

MAK110E – Computer Aided Technical Drawing

Spring Term 2017-18

(1+3) 2.5 credits (3 ECTS credits)

Lecturer

Assistant

Course Hours

Prerequisite

The text book

MAK 105 / MAK 105E (min DD)

[1] **Engineering Graphics**, F.E.Giesecke, *et.al.* Pearson/Prentice Hall, New Jersey, 2004

<http://transport.itu.edu.tr/dersler/lisansdersleri/mak110e>

Recommended Texts

[2] **Engineering Design Graphics: AutoCAD 2007**, J.H. Earle, Pearson/Prentice Hall, N.Y., 2008

[3] **Technical Graphics Communication**, G.R.Bertoline, *et.al.* McGraw-Hill, Boston, 2003

[4] **Technical Drawing: Fundamentals, CAD, design**, D.L.Goetsch, *et.al.* Delmar Publ., 1989

[5] **AutoCAD 2002 MultiMedia Tutorial**, R.H.Shih, J.Zeher, SDC Publ., Mission, 1999

[6] **Mühendislik Çizimin Esasları**, S.Kurt, İ.Gerdemeli, C.E.İmrak, Birsen Yayın, İstanbul, 2005

Course description

Introduction to computer aided technical drawing. Geometric construction. Orthographic projection and multi-view drawings. Hidden details and Scales. Pictorial drawings. Sections and sectional views. Half section, local section, revolved section and removed section. Auxiliary views and intersections. Dimensioning fundamentals and surface texture indication. Tolerances, limits and fits. Screw threads and engineering fasteners. Assembly modeling and assembling drawing. Three dimensional design and solid modeling.

Objectives

This course of study aims to teach students: learning the standard techniques of preparing engineering drawings, reading and interpreting drawings, and solving three-dimensional technical problems that require the application of descriptive geometry and graphical analysis, computer aided drafting and modeling, how to print and present standard 2D blueprint and solid models.

Exams

(20%)

There will be two midterm exams and one comprehensive final exam. No make-up exam will be given (a grade of zero will be assigned) except for a verified and written excuse.

Homework

(10%)

Submit your homework in hard copy form (print out) with the label of your name & number. Late homework is not evaluated. Homework should be submitted in due time with complete form.

<http://transport.itu.edu.tr/dersler/lisansdersleri/mak110e/homeworks>

Design Project

(10%)

Design Project is designed as a comprehensive problem, (the instruction from [7] page 102).

<http://transport.itu.edu.tr/dersler/lisansdersleri/mak110e/desingproject>

Assignments

(20%)

It is compulsory to ATTEND at least 70% of the practice. Draw all assignments using a CAD package as a tool in Comp. lab. No credit will be given for late work. Repeating the assignments is not possible.

Final exam

(40%)

(VF) Nonattendance is the grade given to students who have failed to regularly attend courses or have not fulfilled the requirements of course practices. These requirements are:

ATTEND at least 70% of the practice.

FULFILL at least average grade of 40/100 in midterm exams

FULFILL at least grade of 50/100 in design project

Course Plan

Week 1 – Introduction to computer aided drawing

Week 2 – Parametric design & basic drawing functions

Week 3 – Principles of dimensioning

Week 4 – Orthographic projection and multi-view drawings

Week 5 – Creating sectional views - 1

Week 6 – Creating sectional views – 2

Week 7 – Design Project Progress Report #1

MIDTERM EXAM #1

Week 8 – Three dimensional design and creating parts in 3D drafting

Week 9 – Applying constraints and dimensioning in solid modeling

Week 10 – Transferring 3D parts to drafting detailing

Week 11 – Design Project Progress Report #2

MIDTERM EXAM #2

Week 12 – Assembly modeling and assembly drawing - 1

Week 13 – Assembly modeling and assembly drawing - 2

Week 14 – Design Project Presentations

Evaluation and overall grading scale

Final grade will be awarded as following. However, the instructor may adjust the scale according to the class performance. The following grading scale is the suggested grading scale

Marking System			
AA	93 – 100	CC	51 – 60
BA	92 - 85	DC	47 – 50
BB	71 – 84	DD	45 – 47
CB	61 – 70	FF	< 45