

# **ME 201/401 Competition Projects: Clean Snowmobile Challenge**

Monday: 5:00 PM @ EPB 205

Wednesday: 5:00 PM @ EPB 205

## **Instructor and References:**

- Advisors:** Dr. Dan Cordon, GJ 234H, dcordon@uidaho.edu  
Dr. Steve Beyerlein, EPB 324I, sbeyer@uidaho.edu
- Captains:** Ian Sullivan, sull4079@vandals.uidaho.edu  
Alex Kiss, kiss8000@vandals.uidaho.edu
- Course References:** <http://www.webpages.uidaho.edu/mindworks/Competition.htm>  
<http://idahosc.wixsite.com/uicsc>  
<http://www.mtukrc.org/snowmobile.htm>  
<http://saecleansnowmobile.com/>

## **Description:**

The SAE Clean Snowmobile Challenge team is a powertrain and drivetrain development team striving to create a cleaner, quieter, and more fuel efficient snowmobile. Each member will assist in student-driven projects that require design, simulation, and testing, helping you become a better and more knowledgeable engineer along the way.

## **Background and Preparation:**

ME 201:

- No background knowledge required
- Basic understandings of engines, exhaust, snowmobiles and mechanic skills are helpful but not necessary

ME 401:

- Starting 3<sup>rd</sup> year classes at the University of Idaho
- 1 year experience on the Clean Snowmobile Team
- Understanding of the current platform and general team dynamics

## **Course Topics/Activities:**

- Mechanic work with our various snowmobiles
- General engine and powertrain development and modification
- Dyno testing and engine calibration
- On-snow testing for sound, fuel economy, and efficiency
- Noise testing with anechoic sound chambers and computer simulation
- Efficiency testing with suspension and drivetrain
- Electrical wiring and basic circuit development
- Vehicle simulation via various software
- Technical writing and presentations
- Team building with other members
- Reading assignments from technical papers and alumni theses

## **Learning Outcomes:**

- Develop a working knowledge of our snowmobile
- Learn how to properly use a logbook for data collection
- Gain skills in various programs like Solidworks, Mastercam, and many more
- Enhance skills in technical writing and oral presentations
- Improve machining abilities with mills and lathes
- Apply real-world examples of topics learned in other classes
- Improve skills in teamwork and leadership positions
- Work on project management with major and minor projects
- Collaborate in a professional way with other engineers and team members
- Learn to communicate complex ideas to non-engineers
- Understand and improve the testing apparatuses of the clean snowmobile team
- Expand knowledge outside of your major, i.e. wiring diagrams, graphic design, etc.

## **201 Expectations:**

- Spend ***at least*** 4 hours per week working on projects for the snowmobile team
- Participate in at least two main projects and lead a 201 project
- Contribute ideas, testing, and experience in team meetings
- Learn from older members and ask questions when something is not understood
- Complete all projects and assignments before their due date
- Provide constructive criticism to team members when necessary and don't be shy about sharing your opinion
- Enjoy your time on the team and find projects you are interested in working on!
- Go to competition in Michigan in March with the team
- Check others' work and ensure that when a project is in progress that safety is the main concern

## **Grading:**

The grading scale is composed of the following components:

• Homework Assignments	15%	≥ 90% A
• Quizzes and Class Participation	10%	≥ 82% B
• In-Lab work and project advancement	50%	≥ 75% C
• Logbooks	25%	≥ 60% D
		< 60% F