Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring
Year: 2025
Course Prefix: ENGR
Course and Section #: 1000-006
Course Title: Introduction to Engineering
Credits: 3

Course Description

Introduces engineering problem-solving techniques, design processes, modeling of simple engineering systems using CAD, and systems analysis in Excel. Emphasizes engineering design procedures by incorporating group projects and presentations.

Course Attributes

This course has the following attributes:

☐ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☒ Writing Enriched Graduation Requirements
☒ Discipline Core Requirements in Program
☐ Elective Core Requirements in Program
☐ Open Elective

Other: *Click here to enter text.*

Instructor Information

Instructor Name: Masrur Mahedi

Student Learning Outcomes

- Apply the engineering design process.
- Employ principles of effective teamwork.
- Communicate effectively through written reports and oral presentations.
- Use Computer Aided Design (CAD) software to create basic engineering models and/or drawings.
- Apply modern software tools for engineering analysis and programming.
- Fabricate prototypes safely using power and hand tools.

Course Materials and Texts

No textbook

Course Requirements

Course Assignments, Assessments, and Grading Policy

Attendance:
Attendance will be taken in person (and only a livestream will be set up upon an excused absence and pre-notification to the instructor, this will be done through the MS Teams class meetings). If you find you cannot make it to class, please as a minimum, notify your group so they can arrange to meet with you at some other time outside class and/or using MS Teams.

We like to provide a bit of hands-on experience with this class, particularly to see and use our lab equipment. For this component, you will be required to schedule to physically come into the Engineering Design Lab (GT 338). You must also complete the laboratory safety quiz before arriving to our machine shop. If you plan to attend the lab any other day than when the class is there, you must coordinate in advance with our lab manager Andrew Peatross.

You will be exempt from up to 2 class meeting days. That means if you miss 4 lectures out of the 28 you will only get a 92% or (26-2)/26. If you have an excusable last-minute absence, please notify the instructor as soon as you can (before or after the event). You may be asked to demonstrate that the absence is excusable (e.g., a doctor's note or a dean's note). Excusable absences will not use up your 2 except days. Examples of excusable absences: fever, in hospital, the birth of a child, etc. Not excusable examples: a business trip for a job, honeymoon, vacation, etc.

Individual Skills Assignments:
There will be individual homework assignments (14 total) throughout the semester which will give you the chance to further explore the skills/software/tools we talk about in class. These are meant to be submitted individually. Most of these assignments are meant to provide you with practice with the skill. Doing these individual skills assignments is what will boost your grade possibly from a C to A.

Please submit all digital homework assignments in the format requested (many may require the original software file format .xlsx, .pptx, .docx, etc.). Some individual assignments will be indicated as "OPTIONAL" meaning if you complete them, the points from that assignment will be added to your Individual Skills Grade like extra credit.

Individual Reports:
There will be three submissions of written reports. All must be written individually. Although the stereotype is that engineering is about math and science, which it is, writing is the skill set that allows any employee to be highly admired and desired by their firm. In engineering we all need to be able to communicate through drawings and writing what we intend our design to be. You will be learning to do "Technical writing" here, not essays.

Each report submission has half the points for formatting to help you learn and improve your technical writing skill. And the other half of the points are on your explanation and graphs/tables of your design. Ideally you will have the same description of your design as the rest of your group, but you will still need to learn to include that and explain it in your own words.

Your first two submissions are tied to specific steps in the design process: 1) generating ideas about a problem you want to solve and 2) selecting a solution. The final submission combines the first two reports with a few more sections (front formal pages, sections on the drawings, prototype, testing, revision plans, and conclusion) to make a full complete report. It is intended that you will use the feedback from the first two reports to improve and revise those sections before submitting them with your final report.

Writing Center Visits:
With writing individual reports as the biggest contribution of the assessment in this course, we require all students to meet online or in-person through the Writing Center at least 2 times in the semester. Ideally, these should be scheduled 1-2 weeks in advance of each Report submission. Writing center visit deadlines correspond with specific individual report deadlines. Students may attend additional one-on-one visits beyond the required visits. The Writing Center is in the Fulton Library in room FL 208, or you can do these online/virtual meetings. Please submit a copy of the visit receipt from any face-to-face or online meetings on Canvas under each Writing Center Visit assignment to receive credit for these visits.

You may also need to view at least two of four available Writing Center Webinars during the semester, during these webinars, there will be instructions on how to have your attendance recorded. Please make sure to follow these steps. Your instructor will periodically receive a list of students who participated in the webinars during the semester. If you feel you did a webinar, please indicate so on your canvas assignment so the instructor will know to ask the writing center and look for your name on the list.

Group Submissions and Presentations:
To help you work through the design process, you will be asked to submit some group items, which are intended to keep you on task and to provide feedback from the instructor. Please take any feedback seriously and share/discuss the feedback with your group.

You only need to submit ONE of each group assignment per group. Be sure they have the group member names on it (or if submitting digitally that it is tied to at least one group member). These can be hand-written, typed, or drawn (typed are encouraged). I highly encourage you to use Microsoft Teams (you will have your group channel set up for you with this class) to do live editing and sharing of files. If you want to use something outside of Teams to share ideas digitally, please either copy then share the file via Canvas or double-check (in advance) that a shared link is visible to the instructor. If there are cases when an individual from a group posts on Canvas and the rest of the group cannot see the document – be aware that the instructor will be able to view the post, and it may take a little time for the instructor to cross-reference in the system for which students are in that group before a score is shown.

Grading for group assignments may be the same grade for all individual members or may be different grades for everyone.

Professionalism:
This portion of the grading is subjective based on your behavior as a professional. Being a professional means that you are respectful to others (instructor, visitors, and classmates) in the lecture sessions, during activities, during group discussions, and outside of class during office hours or other interactions. Professionalism also includes following rules and policies. Any violence or harassment (including those related to race, national origin, color, religion, age, status as a person with a disability, veteran's status, or genetic information) that is witnessed or brought to the attention of the instructor will be formally reported to the Office for Equal Opportunity and Affirmative Action One common mishap that can occur in this category involves copying others' work, also known as plagiarism. Be sure to only submit your work for individual assignments. If you work in groups on an assignment, do so only as a discussion but type up or draw up your version of the required documents. Any potential academic misconduct will be formally reported according to the University's policy for Academic Honesty https://www.uvu.edu/studentconduct/students.html.

Extra Credit Opportunities:
I like to grant extra credit to students who do extra activities outside of classes that still pertain to engineering. Some examples of this that I can grant extra credit for are the following:

- Participate in UVU engineering student chapter activity,
- Watch or attend a professional engineering organization meeting/seminar/webinar,
- Watch an engineering video (YouTube is okay, but needs to be 1 hour minimum, not just short clips), and write a summary,
- Take a tour of something led by an engineer,
- Interview or follow/shadow an actual practicing engineer.

For each activity that you participate in you can type up a paragraph explaining the following items to get 1% per activity added to your final course grade (with a maximum of 2% for if you did two or more separate activities). See the submission details on Canvas. I also grant extra credit to those who complete a course evaluation, called an SRI survey, at the end of the semester. This is an anonymous survey that UVU uses to evaluate the instructor and the course. There are other surveys given at the end of the course which are required and worth credit.

Grading Policy

Grading Scale:

Grade	Percent (%)
A	94-100
A-	90-93
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
E	0-59

Assignment Categories:

Activity	Percent (%)
Attendance (allowed to be absent for up to 2 lectures)	10
Individual Skills Assignments (most required, some indicated as optional are extra points added to this score)	20
Individual Written Reports (3 submissions)	30
Writing Center Visits (2 required) and Writing Skills	10
Group Submissions	20
Group Presentations	5
Professionalism	5
Extra Credit Opportunities	0 to 3

Late Work Statement:
All assignments (including reports) submitted after the due date are automatically reduced by 10% each business day late, up to 50% maximum reduction in the score, unless otherwise noted in the assignment details. Similar to a real job, if you do not submit a report on time, you are likely penalized in pay or fired. Please submit assignments on time or early. If you have an excuse for tardiness in attendance or an assignment deliverable, please contact the instructor (ideally in advance). You may be asked to provide proof or necessary evidence (dean of student's note, office of accessibility services note, etc.). The last day to submit any individual assignment is the last day of classes.

Required or Recommended Reading Assignments
None

General Description of the Subject Matter of Each Lecture or Discussion

Course Syllabus:

Modules	**ENGR-1000: Class Topics (MW)**
1	Introduction to Course and Learn about Resources
2	Design Process and Teamwork
3	Define the Problem and Write Paragraphs
4	Research Problem and Report Writing
5	Engineering Computer Tools
6	Generate Design Solutions
7	Evaluate and Select the Final Design Solution
8	Engineering Presentation
9	Model, Analyze, and Test
10 and 11	Modeling and Prototyping
12	Testing and Analyzing
13	Refine and Optimize the Design
14	Warm Up
15	Engineering Disciplines
16	Final Time

How This Course Works:
Canvas is where course content, grades, and communications will reside for this course. This course at UVU aims to give you the experience of what an engineer does in a real job. This class has several individual assignments and relies heavily on group work (like you would have at a company).

The biggest challenges in this class are 1) allowing each member to contribute and 2) learning and improving your writing skills (both are huge selling points to engineering companies!). To succeed in this class, you need to try/do all the assignments and attend/participate in class/group sessions/meetings. Most of the grading is based on effort (that you tried it!). Reports are to be done individually, and you are encouraged/required to ask for assistance in writing them, especially with our UVU Writing Center.

You will be doing a semester-long group project. If things go awry with your group - please consult your "team contract" first, and/or your instructor for assistance in what to do to improve group communication. It is never too late to change topics.

For this three (3) credit-hour course students should expect to spend up to 9+ hours a week completing course activities.

Student Responsibilities:

- Start class the first week of the term.
- Be accountable by setting aside regular time each week to complete course activities and assignments on time as noted per the due dates.
- Learn how to use Canvas including communication tools (e.g., discussion, Canvas inbox, etc.). If you have technology-related problems, contact the Service Desk.
- Abide by ethical standards. Your work must be your own.
- Contact your instructor as early as possible if an emergency arises. DO NOT wait until the last minute to ask for an extension.
- Notify group members if something comes up prohibiting or hindering your ability to contribute to group deliverables and discussions.

Instructor Responsibilities:

- Respond to emails within TWO business days. If multiple emails are received regarding the same question or concern, they may be responded to with an announcement to the entire class.
- I prioritize spending time with my family during the weekend and may not respond to emails.
- Provide timely, meaningful, and constructive feedback on assignments.
- Facilitate an effective learning experience.
- Refer students to appropriate services for issues that are non-course content specific. For instance, technical issues, writing labs, accessibility services, etc.
- Mentor students through the course.

Required Course Syllabus Statements

Generative AI

You may use AI (ChatGPT, Bing, Dall-E, etc.) in this course as a learning assistant. If you use it (quotes, paraphrasing, or editing), you must cite it as if the AI software is the author of the information that was used. Failure to properly cite AI is considered plagiarism. There are times when AI may be incorrect (in some complex engineering calculations) and may be more verbose than a typical engineer. You are responsible for making sure that any deliverables are professional, and you are responsible for the content of the information shared. I encourage you to not just copy exactly what it generates, please edit the technical jargon and/or make it sound like you and think critically about what you want to say or show. Still, cite it properly as a tool you used to help you generate your information. For some suggestions on citations, check out what Grammarly has to say about How to Cite ChatGPT and AI in APA Format | Grammarly Blog. as summarized here:

- In-text citation format: (Company, year)
- "Peter picked a peck of pickled peppers" (OpenAI, 2023)
- Reference list citation: Company. (Year). AI Name (version) [Descriptor]. URL
- OpenAI. (2023). ChatGPT (Mar 14 ver.) [Large language model]. https://chat.openai.com/chat
- If whole sections or papers are shared, please show the entire AI chat in an appendix.
- An example of convergent evolution is the independent development of winged flight in both birds and bats (OpenAI, 2023; See Appendix B for the full transcript).

Using Remote Testing Software
☒ This course does not use remote testing software.

☐ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities
Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity
At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.