Engineering Design Using CAD - ME311 – Fall 2009

Bethune: x3414, Bethune@bu.edu
Section A1, **Thursday** 6:00, PHO 205, LAB: RM302 at 110 Cummington St.
Lab: 3-5989
TEXT: Engineering Design and Graphics with SolidWorks,
Pearson Prentice-Hall, Bethune

GRADES: 30% Lab work and Class Assignments
10% Motor Tester Report (see requirements)
20% Cam Project Performance
10% Cam Project Report
15% Quiz 1
15% Quiz 2

ALL LAB WORK IS DUE 1 WEEK AFTER IT IS ASSIGNED.
NO LATE WORK WILL BE ACCEPTED.

Copies assignments will be given 0 credits, and 5 points will be deducted from the final grades for each offense.

DATE	TOPIC	LAB ASSIGNMENT
9/3	Introduction Design Projects Into to SolidWorks Gears – speed	**Concept sketch for motor tester** **Due 9/10** Counts as 2 homework P1-8, P1-17 P2-19 Due 9/10 Form teams – up to 4 members Everyone *must* join a team
9/10	3D Models Gears – loads	P3-13, P3-9, P3-28 Due 9/17
9/17	Orthographic views	Start building motor tester P4-17, P4-20, P4-41 (include a section View), P4-51 (draw a 3D model) Due 9/24
9/24	Assembly drawings	P5-5, P5-12 – animate the link Due 10/1

10/1	Threads and fasteners	P6-2, P6-3, P6-24 – Due 10-8 Class handout

Class handouts are notes handed out to supplement the lecture.
They are not handed in. Keep them as a reference.

10/8	Dimensions	P7-7 (inches), P7-9 (millimeters- create a chart for the hole dimensions) P7-16, P7-39 (orthographic views with dimensions) Due 10/15 Class handout

10/15 **Quiz 1** **Closed book/Closed Notes**

MOTOR TESTER REPORT DUE 10/29 by 5:00 PM

Motor Tester Report Requirements

Title page, see sample page in lab
3D isometric drawing of tester, include assembly numbers
Parts list (BOM), include a materials column and part numbers
Dimensioned drawing of any part you manufactured
Load vs. RPM diagram with supporting data: **specify motor by manufacturer and part number**
Estimated manufacturing time; how long did it take to build the tester?
Signed verification sheet

10/22	Cam Project Designing cams Shafts	P11-1- Due 10/29 (No animation required, but it might be fun to try)
10/29	Tolerances and fits	P8-2, P8-29 (Dimension and tolerance each Part so they always fit) Class handout Due 11/5 **Manufacture the cam ASAP**
11/5	Geometric tolerances	P8-20, P8-24 (Add needed dimensions) Class handout, Due 11/12
11/12	Gears, pulleys, and Chains	TBA – not sure about the Design Library

11/19	Quiz Review – build and test the cam projects. Cam test are done by Prof. Bethune in the CAD lab. Testing must be completed by 5:00PM
12/3	**QUIZ 2 – CLOSED BOOKS, CLOSED NOTES**
12/10	Hand in Cam Design Report.

Cam report due by at 5:00PM on 12/10

Cam Report Requirements

Title page: see sample title page in lab
3D isometric assembly drawing, include assembly numbers
Parts list (BOM), include a materials column
Displacement diagrams, include dimensions
3D cam drawing
Gear calculations: start with the motor's estimated speed
and show how the final speed was obtained.