent plane. Critical Points. Global and local extrema. Lagrange multipliers. Directional derivative. Gradient, Divergence and Curl. Multiple integrals with applications. Triple integrals with applications. Triple integral in cylindrical and spherical coordinates. Line, surface and volume integrals. Independence of path. Green's Theorem. Conservative vector fields. Divergence Theorem. Stokes' Theorem. *Credits: (4 / 0 / 1) **4*** *Prerequisites: MATH151* *ECTS credit: 6* *Abbreviated Title: Calculus-II* *Category: Faculty Core Course* *Teaching Language: English* *Keywords: Vectors, Series, vector, line, plane, functions of several variables, partial derivatives, directional derivative, gradient, divergence, multiple integrals.* *Department offering the course: Mathematics*

4. **PHYS102 Physics-II**

Heat, heat transfer and heat conduction. Kinetic theory of ideal gases, equipartition of energy. The laws of thermodynamics, applications to engine cycles, Coulombs law and electrostatic fields. Gauss's law, symmetry. Electric potential. Magnetic fields. Amperes law. Faradays law.

*Credits: (4 / 1 / 0) **4*** *Prerequisites: PHYS101* *ECTS credit: 6*
Abbreviated Title: Physics-II *Category: Faculty Core Course* *Teaching Language: English*
Keywords: Heat, thermodynamics, charge, electromagnetic fields, Gauss' law, electromagnetic induction
Department offering the course: Department of Physics

5. **MATH241 Ordinary Differential Equations and Linear Algebra**

Linear Algebra; Matrix algebra, special matrices and row operations, Gaussian elimination method, determinants, adjoint and inverse matrices, Cramer's rule, linear vector spaces, linear independence, basis and dimension. First order ordinary differential equations; definitions and general properties of solutions, separable, homogeneous and linear equations, exact equations and integration factors. Higher order equations with constant coefficients; Basic theory and the method of reduction of order, second order homogeneous equations with constant coefficients, nonhomogeneous equations, the method of undetermined coefficients, the method of variation of parameters, the Cauchy-Euler equations. Power series solutions; classification of points, ordinary and singular points, power series solutions about ordinary points, power series solutions about regular singular points, the method of frobenius. Systems of differential equations; general properties of constant coefficient systems, eigenvalues and eigenvectors, diagonalizable matrices, solutions of linear systems with constant coefficients. Boundary value problems.

*Credits: (4 / 0 / 1) **4*** *Prerequisites: MATH151* *ECTS credit:6*
Abbreviated Title: Differential Equations *Category: Area Core Course* *Teaching Language: English*
Keywords: linear algebra, differential equations
Department offering the course: Mathematics

6. **MATH252 Mathematical methods for Engineers**

Complex numbers. Algebra of complex numbers. Polar representation. Complex functions. Limits and continuity. Analyticity. Analytic functions. Cauchy-Riemann equations. Line integrals. Cauchy integral formula. Isolated singularities. Residue theorem. Numerical error. Solution of nonlinear equations. Convergence. Solution of linear systems of equations: direct and iterative methods. Interpolation. Curve fitting. Numerical differentiation and integration.

*Credits: (4,0,1) **4*** *Prerequisites: MATH152* *ECTS credit: 6*
Abbreviated Title: Mathematical Methods for Eng. *Category: Area Core Course* *Teaching Language: English*
Keywords: complex numbers, complex functions, numerical error, interpolation, curve fitting.
Department offering the course: Mathematics

7. **MATH322 Probability and Statistical Methods**

Introduction to probability and statistics. Operations on sets. Counting problems. Conditional probability and total probability formula, Bayes' theorem. Introduction to random variables, density and distribution functions. Expectation, variance and covariance. Basic distributions. Joint density and distribution function. Descriptive statistics. Estimation of parameters, maximum likelihood estimator. Hypothesis testing.

*Credits: (3 / 0 / 1) **3*** *Prerequisites: MATH151* *ECTS credit: 5*
Abbreviated Title: Prob & Statistical Methods *Category: Faculty Core Course* *Teaching Language: English*
Keywords: Probability, Statistics, Bayes' Theorem, Hypothesis Testing
Department offering the course: Mathematics

8. **CHEM101 General Chemistry**

Atoms, molecules and ions; Mass relations in chemistry, stoichiometry; Gasses, the ideal gas law, partial pressures, mole fractions, kinetic theory of gases; Electronic structure and the periodic table; Thermo chemistry, calorimetry, enthalpy, the first law of thermodynamics; Liquids and Solids; Solutions; Acids and Bases; Organic Chemistry.

*Credits: (4 / 0 / 1) **4*** *Prerequisites: None* *ECTS credit: 6*
Abbreviated Title: General Chemistry *Category: Area Core Course* *Teaching Language: English*
Keywords: chemical terms, nomenclature, chemical bonds, polarity, states of matter, chemical formulas, measurements, natural science, basic science
Department offering the course: 43 – Department of Chemistry

General Education Courses

1. **ENGL191 Communication in English-I**

ENGL 191 is a first semester freshman academic English course. It is designed to help students improve the level of their English to B1+ level, as specified in the Common European Framework of Reference for Languages. The course connects critical thinking with language skills and incorporates learning technologies such as Moodle. The purpose of the course is to consolidate students' knowledge and awareness of academic discourse, language structures and lexis. The main focus will be on the development of productive (writing, speaking) and receptive (reading) skills in academic settings, and on the improvement of study skills in general.

Credits: (3 / 1 / 0) ***3*** *Prerequisites: None ECTS credit: 4*
Abbreviated Title: Communication in English-I Category: University Core Course Teaching Language: English
Keywords: Language, English, Reading, Writing, Speaking
Department offering the course: School of Foreign Language

2. **ENGL192 Communication in English-II**

ENGL192 is a second-semester freshman academic English course. It is designed to help students improve the level of their English to B2 level, as specified in the Common European Framework of Reference for Languages. The course connects critical thinking with language skills and incorporates learning technologies such as IQ Online. The purpose of the course is to consolidate students' knowledge and awareness of academic discourse, language structures, and lexis. The main focus will be on the development of productive (writing and speaking) and receptive (reading) skills in academic settings.

Credits: (3/ 1/ 0) ***3*** *Prerequisites: ENGL191 ECTS credit: 4*
Abbreviated Title: Communication in English-II Category: University Core Course Teaching Language: English
Keywords: Language, English, Reading, Writing, Speaking
Department offering the course: School of Foreign Language

3. **TUSL181 Turkish as a Second Language**

TUSL181 is a basic Turkish course introducing the Turkish language. It incorporates all four language skills and provides an introduction to basic grammar structures. Students will be encouraged to develop their writing skills through a variety of tasks. The aim of this course is for students to be able to understand and communicate in everyday situations, both in the classroom and in a Turkish speaking environment.

Credits: : (2 / 0 / 0) ***2*** *Prerequisites: None ECTS credit: 2*
Abbreviated Title: Turkish as a second Language Category: University Core Course Teaching Language: English
Keywords: Communication, culture, language.
Department offering the course: Modern Languages

4. **HIST280 Atatürk Principle's and History of Turkish Reforms**

Understanding the Turkish War of Independence, the transition from the Ottoman Empire to the Republic of Turkey, the subsequent founding of the new Turkish state and the stages and philosophical basis of the Turkish Revolution, teaching the Ataturkist system of thought, familiarizing the youth with Ataturk's principles and their significance, and remembering our neglected recent history.

Credits: (2 / 0 / 0) ***2*** *Prerequisites: None ECTS credit: 2*
Abbreviated Title: Atatürk's Principles and History of Turkish Reforms Category: University Core Course Teaching Language: Turkish
Keywords: History of TR, Principles of Atatürk.
Department offering the course: ATATÜRK Research Center

University Elective Courses (Non-Technical Courses Offered by other Departments)

A list of non-technical electives is announced at the beginning of the each semester by the Department. This list contains courses offered by the Faculty of Business and Economics, the School of Tourism and Hospitality Management, Departments of Communication and Media Studies etc. University elective courses taken by Mechanical and Mechatronics Engineering students must satisfy the ABET criteria.

5- UNIVERSITY and ACADEMIC REGULATIONS

Academic Regulations have been laid down by the Northern Cyprus Educational Trust to govern and guide the functioning of Eastern Mediterranean University. The rules and regulations are available at **http://mevzuat.emu.edu.tr/.** Students should refer to the given internet address for the Regulations for Students. **In case of any conflict, the regulations in Turkish will supersede**. Some regulations are presented below.

5.1 English Language Proficiency Requirement:

Once students are admitted, they are guided by their assigned academic advisors depending on their status at EMU. There are three possible status after admission to EMU.

D1. Student successfully pass the FLEPS English Language proficiency exam or submit a certificate indicating adequate level of English language achieved from an internationally known proficiency exam can directly start his/her first semester courses with the help of Department Coordinator for Academic Advising.

D2. When student did not have adequate level of English Language after taking the proficiency exam at entry level then s/he should have spent minimum of one semester at Foreign Languages and English Preparatory School (FLEPS), where their advisor will be assigned from FLEPS.

D3. Depending on the English Language level achieved as a result of final exam at FLEPS student will either move to his/her already accepted department or may partially achieve the proficiency and s/he had to stay at FLEPS but allowed to take courses from his/her department. Table below shows the details of English Language level, corresponding number of courses that can be taken from department and academic advisor.

Foreign Languages and English Preparatory School (FLEPS) Score Requirement

Student English Language Mark	Result of Assessment at FLEPS	English Course to be taken at department	Comments	Academic Advisor
S1: 90-100 S2: 80-89 S3: 70-79 S4: 60-69	Successful	ENGL191 (4 hrs/week)	Take first semester courses in department	Department Coordinator for Academic Advising
T1: 50-59	Partially successful	ENGL181 (6 hrs/week)	Take first semester courses in department	Department Coordinator for Academic Advising
T2: 40-49	Partially successful	ENGL183 (9 hrs/week)	Take three courses with minimum English requirement from first two semesters in department	Department Coordinator for Academic Advising
T3: 30-39	Partially successful	ENGL185 (12 hrs/week)	Take two courses with minimum English requirement from first two semesters in department	Department Coordinator for Academic Advising
0-29	Unsuccessful	N/A	Continue another semester at FLEPS	FLEPS Advisor

Once students are in their department, they are guided through their academic programs by their assigned academic advisors. Academic staff advise the group of students assigned at the beginning of each student's second actual term. The academic staff assigned is the advisor of the student until all the requirements are fulfilled and the student graduates from the program. The advisor is responsible for the course registration of student with consideration of performance and status, program curriculum, course contents, and pre-requisites. The students are informed to download the digital undergraduate program handbook of the program from the department web page.

5.2. Conditions for Taking Courses from Another Institution

a) Department and/or Faculty/School board determines whether the student can take courses outside the university or not and/or whether the courses to be taken outside the University are the equivalents of courses in the student's own program in terms of content and credits.
b) Duration of studies at another institution is included in the period of study specified in the Eastern Mediterranean University Education, Examinations and Success By-law, regardless of the difference of the institution and the number of courses to be taken.
c) Total credits of courses taken from another institution of higher education cannot exceed 25% of the course credits the student has to take during the school/undergraduate specified program period.
d) The student keeps his/her student rights in EMU, however, s/he cannot benefit from the student rights regarding diploma or student status in the higher education institution s/he takes course from.
e) A student who wishes to take courses from another higher education institution should apply to the relevant department head in writing and attach a formal and certified document summarizing the titles, credits and content of the courses to be taken as well as the weekly course timetable no later than the relevant semester or summer school registration renewal period.
f) Equivalency of the grades obtained at another higher education institution is determined by the faculty/school board decisions based on the Senate decisions and relevant by-laws.
g) Students who take courses at another higher education institution continue to pay full tuition fee or the course(s) fees in EMU. However, if the student needs to pay for the courses to be taken at another institution of higher education, fees to be paid in EMU are determined by the University Executive Board.
h) In order to be eligible to take courses from another higher education institution, a student should attend the registered program in EMU for at least one academic year and should have a minimum CGPA of 2.00.
i) Those who do not meet the requirements of article (h) can take courses from another institution of higher education with the approval of the University Executive Board and positive views of the department and faculty boards.

5.3. Student Advisor

For each registered student, a student advisor who is a member of the academic staff is appointed by the Department Chair. The student advisor has the obligation of guiding the student in course registration, or in other academic, administrative and social matters. Students must obtain their advisors' approval for the following transactions: registration, selection of core and elective courses, adding courses to their schedules, dropping courses from their schedules, and/or withdrawing from a course. Students are encouraged to meet regularly with their advisors to review their academic performance and progress, discuss problems or get scholarly advice.

5.4 Course Registration

A student registration is done according to his/her academic status as follows:

a) Registration of students with "Honor and High Honor Status": Students who are in "High Honor" or "Honor" status can optionally register for one more course in addition to the normal course load of the semester.
b) Registration of students with "Successful Status": Students who are in "Successful" status can register for at most the normal course load of the semester.
c) Registration of students with "on Probation Status": Students who are "on probation" are obliged to repeat failed courses before registering for the new ones. The students are allowed to register for two new courses at most, on the condition that they do not exceed normal course load. A student who receives "on probation" status will remain in this status until his CGPA is raised above the limits indicated in Table 5.4. In the semester following the on probation, the student is not allowed to register for more than two new courses. The student will be asked to repeat some of the courses which he had already taken in previous semesters with priority given to courses with grades F, NG and D-.
d) Registration of students with "Unsuccessful Status": Students who are in "unsatisfactory" status are not allowed to register for any new course. These students will be asked to repeat courses already taken in the previous semesters, with priority given to the grades F, NG and D-. However, in the case that the courses from which (F), (NG) or (D-) grades were obtained are not offered, or the student's course load being under the specified limit, the student can repeat courses from which a (D), (D+) or (C-) grade was obtained until the normal course load is met.
e) Registration of students with "Graduating Status": Students who are in "Successful" status are considered to be in "Graduating Status" if and only if the remaining credited courses for their graduation is less than or equal to 7 courses (including courses with F, NG and D- grades). Such students are allowed to register for the whole remaining courses provided that they fulfil the prerequisite rules.

5.5 Registration Procedure

Immediately prior to the commencement of classes for each semester, certain days are designated for formal registration, as indicated on the academic calendar. At this time, all newly admitted students are advised and given class schedules. Students must register for all mandatory courses offered in the regular semesters (Fall and Spring) of the first (freshmen) year. All registration activities must be performed by the students concerned. Registration by proxy or mail is not accepted.

a) After making the payment the students can select courses online through their student portal.
b) The student must visit his /her Advisor`s Office in order to confirm the registration. The advisor helps the students in selecting appropriate courses, and finalizes their weekly class schedule/time table for that semester based on the vacancy availability in groups.
c) After the advisor finishes the registration process, the students can see their courses registered and weekly class schedule.
d) Two days are dedicated for registration at the start of every semester.

5.6 Academic Term

Academic term" of a student refers to total number of registered courses in relation to the number of listed courses in the department's published program of study (curriculum). Non-credit courses and courses that are not included in the normal course load upon Senate's decision are not taken into account in determining a student's academic term.

5.7 Course Load

For every semester, the number of specified credit courses of a registered program makes up the semester course load. Non-credit courses are not taken into account in the computation of the course load. However, upon the recommendation of the student advisor and the approval of the Department Chair:

a) a maximum of two courses can be reduced from the normal course load of a semester. In this case, the student must register for the untaken courses at the nearest next semester the courses are offered.
b) a student's semester course load can be increased by one course at most. In order to do this,
   1. The student's Cumulative Grade Point Average (CGPA) should not be below 3.00, or
   2. The student has to be designated a 'High Honor' or an 'Honor' at the end of the previous academic term.
c) Course load of graduating students with no academic warnings can be increased by two courses. A student at the graduation semester is the student who is given the right to graduate upon the successful completion of all projected courses at the end of the last semester of an academic program in addition to at most two remaining courses in all other programs (except LAW). Non- credit courses and courses that are not included in the normal course load upon Senate's decision are not taken into account in determining course load.

5.8 Prerequisite Courses

a) In order to register for a course that has a pre-requisite, a student must have obtained at least a D- grade from the related pre-requisite course.
b) Graduating students are allowed to register for courses with pre-requisites even if they score a F grade from the pre-requisite course.
c) At all semesters (including the graduation semester), a prerequisite course and the course following it cannot be taken within the same semester if the prerequisite course has never been taken before or if the student obtained an (NG) or a (W) grade from it.
d) Faculty or School Councils have the authority to take decisions concerning the requirements for prerequisite courses.

5.9 Repeating a Course

The following provisions are applied in repeating a course:

a) A student who obtains a (W), (D-), (F), (NG) or (U) grade from a course must register for the course at the first available opportunity.
b) If the course to be repeated is Area Elective of Engineering courses, University Elective of General Education courses or has been excluded from the program, the student is required to take another appropriate course specified by the Department.
c) If a student wishes to improve his/her previously obtained grades, s/he can repeat a course in which s/he previously passed in the last 2 years.

The grade obtained from the repeated course takes the place of the previous grade. However, the first grade still appears on the transcript.

5.10 Course Selection

Priorities in course selection are as follows:

a) Courses with (W), (F), (NG), (U) or (D-) grades.
b) Courses of previous semesters that have not been taken yet.
c) Courses of the current semester that have not been registered yet.
d) Other appropriate courses.

5.11 Course Times / Hours

In order to enable the students to attend classes regularly, course hour clashes are avoided. The advisor may approve if there is a maximum of a two-hour clash. However, in special and mandatory conditions, upon Department Chair's consent, clashes exceeding two hours may be approved, if the student accepts the clashes.

5.12 Late Registration

Late registration is possible during the period specified in the academic calendar. Late registration penalty are determined by the Rectors' office in accordance with the principles set concerning this issue.

5.13 Adding or Dropping Courses

From the first day of the commencement of the classes until the deadline specified on the academic calendar, students are allowed to change their course schedule by adding a new course or dropping a registered course. These changes must be made upon the recommendation of the student's advisor.

5.14 Course Withdrawal

a) In a semester, a student is allowed to withdraw from two registered courses at most, provided that the student does not get into part-time status. Course withdrawal should be done between the set dates specified on the academic calendar through using online application in student portal. Online approval of the Advisor and Department Chair is necessary. A student who withdraws from a course will receive the grade 'W'. This grade is not taken into consideration during the calculation of the CGPA and the GPA, but appears on the transcript.

b) A student cannot withdraw from a course that was withdrawn before, a course that is repeated (a different course with the same reference code) or a course that has no credit.

c) Full time students can not withdraw from courses which may change the status "Part-Time".

5.15 Course Evaluation

Student course performance is evaluated by using continuous assessment mechanisms that include midterm and final examination(s), quizzes, homework, laboratory study, and course projects etc. These mechanisms are organized in order to check the students' ability in meeting the Course Learning Outcomes (CLO) and Student Outcomes (SO). During the evaluation process, the students are given a mark which is typically out of 100 and then at the end of the semester the cumulative average mark of the student is converted to a letter grade by the course instructor.

The letter grades are organized on a 4.00 point grading scale. The letter grades, their grade point equivalence and respective descriptions are given in Table 5.1.

Table 5.1 The Letter Grades

Grade	GPA	MARKS	Description	LEVELS
A	**4**	85-100	**Superior Pass in a credit-course**	**EXCELLENT**
A-	**3.7**	80-84	**Superior Pass in a credit-course**	**EXCELLENT**
B+	**3.3**	75-79	**Very Good Pass in a credit-course**	**VERY GOOD**
B	**3**	70-74	**Very Good Pass in a credit-course**	**VERY GOOD**
B-	**2.7**	66-69	**Very Good Pass in a credit-course**	**VERY GOOD**
C+	**2.3**	63-65	**Pass in a credit-course**	**SATISFACTORY**
C	**2**	60-62	**Pass in a credit-course**	**SATISFACTORY**
C-	**1.7**	57-59	**Conditional Pass in a credit-course**	**UNSATISFACTORY**
D+	**1.3**	54-56	**Conditional Pass in a credit-course**	**UNSATISFACTORY**
D	**1**	50-53	**Conditional Pass in a credit-course**	**UNSATISFACTORY**
D-	**0.7**	45-49	**Failure in a credit-course**	**FAIL**
F	**0**	0-44	**Failure in a credit-course**	
NG	**0**		**Failure in a credit-course due to disinterest of the student**	
S	**-**		**Satisfactory (Pass in a non-credit-course)**	
U	**-**		**Unsatisfactory (Failure in a non-credit-course)**	
I	**-**		**Incomplete (work with excuse, grade to be given later)**	
W	**-**		**Withdrawal from a course**	

Grades A, A-, B+, B, B-, C+, and C are issued to indicate varying levels of unconditional "Pass" status for the successful scores. Grades C-, D+, and D indicate the "Conditional Pass" status, where the students with these grades are regarded as successful given that the Cumulative Grade Point Average (CGPA) is above or equal to 2.00. Grades D- and F indicate "Failure" and the students with these grades have to repeat the course in the proceeding semester. Students who do not comply with the required level attendance and/or not fulfilling the requirements for the evaluation of the course are given the "NG" (Nill-Grade) grade by the Instructor of the Course based on the criteria determined by the Faculty/School Academic Council.

The grades "S" or "U" are given to students who are registered to non-credit courses. "S" indicates satisfactory and "U" indicates unsatisfactory completion of the non-credit course. "I" grade is given to students who have not sat the end of semester exam and/or has not completed some of the projects/ laboratory work which contributes to the end-of-semester grade because of a valid reason that can officially be proved if required. Such students are obliged to sit for the missed exam and/or complete the project/laboratory work at least one week before the registration period of the following semester. Failure to comply with this will result in an automatic F grade being given for the concerned course. However, students whose reason for absenteeism continues at the end of the above indicated deadline, must apply to the Department with official certification indicating the continuation of the reason for absenteeism. The Mechanical Engineering Department Chair then takes the issue to the Faculty Academic Council where a decision will be taken on the period for the completion of the "I" grade. The period of completion requirement mentioned above is not valid for graduating students. Faculty Academic Councils determine these students' situations. An "I" grade is not taken into account in the computation of the Grade Point Average (GPA) or Cumulative Grade Point Average (CGPA). A student who thinks is eligible for "I" grade, must apply to the Course Instructor together with official documentation supporting the case, at most 3 working days following the final examination date of the course. The grade "W" is given to students who were allowed to withdraw from a registered course between the 3rd and 11th weeks of the semester. The "W" grade is shown on the transcript of the student.

5.16 Mid-term Examinations

In every academic semester, a minimum of 1 and a maximum of 3 mid-term exams are given to students in each course. No mid-term examinations can be administered during the final week of the semester or the week before the end-of-classes.

5.17 Final Examinations

Final examinations are administered on the dates specified in the Academic Calendar.
Letter grades are announced by the Registrar's Office at a date determined by the Rector's Office.

5.18 Other Criteria to be Considered for Assessment

a. Quizzes which are prepared and evaluated by the course instructor can be administered without prior notice.
b. In applied courses, evaluation can be based on projects, workshops, laboratory reports, presentations and /or examinations. Examinations can have written or oral format. Either the course instructor or another academic member of the staff assigned by the Course Coordinator is entitled to make the workshop/lab evaluations.
c. Homework prepared during the term can be included in the overall evaluations. Homework is assessed by the course instructor or a faculty member assigned by the course instructor.

5.19 Make-up Examinations

a. A student who fails to sit for an examination for a valid reason is given a make-up exam. Within **three working days** after the examination, students who wish to take a make-up must submit a written statement to the course instructor or the course coordinator explaining the reason(s) for his/her request. Student must secure a "Make-Up Exam Form" from the department Office and must secure the approval from the instructor for taking the Make-Up Exam.
b. Make-up exams for the mid-term and final exams may take place after the final exam.

5.20 Resit Examinations

a. RESIT EXAMINATION is an additional examination right granted to students studying at undergraduate and associate programs.
   • It is administered at the end of each term (excluding the summer term) following the announcement of the letter grades.
   • Taking a resit examination requires online registration (no fees are applied for online registration).
   • No Resit Examinations are available for application/practice courses.
   • No Resit Examinations are applied for the courses of the English/Turkish Preparatory School.
   • No Resit Examinations are applied for graduate courses (even if registered by a student studying at an undergraduate/associate program).
   • There is no Resit Examination for students studying at graduate programs (including registered deficiency courses, language support courses and undergraduate courses)

b. Resit Examination covers all topics of that course (all topics included in midterm and final examinations.)
   • Online registration is required.
   • Online registration will be carried out via the Student's Portal, after the final exams.
   • Weight of the Resit Examination will be equal to the total weight of mid-term and final examinations of a specific course.
   • The letter grade of the course will be assigned according to the RESIT score (if there are any other scores obtained from other forms of assessment than midterm and final examinations, they will also be considered in the letter grade calculation)
   • There is NO MAKE-UP examination for the RESIT EXAMINATION

c. The following are the conditions for registering for the resit examination of a course:
   • Students, may register for the RESIT EXAMINATION of the courses with "D-" or "F" grades obtained within that term,
   • Students with a "WARNING", "UNSATISFACTORY" or "ON PROBATION" status may register for the RESIT EXAMINATIONS of all (possible) courses, excluding those with "NG" grades, at the end of the relevant term.
   In the event of not sitting for a registered resit examination, students will be assigned "0".

5.21 Graduation Make-up

Any student who is at the graduation semester but fails to fulfill all requirements is eligible to take the graduation make-up examination under the following circumstances:

a. Students who fail to meet the graduation requirements due to F and/or D- grades are allowed to sit the exam for up to 2 courses with previously obtained grades of F and/or D- provided that these courses were taken within the last two semesters.
b. Students who fail to meet the graduation criteria due to low CGPA (less than 2.00) are allowed to take the graduation make-up examination for up to 2 courses with D, D+, C- grades.
c. A student who fails a graduation make-up of a specific course must register for that course again. A graduation make-up cannot be given for courses with NG grades. Grades obtained from the graduation make-ups are evaluated as term letter grades.

5.22 Appeals

a. A student has the right to ask the relevant academic staff member to see all documents involved in the determination of the semester grade no later than a week following the publication of the letter grades.

b. Any appeal against the marks of a mid-term examination or any other assessment components must be made to the course instructor within one week following the announcement of the marks. The relevant course instructor is required to evaluate the appeal within one week. If the student is not satisfied with the instructor's evaluation, s/he has the right to appeal in writing to the relevant department chair within 3 days following the instructor's evaluation date. The department chair will form a committee of instructors to finalize the student's appeal within one week. The decision of the committee is final.

c. Any appeal concerning a letter grade must be made to the relevant course instructor no later than the end of the registration period of the following semester. Appeals against semester grades are finalized based on the principles laid out in 'b'.

d. In cases where the letter grades have been assigned inaccurately and/or an administrative/calculation mistake has been made, taking the relevant course instructor's application for a grade change into consideration, the relevant grade change takes place with the decision of the Department Council, Faculty Council and the University Executive Board, on the condition that the mistake has been supported by evidence, the relevant student has not graduated and/or the period between the announcement of the end of semester letter grades and the application for a grade change has not exceeded one calendar year.

5.23 Semester Evaluation by GPA

A student's academic achievement for each term is expressed numerically by an index referred to as the "Grade Point Average" (GPA). When calculating the GPA, mid-term exam(s), the final exam, lab/workshop reports and/or exams (if applicable), tests, projects, and/or homework are taken into consideration. Credit received from a course is found by multiplying the credit hours by the coefficient corresponding to the grade received. The GPA is then found by dividing the sum of the credits received from all courses registered during the semester by the total credit hours of the same courses. All grades from A to NG are included in the calculation of the Grade Point Average (GPA). An example of GPA calculation is illustrated in Table 5.2 below.

Table 5.2 GPA Calculation

Course Code	Letter Grade Received	Grade Point Equivalent		Credit Hours		Total Credits
MLDE118	B-	2.70	x	3	=	8.10
MATH106	C	2.00	x	3	=	6.00
ENGL191	B	3.00	x	3	=	9.00
PHYS101	A	4.00	x	4	=	16.00
MATH151	D-	0.70	x	4	=	2.80
				TOTAL=17		41.90

GPA = (41.90/17) = 2.46

5.24 Overall Evaluation by CGPA

A Student's overall academic achievement is expressed by a real number called the "Cumulative Grade Point Average" (CGPA). The CGPA is calculated by dividing the total credits received from all courses the student has completed since joining the program by the sum of the credit hours of these courses. In cases when a course is repeated, the last grade is included in the CGPA computations. In this case, the student whose GPA is given as an example above will have the following calculation for his/her GPA and CGPA for the following semester (Table 5.3).

Table 5.3 CGPA Calculation

Course Code	Letter Grade Received	Grade Point Equivalent		Credit Hours		Total Credits
MENG233	B+	3.30	x	4	=	13.20
ENGL192	C	2.00	x	3	=	6.00
MATH151	C	2.00	x	4	=	8.00
PHYS102	A	4.00	x	4	=	16.00
HIST280	B	3.00	x	2	=	6.00
				TOTAL=17		49.20

GPA = (49.20/17) = 2.89

CGPA = ((41.90+49.20-2.80) / (17+17)-4)

CGPA = 88.30 / 30 = 2.94

In Table 5.3, as MATH 151 course is repeated, the last grade obtained is calculated instead of the previous grade given in Table 5.2. Therefore, the 4 credits and the 2.80 credit-hour value belonging to the previous term are not included to calculation of the CGPA.

5.25 Scholastic Standing

a) Satisfactory Students: A student is considered successful if the required CGPA for a particular semester is achieved as given in Table 5.4.

b) Honor and High Honor Students: Students who (with a full course load, and with maximum number of course) obtain a GPA between 3.00 and 3.49 are designated an "Honor Student". Students who obtain a GPA between 3.50 and 4.00 are designated a "High Honor Student" status.

c) Success for Undergraduate Programs (registered after 2007-08): Academic standing of the students is monitored and regulated according to the Table 5.4 which relates End of Academic Term (EAT) with the obtained CGPA. Students enrolled in an undergraduate program whose CGPA's are specified in Table 5.4 are considered to be "successful", "on probation" or "unsuccessful".

Table 5.4 The Active Standing

End of Academic Term (EAT)	Successful Student	Students On Probation	Unsuccessful Student
1st EAT	-	-	-
2nd EAT	CGPA ≥1.50	1.00 ≤ CGPA< 1.50	CGPA< 1.00
3nd EAT	CGPA ≥1.50	1.00 ≤ CGPA< 1.50	CGPA< 1.00
4th EAT	CGPA ≥1.50	1.00 ≤ CGPA< 1.50	***
5th EAT	CGPA ≥1.80	1.50 ≤ CGPA< 1.80	CGPA< 1.50
6th EAT	CGPA ≥1.80	1.50 ≤ CGPA< 1.80	CGPA< 1.50
7th EAT	CGPA ≥1.80	1.50 ≤ CGPA< 1.80	CGPA< 1.50
8th and more EAT	CGPA ≥2.00	1.80 ≤ CGPA< 2.00	CGPA< 1.80

*** Students who completed a minimum of 4 academic semesters (if the fourth semester is Spring Semester, then at the end of the Summer School) and who have a CGPA below 1.00 are dismissed from the program.

The starting semester of students transferring from one program to another internally or externally is accepted as an Academic Term. However, transfer students are considered as successful at the new program at the end of the first semester of the transferred program. Based on the Student Exchange Program framework, every semester spent out of the University is considered as an Academic Term. Unless there is a valid reason specified in By-Laws and Regulations, students are required to finish four-year programs at most in 8 years. Periods of leave of absence are not taken into consideration in the specified periods above. Students who fail to graduate within the specified period are dismissed from the University. However, graduating students who meet specific requirements may be given an additional time period. Requirements, additional time period and rules concerning graduating students are regulated by the 'Course Registration By-Law'.

5.26 Leave of Absence

a. Students may request online for a leave of absence on the understanding that they will return to the program of study and subject to permission being granted by the University.
b. Application for leave of absence should be made in writing to the Registrar's office. Such applications made from abroad must be certified by a Commissioner of Oaths.
c. Students can apply for leave of absence with a valid reason within the first 5 weeks of the semester starting from the first day of the commencement of classes. Decision on these applications is given, by the Rector, upon the proposal of the Dean who has considered the advice of the Department Chair.
d. Students can apply for leave of absence only with the report of an official Health Council certifying the nature of illness or other official documentation certifying the reason put forward in the application. Such applications must be submitted within the first 5 weeks of the semester starting from the first day of the commencement of classes. In overseas applications the date of official certification is taken into consideration. Decision on all such applications is given, by the Rector upon the proposal of the Dean based on **the recommendation of the Department Academic Council.**

5.27 Returning from Leave of Absence

At the end of the 'leave of absence' period, students can simply continue their education by following the routine registration procedure. Students, who were granted 'leave of absence' on health grounds, must provide a certificate approved by the Health Council indicating their fitness for co1ntinuing their studies. Students granted two semesters of 'leave of absence' and who wish to return to their studies at the end of the first semester, should apply in writing to the Registrar's Office. Each such application is considered according to the procedure followed in the evaluation of applications for leave of absence.

5.28 Cancelling Registration from the University and Refunding

A student can cancel registration from the University by applying in writing to the Registrars' Office and completing the necessary process. Following the completion of the process, the student will be entitled to a refund of the tuition fee based on the principles determined by the Board.

5.29 Attendance Requirements

Students are required to attend the registered courses, laboratory, studio, tutorial, practice, other academic studies and examinations required by the related course instructor. Student attendance is monitored and assessed by the course instructor. A student who fails to meet the requirements of a course or who is absent more than the limit specified by the Faculty or School is considered to be unsuccessful in that course.

5.30 Student Status

Students can be categorized as *full-time*, *part-time*, *special* and *visiting*.

a. Students have the full-time status provided that they take 3/5 or more of the total credit hours per semester at an undergraduate or school program.
b. Students who take less than 3/5 of the total credit hours per semester upon the recommendation of the student advisor and consent of the department head/school director are considered as part-time at an undergraduate or school program.
c. A student who is not registered to any program, but who is permitted to attend the lectures of some courses, is given the status of Special Student. No diploma or degree is conferred upon such students, but a certificate showing the courses completed and student performance is prepared by the Registrar's Office. Applications for Special Student status are evaluated and decided on by the Department Chair or the School Director. Registration of accepted special students is carried out by the Registrar's Office according to the rules stated in these regulations. Such students are required to possess at least a Secondary School Diploma.
d. Students who receive undergraduate or postgraduate education at an institution within the country or abroad and, upon their institution's consent, who take courses at the Eastern Mediterranean University with the aim of credit transfer are considered as visiting students. No diploma or degree is conferred upon such students, but a transcript summarizing the courses taken and credits earned is issued.

5.31 Student Portal Service

A student portal service is provided by the university Registration Office to help the students follow their letter grades for the respective courses, grade point average (GPA) of the respective semester and cumulative GPA (CGPA) for all of the completed semesters. The portal provides a solid foundation for students and their advisors in following the students' progress through their degree study. The student performance and progress are continuously monitored and managed with the student advising system.

5.32 Summer School

Summer school is organized mainly to help students with low scholastic achievement, and may be registered to for credit with the approval of the Department. These sessions are normally held before the Fall semester and form periods of intensive study which last for eight weeks. Any number of courses may be offered, although this is based on student demand, as reflected by pre-registration procedures. A student may register for a maximum of two courses offered during the summer school through the registration procedure outlined above for a normal term. The scholastic achievement is graded in the same way and included in the CGPA calculations at the end of the summer session.

6- CODE OF ETHICS for STUDENTS

Students are expected to adhere to and practice the following Code of Ethics

Honest and Respectful Representation

Every student of the department is expected to represent him or herself honestly and respectfully in all situations, whether orally or in written statements. Honest and respectful representation includes, but is not limited to:

- Providing only truthful material information on all University applications, financial aid forms, waivers, and any other official document.
- Students are also expected to behave respectfully to all administrators, faculty, staff, students, and visitors within the Department or campus environment and to behave respectfully when representing the Department or EMU at on- or off-campus events.

Acting with Academic Honesty

Students are expected to maintain the highest standards of academic integrity.

- Work that is not of the student's own creation will receive no credit. If a student is uncertain of what these standards are, he or she may consult his or her instructor for appropriate counsel, but a student's ignorance is no legitimate defense for academic dishonesty.
- Academic dishonesty includes lying, cheating, stealing, and using unauthorized materials on any assignment, quiz or exam.
- The act of lying is to intentionally provide false information or a false statement with the purpose of misleading or with irresponsible regard of the truth. Lying, in both academic and non-academic activities, is impermissible.
- Cheating is acting dishonestly in order to gain an unfair advantage. Cheating includes giving or receiving unauthorized aid on any assignment, quiz, or exam. Instructors must be consulted regarding which materials are acceptable for students to use on any assignment, quiz, or exam.
- Cheating also includes using the same material of work previously used for another course unless the student has permission from the instructor to do so.
- Cheating furthermore includes plagiarism, which is when a student uses the ideas of another and declares it as his or her own.
- Students are required to properly cite the original source of the ideas and information used in his or her work.
- Stealing is the act of taking without permission and without intention to return. The prohibition of stealing includes property of any nature as well as academic work.

Respect for University Rules and Regulations

Students of the EMU are expected to adhere to the rules and regulations set by the University.

Respect and Care for University Property

- Damaging of University property is unacceptable and a violation of EMU Rules and Regulations. Students shall be responsible for the costs of the damages resulting from their behavior.
- Students are also expected to report instances of any damage to University property immediately; as well as consciously account for or dispose properly of their belongings.

Avoiding the Use of Illegal Substances

- The use of illegal drugs and alcohol is not permitted on Campus as well as the abuse or misuse of prescription drugs.

Refraining from any Assault and Harassment

- Students shall refrain from using language or acting in a manner that is disrespectful or inappropriate towards other students and members of the EMU community.
- Sexual assault and harassment is inexcusable and shall result in disciplinary action in accordance with the University policy.

Respectful Classroom Conduct

- Students must behave respectfully toward their peers and professors.
- In the classroom setting, students may not interrupt their classmates or professor, make fun of them or their expressed views, or disrupt the learning environment.
- It is important to maintain the best learning environment for all students and professors.
- Not complying with the restrictions of the instructor will result in appropriate discipline, as decided by the instructor or department.

Respect for the Open Exchange of Ideas

- Students shall be guaranteed that their right of Freedom of Speech will be observed by all faculty and EMU members, including other students.
- Students are encouraged to engage others in thoughtful and meaningful dialogue while refraining from acting or using language with malicious intent.

7 - SAFETY GUIDELINES & INSTRUCTIONS

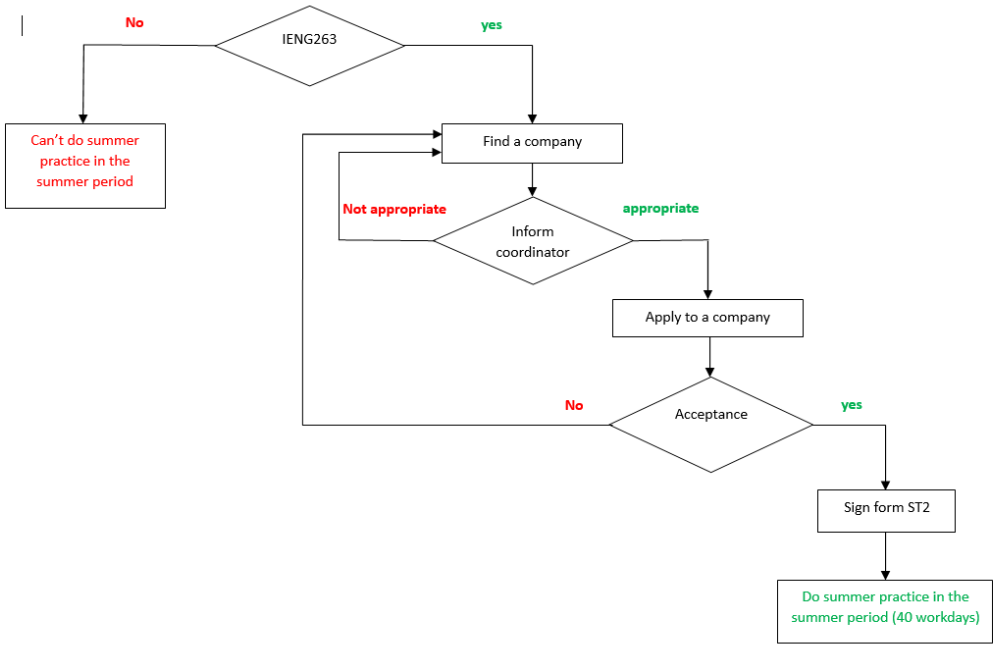
Workshop safety is everyone's responsibility, the following rules have been put in place to ensure the safety of all students, and are intended to reduce the risk of the more common hazards. Normally, a machine shop or experimental laboratory is a safe place to work. However, the presence of rotating machinery, heavy equipment and materials, hot materials and pipes, and hazardous materials requires that you take extra precautions to protect yourself. Please read the safety rules carefully and please observe these rules. Hazards can be avoided by thinking of the consequences before you act. If you are not sure of the safety aspects of your assignments, always consult an instructor. Laboratory specific safety rules may be required for specific processes, equipment, and materials, which should be addressed by laboratory specific SOPs. Students are expected to adhere to and practice the following guidelines:

- Supervisor or instructor MUST be notified whenever a student intends to work in an unsupervised area. Students are not allowed in the Lab without a supervisor.
- Students working must notify their supervisor or instructor whenever they intend to work in the Lab. No one is permitted to work in the shop or lab areas alone. This is to provide protection and assistance in case personal injury should occur.
- Know locations of laboratory safety showers, eye wash stations, and fire extinguishers.
- Know emergency exit routes. Follow the warning signs when unusual hazards, hazardous materials, hazardous equipment, or other special conditions are present.
- Use equipment only for its designated purpose.
- Do not operate tools or machinery that you haven't been trained for. Avoid using items unless you've been trained in proper handling. This is for your own safety as well as the safety of those around you.
- When working on any equipment the appropriate safety equipment for hand, eye and hearing protection must be used.
- Wear the correct protective equipment for the tools you are using. If in doubt. Please ask!
- Safety glasses with side shields or goggles to cover prescription glasses shall be worn in the Machine Shop at all times.
- Keeping arms and legs covered, avoiding dangling jewelry or ties, and wearing closed-toe shoes can go a long way in minimizing common workplace injuries and accidents.
- Loosely fitting clothing may become entangled in rotating machinery; do not wear it in the shop or labs.
- Clothing made of synthetic fibers should not be worn while working with flammable liquids or when a fire hazard is present as these materials tend to melt and stick to exposed skin.
- In the welding shop, long-sleeve shirts or equivalent are required to protect from u.v. radiation. Any damage to your clothes (e.g. oil marks) is your own responsibility.
- In the welding shop, long-sleeve shirts or equivalent are required to protect from u.v. radiation. Any damage to your clothes (e.g. oil marks) is your own responsibility.
- People with long hair shall wear it tied up or with protective covering to ensure that their hair cannot become entangled with machinery or burnt with welding equipment.
- Avoid wearing jewelry in the lab as this can pose multiple safety hazards. Rings and loose jewelry shall be removed while working with machinery.
- No contact lenses should be worn around hazardous chemicals – even when wearing safety glasses.
- Closed toe shoes will be worn at all times in the laboratory.
- Perforated shoes or sandals are not appropriate.
- Safety shoes with steel toes are preferred.
- When welding, special eye protection and gloves are to be worn. This will protect eyes from high intensity light and u.v. and hands from u.v. burns. Also, remember the work piece is extremely hot and will remain so for a considerable time after actual welding is done.
- When working with machine tools, keep your fingers well away from the tool.
- Make sure your work piece is fixed securely before work commences.
- Do not handle chips coming from the work piece as they are hot and have sharp cutting edges.
- When using any wrench provided to tighten a tool bit or work piece, never leave the wrench in the chuck.
- Check travel and clearance between the tool post and chuck to prevent contact.
- Minimize all chemical exposures.
- Avoid skin and eye contact with all chemicals.
- Do not taste or intentionally sniff chemicals. Assume that all chemicals of unknown toxicity are highly toxic.
- Wash exposed areas of the skin prior to leaving the laboratory.
- Wash hands after using equipment and materials.
- Do not pour chemicals down drains.
- Do NOT utilize the sewer for chemical waste disposal.
- Never consume and/or store food or beverages or apply cosmetics in the lab specially in areas where hazardous chemicals are used or stored.
- No cell phone or ear phone usage in the active portion of the laboratories, or during experimental operations.
- Avoid distracting or startling persons working in the laboratory.
- Keep clear of any person operating tools and machinery (bumping an operator or get tangled in the lead could cause serious injury to you or the operator).
- Do not talk to anyone operating electrical equipment and machinery.
- No horseplay will be tolerated. Fooling around and practical jokes in the workshop will not be tolerated. These students will be told to leave.
- Lift, bend, and stretch with care to avoid injury. Musculoskeletal problems caused by poor technique when picking up boxes or stretching to reach objects is a common cause of workplace injury. If you're not sure how to best lift, bend or stretch at work, ask your supervisor or instructor.
- Student affected by drugs or alcohol are not permitted in the workshop. Not only can drugs and alcohol affect your motor skills, they can also impair your judgment and ability to communicate. Even prescription drugs can have a serious effect on your ability to handle machinery and tools safely.
- Students with any health problems that may affect workplace safety (e.g., medication, epileptic fits) must report these conditions to the workshop staff.
- Keep your working area neat and well organized; keep the floor clean of oil spills and metal chips.
- Clean off your machine when finished and return all tooling to the storage bins, trays, etc. The area must be swept clean before leaving your machine. Failure to do so will result in curtailment of privileges.
- Before leaving check that any tools you have been using have been put away in the appropriate spots, clean up your work area and notify the workshop staff.
- In the event of any problems arising while operating a piece of equipment, shut down the equipment and report the problem to the instructor.
- Report any personal injury to the instructor for treatment. Report any hazard you notice to the instructor. All accidents, cuts and abrasions must be reported before leaving the workshop. If an accident does happen, no matter how small, it must be reported to the workshop staff.
- Do not touch anyone who has been electrocuted.
- Do not cut corners or take unnecessary risks.
- Workplace safety rules are often developed in response to hazard and risk assessments. They are by nature designed to minimize the chances of injury while carrying out assigned tasks. All students should place emphasis on safety at all times. Anticipate the potential hazards and appropriate safety precautions before beginning any work.

8 – INDUSTRIAL TRAINING/ SUMMER PRACTICE

In the summer of the third year, students can opt to participate in industrial training. Students are able to gain engineering-work-related experience and to learn more about real-life business company operation from internships, which last from a minimum of 8 weeks (40 days) to more than eight weeks, depending on requirements of different employers. Students should obtain approval of the Summer Practice Committee before commencing training. Following this training, students will be required to write a formal report and present their work to the Summer Practice Committee. The aim of the training is to give students opportunity to observe real world engineering practices in a firm, and enhance the students' engineering knowledge acquired in class through field experience, develop the students' job related skills, appreciate interdisciplinary team work, and thus enable the students to explore their career interests.

Responsibility: When a student is sent to an external organisation, he/she will be fully liable to the organisation. His/her attitude must be according to the working scheme, rules and regulations of the organisation. For example, the student may only take leave upon approval from the organisation. To ensure effective supervision by the organisation, the student is not required to report to the supervisor/coordinator at the university, unless when necessary under certain circumstances from time to time for coordination purposes. Although the student will always be registered to the university during the training, the assessment done by the organisation on his/her at the end of the training will be taken as part of the evaluation of his/her overall performance and can result in his/her success and failure in undertaking the course.



* Students can start the process if they are registered to MENG364 in the current semester. However, if they get F or W grade at the end of the semester they shall not do summer practice in the summer period.
If your IENG263 grade is already D- or above "YES"
If you did not registered IENG263 in the current semester and If your grade is already F or W "NO"
• For Mechanical Engineering students there has to be at least one Mechanical Engineer employee, whereas for Mechatronics Engineering students there has to be at least one Mechanical or Electrical Engineer employee in the company
If required use Form ST1, ŧ No summer school and summer practice at the same time
The details are available on Summer Practice/ Industrial Training page https://me.emu.edu.tr/en/industrial-training
NOTE:
1. The students cannot do Summer Practice/ Industrial Training internship and take Summer Courses in the same semester.
2. After completing their Summer Practice/ Industrial Training internship, the students must register for MENG400/MECT400/ENRG400 Summer Practice/ Industrial Training course in the following semester. Otherwise, they will not be able to register it in a later semester. The registration for MENG400/MECT400/ENRG400 is not be possible for another semester, it must be done immediately following the summer training Semester. If the student fails to register in the following semester he/she must repeat the Summer Practice/ Industrial Training.

9 - CAPSTONE TEAM PROJECTS

Capstone Design Projects also known as "Senior design projects" are the centerpiece of the mechanical and mechatronics engineering curricula's professional component, allowing students to be involved in interesting, real-world activities. Each senior is required to complete this course. Capstone projects are each advised by a faculty member who supervises the capstone project teams.

The objective of the capstone design course is to provide students with a realistic independent design and development experience that allows them to integrate and apply the basic disciplinary material they have learned during their engineering program to solve practical design problems by synthesizing a new product, device or process within multiple realistic constraints. Projects are implemented conforming to relevant standards, ethical issues and environmental policies. Research topics, may be principally experimental, theoretical, applied or simulation, will be chosen in consultation with a project supervisor.

MENG410/MECT410/ENRG410 - Introduction to Capstone Design

Capstone 1: During the first semester of the Capstone cycle (MENG410/MECT410/ENRG410) the student teams gain understanding of the project scope, formulate engineering specifications, develop conceptual solutions and designs, go through a concept analysis and selection process, carry out the necessary engineering analyses and arrive at a final proposed prototype design complete with engineering manufacturing drawings. This proposed prototype design is presented to a panel of expert professionals who provide assessment and critique, and the student team submits a final report at the close of the semester.

MENG411/MECT411/ENRG411 - Capstone Team Project

Capstone 2: In the second semester of the cycle (MENG411/MECT411/ENRG411) the student teams proceed with physical realization and testing of their designs and at the end they deliver an engineered, tested and validated product, which they defend in front of the same panel of expert professionals. A final comprehensive report is then submitted by each team documenting their built and tested prototype along with the associated design, realization and testing processes. Failure to deliver a finished prototype adhering to specifications by the end of the cycle may result in failing the course. In order to avoid this, any non-compliance with specifications must be explained and viable solutions to address its root causes must be proposed.

In their journey through this two-course program and in addition to the conceptual and technical issues in design, the students have to deal with the challenges of teamwork, leadership, project and budget management, estimation, procurement, redesigns, as well as hands-on manufacturing and communications of all forms with their supervisor, technical support staff, and vendors. Capstone design projects allow the students to experience the rigor and structure of a full-cycle design, including: Problem definition, Benchmark studies, Concept generation, Concept evaluation, Concept selection and feasibility studies, Engineering design analyses, Prototype fabrication and testing.

Note: Please submit your reports to your respective Supervisors for approval one week before the final submission deadline. Please upload your report in MS Teams in your respective Project Group after approval of your respective Supervisors. Late submissions will be penalized with reduction in overall grades. Please upload your Project reports, Drawings, CAD Models, Presentation, Poster, Video, Animations etc in your respective MS Team.

The details are available on Capstone Design and Projects page https://me.emu.edu.tr/en/capstone-design-projects

10 - DEPARTMENTAL COMMITTEES

Departmental council establishes working committees and assigns faculty members to the committees. Each committee is responsible for one subject and carries out necessary work regarding the subject.

	1- ABET COMMITTEE
1	Assoc. Prof. Dr. Murat Özdenefe (Chair)
2	Assoc. Prof. Dr. Devrim Aydın
3	Prof. Dr. Qasim Zeeshan
	RA : Hussain Shawish
	RA : Zumurrud Mahmoud

	2- ASSISTANTSHIP COMMITTEE
1	Assoc. Prof. Dr. Devrim Aydın (Chair)
2	Assoc. Prof. Dr. Murat Özdenefe
3	Prof. Dr. Qasim Zeeshan
	RA : Erfan Malekian
	RA : Hussain Shawish

	3- UNDERGRADUATE & DOUBLE MAJOR CURRICULUM COMMITTEE
1	Assoc. Prof. Dr. Murat Ozdenefe (Chair)
2	Prof. Dr. Haşan Hacışevki
3	Prof. Dr. Ugur Atikol
	RA : Yasser Hamed Elmoghazi

	4- RECRUITMENT COMMITTEE
1	Assoc. Prof. Dr. Murat Özdenefe (Chair)
2	Assoc. Prof. Devrim Aydın
3	Prof. Dr. Qasim Zeeshan
	RA : Hussain Shawish

	5- GRADUATE COMMITTEE
1	Prof. Dr. Ugur Atikol (Chair)
2	Prof. Dr. Qasim Zeeshan
3	Assoc. Prof. Dr. Babak Safaei
	RA : Garshasp Sakron

	6- WORKSHOP AND LABORATORIES COMMITTEE*
1	Prof. Dr. Hasan Hacışevki (Chair)
2	Assoc. Prof. Dr. Murat Özdenefe
3	Assoc. Prof. Dr. Devrim Aydın
	RA : Erfan Malekian
	RA : Hussain Shawish
	RA : Zumurrud Mahmoud
	RA : Ayşegül Gazioğlu
	RA : Yasser Hamed Elmoghazi
	RA : Emmanuel Chukwueloka Onyıbo
	RA : Osinachi Mbah
	RA : Garshasp Sakron
	RA : Mahmoud Ahmed
	RA : Aslı Akyol Inada

	7- PROMOTIONS COMMITTEE
1	Prof. Dr. Uğur Atikol (Chair)
2	Prof. Dr. Hasan Hacisevki
3	Prof. Dr. Qasim Zeeshan
	RA : Ayşegül Gazioğlu
	RA : Osinachi Mbah

	8- SUMMER PRACTICE COMMITTEE
1	Assoc. Prof. Dr. Babak Safaei (Chair)
2	Prof. Dr. Hasan Hacışevki
	RA : Yasser Hamed Elmoghazi
	RA : Garshasp Sakron

	9- TRANSFER STUDENTS COMMITTEE
1	Assoc. Prof. Dr. Murat Özdenefe (Chair)
2	Prof. Dr. Uğur Atikol
3	Prof. Dr. Qasim Zeeshan
	RA : Osinachi Mbah

	10- CAPSTONE PROJECTS COMMITTEE
1	Assoc. Prof. Dr. Babak Safaei (Chair)
2	Prof. Dr. Qasim Zeeshan
	RA : Emmanuel Chukwueloka Onyıbo

	11- EXAM COORDİNATOR
1	Assoc. Prof. Dr. Devrim Aydin
	RA : Erfan Malekian
	RA : Aslı Akyol Inada

Each Assistant is responsible for the inventory, operations, safety, maintenance and cleaning of their respective course labs and equipment.

Laboratory/ Workshop/ Center	**Responsible Team**
Mechanical Workshop – ME008	RA : Zumurrud Mahmoud* RA : Erfan Malekian RA : Mahmoud Ahmed
Mechanics of Materials Laboratory – ME014	RA : Garshasp Sakron* RA : Zumurrud Mahmoud RA : Osinachi Mbah
Advanced Composite Laboratory – ME016	RA : Emmanuel Onyıbo* RA : Yasser Hamed Elmoghazi RA : Amin Memarzadeh
Aerodynamics Laboratory – ME017	RA : Ayşegül Gazioğlu* RA : Erfan Malekian RA : Mahmoud Ahmed
Fluid Mechanics and Automotive Laboratory – ME020	RA : Ayşegül Gazioğlu* RA : Hussain Shawish RA : Aslı Akyol Inada
Manufacturing, Materials Science and Metrology Laboratory – ME024	RA : Zumurrud Mahmoud* RA : Yasser Hamed Elmoghazi RA : Amin Memarzadeh
Thermal Sciences Laboratory – ME025 Energy Research Center	RA : Erfan Malekian* RA : Hussain Shawish RA : Mahmoud Ahmed RA : Aslı Akyol Inada
Automation - I Laboratory – ME029	RA : Osinachi Mbah* RA : Ayşegül Gazioğlu
Automation - II Laboratory – ME028	RA : Osinachi Mbah* RA : Ayşegül Gazioğlu
Computing resources, Hardware and Software Used for Instruction	RA : Garshasp Sakron* RA : Hussain Shawish RA : Mahmoud Ahmed
Computer Laboratories within the department	RA : Hussain Shawish* RA : Garshasp Sakron RA : Mahmoud Ahmed
Department Library	RA : Mahmoud Ahmed* RA : Amin Memarzadeh

* Team Leader