Fundamentals of Engineering Design – ME312 – Fall 2009

Bethune, x3414, Bethune@bu.edu
Section A1, Thursday, 4:00, PHO-205 (LAB - ENG 302; 3-5989)

TEXT: Class notes

GRADES:
25% Big Lift Project (10% Performance, 15 % Drawings/Report)
20% Design Project 2 - performance
20% Homework
10% Tolerance/Fits Quiz
10% Design Project 2 Report
10% Statistics Quiz
5% Shop Participation

LATE WORK WILL RECEIVE HALF CREDIT

DATE	TOPIC	HOMEWORK
9/3	Introduction Design Project "The Big Lift"	Form design teams (4 or 5 per team) Everyone *must* join a design team. **Concept Sketch – Due 9/10** Counts as 1 homework
	Tolerances, Gears Design Management	**Responsibility Chart – Due 9/10** Counts as 2 homeworks
9/10	Manufacturing drawings Tolerances, Dimensioning	Create a set of manufacturing drawings from your concept sketch. **Due 9/24.** **Make 2 copies** – One for you, one to hand in to me.
	Manufacturing Techniques Fits	Order Gears
9/17	Working Drawings How to get new ideas Puzzles and Problem solving	Build Big Lifter

The Big lifter will be built in the shop (Room B7)
Joe and Dave will help you with the building.
All materials except for gears and some bearings will be supplied.
All members of a team *must* attend.
Bring your drawings to the shop every time you work.

9/24	Ergonomics Review drawings	Build Big Lifter
10/1	Ethics Film: Supersonic Spies – A NOVA film about the The development of the Russian TU-144 supersonic aircraft – "Konkordski".	Build Big Lifter

There will be four questions on the Quiz about the film.

10/8	QUIZ – Tolerances/Fits Test big lifter in RM 302 (CAD LAB) Lifter Report **due 10/15** – Late bogie 4 points per day - including weekends) Prof Bethune must see some of the testing.	

NOTE: There is no due date for the Big Lifter Performance as there are often procurement problems with the gears. It is best to complete the performance part of the project as soon as possible.

Design Report Requirements

Title Page – See sample in lab
A 3D assembly drawing including assembly numbers
Drawings must include a border and title block
Parts List (BOM), including a material and cost column
(include manufacture's part numbers part and manufacture's name)
Dimensioned drawing for any part you manufactured

10/15	Design Project 2 3 Concept Sketches Evaluation Matrix Responsibility Chart	 Counts as 3 homeworks Counts as 2 homeworks Counts as 2 homeworks
10/22	Creating a Production Line	Homework: define Initial costs, Fixed Costs, Variable costs. **Due 10/29** Counts as 3 homeworks

10/29	Creating a Production Line	Create a floor plan for your Production line (scaled drawing) Determine cost per unit, time per Unit. **Due 11/5** Counts as 4 homeworks
11/5	Drawing/Design 2 Review – No lecture Each team must meet with Prof Bethune with their complete Set of working drawings including all dimensions and tolerances. Design Project 2 performance – Rm 302 (CAD Lab) Each team will be timed. (Three times, best time counts) Final times will be scaled for grades, best times A, etc. **Drop dead last date to time your design = 11/19 by 5:00PM.** **Design 2 report Due 12/3 @7:00PM** Late bogie – 4 points/day	
11/12	Statistics Probability Hypothesis testing	Homework Set #1 – **Due 11/19**
11/26	Thanksgiving	
11/19	Statistics Pearson Product-Moment Correlation Regression Analysis ANOVA Non-parametric testing	Homework Set #2 – **Due 12/3**
12/3	No lecture	
12/10	Statistics Quiz – Handout notes with tables only.	