MECH113   COMPUTER AIDED ENGINEERING DRAWING I

Course Code: 3650113

METU Credit
(Theoretical-Laboratory   (2-2) 3
hours/week):

ECTS Credit: 4.5

Department: Mechanical Engineering

Language of Instruction: English

Level of Study: Undergraduate

Course Coordinator: Assoc. Prof. Dr. Murat Sönmez

Offered Semester: Fall Semesters (Mechanical, Chemical, Petroleum, Aerospace
                              Engineering Programs)

Course Objective

In this course, mainly it is aimed to provide students with the writing and reading principles of
"Engineering Drawing", which is a graphical universal language used in technical world for describing
the shape and size of an object via supplying orthographic views and/ or solid models associated with
all the necessary dimensions, associated tolerances and annotations created in a CADD environment

Course Content

Introduction to engineering drawing; drafting as a language, drafting environment, board drafting,
Computer Aided Drawing and Design. Geometrical Constructions; two- dimensional sketching,
sketching for creating solid models, drawing and editing commands in CAD environments.
Orthographic projection; 1st and 3rd angle projection, Principal views, Basic Dimensioning, size
tolerances. Creating three- dimensional models; Extrude, Revolve, Holes, Shell, Fillet, Chamfer, Split,
Sculpt, Work Planes, Ribs, Loft, Sweep. Creating orthographic views from a solid model, Auxiliary
views. Pictorial Drawing; Isometric Drawing, Oblique Drawing. Sectioning and conventions.

Learning Outcomes

Having successfully completed this course, the student will be able to:

(1)   Draw two-dimensional sketches, views in CAD environment (particularly in AutoCAD and
       Autodesk Inventor)

(2)   Create solid models of objects; objects in basic shapes, composite bodies, custom built machine parts, building modules etc.

(3)   Draw the orthographic views of an object in CAD environment (particularly in Autodesk AutoCAD environment).

(4)   Create the orthographic views of an object from the solid model (particularly in Autodesk Inventor environment).

(5)   Dimension the views, show some annotations, provide the size tolerance of functional features, and general tolerances

(6)   Explain and interpret the dimensions and the associated tolerances, some annotations

(7)   Read the given orthographic views; i.e. visualize the 3- Dimensional model of the object shown to its orthographic views and create its CAD model.

(8)   Create auxiliary views, revolved views, sectional views.

In short, having successfully completed this course, the student will be able to write and read the language of industry, "Engineering Drawing", and know why and how a solid model can be created and used.