Title and Course Number: ET 210- Computer Aided Design

Credits and Contact Hours: 2 credits Tuesday and Thursday 7:30am-8:45am

Instructor: Wesley Eaton, Office Room 238 ECIII, 575-646-3350, Hours: Tuesday, Thursday 8:45-10:45 or by appointment

Textbook: Engineering Design and Graphics with SolidWorks 2010 by James D. Bethune

Prerequisite: ET 110

Course Description: ET 210 is a required course for the Mechanical ET option. Students will learn how to properly create complex parts and assemblies using advanced modeling techniques in the SolidWorks solid modeling software. They will learn how to put these parts and assemblies into production drawings using proper Geometric Dimensioning and Tolerancing (GD&T) standards. In addition, the students will gain some background into available add-in software packages available for SolidWorks. The add-in modules that will be used are COSMOSworks for Finite Element Analysis (FEA), COSMOS Motion for dynamic system analysis, COSMOS FloWorks for Fluid Analysis, PDMworks for Product Data Management (PDM), Tool box parts, Design tables with multiple configurations, Hole Series and Hole Wizard and CAMworks for Computer Aided Manufacturing (CAM).

Course Objectives:

- Knowledge of properly operating a CAD system in the most efficient manner
- Ability to generate and easily update Part models
- Ability to create complex assembly models
- Ability to create usable production drawings from 3-D CAD models
- Understanding of Geometric Dimensioning and Tolerancing
- Knowledge of available add-in software compatible with SolidWorks (FEA, CAM, PDM)
- Ability to work in a group and operate effectively on a team
- Ability to use creative and technical thinking skills in design

Grading	Exams	30%
	Homework	30%
	Class Project	25%
	Attendance	15%

Semester Grading will be based on: 90%-A, 89%-80%-B, 79%-70%-C, 69%-60%-D, below 59%-F.

Attendance Policy- Attendance is mandatory for class- **Students who miss more than three classes will be dropped from course prior to withdrawal date or will not pass course after this date.**

ET 210 Course Schedule - Spring 2011

Week 1 (Jan 13) – CAD Refresher

Week 2 (Jan 18 - 20) – Using PDMworks Product Data Management system

Week 3 (Jan 25-27) – Advanced Part Modeling (Proper Sketching, Custom Properties, Material Properties, Dimensioning, Hole Wizard, Hole Series, Mass Properties, Lofts, Sweeps, Revolves, other model features, Configurations using Design Tables, Sheet Metal, Equations, Weldments and Custom Settings)

Week 4 (Feb 1-3) – Advanced Assembly Modeling (Proper Mating, Assembly Configurations, Advanced mates, Difficult Part Mates)

Week 5 (Feb 8-10) - **Course Test #1 -- Thursday, February 10th**

Week 6 (Feb 15-17) – Advanced Assembly Modeling II (Top-down Assembly Modeling)

Week 7- (Feb 22-24) - Advanced Assembly Modeling III (Assembly Modeling, Drive Trains, Complex Assemblies)

Week 8 (Mar 1-3) – SolidWorks Add-Ins and Tool Boxes (Animator/Photoworks/3D scan)

Week 9 (Mar 8-10) (**Mar 8- Last day to drop with a W) -** Advanced Drawings (BOMs, Weldment Cut lists, Getting the right information out)

Week 10 (Mar 15-17) – **Course Test #2 -- Thursday March 17th**

Week 11- (Mar 22-24) -SPRING BREAK – No Class

Week 12 (Mar 29-31) - Geometric Dimensioning and Tolerancing and Drawings

Week 13-(Apr 5-7) – Class CAD Project

Week 14 (Apr 12-14) – Class CAD Project

Week 15 - (Apr 19-21) – CAMworks, Class CAD Project

Week 16 (Apr 26-28) –COSMOS Motion, COSMOSworks and COSMOS Flow Works, PCB Import, Exporting files, Class CAD Project

EXAM WEEK - Course Test #3 -- Tuesday May 3, 8:00 Am – 10:00 Am

Prepared by: Wesley Eaton 12/15/10