## ME359: Introduction to Computer Aided Design (CAD) & Machine Components – Fall 2017

#### Instructor and Class Information

Instructor: Peter A. Zink, pzink@bu.edu, (617)358-1631 Office Hours: E-mail for appointment, check http://bit.ly/1GTfzfj for availability, Office Location: 730 Commonwealth Ave, EMA 209 Lecture Times, Location: A1, Tue 3:30-5:15; A2, Thu 3:30-5:15; A3, Mon 12:20-2:05; A4, Wed 12:20-2:05 Course Website: Blackboard Learn (learn.bu.edu) Additional Information and Q&A Forum: Piazza, http://piazza.com/bu/other/buengme359/home

### **Course Description:**

Modeling and technical drawing in two- and three-dimensions is covered in detail using advanced computer aideddesign (CAD) tools. CAD-based assembly, mechanism creation, and finite element analysis (FEA) are introduced. Geometrical dimensioning and tolerancing methods are applied to a variety of tasks and a course project. Other topics include design for manufacturing and assembly, specification and analysis of basic machine components, including gears, bearings, cams and the relationship of those components to modern manufacturing processes.

### Learning Objectives

- 1. Learn parametric modeling with modern CAD software
- 2. Apply standard drawing, dimensioning and tolerancing practices
- 3. Understand machine components and the relationship of design to various manufacturing processes

### Reference Text

• Machinery's Handbook from Industrial Press: Any edition from 24th to current

#### **Class Structure:**

• Each day approximately half of the class time is dedicated to an overview of new topics; the other half of the class time consists of related self-paced student exercises which provide an opportunity for students to practice new techniques in the presence of the instructor and teaching assistants

# Grading and Academic Conduct:

- 1. Homework [70%] (weighted equally, lowest score dropped)
- 2. Midterm Exam [15%] (\*There is no final exam in ME359)
- 3. Course Project: Disassemble a Black & Decker LI2000 Screwdriver; model, draw, and analyze the gearbox inside (based on level of effort and quality of deliverables) [10%]
- 4. Class Attendance, as evidenced by completion of in-class exercises [5%]
- It is the students' responsibility to ensure that all grades have been recorded correctly on Blackboard.
- Students must follow the BU Academic Conduct Code:
  http://www.bu.edu/academics/files/2011/08/AcademicConductCode.pdf
- Violations will be reported to the College of Engineering Academic Conduct Committee.