ME 201/401 Competition Projects: Clean Snowmobile Challenge

Monday: 5:00 PM @ EPB XXX
Wednesday: 5:00 PM @ NIATT Conference Room

Instructor and References:

Advisors: Dr. Dan Cordon, GJ 234H, dcordon@uidaho.edu
          Dr. Steve Beyerlein, EPB 324I, sbeyer@uidaho.edu

Captains: Jason Maas, maas6192@vandals.uidaho.edu
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Course References: http://www.webpages.uidaho.edu/mindworks/Competition.htm
                  http://idahocsc.wixsite.com/uicsc
                  http://www.mtukrc.org/snowmobile.htm

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 3rd 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