

Machine Design – Parametric Solid Modeling project

(A joint course-project for ME 302 and ME 350)

Project Topics:

1- Cannon

Amalia Kendall, Christopher Sparks, Aaron Michael and Tula Bagwell

2- Motorized Can Crusher

Cameron Devine, Taylor Buffon, Blake Cloward, and James Malloy

3- Trebuchet

Chris Schoff, Jeremiah Enright, and Matthew Dunford

4- Gear Box

Carl Svanevik, Seog Choi, and Cameron Campbell

5- Disc Brake Assembly

Ian Nisbet, Jacob Ambrose, and Hiroshi Kanno

6- Key Padlock

Max Flukey, Dustin Jacobs, and Kevin Kruger

7- Manual Hand Mixer

Ethan Nelson, Jack Freeman, Andrew Ridge

8- Bicycle

Tariq Aldabash, and Felipe DeSouza

Notes:

- 8 teams, 25 students (2 four-student teams, 5 three-student teams, and 1 two-student team).
- Abstracts of the project were submitted in week 13.
- Weekly reports showing the progress of the group should be submitted in weeks 14 and 15.
- Final reports should be submitted in week 16.

Weekly reports should address:

- 1- Description of the analytical techniques and results (including equations and numerical results).
- 2- Description of the design process.
- 3- For each part that is being designed, a clear Inventor drawing showing all dimensions and details should be provided.
- 4- Exploded view of assemblies (and later pictures showing motion analysis of the mechanism).
- 5- The role of each member in the design process, and how the team cooperated (Working together versus dividing the work among team members).
- 6- How the parametric solid modeling software (Autodesk Inventor) is helping the team in the design of each component.

Students are encouraged to use the parametric capability of Inventor in their work (specifying the dimensions in terms of some parameters that can be varied whenever a modification of the design is required).