ME196A – SOLIDWORKS MOTION AND DYNAMIC ANALYSIS
FINAL PROJECT GUIDELINES
(Individual, groups of two)

OBJECTIVE:
The Individual Project listed on your outline is intended to have you practice on your own the skills learned in this class. This means the following capabilities:

- Using analytical techniques, free body diagrams and equations calculate velocities, accelerations and forces.
- Apply the principles of Dynamics to systems in two dimensions and in three dimensions
- Be capable of building two dimensional models using Working Model 2D
- Be capable of building three dimensional model using Solidworks\Nastran4D\SOLIDWORKS MOTION.
- Able to make recommendations for design purposes considering the dynamic results, velocities, accelerations and forces.

PROCEDURE

1. - Brainstorm and come up with a mechanism, a machine, a vehicle, that uses mechanical components as a system of multi bodies such as linkages, gears etc. This is a mechanism, vehicle or machine that is of your own interest, one that you are curious to know about, one that is used in your senior project, at you work or in a research paper. Topics for this range from specific mechanisms (3D), vehicles (ground, space), cranes, vehicle stability, breaking, roll overs. Biomechanics (analysis of humans as set of rigid bodies and linkages)
2. - Establish some design criteria with the objectives you would like to achieve.
3. - Make a computer model in Three Dimensions using the Solidworks, NASTRAN4D or SOLIDWORKS MOTION software. You can also use Working Model 2D to verify the answers or compare results.
4. - Perform a simulation in which the velocities, accelerations, impact forces and the appropriate variables that apply to your problem are measured and displayed.
5. - Make recommendations on the design of your project and what you have learned form the dynamic analysis.

WHAT YOU NEED TO TURN IN

1. A Report in Word format describing the system, project objectives, development procedure and final results.
2. A PowerPoint presentation that summarizes your project including a description of the problem and design objectives. A summary of the solution and computer results and finally your own conclusions. Use this to present your final project to the class. Update this presentation before you turn in your final version, with the results and conclusions you have reached and reported in your final word report.
3. Submit your project electronically to a directory set up for this class on Voyager. For example voyager\faculty\granda\ME196A. Your directory can be named Yourlastname_ME196AS12_Final_Project, for example. Please submit all files including Solidworks, Nastran4D, Solidoworks Motion and Working Model 2D files as appropriate.
The files can be organized in a single directory. It can have subdirectories. This will ensure your directory always to be recognized by the computer and will always be found.

DATES TO REMEMBER

1. - Be ready to present a short summary on the last day of instruction, using your PowerPoint presentation. Your project may still be in progress.
2. - Due date for transferring electronically your directory with the final project will be the midnight on the last day of finals.