

EGEN 310 Multidisciplinary Engineering Design

2021 May 4x4

INSTRUCTORS:

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CLASS MODALITY

The 2021 May 4x4 EGEN 310 will offer *an online learning modality*.

OFFICE HOURS: By appointment with instructor(s) via Zoom.

CATALOG DATA: Introduces engineering students to topics such as design process, creative design, project management, teamwork, and technical leadership while highlighting the skills needed to work in a multi-disciplinary environment.

COURSE OBJECTIVES: The specific objectives of the course are to equip the students to be able to:

- Approach open-ended problems systematically using creativity, empathy and technical knowledge.
- Learn the characteristics and practices of highly effective teams and implement those in the context of a diverse team of people.
- Create a basic project plan and track progress against it.
- Describe in basic terms the business, societal, and environmental implications of the engineering decisions made.

PREREQUISITES: Junior Standing

TEXTBOOK: None, but students will be expected to purchase materials for the class.

COURSE MATERIALS:

Teams may spend up to \$250 on materials for the project. Many materials are available in the Makerspace for preview, some are also available for purchase. Individuals will need to have basic prototyping tools and materials on hand. These materials can usually be found around the house and may include items like cardboard, scissors, glue, construction paper, pipe cleaners or wire, newspaper, foil, magazines, wood scraps, etc.

SOFTWARE RECOMMENDATIONS AND REQUIREMENTS:

- Required Software
 - *Brightspace D2L*: ALL course information will be centralized here
 - *Microsoft Teams*: Slack-like communication software for team communication. Available through Campus Microsoft 360 software licensing.
 - *Smartsheet*: Project management – you will receive an invite to this software which EGEN 310 has licenses for.
 - *Zoom*: For synchronous class sessions
 - *Miro*: Each person will need to have a free account
 - *Discipline specific design software*: For example, it is likely that each group's mechanical engineering student will need access to Solid Works, Autodesk Fusion 360 or the like. If you

are working remotely and do not have access to what you need, see link on D2L for how to VPN to computers on campus that do.

- Recommended Software – If not these specific packages, then you will need something else that serves the same function that your whole team can agree to.
 - Microsoft Sharepoint for document sharing
 - Microsoft online office products (Word, Excel, Powerpoint) for team editing of documents
 - Google Drive, Docs, Sheets, Numbers

DAILY CLASS STRUCTURE

Class will be structured the same way each day and will follow this format.

- 9-10: Morning Sync Session on Zoom
- 10-12: Morning Interim session – time for individual or teamwork
- 12-1: Afternoon Sync Session on Zoom
- After 1 until 9 AM next day: Evening Interim session – time for individual or teamwork.

See D2L for weekly schedule.

STUDENTS REQUIRING SPECIAL ACCOMMODATION

Students with special needs or requiring special accommodations should contact the instructor or the campus Disabled Student Services Office at the earliest opportunity. Students requiring extra time on exams and quizzes should notify the instructor as soon as possible.

STUDENT CONDUCT

Students are expected to conduct themselves in accordance with the MSU Student Conduct Guidelines (http://www2.montana.edu/policy/student_conduct/), including the areas of academic honesty, behavior, and responsibilities. Work on Quizzes and Exams should be your own. ***Working*** together on homework is acceptable. Copying homework solutions from a classmate or other sources is not acceptable and will result in a zero grade for that assignment. Repeated offenses may lead to a failing grade in the class.

ASSESSMENT AND EVALUATION

Grading: **See weighting in D2L**

Grade Scale: 90%-100% = A, 80%-89% = B, 70%-79% = C, 60%-69% = D, <60% = F, pluses and minuses given within 2% of range extremes: e.g., A-=90%-92%.

A note about Participation Grade: Professionals in the workplace are expected to be in attendance and on time for all their work activities (whether online or in person!). The teamwork nature of the course means that your presence and participation, or lack thereof, directly impacts the quality of the work done by you and your coworkers. *Having out of class work commitments does not constitute an excused absence unless you get prior approval from the instructor.*

If your absence from class is excused, your participation total will be computed without the graded assignment of the day on which you were gone. Therefore, if there are 5 total assignments and you were away on an excused absence for one of them, your total grade would be computed out of 4 total assignments.

What's an excused absence?

- Sick leave: Illness with symptoms severe enough to prevent you from participating online. *Please do not attend any in-person session with any COVID symptoms.*
- Company business: if you are away on pre-approved official business of either the university or of the class. Think athletics, student professional society events, etc.