

This booklet introduces the Mechanical Engineering Department with Mechanical Engineering Undergraduate Program of Eastern Mediterranean University. It includes information about the department for the academic year 2015-16. This booklet outlines the procedure and guidelines that should be considered when seeking academic advice.



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Welcome Note by Head of Department

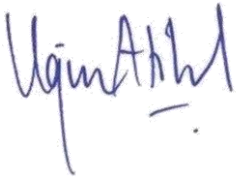
Dear Students,

I would like to welcome you to the Department of Mechanical Engineering. I am pleased that you have chosen our department for your major and I hope that you would find the university experience in our department exceedingly rewarding. Our mission is to raise you as competent engineers who can adapt to new circumstances in professional life by using the essential tools and the fundamental background of the disciplines of Mechanical Engineering.

The goals of our department are ***to provide academic guidance*** to help you with program requirements, course prerequisites, course sequencing, etc., as well as ***to provide career guidance*** to help you choose a meaningful and gratifying job after graduation.

You will notice that our department has a very friendly atmosphere and we always promote a close knit community of students and faculty. All our faculty members, our staff and I look forward to working closely with you during your stay in North Cyprus in order to develop a joyful and fruitful atmosphere within the department. Please go through and make good use of this document during your education here at EMU in the Mechanical Engineering Department.

Warm Regards



Prof. Dr. Uğur ATİKOL
Head 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.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). 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, graduated from an ABET accredited engineering program, are distinguished from others as employers seek for well-prepared engineers. Institutions or colleges continuously improve quality of their programs for better outcomes.

1.2 Mission of the Program

The mission of the BS in Mechanical Engineering program is to cultivate on the creation, integration, transfer and application of knowledge relevant to the discipline of Mechanical Engineering. The aim of the program is to encourage students to express and improve themselves with their knowledge and skills to respond to engineering problems in wide range of areas. The aim of the program is to empower the graduates with sound knowledge of the foundations of mechanical engineering along with effective communication, analytical, and problem-solving skills. The program is dedicated to prepare the 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.

1.3 Program Educational Objectives

The educational objectives of the undergraduate program in Mechanical Engineering are to provide a high-standard education and training that beyond 3 to 5 years after graduation will enable its graduates to

1. **Work successfully in Mechanical Engineering- related fields and demonstrate professional engineering competence via attaining positions of increasing responsibility;**
2. **Engage in activities that foster professional growth and learning;**
3. **Exhibit effective leadership in multicultural and multidisciplinary settings of the competitive global work environment;**
4. **Fulfill professional responsibilities, conforming to ethical and environmental values.**

1.4 Student Outcomes

The ME program ensures the student outcomes ‘a’ through ‘k’ in its curriculum, and the outcomes are evaluated through direct and indirect assessments. Upon completion of the BS in Mechanical Engineering Program at Eastern Mediterranean University, the graduates have the following knowledge, understanding, and capabilities:

- a. **an ability to apply knowledge of mathematics, science and engineering.**
- b. **an ability to design and conduct experiments, as well as to analyze and interpret data.**
- c. **an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.**
- d. **an ability to function on multidisciplinary teams.**
- e. **an ability to identify, formulate, and solve engineering problems.**
- f. **an understanding of professional and ethical responsibility.**
- g. **an ability to communicate effectively.**
- h. **the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.**
- i. **a recognition of the need for, and an ability to engage in life-long learning.**
- j. **a knowledge of contemporary issues.**
- k. **an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.**

2- STAFF

2.1. Academic Staff



Uğur ATİKOL

Chair of the Department. 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.

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Professor of Mechanical Engineering. Prof. Hashemipour received his B.Sc. and M.Sc. degrees from University of Warwick, UK and his Ph.D. degree from Eastern Mediterranean University. His current research interests are Computer Aided Process Planning (CAPP) on WEB, Application of Virtual Reality in Requirement Analysis stage of the CIM in SMEs, Development of Computer Aided Software Engineering (CASE tools), Process planning and scheduling integration for SMEs.

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Senior Instructor. Dr. Davut Solyali received his BSc degree in Electrical and Electronic Engineering from the Eastern Mediterranean University, Famagusta, Cyprus. He obtained his MSc in Electrical Power Systems with distinction and his PhD from the Department of Electronic and Electrical Engineering, University of Bath, Bath, U.K in 2007 and 2013. He worked at the ENCC (the electricity national control centre) of the National Grid (UK) as a power systems engineer between 2008 and 2014. Thereafter, he has been teaching at the Eastern Mediterranean University in Cyprus. His major areas for academic and research are renewable energy systems, power and high voltage systems, electrical machines, smart grids and electric vehicles.

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3- FACILITIES

3.1 American Society of Mechanical Engineers (ASME) Student Section

ASME is a non-profit educational and technical organization of professional mechanical engineers. ASME Student Section, in EMU, has been established since March 1997. EMU is one of the four universities in North Cyprus and Turkey having ASME Student Section. The main purpose of ASME Student Section is to organize conferences relating to mechanical engineering topics and to share views and ideas between prospective mechanical engineers and industry.

3.2 Mechanical Engineering Student Society (MESS)

MESS was established by the students of ME program in order to share knowledge, experience and enthusiasm. MESS has an office with library and computer facilities. MESS aims to lead mechanical engineering students to act together and share their experiences.

3.3 Departmental Library

Departmental library consists of nearly 350 books, M.S. and PhD. theses (submitted by mechanical engineering graduate students), and undergraduate project reports. The departmental library is located near the secretary's office at the top floor of the department.

3.4 ME Amphitheater

ME Amphitheater is located within the department building at the ground floor. It is equipped with the instructional technology in order to have an excellent teaching environment. This unit is also used for national/international seminars and presentations.

3.5 Graduate Student's Common Room

Graduate student's common room was established in 2010. The aim of establishing this facility is to encourage graduate students to do research and projects through sharing their knowledge with colleagues. The common room is equipped with facilities like computers, internet, and desks.

3.6 Laboratories

The department has extensive, well equipped modern laboratories that cover all the core disciplines of Mechanical Engineering. The department has separate laboratories for Automotive, Aerodynamics, CAD/CAM & CAE, Computer, Capstone Team Project, Fluid Mechanics and Hydraulic Machinery, Heat Transfer, Materials Science, Refrigeration and Air Conditioning, Strength of Material & Rigid Body Dynamics, System Control, Metrology & Quality Control, Thermodynamics, and a Workshop. The laboratories are equipped with apparatus ranging from basic instrumentation for fundamental exercises to more advanced experiments using its state-of-the-art equipment. A variety of modern engineering tools and software are available for teaching and research. The laboratories provide undergraduate level instruction to meet the requirements of the industry and also serve as a platform for graduate level research.

ME008 -Workshops



The workshops include well-equipped machines, sheet metal and welding shops. The machine shop is equipped with various sized lathes, milling machines, drilling machines, shaper, and grinding machines including tool, surface and cylindrical grinders. The welding shop has a number of arc and gas welding equipment including TIG and MIG welding sets and a Plasma Cutting Machine. These shops are available for use by staff and students under supervision. The workshop staff also undertakes work and projects required by industry.



ME014 - Strength of Material and Rigid Body Dynamics Laboratory



Contains following benches for experimentation and demonstration. Whirling of shafts apparatus, Coriolis acceleration apparatus, gyroscopes, inertia wheels, and balancing equipment are available for tests. Moreover, other equipment is also available for stress analysis experimentation, including thin/thick walled cylinders for experiments, beam deflections experiments with strain gages, torsion testing machine, and a 50 ton hydraulic press for tension & compression experiments. A vibration bench is also available to study the effects of various vibration parameters.



ME016 - Thermodynamics Laboratory



In the Thermodynamic Laboratory, facilities are available for experimentation and demonstration of practical concepts to undergraduate students. These experimentations include steam bench, steam engine, air compressor, bomb calorimeter, flash point apparatus and converging-diverging nozzle.

ME016 - Automotive Laboratory



Automotive Laboratory is equipped for performance tests on petrol/diesel, two and four stroke engines, and ram-jet. A variable compression ratio I.C. engine test bed is used for the study of compression ratio and timing effects on petrol and diesel engine performance.



ME017 - Aerodynamics Laboratory



In the Aerodynamics Laboratory, there are two wind tunnels. Wind tunnels are used to study aerodynamics, effect of air, aerodynamic forces and how air flows through the tunnel. One of the wind tunnels has maximum capacity of 50 m/s with 10x40 cm test section and the other wind tunnel has the maximum capacity of 30 m/s with 50x50 test section.



ME020 - Fluid Mechanics and Hydraulic Machinery Laboratory



Fluid Mechanics and Hydraulic Machinery Laboratory contains following setups for demonstration and study of basic fluid mechanics principles as flow measuring apparatus, Heleshaw apparatus, pipe friction loss, vortex motion apparatus, water jets, etc. In addition, small compact wind tunnel and air bench enable students to perform experiments on compressible fluids. This laboratory also contains Francis and Pelton turbines, axial and radial flow pump-turbine test rigs, and pumps of various sizes for experimentation.

ME024 - System Control, Metrology and Quality Control Laboratory



The equipment in the laboratory enables students to perform roundness, flatness, and straightness tests as well as the tests for checking accuracy of the measuring instruments and machine tools. Optical instruments such as autocollimator, angle decor, interferometer, alignment telescope, and optical microscope are also available. The laboratory is also equipped with digital instruments and printer for statistical process control.

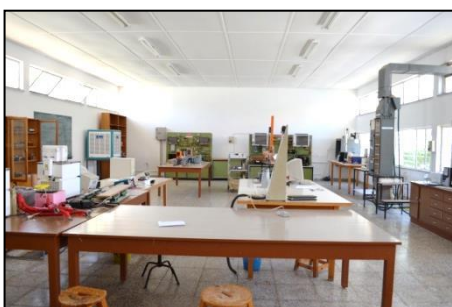
ME024 - Materials Science Laboratory



Materials Science Laboratory provides testing facilities for determining various properties of engineering materials, such as strength & hardness, and testing for creep and impact. Available equipment includes optical microscopes, hardness tester, impact tester, tensile testing apparatus, corrosion test apparatus and furnaces for heat treatment;



ME025 - Refrigeration and Air Conditioning Laboratory



Refrigeration and Air Conditioning Laboratory contains test and demonstration equipment on refrigeration ranging from small scale to industrial scale. Some benches are modular and allow connection of different modules for comparative studies. Tools necessary for servicing a refrigeration system are also available. An air conditioning bench with pre-heaters, after-heaters and humidifiers, enables psychometric processes to be studied. An experimental cooling tower is also available for tests.



ME025 - Heat Transfer Laboratory



In the Heat Transfer Laboratory, various tests can be conducted on conduction, free and forced convection and radiation heat transfer apparatus. Heat exchanger equipment is used to investigate the performance of parallel- and counter-flow configurations. The laboratories are also equipped with a hot wire anemometer and data loggers.

ME028 - CAD/CAM and CAE Laboratories



In the CAD/CAM and CAE Laboratories a full range of software and hardware is available including MasterCAM Mill version 7.0, Promodel, Mechanical Desktop, Mill CAM designer, Lath CAM designer, Genius, AutoCAD, Mastercam, and Solidworks etc. Moreover, CNC machines, Conveyors, and Robots are also available. The lab is facilitated with 18 computers. Computers and software are continuously upgraded.



ME029 - Capstone Team Project Workshop

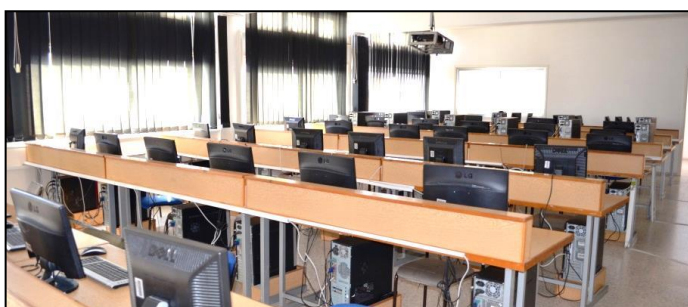


The Capstone Team Project Workshop is used to exhibit devices, equipment and instruments designed and developed by undergraduate students. In general, Capstone Team Projects start at the beginning of 7th semester and are finalized by end of the 8th semester.

ME116 - Computer Laboratories



There are three computer laboratories in addition to a CAD/CAM Lab. Of these labs, two are AUTOCAD labs, with each one having 30 computers and a plotter. These equipment are used, primarily, for engineering graphics and engineering drawing courses. The Computer Laboratory is an internet laboratory facilitated with 30 computers.



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 mechanical 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 at the end of the junior year. The breadth and depth of the mechanical 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. 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.

Semester	Reference Code	Course Code	Full Course Title	Credit				Pre-requisites
				Lecture	Lab	Tutorial	Total	
1	23710	MENG104	Engineering Graphics	2	3	0	3	
1	23734	CMPE108	Algorithms & Programming	2	3	0	3	
1	23712	ENGL191	Communication in English-I	3	1	0	3	
1	23713	MATH151	Calculus-I	4	0	1	4	
1	23714	PHYS101	Physics-I	4	1	0	4	
2	23720	MENG190	Introduction to Mechanical Engineering	1	0	1	1	
2	23721	CHEM101	General Chemistry	4	0	1	4	
2	23722	ENGL192	Communication in English- II	3	1	0	3	ENGL191
2	23723	MATH152	Calculus-II	4	0	1	4	MATH151
2	23724	PHYS102	Physics-II	4	1	0	4	PHYS101
2	23726	MATH106	Linear Algebra	3	0	1	3	
3	23730	MENG203	Experimental Methods for Engineers	2	1	0	2	
3	23731	MENG286	Materials Science	3	1	0	3	CHEM101
3	23732	MENG245	Thermodynamics-I	3	1	0	3	
3	23733	CIVL211	Statics	4	0	1	4	PHYS101
3	23725	TUSL181	Turkish as a Second Language*	2	0	0	2	
3	23725	HIST280	History of Turkish Reforms #	2	0	0	2	
3	23737	MATH207	Differential Equations	4	0	1	4	MATH151
4	23740	MENG201	Mechanical Workshop Practice	1	3	0	2	
4	23741	MENG246	Thermodynamics-II	3	1	0	3	MENG245 MENG203
4	23742	MENG222	Strength of Materials	4	1	0	4	CIVL211
4	23743	MENG233	Rigid Body Dynamics	4	0	1	4	CIVL211
4	23744	EENG225	Fundamentals of EEE	3	1	0	3	PHYS102
4	23745	ENGL201	Communication Skills	3	0	0	3	ENGL192
5	23750	MENG353	Fluid Mechanics	4	1	0	4	MATH207
5	23751	MENG364	Manufacturing Technology	4	1	0	4	MENG286
5	23752	MENG331	Dynamics of Machinery	4	1	0	4	MENG233 MATH207
5	23753	MENG375	Machine Elements -I	3	0	1	3	MENG222
5	23754	MATH373	Numerical Analysis for Engineers	3	0	1	3	MATH207

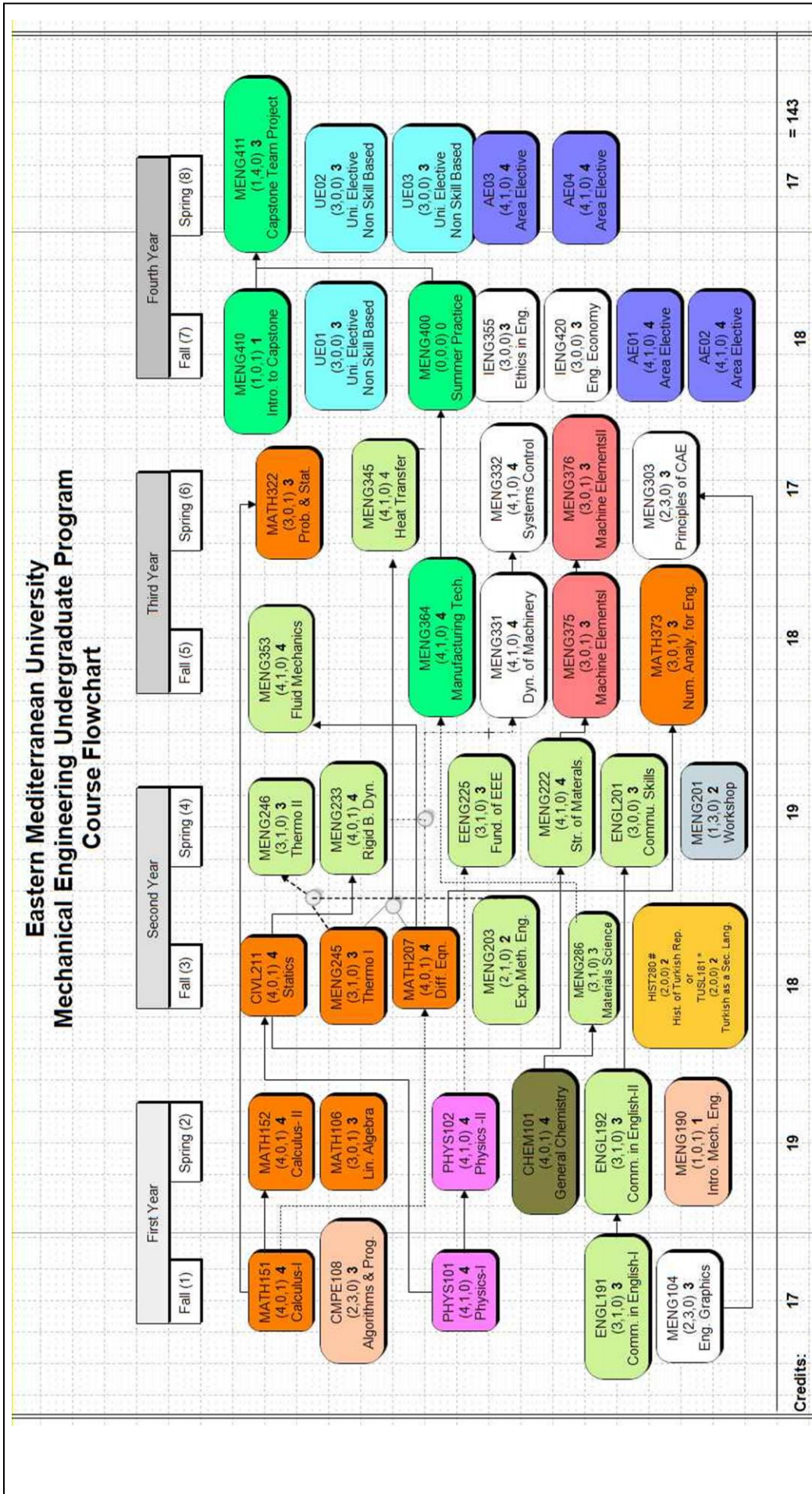
Semester	Reference Code	Course Code	Full Course Title	Credit				Pre-requisites
				Lecture	Lab	Tutorial	Total	
6	23761	MENG345	Heat Transfer	4	1	0	4	MENG245 MATH207
6	23762	MENG376	Machine Elements--II	3	0	1	3	MENG375
6	23763	MENG303	Principles of Computer Aided Engineering	2	3	0	3	MENG104
6	23764	MATH322	Probability & Statistical Methods	3	0	1	3	MATH151
7	23770	MENG400	Summer Practice	0	0	0	0	MENG364
7	23771	MENG410	Intro. to Capstone Design	1	0	1	1	D.C**
7	23772	AE01	Area Elective-01	4	1	0	4	
7	23773	AE02	Area Elective-02	4	1	0	4	
7	23736	UE01	University Elective-01 (Non-skill based)	3	0	0	3	
7	23775	IENG355	Ethics in Engineering	3	0	0	3	
7	23776	IENG420	Engineering Economy	3	0	0	3	
8	23780	MENG411	Capstone Team Project	1	4	0	3	MENG410 MENG400
8	23781	AE03	Area Elective-03	4	1	0	4	
8	23782	AE04	Area Elective-04	4	1	0	4	
8	23774	UE02	University Elective-02 (Non-skill based)	3	0	0	3	
8	23784	UE03	University Elective-03 (Non-skill based)	3	0	0	3	

*For Foreign Students

For Turkish Students

** Departmental Consent

Table 4.1 Prerequisite Flowchart for the Mechanical Engineering Curriculum



4.2 Course Descriptions

Area Core Courses		
1.	<p>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.</p> <p>Credits: (2 / 3 / 0) 3 Abbreviated Title: Engineering Graphics Keywords: Acad, Orthographic, Sectioning, dimensioning</p>	<p>Prerequisites: None Category: Area Core Course ECTS credit: 7 Teaching Language: English</p>
2.	<p>MENG190 Introduction to Mechanical Engineering This course aims to familiarize first year mechanical engineering students by introducing them to the fundamentals of discipline; job opportunities for mechanical engineers; basic study skills; an overview of fundamentals laws and principles of mechanical engineering; introduction to problem layout and problem solving methods; simplified engineering modeling and analysis of mechanical systems; collection, manipulation and presentation of engineering data; ethical issues; and the importance of computers and language skills for effective communication.</p> <p>Credits: (1 / 0 / 1) 1 Abbreviated Title: Int to Mechanical Engineer Keywords: Introduction to Mechanical engineering, standards, ethics, communication.</p>	<p>Prerequisites: None Category: Area Core Course ECTS credit: 3 Teaching Language: English</p>
3.	<p>MENG286 Materials Science Crystal structure and crystal geometry phase diagrams of alloy systems, heat treatments applied to metallic materials and plain-carbon steels. Mechanical properties of metals stress-strain in metals, tensile test, hardness and hardness testing, fatigue and fracture of metals, impact test, creep of metals and creep test. Strengthening and plastic deformation of metals. Mechanical properties of ceramics, glasses, polymers and composites. Corrosion of metals. Material selection based on mechanical properties.</p> <p>Credits: (3 / 1 / 0) 3 Abbreviated Title: Materials Science Keywords: Crystal Structure, Mechanical Testing, Hardening of Steels, Heat Treatment</p>	<p>Prerequisites: CHEM101 Category: Area Core Course ECTS credit: 6 Teaching Language: English</p>
4.	<p>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.</p> <p>Credits: (3 / 1 / 0) 3 Abbreviated Title: Thermodynamics-I Keywords: Keywords: Basic Concepts of Thermodynamics, First Law of Thermodynamics, Second Law of Thermodynamics, entropy</p>	<p>Prerequisites: None Category: Area Core Course ECTS credit: 6 Teaching Language: English</p>
5.	<p>MENG203 Experimental Methods for Engineers Principles and methods of experimentation. Sensing devices, measuring devices and their limitations. Designing and planning experiments; data analysis, error analysis and uncertainty analysis. Performing and reporting of experiments.</p> <p>Credits: (2 / 1 / 0) 2 Abbreviated Title: Experimental Methods for Engineers Keywords: Analysis of Experimental Data, Displacement and Area Measurement, Pressure Measurement, Flow Measurement</p>	<p>Prerequisites: None Category: Area Core Course ECTS credit: 5 Teaching Language: English</p>
6.	<p>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.</p> <p>Credits: (3 / 1 / 0) 3 Abbreviated Title: Thermodynamics-II Keywords: Power generation, Refrigeration and Air conditioning, Combustion, Entropy</p>	<p>Prerequisites: MENG245 & MENG203 Category: Area Core Course ECTS credit: 6 Teaching Language: English</p>
7.	<p>MENG222 Strength of Materials Definition of stress, strain. Hook's law. Constitutive relations for uniaxial stresses. Shearing stress and strain. Torsion of circular members. Thin walled pressure vessels. Relations between bending moment, shearing force and distributed loads. Bending of beams with symmetrical sections. Bending of composite beams.</p> <p>Credits: (4 / 1 / 0) 4 Abbreviated Title: Strength of Materials Keywords: Axial stress, shear stress, torsion, bending, beams, buckling</p>	<p>Prerequisites: MENG231 or CIVL211 Category: Area Core Course ECTS credit: 6 Teaching Language: English</p>

8.	<p>MENG233 Rigid Body Dynamics Kinematics of rigid bodies. 2-D rigid body dynamics, D' Alembert's principle. Energy Methods. Principle of impulse and momentum Angular momentum in 3-D Motion about a fixed axis. Un-damped vibration of rigid bodies.</p> <p>Credits: (4 / 0 / 1) 4 Abbreviated Title: Rigid Body Dynamics Keywords: Particle And Rigid Body Dynamics, Impact, Relative Motion, Momentum, Work And Energy</p> <p>Prerequisites :MENG231 or CIVL211 Category: Area Core Course</p> <p>ECTS credit: 6 Teaching Language: English</p>
9.	<p>MENG201 Mechanical Workshop Practice This is to be conducted in the Mechanical Engineering Department's workshops by all Mechanical Engineering students who have completed a minimum of three semesters in the program. Students will perform various hand and machine tool operations under staff supervision. It includes introduction to engineering materials, and selected practices on laying-out and setting out a job, using measuring devices. At the end of the training students will be required to complete a report regarding their training.</p> <p>Credits: (1 / 3 / 0) 2 Abbreviated Title: Workshop Practice-II Keywords: Workshop</p> <p>Prerequisites: None Category: Area Core Course</p> <p>ECTS credit: 3 Teaching Language: English</p>
10.	<p>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.</p> <p>Credits: (4 / 1 / 0) 4 Abbreviated Title: Fluid Mechanics Keywords: Fluid Mechanics</p> <p>Prerequisites: MATH207 Category: Area Core Course</p> <p>ECTS credit: 7 Teaching Language: English</p>
11.	<p>MENG364 Manufacturing Technology Fundamentals and principles of major manufacturing processes: casting, bulk deformation, sheet metalworking, powder metallurgy. Processing of polymers, ceramics, glass, rubber and composites. Metal cutting: cutting conditions, forces, temperatures, tool life, surface finish, coolants. Cutting tool materials. Principles, tools and process capabilities of basic machining operations: turning, milling, drilling, planning, shaping, boring, broaching. Gear manufacturing. Abrasive operations: grinding, finishing operations. Non-traditional processes. Basics of joining and assembling. Fusion and solid-state welding. Essentials of computer numerical control.</p> <p>Credits: (4 / 1 / 0) 4 Abbreviated Title: Manufacturing Technology Keywords: Machining, Casting, Sheet Metal Forming, Bulk Forming, Plastics</p> <p>Prerequisites: MENG286 Category: Area Core Course</p> <p>ECTS credit: 6 Teaching Language: English</p>
12.	<p>MENG331 Dynamics of Machinery Mechanical vibrations: 2-DOF vibrating systems, vibration measuring instruments, numerical methods for multi-degree of freedom systems, Dunkerley's equations, vibration of continuous systems, random vibrations. Balancing of machinery: rigid rotors, reciprocating machines, flywheels, planar linkages, balancing machines and instrumentation. Cam dynamics, gyroscope and governors.</p> <p>Credits: (4 / 1 / 0) 4 Abbreviated Title: Dynamics of Machinery Keywords: Vibration, Mechanisms, Rigid Body Dynamics, Frequency Analysis</p> <p>Prerequisites: (MENG233 or MENG231) and (MATH207 or MATH241) Category: Area Core Course</p> <p>ECTS credit: 6 Teaching Language: English</p>
13.	<p>MENG375 Machine Elements-I The course covers fundamentals of machine design which include: general design rules, load analysis, materials selection, stress, strain and deflection analysis, failure theories, the concepts of reliability and safety, tolerances and fits; and introduces design guidelines.</p> <p>Credits: (3 / 0 / 1) 3 Abbreviated Title: Machine Elements-I Keywords: Design of Machine Elements, Strength Of Materials, Stress, Deflection, Strength, Material Selection, Failure Theories, Reliability, Safety, Tolerance and Fits</p> <p>Prerequisites: MENG222 Category: Area Core Course</p> <p>ECTS credit: 6 Teaching Language: English</p>
14.	<p>MENG332 Systems Control Control engineering mathematics, complex variables and Laplace transforms. Initial and final value theorems. Introduction to practical controllers and control principles. Mathematical modeling of dynamic systems, transfer functions and block diagrams, transient response analysis, stability analysis. Analysis of systems, deviation of transfer function and frequency response for various systems, devices and elements.</p> <p>Credits: (4 / 1 / 0) 4 Abbreviated Title: Systems Control Keywords: Mechanical Engineering Control, Mechanical Engineering Controllers, Control Principles, Mechanical Devices And Elements</p> <p>Prerequisites: MENG331 Category: Area Core Course</p> <p>ECTS credit: 6 Teaching Language: English</p>

15.	MENG345 Heat Transfer Introduction, Conservation Laws, Introduction to conduction, One-dimensional steady state conduction, thermal generation, and extended surface, Two-dimensional and transient conduction, Introduction to convection, External Flow, Internal Flow, Free Convection, Boiling and Condensation, Heat Exchangers, Thermal Radiation, Absorption, reflection, and transmission, Radiation exchange, Mass Transfer. Credits: (4 / 1 / 0) 4 Abbreviated Title: Heat Transfer Keywords: Conduction, Convection, Radiation, Heat Exchangers	Prerequisites: MENG245 and MATH207 Category: Area Core Course	ECTS credit: 7 Teaching Language: English
16.	MENG376 Machine Elements-II Mathematical models and equations for: fasteners and power screws, springs, bearings, gears, shafts, clutches and brakes, belt and chain drives. Force and stress analysis of gears and gear systems. Cam and follower systems. Systematic approach to design. Student s will have an opportunity to work on a design project using learned knowledge. Credits: (3 / 0 / 1) 3 Abbreviated Title: Machine Elements-II Keywords: Design of Machine Parts, Machine Elements, Components Design, Mechanical Engineering Design	Prerequisites: MENG375 Category: Area Core Course	ECTS credit: 6 Teaching Language: English
17.	MENG303 Principles of Computer Aided Engineering Integration of computers into the design cycle. Interactive computer modeling and analysis. Geometrical modeling with wire frame, surface, and solid models. Finite element modeling and analysis. Curves and surfaces and CAD/CAM data exchange. The integration of CAD, CAE and CAM systems. Credits: (2 / 3 / 0) 3 Abbreviated Title: Principles of CAE Keywords: Mechanical Engineering Design, CAE, CAD, CAM	Prerequisites: MENG104 Category: Area Core Course	ECTS credit: 6 Teaching Language: English
18.	MENG410 Introduction to Capstone Design The course aims to prepare the senior year students for their capstone design projects, and to provide guidance with the selection of their project advisors, topics and teams The students are introduced to the basic features of the Capstone Design process, elements of a Capstone Project Report and written oral presentation techniques. Credits: (1 / 0 / 1) 1 Abbreviated Title: Int to Capstone Design Keywords: Design Process, Teamwork, Capstone Team Design Project, Senior Design Introduction	Prerequisites: D.C** Category: Area Core Course	ECTS credit: 4 Teaching Language: English
19.	MENG400 Summer Practice This is a period comprising a minimum of 40 days' training to be completed in an industrial organization by all student s who are effectively in their junior or senior year. Students should obtain approval of the Department before commencing training. Following this training, students will be required to write a formal report and give a short presentation before a committee regarding their training. Credits: (0 / 0 / 0) 0 Abbreviated Title: Summer Practice Keywords: Practical Training, Summer Practice, Industrial Organization, Summer Training	Prerequisites: MENG364 Category: Area Core Course	ECTS credit: 3 Teaching Language: English
20.	MENG411 Capstone Team Project The purpose of the course is to develop an understanding of independent research through the study of a particular Mechanical Engineering topic of interest. The special project is an exercise in the professional application of specialist skills and experience developed in Mechanical Engineering program. Research topics, which may be principally experimental, theoretical or applied, will be chosen in consultation with a project supervisor. Credits: (1 / 4 / 0) 3 Abbreviated Title :Capstone Team Project Keywords: Capstone Team Design, Special Project, Graduation Project	Prerequisites: MENG410 and MENG400 Category: Area Core Course	ECTS credit: 7 Teaching Language: English
	Departmental Consent**		

Area Elective Courses

In order to register for the Area Elective Courses with no Pre-requisites (i.e., Pre-requisites: None), minimum number of attended semesters is required to be 6.

1.	<p>MENG421 Finite Element Analysis Analysis of stress and strain; constitutive equations; plane problems of elasticity; the finite element concept; one - and two-dimensional finite element formulation techniques; transformations, assembly and solution techniques; introduction to three-dimensional finite elements; project assignments of one-and two-dimensional problems.</p> <p>Credits: (4 / 1/ 0) 4 Abbreviated Title : Finite Element Analysis Keywords: Finite Element, stress, strain</p>	<p>Prerequisites: MENG375 Category: Area Elective Course</p>	<p>ECTS credit: 7 Teaching Language: English</p>
2.	<p>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; a dvanced engineering- materials in automotive field.</p> <p>Credits: (4 / 1/ 0) 4 Abbreviated Title : Automotive Engines Keywords: Engine, piston, valve, spark plug</p>	<p>Prerequisites: MENG246 or MENG244 Category: Area Elective Course</p>	<p>ECTS credit: 7 Teaching Language: English</p>
3.	<p>MENG423 Automotive Systems Power train; gear box; clutch; drive shafts; differential; steering systems; directional stability; tires and thread patterns; suspension and intelligent suspension; chassis and body; body structure; aerodynamics; automobile air conditioning; airbag; brake systems and EBD; ABS; alternative fuel; electrical and electronic circuits; charging; lighting.</p> <p>Credits: (4 / 1/ 0) 4 Abbreviated Title : Automotive Systems Keywords: Gearbox, steering, suspension, brake</p>	<p>Prerequisites: None Category: Area Elective Course</p>	<p>ECTS credit: 7 Teaching Language: English</p>
4.	<p>MENG424 Reliability Engineering Probability concept and probability distribution functions. Probability distributions for describing failures. Failure data. Reliability of simple system. Reliability and availability of system with repair. Redundancy. Fault tree and event tree analysis. Risk concept and risk assessment.</p> <p>Credits: (4 / 1/ 0) 4 Abbreviated Title : Reliability Engineering Keywords: Probability, Reliability, Risk</p>	<p>Prerequisites: MATH322 Category: Area Elective Course</p>	<p>ECTS credit: 7 Teaching Language: English</p>
5.	<p>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.</p> <p>Credits: (4 / 1/ 0) 4 Abbreviated Title : I. C. Engines Keywords: Spark ignition, Diesel engines, combustion</p>	<p>Prerequisites: MENG246 or MENG244 Category: Area Elective Course</p>	<p>ECTS credit: 7 Teaching Language: English</p>
6.	<p>MENG442 Solar Engineering Introduction to solar energy; sun-earth geometric relations; solar radiation; energy requirements in buildings; solar energy collectors; energy storage; solar energy process economics; solar cooling processes; passive solar gain systems; solar thermal power; photovoltaic converters.</p> <p>Credits: (4 / 1/ 0) 4 Abbreviated Title : Solar Engineering Keywords: Energy, radiation, collector</p>	<p>Prerequisites: MENG345 Category: Area Elective Course</p>	<p>ECTS credit: 7 Teaching Language: English</p>
7.	<p>MENG443 Heating, Ventilation and Air Conditioning Psychrometrics and elementary psychrometric processes; simultaneous heat and mass transfer in external flows; direct contact transfer devices; heating and cooling coils-compact heat exchangers; thermal comfort; hot water heating systems; heating and cooling load calculations; vapor compression refrigeration cycles.</p> <p>Credits: (4 / 1/ 0) 4 Abbreviated Title : Heating, Ventilation & Air Conditioning Keywords: Heating, Cooling, Flow</p>	<p>Prerequisites: MENG345 Category: Area Elective Course</p>	<p>ECTS credit: 7 Teaching Language: English</p>

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 Abbreviated Title : Thermal System Design Keywords: Thermal System, Analysis	Prerequisites: MENG345 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
9.	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 Abbreviated Title : Thermal Power Engines Keywords: Power, Engines	Prerequisites: MENG246 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
10.	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 Abbreviated Title : Introduction to Energy Management Keywords: Energy, Audit	Prerequisites: None Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
11.	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 Abbreviated Title : Hydraulic Machinery Keywords: Pump, turbine, cavitation	Prerequisites: MENG353 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
12.	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 Abbreviated Title : Gas Dynamics Keywords: Shock wave, nozzle	Prerequisites: MENG246 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
13.	MENG454 Fundamentals of Flow Measurement Fluid properties; measurement and accuracy; influence quantities; flow-meter selection; introduction to differential producers; differential producers design information; linear flow-meters. Credits: (4 / 1/ 0) 4 Abbreviated Title : Fundamentals of Flow Measurement Keywords: Flow meter, orifice	Prerequisites: MENG353 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
14.	MENG461 Injection Mold Design Classification of tools; plastic materials; injection mold design for thermo multi-plastics; injection and feed system; mold cooling; worked example of simple injection molds; molding internal undercuts and threaded components; introduction of multi-daylight and runnerless molds; molds for thermo-setting materials: compression, transfer and injection mold tools; extrusion and blow molding dies. Credits: (4 / 1/ 0) 4 Abbreviated Title : Injection Mold Design Keywords: Mold, Injection, dies	Prerequisites: MENG364 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
15.	MENG462 Metrology and Quality Control Basic consideration of measurement and review of standards; geometric and kinematic principles of instrument design; magnification systems; sources of error in measurement; interferometry and interferometers; flatness and surface texture; machine tool alignment; measurement of gears and screw threads; control of quality; factors affecting quality; statistical methods; sampling schemes; control charts and their interpretations; sampling techniques. Credits: (4 / 1/ 0) 4 Abbreviated Title : Metrology and Quality Control Keywords: measurement, quality control	Prerequisites: MATH322 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English

16.	MENG463 Tool Drawing and Design Principles of tool design; location systems; principles and methods of clamping; cutting tool guidance; fool-proofing; swarf removal; table fixing; ejection; jig feet; trunnions and indexing mechanisms; the use of standard parts; jig and fixtures construction; cutting tools: types, geometry, and important features; press tool design; design assignments on jigs and fixture. Credits: (4 / 1 / 0) 4 Abbreviated Title : Tool Drawing and Design Keywords: Jig, fixture, fool proof	Prerequisites: MENG364 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
17.	MENG464 Computer Integrated Manufacturing What is CIM; CIM definition; CIM environment; CIM benefits; Business perspectives for CIM; objectives of manufacturing business; the business characteristics of CIM systems; components of a CIM architecture; simulation, group technology; networks; concurrent engineering; decision support systems; expert system; CAD/CAM; information and material flow in manufacturing; modeling methodology and related tools in analysis and design of CIM for medium size companies. Credits: (4 / 1 / 0) 4 Abbreviated Title : Computer Integrated Manufacturing Keywords: CIM, Manufacturing, CAD/CAM	Prerequisites: None Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
18.	MENG471 Mechanisms Mobility and structural analysis; kinematic analysis of planar mechanisms; kinematic analysis and synthesis of linear mechanical systems; direct rolling and sliding contact; involute and cycloidal curves; speed ratios; simple and compound gear trains; kinematic analysis of four-link mechanisms; kinematic synthesis of planar mechanisms; two and three positions of a plane; designing with four positions; cam mechanisms and design; intermittent motion mechanisms; introduction to spherical mechanisms; Hooke's joint; the rotary step mechanisms. Credits: (4 / 1 / 0) 4 Abbreviated Title : Mechanisms Keywords: Linkages, Mechanisms, Kinematics	Prerequisites: MENG233 or MENG231 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
19.	MENG472 Machine Design Concepts of design and engineering design; design process; modeling and simulation; use of computers in engineering design; introduction to CAD; design optimization; reliability; case studies in machine design; special topics in machine design. Credits: (4 / 1 / 0) 4 Abbreviated Title : Machine Design Keywords: Design, software, modelling	Prerequisites: MENG233 or MENG231 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
20.	MENG473 Mechanical Vibrations Undamped and damped free vibration; forced vibrations with harmonic excitation; transient vibrations; systems with two degrees of freedom; vibration of continuous systems and Modal Analysis. Credits: (4 / 1 / 0) 4 Abbreviated Title : Mechanical Vibrations Keywords: Vibration, excitation, Modal Analysis	Prerequisites: MENG331 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
21.	MENG475 Biomechanics Introduction to Mechanics and Biomechanics. Statics, Kinematics and Dynamics. Coordinate Systems. Musculoskeletal Tissues and Biomaterials. Stress-Strain Analysis and Joint Contact Problems. Software for Biomechanical Analysis. <i>Credits: (4 / 0 / 1) 4 Prerequisites: (MENG233 or MENG231) and (MENG286 or CIVL283) ECTS credit: 7</i> <i>Abbreviated Title: Biomechanics Category: Area Elective Course Teaching Language: English</i> <i>Keywords: Musculoskeletal, Biomechanics, Material, Tissue</i>		
22.	MENG481 Engineering Fracture Mechanics Griffith energy balance approach; Irwin's modification to the Griffith theory; stress intensity approach; crack tip plasticity; fracture toughness; elastic stress field approach; finite specimen width for the stress intensity factor; centered crack specimen; edge-notched specimen; elliptical cracks; fatigue factors affecting crack propagation; prediction of fatigue crack growth; SN curves; cyclic stresses; fatigue life calculations; materials design for fracture toughness; failure analysis. Credits: (4 / 1 / 0) 4 Abbreviated Title: Engineering Fracture Mechanics Keywords: Fracture, fatigue, failure analysis	Prerequisites: MENG375 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
23.	MENG482 Engineering Metallurgy Mechanical and non-destructive tests; equilibrium diagrams and their interpretation; hardening of metals; deformation and annealing of metals; heat treatment of steels; corrosion and oxidation phenomena; alloy steels; non-ferrous metals and alloys; cast irons. Credits: (4 / 1 / 0) 4 Abbreviated Title : Engineering Metallurgy Keywords: Material Testing, Microstructure, Heat Treatment	Prerequisites: MENG286 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English

24.	MENG483 Mechanical Metallurgy Elastic and plastic behavior; engineering stress-strain curve; true stress-true strain curve; yielding criteria for ductile metals; combined stress tests; torsion test; strengthening mechanisms: strengthening from grain boundaries; solid-solution hardening; strengthening from fine particles; fiber strengthening; martensite strengthening; fracture mechanics; Griffith theory; strain-energy release rate; fracture toughness and design; toughness of materials; transition-temperature curve; fatigue of materials; creep and stress rupture. Credits: (4 / 1 / 0) 4 Abbreviated Title : Mechanical Metallurgy Keywords: Material Loading, Failure, Fatigue, Creep	Prerequisite: MENG286 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
25.	MENG485 Fatigue Failure Factors affecting fatigue behavior; fatigue analysis of combined stress systems; cyclic material behavior; formation of fatigue cracks; low cycle fatigue (LCF); high cycle fatigue (HCF); failure mechanisms in practice; materials aspects of fatigue; assessment of crack formation life; determination of stress and strain at a concentration; predicting crack formation life; fracture mechanics and fatigue crack propagation; critical flaw size in fatigue; factors influencing crack propagation life. Credits: (4 / 1 / 0) 4 Abbreviated Title : Fatigue Failure Keywords: Fatigue, Failure, Crack	Prerequisites: MENG286 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
26.	MENG486 Fracture Mechanics Elements of fracture mechanics; transition temperature approach to fracture control; micro-structural aspects of fracture toughness; environment-assisted cracking and metallurgical embrittlement; fatigue crack propagation; analysis of engineering failures. Credits: (4 / 1 / 0) 4 Abbreviated Title : Fracture Mechanics Keywords: Fracture, crack propagation, fatigue	Prerequisites: MENG222 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
27.	MENG487 Elasticity and Plasticity Theory of deformation, stress and strain; three-dimensional equations of elasticity; plane theory of elasticity; prismatic bar subjected to end load; thermal stress; yield criteria of beams, rings, plates; mechanics of metal forming. Credits: (4 / 1 / 0) 4 Abbreviated Title : Elasticity and Plasticity Keywords:	Prerequisites: MENG222 Category: Area Elective Course	ECTS credit: 7 Teaching Language: English
28.	MENG488 Welding Technology Types of welding, welding of stainless steel, welding of aluminum alloys, solid state welding processes, advanced welding processes, inspection procedures, heat flow in welding, weld quality, economics of welding and cutting. Credits: (4/0/1) 4 Abbreviated Title: Welding Technology Keywords: Welding, joint designs, heat flow, arc welding, inspection procedures, welding metallurgy, TIG/MIG welding	Prerequisites: MENG364 Category: Area Elective	ECTS credits:7 Teaching Language: English
29.	MENG489 Corrosion of Materials Electrochemical mechanisms of corrosion of metals, corrosion cells, partial corrosion reactions, corrosion of materials in natural environments, corrosion failure of ceramic materials, environmental degradation and corrosion of polymer materials, stray current corrosion, prevention strategies, cathodic protection, corrosion control and monitoring. Credits: (4/0/1) 4 Abbreviated Title: Corrosion of Materials Key words: corrosion, polarization, materials damage, electrochemical mechanisms, environmental degradation, protection, passivity	Prerequisites: MENG286 or CIVL 283 or IENG 263 Category: Area Elective	ECTS: 7 Teaching Language: English

** Departmental Consent

All service courses offered by the department to other programs

1.	<p>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.</p> <p>Credits: (3 / 0 / 1) 3 Prerequisites: MATH151 and PHYS101 ECTS credit: 5 Abbreviated Title: Engineering Mechanics Category: Area Core Course for IENG Teaching Language: English Keywords: Mechanics, statics, dynamics, Newton laws, Work, Energy, Momentum Department offering the course: 23 – Department of Mechanical Engineering</p>
2.	<p>MENG244 Fundamentals of Thermodynamics Basic concepts of thermodynamics; Properties of pure substances; Energy transfer by heat, work and mass; The first law of thermodynamics; The second law of thermodynamics; Entropy; Power cycles; Refrigeration cycles.</p> <p>Credits: (3 / 1 / 0) 3 Prerequisites: None ECTS credit: 6 Abbreviated Title: Fundamentals of Thermodynamics Category: Restricted Elective for IENG/ Area Core Course for MECT Teaching Language: English Keywords: Thermodynamics, Properties of Pure Substance, First Law, Close and Open System, Second Law, Entropy Department offering the course: 23 – Department of Mechanical Engineering</p>

All compulsory courses offered by other academic units

1.	<p>CMPE108 Algorithms and Programming Introduction to Fortran, Visual Basic (VB) and Matlab programming languages: data types, constants and variables; program structures. Selection, and repetition structures and functions. Concepts of Object Oriented programming. Loops and Multi dimensional arrays. File processing. Formatted I/O. Random file access. Index structures, file organization and database applications.</p> <p>Credits: (2 / 3 / 0) 3 Prerequisites: None ECTS credit: 6 Abbreviated Title: Algorithms and Programming Category: University Core Course Teaching Language: English Keywords: Algorithms, Programming, Fortran Department offering the course: CMPE Department</p>
2.	<p>ENGL191 Communication in English I ENGL 191 is a first semester freshman academic English course The purpose of this course is to consolidate and develop students' knowledge and awareness of academic discourse, language structures and lexis. The prime focus will be on the further development of writing, reading, speaking and listening skills in academic settings, and on improving study skills in general.</p> <p>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: Department of General Education</p>
3.	<p>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</p> <p>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</p>
4.	<p>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.</p> <p>Credits: (4 / 1 / 0) 4 Prerequisites: None ECTS credit: 6 Abbreviated Title: Physics I Category: Faculty Core Course Teaching Language: English Keywords: Physical Quantities, Vectors, Motion, Second Law, Work, Energy, Impulse, Momentum, Rotations Department offering the course: 42 – Department of Physics</p>

5.	<p>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. <i>Credits: (4 / 0 / 1) 4</i> <i>Prerequisites: None</i> <i>ECTS credit: 6</i> <i>Abbreviated Title: General Chemistry</i> <i>Category: Area Core Course</i> <i>Teaching Language: English</i> <i>Keywords: chemical terms, nomenclature, chemical bonds, polarity, states of matter, chemical formulas, measurements, natural science, basic science</i> <i>Department offering the course: 43 – Department of Chemistry</i></p>
6.	<p>ENGL192 Communication in English II ENGL 192 is a second semester freshman academic English course The purpose of this course is to further consolidate and develop students' knowledge and awareness of academic discourse, language structures and lexis. The prime focus will be on the further development of writing, reading, speaking and listening skills in academic settings, and on improving study skills in general. <i>Credits: (3/ 1/ 0) 3</i> <i>Prerequisites: ENGL191</i> <i>ECTS credit: 4</i> <i>Abbreviated Title: Communication in English II</i> <i>Category: University Core Course</i> <i>Teaching Language: English</i> <i>Keywords: Language, English, Reading, Writing, Speaking</i> <i>Department offering the course: Department of General Education</i></p>
7.	<p>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. <i>Credits: (4/ 0/ 1) 4</i> <i>Prerequisites: MATH151</i> <i>ECTS credit: 6</i> <i>Abbreviated Title: Calculus-II</i> <i>Category: Faculty Core Course</i> <i>Teaching Language: English</i> <i>Keywords: Vectors, Planes, Lagrange Multipliers, Gradient, Volume, Greene's Theorem, Divergence, Stoke's Theorem</i> <i>Department offering the course: 41 – Department of Applied Mathematics & Computer Science</i></p>
8.	<p>PHYS102 Physics-II Kinetic theory of ideal gases. Equipartition of energy. Heat, heat transfer and heat conduction. Laws of thermodynamics, applications to engine cycles. Coulombs law and electrostatic fields. Gauss's law. Electric potential. Magnetic field. Amperes law. Faradays law. <i>Credits: (4 / 1 / 0) 4</i> <i>Prerequisites: PHYS101</i> <i>ECTS credit: 6</i> <i>Abbreviated Title: Physics-II</i> <i>Category: Faculty Core Course</i> <i>Teaching Language: English</i> <i>Keywords: Charge, Electromagnetic Induction</i> <i>Department offering the course: 42 – Department of Physics</i></p>
9.	<p>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. <i>Credits: (2 / 0 / 0) 2</i> <i>Prerequisites: None</i> <i>ECTS credit: 2</i> <i>Abbreviated Title: Turkish as a second Language</i> <i>Category: University Core Course</i> <i>Teaching Language: Turkish</i> <i>Keywords: Turkish, grammar, writing, speaking</i> <i>Department offering the course: Department of General Education</i></p>
10.	<p>HIST280 History of Turkish Reforms 19. century state of the Ottoman Empire (Constitutional Period), Tripoli and the Balkan Wars, World War II and the results, the Guilds, the War of Independence, Cease Fire Ant., Lausanne, Ant. <i>Credits: (2 / 0 / 0) 2</i> <i>Prerequisites: None</i> <i>ECTS credit: 2</i> <i>Abbreviated Title: General Education VI</i> <i>Category: University Core Course</i> <i>Teaching Language: Turkish</i> <i>Keywords: History, Ottoman Empire, Wars</i> <i>Department offering the course: HC – ATATÜRK Research Center</i></p>

11.	<p>CIVL211 Statics Basic definitions, concepts and principles. Statics of particles, resultant of forces in space, equilibrium and free-body concept. Statics of rigid bodies, moments, force couples and equivalent force systems. Equilibrium of rigid bodies. Distributed forces, centroids and centers of gravity. Definition of determinacy of structures, analyses of statically determinate structures including trusses, beams, frames and arches. Analysis of cables. Shear force and bending moment diagrams. Friction. Moment of inertia.</p> <p><i>Credits: (4 / 0 / 1) 4</i> <i>Abbreviated Title: Statics</i> <i>English</i> <i>Keywords: Forces, resultant, component, equilibrium, moment, rigid bodies, centroid, statically determinacy, moment of inertia</i> <i>Department offering the course: Civil Engineering</i></p> <p><i>Prerequisites: PHYS101</i> <i>Category: Area Core Course</i></p> <p><i>ECTS credit: 6</i> <i>Teaching Language:</i></p>
12.	<p>MATH106 Linear Algebra Matrices, systems of Equations and Invertibility, Diagonal, Triangular and Symmetric Matrices, The Determinant Function, Evaluating Determinants by Row Reduction, Properties of the Determinant Function, Cofactor Expansion; Cramer's Rule, Euclidean n-space, Linear Transformation, Properties of Linear Transformations, Real Vector Spaces, Subspaces, Linear Independence, Basis and Dimension, Row Space, Column Space and Nullspace, Rank and Nullity, Inner Products, Angle and Orthogonality in Inner product Spaces, Orthogonal Bases; Gram-Schmidt Process, Eigenvalues and Eigenvectors, Diagonalization.</p> <p><i>Credits: (3 / 1 / 0) 3</i> <i>Abbreviated Title: Linear Algebra</i> <i>Keywords: Matrix, determinant, vector spaces, eigenvalues</i> <i>Department offering the course: 41 – Department of Applied Mathematics & Computer Science</i></p> <p><i>Prerequisites: None</i> <i>Category: Area Core Course</i></p> <p><i>ECTS credit: 6</i> <i>Teaching Language: English</i></p>
13.	<p>MATH207 Differential Equations First-order differential equations. Higher order homogeneous linear differential equations. Solution space. Linear differential equations with constant coefficient. Non-homogeneous linear equations; variation of parameters, operator methods. System of linear differential equations with constant coefficients. Laplace transforms. Power series solutions. Bessel and Legendre equations. Orthogonal functions and Fourier expansions. Introduction to partial differential equations. First- and second-order linear PDE's. Separation of variables. Heat and wave equations.</p> <p><i>Credits: (3 / 1 / 0) 3</i> <i>Abbreviated Title: Differential Equations</i> <i>English</i> <i>Keywords: Matrix, determinant, vector spaces, eigenvalues</i> <i>Department offering the course: 41 – Department of Applied Mathematics & Computer Science</i></p> <p><i>Prerequisites: MATH151</i> <i>Category: Area Core Course</i></p> <p><i>ECTS credit: 6</i> <i>Teaching Language:</i></p>
14.	<p>ENGL201 Communication Skills ENGL 201 is a second year Mainstream Communication Skills course for students at the Faculty of Engineering. The course aims to introduce a range of skills, including effective written and oral communication, research skills and study skills. Throughout the course the students will be involved in project work intended to help them in their immediate and future academic and professional life. This will include library research, technical report writing and an oral presentation. By investigating a topic of their own choice, students will develop their understanding of independent research skills. During the report writing process, students will improve their writing and develop the ability to produce organized, cohesive work. The oral presentation aims to enhance spoken fluency and accuracy and provide training in the components of a good presentation.</p> <p><i>Credits: (3 / 0 / 0) 3</i> <i>Abbreviated Title: Communication Skills</i> <i>Keywords: Communication Skills, Report Writing, Oral Presentation, Independent Research,</i> <i>Department offering the course: Department of General Education</i></p> <p><i>Prerequisites: ENGL192</i> <i>Category: Faculty Core Course</i></p> <p><i>ECTS credit: 4</i> <i>Teaching Language: English</i></p>
15.	<p>EENG225 Fundamentals of Electrical Engineering This course provides the basic phenomenon of Electrical Engineering to Industrial and Mechanical Engineering students. Topics covered are: Basic electrical quantities, fundamental circuit laws, sinusoidal steady-state analysis and transformers, three-phase circuits, principles of electromechanical energy conversion, DC and AC machines.</p> <p><i>Credits: (3 / 1 / 0) 3</i> <i>Abbreviated Title: Fundamentals of Electrical Eng</i> <i>English</i> <i>Keywords: Circuit laws, transformers, electromechanical</i> <i>Department offering the course: 21 – Department of Electrical and Electronics Engineering</i></p> <p><i>Prerequisites: PHYS102</i> <i>Category: Area Core Course</i></p> <p><i>ECTS credit: 4</i> <i>Teaching Language:</i></p>

16.	<p>MATH373 Numerical Analysis for Engineers Numerical error. Solution of nonlinear equations, and linear systems of equations. Interpolation and extrapolation. Curve fitting. Numerical differentiation and integration. Numerical solution of ordinary differential equations. <i>Credits: (3 / 0 / 1) 3</i> <i>Prerequisites: MATH207 or MATH241 or MATH203</i> <i>ECTS credit: 5</i> <i>Abbreviated Title: Numerical Analysis for Eng</i> <i>Category: Faculty Core Course</i> <i>Teaching Language: English</i> <i>Keywords: Numerical Analysis, Interpolation, Extrapolation</i> <i>Department offering the course: 41 – Department of Applied Mathematics & Computer Science</i></p>
17.	<p>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. <i>Credits: (3 / 0 / 1) 3</i> <i>Prerequisites: MATH151</i> <i>ECTS credit: 5</i> <i>Abbreviated Title: Prob & Statistical Methods</i> <i>Category: Faculty Core Course</i> <i>Teaching Language: English</i> <i>Keywords: Probability, Statistics, Bayes' Theorem, Hypothesis Testing</i> <i>Department offering the course: 41 – Department of Applied Mathematics & Computer Science</i></p>
18.	<p>IENG420 Fundamentals of Engineering Economy An introduction to the basics of economic analysis for decisions in engineering design, in manufacturing, in manufacturing equipment, and in industrial projects. Time value of money. Cash flow analysis. Cost of capital. Return on investment. Elements of cost and cost estimation. Break-even analysis. Decision making among alternatives. Effects of depreciation. Taxes. Replacement analysis. Inflation. <i>Credits: (3 / 0 / 0) 3</i> <i>Prerequisites: None</i> <i>ECTS credit: 5</i> <i>Abbreviated Title: Fundamentals of Engineering Economy</i> <i>Category: Area Core Course</i> <i>Teaching Language: English</i> <i>Keywords: Financial Decision Making, Cost, Cost-Benefit, Interest, Capital Budgeting, Rate-of-return. Replacement</i> <i>Department offering the course: 26 – Department of Industrial Engineering</i></p>
19.	<p>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. <i>Credits: (3 / 0 / 0) 3</i> <i>Prerequisites: None</i> <i>ECTS credit:4</i> <i>Abbreviated Title: Ethics in Engineering</i> <i>Category: Area Core Course</i> <i>Teaching Language: English</i> <i>Keywords: Ethical issues, moral values, morality, professional responsibility, code of ethics, conflict of interest, engineering practice</i> <i>Department offering the course: 26 – Department of Industrial Engineering</i></p>

** Departmental Consent

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. Some regulations are presented below.

5.1. Conditions for Taking Courses from Another Institution

(1) 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 programme in terms of content and credits.

(2) 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.

(3) 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.

(4) 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.

(5) 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

(6) 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.

(7) 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.

(8) 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.

(9) Those who do not meet the requirements of article (8) 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.

5.2. Student Advisor

For every student who has the right to enroll in an academic program, a student advisor who is a member of the academic staff is appointed by the relevant Department Chair or School Director. 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.

5.3 Course Registration

Students must adhere to the exact registration renewal dates and deadlines as specified in the academic calendar announced by the Rector's Office.

(1) Courses for which a student is to register at the beginning of every semester are determined in accordance with 'Education, Examinations and Success' Regulations and the provisions of 'Course Registration Regulations', in view of the student's performance, in consultation with the Student Advisor and the approval of the Department Chair or School Director. For course registration, the student must fulfill the financial requirements.

(2) During the first year of the registered program, students are required to register in all compulsory courses for the first and second semesters subject to the availability of the courses. However, as stated in Article 6, course load of a student can be reduced. During

the first year of study, students can register to the program on part-time basis upon the recommendation of Department Chair or School Director and the consent of the Rector's office, if they have a valid excuse.

(3) Students who fail to graduate from a registered program within the given time limit are dismissed from the program. However, such students are given the option of successfully completing necessary courses of the first two years of the relevant program in order to obtain a school degree (diploma).

5.4 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. Students on probation may register for a normal mandatory course only with the approval of the Chair of the Department.

All registration activities must be performed by the students concerned. Registration by proxy or mail is not accepted.

1. The student gets his/her payment slip ("dekont") from the Department.
2. The student goes to the Bank, pays his/her fees and gets a *bank receipt*.
3. The student goes to the Registrar's Office, shows the receipt and is given the right to register (access)
4. The student returns to his /her Advisor's Office. The advisor helps the students in selecting appropriate courses for that semester.
5. After the advisor finishes the registration process, the students gets a printout, showing the courses registered and weekly class schedule.
6. The student signs the necessary parts of the printout and brings the printout back to the Advisor's Office for getting his/her advisor's signature on the printout. Then the advisor will ask for the Chairman's signature at the end of the day.
7. Next day, the student goes to the Department to take back the signed student copy of the weekly class schedule from the advisor.

5.5 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.

5.6 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:

- (1) 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.
- (2) a student's semester course load can be increased by one course at most. In order to do this,
 - a) the student's Cumulative Grade Point Average (CGPA) should not be below 3.00, or
 - b) the student has to be designated a 'High Honor' or an 'Honor' at the end of the previous academic term.
- (3) 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.

5.7 Prerequisite Courses

- 1) 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.
- 2) Graduating students are allowed to register for courses with pre-requisites even if they score a (F) grade from the pre-requisite course.
- 3) 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.
- 4) Faculty or School Councils have the authority to take decisions concerning the requirements for prerequisite courses.

5.8 Repeating a Course

The following provisions are applied in repeating a course:

- 1) A student who obtains a (D-), (F), (NG) or (U) grade from a course must register for the course at the next available opportunity.
- 2) If the course to be repeated is an elective or has been excluded from the program, the student is required to take another appropriate course specified by the Department.
- 3) If a student wishes to improve his/her previously obtained grades, s/he can repeat a course in which s/he previously passed.

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

5.9 Course Selection

Priorities in course selection are as follows:

- 1) Courses with (F), (NG), (U) or (D-) grades.
- 2) Courses of previous semesters that have not been taken yet.
- 3) Courses of the current semester that has not been registered yet.
- 4) Other appropriate courses.

5.10 Registration of Students on Probation or Students with Academic Warnings

5.10.1 Registration of Students with the First Academic Warning or Students on Probation

Students who receive the first academic warning or who are on probation are obliged to repeat failed courses before registering for the new ones. Undergraduate students with such condition are allowed to register for two new courses at most, on the condition that they do not exceed normal course load. (Students who wish to register in summer school or who have the part-time status are allowed to register only for one new course). A student who receives the first academic warning is not allowed to register for a new course if the number of offered previously taken courses with (D-), (F) or (NG) grades fulfill his/her load. Previously registered courses with (W) grades are considered as new courses.

5.10.2 Registration of Unsuccessful Students or Students with the Second, Third and 'Final' Warning.

Students are not allowed to register for a new course. During registration, these students must first register in the courses from which they received the grades: F, NG or 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. Courses with (W) grades are considered as new and cannot be registered.

5.11 Course Times / Hours

In order to enable the students to attend classes regularly, course hour clashes are minimized. A student's registration is approved if there is a maximum of 1 hour course clash. A two-hour clash is acceptable for students during the graduation semester. However, in special and mandatory conditions, upon Department Chair's or School Director'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 fees 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

- 1) 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. The course instructor should be informed and recommendation of the academic advisor and the approval of the Department Chair or School Director are 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.
- 2) 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.
- 3) Students in "Part-Time" status cannot withdraw from a course.

5.15 Examinations and Assessment

5.15.1 Term Grade

The “Term grade” refers to the level of achievement a student has reached in a given course at the end of the relevant semester. In calculating the term grade, mid-term and final examinations, and laboratory/workshop reports and/or examinations, quiz, project and/or homework grades (if applicable) are all taken into consideration.

At the beginning of the term, the course instructor informs the relevant department chair and the students in writing about the number of examinations to be administered and their weights, as well as the weights of quizzes and lab/workshop reports. Weight of the final examination cannot exceed 50%. End of semester grade is determined by the course instructor based on the grades specified in the table below.

Letter Grade	Coefficient	Description
A	4.00	Successful
A-	3.70	
B+	3.30	
B	3.00	
B-	2.70	
C+	2.30	
C	2.00	
C-	1.70	
D+	1.30	Conditional Pass
D	1.00	
D-	0.70	Fail
F	0.00	Fail
NG	0.00	Nil Grade (Fail)
S		Satisfactory
U		Unsatisfactory
I		Incomplete
W		Course Withdrawal

A student who receives A, A-, B+, B, B-, C+, C, C-, D+, D or S from a course is considered to have succeeded in that course.

A student who receives D-, F, NG or U from a course is required to take that course again in the next semester that it is offered.

“I” Incomplete

“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.

“W” Withdrawal from a 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, counting from the starting date for the courses. The “W” grade is shown on the transcript of the student.

“S”-“U” Satisfactory- Unsatisfactory

The grades “S” or “U” are given to students who are registered to certain courses or training. “S” indicates satisfactory and “U” indicates unsatisfactory completion of the course.

“NG” Nil Grade/ Failing from Absenteeism:

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” grade by the Instructor of the Course based on the criteria determined by the Faculty/School Academic Council. Students are informed about the criteria for receiving the “NG” grade by the related course instructor at the beginning of the semester. “NG” grade is included in the computation of GPA and CGPA.

5.15.2 Mid-term Examinations

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

5.15.3 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.

5.15.4 Other Criteria to be Considered for Assessment

- (1) Quizzes which are prepared and evaluated by the course instructor can be administered without prior notice.
- (2) In applied courses, evaluation can be based on projects, workshops, laboratory reports 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.
- (3) Homework prepared during the term can be included in the overall evaluation. Homework will be assessed by the course instructor or an academic staff member assigned by the course instructor.

5.15.5 Re-sit Examinations

- (1) Re-sit examinations for all courses (excluding the graduation project and teaching practice etc.) are administered, at the end of the Fall and Spring Semesters (excluding the Summer Term) for students who have gained the right to take the final exam on dates specified on the Academic Calendar. Students who fall into the following categories may take the re-sit examinations;
 - (a) students who have gained letter grades D- or F from courses taken during the relevant semester,
 - (b) students who have received an academic warning or who are on unsatisfactory or probational status can re-sit all failed courses taken during the relevant semester, except for the ones with an 'NG' grade;
- (2) Re-sit exams are considered as Final Exams.
- (3) Letter grades obtained at the end of the re-sit exam are made available online through the portal by the deadline specified on the Academic Calendar and displayed on the student transcript under the heading of "Re-sit Examinations Results".
- (4) In order for a student to be eligible to take a re-sit examination, s/he is required to apply and indicate the courses for which a re-sit examination is going to be taken through the portal within three working days following the announcement of the semester grades. Those who fail to do so by the specified deadline are not allowed to take the re-sit examinations. Students who have applied for a re-sit examination may withdraw their application within three working days following their application date.
- (5) The maximum period of time allowed during a re-sit examination is 90 minutes. In special situations, this period may be extended with the approval of the Rector's Office.
- (6) No make-up exams are administered for re-sit examinations. Those who have applied for a re-sit exam and failed to attend are assigned '0'.
- (7) Re-sit examinations are free of charge.

5.15.6 Make-up Examinations

- (1) 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.
- (2) Make-up exams for the mid-term exams may take place within the semester. Re-sit exams may also replace make-up exams.
- (3) No separate make-up exams are administered for final exams. Re-sit examinations are administered as make-up examinations, instead.
- (4) As the semester grade, letter grade "I" is assigned to students who take the re-sit examination as a make-up exam.
- (5) In situations where the re-sit examination takes the place of a make-up exam, the weight of the re-sit examination is equal to the examination for which a make-up exam is being given.
- (6) If the cause of the student's absence persists during the time allocated for the make-up examination, a new make-up is given. However, if the make-up examination is not taken by the student ten days before the registration period for the new term begins, the situation is brought to the attention of the Faculty/School Academic Council and decided on accordingly.

5.15.7 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:

- (1) 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.
- (2) 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.
- (3) 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.

5.15.8 Appeals

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 course grades. 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. Any appeal concerning a semester grade must be made to the relevant course instructor no later than the end of the registration period of the following semester.

5.15.9 Success for undergraduate program students registering after Academic Year 2007-08

- (1) Performance of a student is based on a Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA) calculation methods at the end of each semester. 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. Cumulative Grade Point Average (CGPA) is computed 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 GPA and CGPA computations.
- (2) A student is considered successful at the end of a semester, if the Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA) are at least 2.00 out of 4.00.
- (3) Students registered to the normal course load of a program in a department and scores a GPA between 3.00 and 3.49 is designated an 'Honor', if the GPA is between 3.50 and 4.00 is designated a 'High Honor'.
- (4) "Actual Term" refers to the Spring and Fall Semesters a student takes courses within the department's published program of study.
- (5) Students enrolled in an undergraduate and/or 5-year program whose CGPA'S are specified below are considered as 'successful', 'on probation' or 'unsuccessful'.

End of Actual Term (EAT)	Successful Student	Students on Probation	Unsuccessful Student
1 st EAT			
2 nd EAT	$CGPA \geq 1.50$	$1.00 \leq CGPA < 1.50$	$CGPA < 1.00$
3 rd EAT	$CGPA \geq 1.50$	$1.00 \leq CGPA < 1.50$	$CGPA < 1.00$
4 th EAT	$CGPA \geq 1.50$	$1.00 \leq CGPA < 1.50$	***
5 th EAT	$CGPA \geq 1.80$	$1.50 \leq CGPA < 1.80$	$CGPA < 1.50$
6 th EAT	$CGPA \geq 1.80$	$1.50 \leq CGPA < 1.80$	$CGPA < 1.50$
7 th EAT	$CGPA \geq 1.80$	$1.50 \leq CGPA < 1.80$	$CGPA < 1.50$
8 th and more EAT	$CGPA \geq 2.00$	$1.80 \leq CGPA < 2.00$	$CGPA < 2.00$

*** 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.

(6) 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.

(7) Based on the Student Exchange Program framework, every semester spent out of the University is considered as an Academic Term.

(8) 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'.

5.16 Leave of Absence

- (1) Students may request 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.
- (2) 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.
- (3) 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.
- (4) 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.**

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 continuing 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.

5.17 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.

5.18 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.

5.19 Student Status

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

- (1) 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.
- (2) 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.
- (3) 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.
- (4) 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.

5.20 Summer Sessions

Summer Sessions are 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 any summer course 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- APPENDIX: CAPSTONE TEAM PROJECTS

Capstone Team Projects

Every student in Mechanical Engineering Department must take MENG410 and MENG411 courses for Capstone Team Project. These courses are designed as the ‘capstone’ of the educational program for mechanical engineering students, allowing seniors to integrate their acquired knowledge and apply it to a real world problem. In solving such a problem, students are required: to utilize creative processes and inductive reasoning in one or more departmental areas of specialization; to develop, evaluate and recommend alternative solutions to an open-ended problem; to satisfy realistic constraints, such as time, cost, and material availability; and to demonstrate capabilities to cooperate in a small project team. Project topics may be principally experimental, theoretical or applied, and will be authorized by the project supervisor.

Project Team

Senior students will be part of a project team for the semester. Project teams will typically consist of two or three individuals. Teams will be formed by the course coordinator, in conjunction with the supervisors during the first week of the semester. Individuals will be assigned to teams taking into account their common technical interests, skills and abilities, and expressed personal preferences. A team assignment form is filled in by the supervisor and passed on to the course coordinator. Each team will select a project (either from the industry or from the ones announced by the faculty members) and operate as an engineering group that has been organized specifically to solve that particular problem. The team will be responsible for the design of its internal organization, establishment of internal responsibilities, determination of project goals and objectives, overall management of project activities, performance analysis, achievement of results, development of recommendations, and preparation of all oral and written reports. In addition, project teams are expected to consult relevant books, technical journals, websites, vendor catalogues, and any other media as dictated by the project. The communications component of this course, both written and oral, represents a significant proportion of the learning experience. Student teams will be asked to present current and final project results in both a written and oral format and to have frequent interaction with the faculty project supervisor regarding the status of project progress. The format of the reports can be seen on the department website. me.emu.edu.tr

Project Supervisor

Each team will be assigned a project supervisor among the faculty members of the department. Team will report to the project supervisor on a regular basis according to the course semester schedule. The project supervisor will announce at least two hours a week contact time for team reports and consultation.

Learning Outcomes:

1. Learn how to establish team and team work
2. Learning how to deal with a design problem
3. Making detailed research about certain topics
4. Learning the importance of standards and applications
5. Learning the planning stages of design procedure

Student Outcomes (MENG410): a, c, d, e, f, g, h, i, j, k

Student Outcomes (MENG411): a, b, c, d, e, f, g, h, i, j, k

Requirements for project approval:

1. Engineering analysis (mathematical or experimental)
2. Design on paper (using technical drawing tools)
3. Fabrication (preferably in the workshop)
4. Operation and testing
5. Technical Report

Table A1. List of Some Capstone Team Projects

Title of Projects with Supervisor

1. *Multi Purpose Robotic Arm, Prof. Dr. Majid Hashemipour*
2. *Knee Joint Kinematics and Laxitivity Measuring Device, Assist. Prof. Dr. Neriman Özada*
3. *Design and Manufacturing of Reverse Shoulder Prosthesis, Assist. Prof. Dr. Neriman Özada*
4. *Design and Manufacturing of Knee Implant, Assist. Prof. Dr. Neriman Özada*
5. *Design and Manufacturing of Stewart Platform, Assist. Prof. Dr. Neriman Özada*
6. *Design and Manufacture of Compressed Air Engine, Prof. Dr. Fuat Egelioglu*
7. *Fire Fighting Unmanned Aerial Vehicle, Lecturer Cafer Kızılörs*
8. *Supercharger System, Assoc. Prof. Dr. Hasan Hacısevki*
9. *Designing and Manufacturing of Mufflers and Noise Measurement Test Rig, Assist. Prof. Dr. Mostafa Ranjbar*
10. *Design and Manufacturing of Thin Wall Spherical Pressure Vessel, Assist. Prof. Dr. Ghulam Hussain*
11. *Design and Manufacturing a Water Pumping Windmill, Lecturer Cafer Kızılörs*
12. *Design and Manufacturing a Belt Grinding Machine, Assoc. Prof. Dr. Hasan Hacısevki*
13. *Resistance Spot Welding, Assoc. Prof. Dr. Hasan Hacısevki*
14. *Duct Design of Solar Air Collector, Prof. Dr. Uğur Atikol*
15. *Wave Power Generator, Lecturer Cafer Kızılörs*
16. *Restoration of Corrosion Testing Apparatus, Assist. Prof. Dr. Dariush Firouzi*
17. *Design of a Blower door, Assist. Prof. Dr. Murat Özdenefe*
18. *Automated Irrigation System, Senior Lecturer Davut Solyali*
19. *Electric tricycle with active tilt stabilizer, Senior Lecturer Davut Solyali*
20. *Fire detecting and extinguishing vehicle, Senior Lecturer Davut Solyali*
21. *Automatic Programmable Pill dispenser, Senior Lecturer Davut Solyali*
22. *3D printer design and production, Senior Lecturer Davut Solyali*
23. *Automatic Potato Peeler, Senior Lecturer Davut Solyali*
24. *Computerizing axial flow pump/turbine apparatus, Senior Lecturer Davut Solyali*
25. *Design & Fabrication of a Micro Airborne Wind Turbine (AWT), Assoc. Prof. Dr. Qasim Zeeshan*
26. *Design & Fabrication of a Micro Hybrid Solar Powered Unmanned Aerial Vehicle, Assoc. Prof. Dr. Qasim Zeeshan*
27. *Design & Fabrication of a Micro Vertical Axis Wind Turbine (VAWT), Assoc. Prof. Dr. Qasim Zeeshan*