

ME 201/401: Vehicle Design & Testing

Fall 2024 Semester

Society of Automotive Engineers

Clean Snowmobile Challenge Club

Meeting Times and Location:

Monday/Wednesday: 5:30 PM in JEB 328

Instructors and References:

Advisor: Dr. Kamal Kumar, GJ 234I, kkumar@uidaho.edu

President: Huntsman, William (hunt6507@vandals.uidaho.edu)

Vice-President: Hancock, Cooper (hanc@vandals.uidaho.edu)

and the rest of the CSC Club!

Course References:

<http://www.webpages.uidaho.edu/mindworks/Competition.htm>

<http://www.mtukrc.org/snowmobile.htm>

<https://saecleansnowmobile.com>

<https://www.sae.org/attend/student-events/sae-clean-snowmobile-challenge/>

Description:

The University of Idaho Clean Snowmobile Club is an engineering design, validation, and field-testing team revolving around the annual SAE Clean Snowmobile Challenge.

The collegiate competition aims to create the cleaner, quieter, more fuel-efficient, and more powerful snowmobiles of tomorrow.

The student-led projects of the club allow members to participate in hands-on undergraduate research while simultaneously working with various sponsors to accomplish club goals.

The ME 201 class aims to get new members up to speed about club history and the snowmobile industry as quickly as possible.

The ME 401 class is current team members teaching ME 201.

Background and Preparation:

ME 201:

- No background knowledge required
- Basic understandings of vehicles, snowmobiles, and/or mechanic skills are helpful, but not necessary

ME 401:

- At least 1 year of experience on the Clean Snowmobile Challenge Club
- Understanding of club history, current projects, and general team dynamics

Course Topics/Activities:

- Mechanic work with our various snowmobiles
- 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 competition technical papers & team graduate theses

201 Expectations:

- Spend *approximately* 4 hours per week on club activities (including this class)
- Participate in one competition project that you are interested in
- Engage in team meetings
- Learn from older members and ask questions when something is not understood
- Complete all assignments before their due date
- Enjoy your time in the club!

401 Expectations:

- Edit and give **at least** 3 class presentations, then assign and grade respective homework assignments.
- Help develop and participate in **at least** 2 labs.
- Read 1 alumni thesis and present it to the rest of the class.

Learning Outcomes:

- Develop a basic understanding of snowmobiles, club testing equipment, the SAE Clean Snowmobile Challenge, club procedures, and club structure.

Grading Scheme & Course Details: Pass/Fail

The grading scale is composed of the following components:

- Presentation Attendance, Lab Participation, and Homework Assignments

If you are going to miss class or need a homework extension, please email hunt6507@vandals.uidaho.edu

Labs: Short hands-on sessions learning about our snowmobiles and/or testing equipment

Lab Attire- Long Pants, Closed Toe Shoes.

Tie back long hair, and wear safety glasses when using power tools.

The shop has coveralls if needed!

Presentations: Informative PowerPoints given to teach new members about snowmobiles, club testing equipment, club procedures, and club structure.

We encourage you to take notes in a notebook/logbook.

Homework: Short assignments on lab and presentation material that will be Assigned Wednesday on Canvas and will be due by the beginning of class the following Wednesday.

Turn in a hard copy at beginning of class or email to hunt6507@vandals.uidaho.edu