

MIDDLE EAST TECHNICAL UNIVERSITY NORTHERN CYPRUS CAMPUS

Syllabus for MECH-113 (2-2)3 Computer Aided Engineering Drawing I  
2011- 2012 Academic Year 1<sup>st</sup> Semester

**Instructor:**

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**Course Schedule:**

Dr. Murat Sönmez

Time	Monday	Tuesday	Wednesday	Thursday	Friday
08:40-09:30					
09:40-10:30	Office Hour	Office Hour		Office Hour	Office Hour
10:40-11:30	Office Hour	Office Hour		Office Hour	Office Hour
11:40-12:30					
12:40-13:30					
13:40-14:30	MECH 113 (S3) [I-104]	MECH 113 (S4) [I-104]		MECH 113(S4) [I-104]	MECH 113 (S3) [I-104]
14:40-15:30	MECH 113 (S3) [I-104]	MECH 113 (S4) [I-104]		MECH 113 (S4) [I-104]	MECH 113 (S3) [I-104]
15:40-16:30	MECH 113 (S1) [I-104]	MECH 113 (S2) [I-104]	MECH 113 (S1) [I-104]		MECH 113 (S2) [I-104]
16:40-17:30	MECH 113 (S1) [I-104]	MECH 113(S2) [I-104]	MECH 113 (S1) [I-104]		MECH 113 (S2) [I-104]
17:40-18:30	Tutorial S1 I-104		Tutorial S4 I-104		Tutorial S2 & S3 I-104

**Reference Books:**

- “Engineering Drawing and Design” by Jensen/ Hesel/ Short, 7<sup>th</sup> Edition, 2008, Mc Graw- Hill.  
“Engineering Design and Graphics with Autodesk Inventor 2009”, by Bethune, J.,2008,Pearson Prentice Hall  
“Autodesk Inventor 2010 Essentials Plus”, by Banach, D. at.al., Delmar Cengage Learning.  
“Teknik Resim-Temel Bilgiler”, Şen, İ.Z., ve Özçilingir, N., 2003, Deha Yayıncılık.  
“Technical Drawing” Giesecke, E. Frederick, et. al., 12<sup>th</sup> Edition, 2003, Prentice-Hall.  
“Autodesk Inventor 2009 Getting Started”, Autodesk Inc., USA.  
“Autodesk Inventor Routed Systems 2009, Getting Started”, Autodesk Inc., USA.  
“Autodesk Inventor Simulation 2009, Getting Started”, Autodesk Inc., USA.  
“Autodesk Data Management Server 2010, Implementation Guide”, Autodesk Inc., USA.  
“AutoCad Mechanical 2010, Getting Started”, Autodesk Inc., USA

**Grading:**

Midterm Exam.	: 40%
Pop Quizzes	: 20%
Final	: 40%

**Important Note for Attendance:** 80% attendance is mandatory. If your attendance is below 80% you will not be allowed to take the midterm and the final exams.

### **Catalog Description**

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.

### **Course 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"

### **Teaching Format**

Two 50 minute lectures, two 50 minutes applications, one 50 minutes tutorial per week.

### **Weekly Class and Tutorial Schedule**

Week 1	:Introduction; Engineering Graphics as a language, Board Drawing vs. Computer- Aided Drawing, Introduction to AutoCAD Mechanical and Inventor Environments.
Week 2& 3	:Drawing Tools and Instruments, Corresponding CAD facilities , Scaling, Types of Lines, Lettering, Drawing Paper/Screen
Week 4& 5	:Geometrical Constructions, 2-Dimensional Sketching, Layer creation in AutoCAD, Sketching in AutoCAD and in Inventor, Drawing and Editing Commands, Solid Models;
Week 5	: Transferring a dwg file to Inventor environment and applying Extrude, Hole, Filleting, and Chamfering Processes.
Week 6	: Orthographic Projection; Principle Picture Planes, 1st.Quadrant, 3rd.Quadrant projections, Principle Views.
Week 7	: Object Orientation, Selection of Views, Drawing the Principle Views; Order of Drawing, Precedence of Lines, Creating views in Inventor Environment.
Week 8	: Sculpt, Split processes, Editing solid models.
Week 9	:Revolve, Loft, Sweep, Rib, and Shell Process.
Week 10- 11	:Dimensioning, Size Tolerances
Week 12	:Auxiliary Views, Revolution Convention.
Week 13	:Method of View Reading, Reading Details, Exercises, Isometric Drawing, Oblique Drawing.
Week 14	:Reading Exercises, Sectioning, Sectional Views.