ISTANBUL BILGI UNIVERSITY

ESEN 104 - Technical Drawing for Energy Systems Engineering

Faculty	Faculty of Engineering and Natural Sciences
Department	Energy Systems Eng.
Credits / Hours	**(3+0)** 3 (6 ECTS credits)
Prerequisites	None
Lecturer	Prof.Dr. C.Erdem İMRAK, Mech. Eng. Building (ITU) Room: 224, Tel: 293 1300 - 2576, e-mail: imrak@ itu.edu.tr
Web site	**http://transport.itu.edu.tr/esen104**
Couse Book / Material	**Engineering Graphics 8th Ed.,** Giesecke, F, *et al*, Pears/Prentice Hall, New Jersey, 2004 **Engineering design graphics : AutoCAD 2007,** J.H. Earle, Pears/Prentice Hall, NY, 2008 **Technical Graphics Communication**, G.R.Bertoline, et.al., McGraw-Hill, Boston, 2003 **Technical Drawing: fundemantals**, **CAD, design**, D.L Goetsch, et.al., Delmar Publ., 1989 **Fundamentals of Graphics Communication,** Bertoline, GB. *et al*, 6th Ed., McGraw-Hill, 2010 **Mühendislik Çizimin Esasları**, S.Kurt, İ.Gerdemeli, C.E.İmrak, Birsen Yay., İstanbul, 2005.
Course Objectives	This course of study aims to teach students: awareness of engineering graphics tools, introducing drawing units and manual drawing and using commercial CAD packages, sketching 2D drawings from 3D shapes, awareness of international drawing standards, learning 2D and 3D modeling techniques in computer environment.
Content of the Course	What is technical drawing; Line types Lettering; Geometric Entities; Projection Methods; Sectioning; Detail Views; Auxiliary Views; Dimensioning; Paper space; Solid Modeling; Assembly drawing.
Assignments (20%)	There will be 10 lab assignments. Draw all assignments using a CAD package as a tool in Comp. Lab. You are to stay in lab and work on your PC until they are completed and handed in or the class ends. It is up to each student to complete the work. No credit will be given for late work. Assignments will be collected within the last five minutes of class. Repeating the assignments is not possible. All computer assignments must be turned in hard copy (print out). The hard copy must contain an appropriate title block as discussed in class.
Midterm (20%)	There will be one midterm exam. No make-up exam will be given (a grade of zero will be assigned).
Homework (20%)	There will be two homework. Submit your homework in hard copy form (print out) with the label of your name & number in due time**.** Late homework is not evaluated. You must use engineering paper for all homework.
Final Exam (40%)	There will be one comprehensive final exam. No make-up exam will be given (a grade of zero will be assigned).

Course Plan :

Week 1 – *Introduction to the course and its requirements*
Week 2 – *Freehand sketching & Line types (AutoCAD commands)*
Week 3 – *Geometric entities & construction (Auto CAD commands)*
Week 4 – *Orthographic projection & Dimensioning fundamentals*
Week 5 – *Projection Methods and multi-view drawing*
Week 6 – *Multi-view drawings from 3D objects in 1st angle projection*
Week 7 – *Multi-view drawings from 3D objects in 3rd angle projection*
Week 8 – *Midterm Exam*
Week 9 – *Sections and sectional views*
Week 10 – *Section views (Half section, local section, revolved section and removed section)*
Week 11 – *Auxiliary views and intersections*
Week 12 – *Detail drawing and working with drawing layouts (paper space, view port)*
Week 13 – *Solid modeling (rendering, materials and animation)*
Week 14 – *Assembly drawing, drawing of basic mechanical parts in assemblies*
Week 15 – *Final Exam*