UVU UTAH VALLEY
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Master Course Syllabus

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

Semester: Spring
Course Prefix: ENGR
Course Title: Introduction to Engineering

Year: 2025
Course and Section #: 1000-07
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 lectures, a group design project and formal 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: Jim Colby

Student Learning Outcomes

- Apply the engineering design process, designing a hands-on project.
- 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

Since most of the content is subjective in the assignments or reports, a large portion of this course is graded on whether assignments and documents were attempted and submitted containing all required items. You may receive partial or full credit for correctly attempting some or all of the required items as defined in each assignment description.

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Assignment Late Policy:

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Any and all assignments (and reports) submitted after the due date are automatically reduced by 5% each day they are late, down to a maximum possible score of 50%. Please submit assignments on time or early. If you want feedback on the format or whether the content requested was covered – feel free to contact the instructor via email or in office hours before the due date. The last day to submit any individual assignment is the last day of class.

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Assessments:

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Attendance to Mandatory Events

Attendance will be taken in-person. We like to provide hands-on experience with this class, particularly to see and use our lab equipment. You must complete the laboratory safety quiz before participating in lab activities. 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., doctor's note or a dean's note). This portion of your grade is based on you attending your scheduled event on time. If the scheduled event is cancelled, such as due to inclement weather or government restrictions, you will be notified via CANVAS Inbox by the instructor.

Individual Assignments and Individual Reports

There will be individual homework assignments 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. These smaller assignments account for ~25% of your grade and the larger reports are ~30% of your grade, so missing any of these has a big impact on your course grade.

Please submit all digital homework assignments in the format requested (many may require the original software file format .xlsx, .pptx, .docx, etc).

Writing Center Visits

Writing individual reports is the biggest contribution of the assessment in this course, as such, we require all students meet online or in-person with the writing center at least 2 times in the semester. Ideally these should be a week 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, but you may do online meetings as well. 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.

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 these 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 or typed or drawn. If you want to use something like Google Drive 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. There are cases when an individual from a group may post on CANVAS and the rest of the group cannot see the document – be aware that the instructor should be able to view the post, and it may take a little time to cross-reference in the system which students are in that group.
Grading for group assignments may be the same grade for all individual members or may be different grades for each individual.

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.

Grading Policy:

Grades will be assigned based on the following scale:

A   > 94%
A-   < 94% to 90%
B+   < 90% to 87%
B   < 87% to 84%
B-   < 84% to 80%
C+   < 80% to 77%
C   < 77% to 74%
C-   < 74% to 70%
D+   < 70% to 67%
D   < 67% to 64%
D-   < 64% to 60%
E   < 60%

Your course grade will be determined according to the following percentage distribution:

Attendance:	10%
Individual Assignments:	25%
Individual Reports (4):	30%
Writing Center Visits (2):	5%
Group Submissions:	20%
Group Presentation:	5%
Professionalism / Peer Evaluation:	5%
Total	100%
Extra Credit Opportunities:	considered upon request

Required or Recommended Reading Assignments
None

General Description of the Subject Matter of Each Lecture or Discussion

How This Course Works:
Canvas is where course content, grades, and communications will reside for this course. This course at UVU aims to teach the design process and 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) group dynamics through your personal participation and allowing each member to contribute
2) learning and improving your writing and communication skills (both are huge selling points to engineering companies)

To succeed in this class, you need to attempt/do all the assignments and attend/participate in class/group sessions/meetings. 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. Group project grading is based more on effort (that you tried it) than the actual success of your final project. Reports are to be done individually, and you are encouraged/required to ask for assistance in writing them, especially with our UVU Writing Center.

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 any communication within 2 business days (usually the same day). If multiple communications are received regarding the same question or concern, they may be responded to with an announcement to the entire class.
- 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.

Class Topics and Structure:

Lecture Topic / Powerpoints	Lecture/General Topic	Date	Assignments Due on or before this date	Points
Welcome, Course Overview	Getting to know each other	1/7		
Design Process Overview	Design Process Overview	1/9	Introduce Yourself	5
Design Process - Define the Problem	Design Requirements	1/14	Design Process and Pains	5
Defining the Problem / Research	Define/Choose	1/16	Pains Checkup	5
Design Process Concept Generation	Brainstorming	1/21	3 Top Pains	15
Brainstorming and Morph Charts	Brainstorming	1/23	Group Project & Team Contract	5
Model,Test and Analyze	Model, Analyze, and Test	1/28	Writing Center Familiarity	10
Refine and Optimize	Model, Analyze, and Test	1/30	Individual Contributed Research	10
Cumminicate Written/Reports	Written Report, Flex	2/4	Group Problem Definition List	10
Team Org Tools and Excel Basics	Team Skills	2/6	Writing Center Visit	10
No Class - Work on Report	*No Class - Work on Report*	2/11	Report 1 (Define the Problem)	40
OrthorgraphicProjectionAndCADIntro	CAD	2/13	Group List of 30 Brainstormed Solutions	20
CAD - Computer Aided Design	CAD	2/18	Orthographic Projection	10
Lab Lecture	Lab Instruction	2/20	Intoduction to SolidWorks	10
Visit GT 338	*Lab Time*	2/25	Machine Shop Safety Quiz	10
			Demonstrate Safe Use of 3 Machine Tools	10
Prototyping and More	Prototyping	2/27	Group Present Prototype Ideas	10
Excel Formulas and Data	Excel	3/6	Report 2 (Solution)	40
Engineering Disciplines	Various Fields of Engineering	3/11	CAD: More Cool Features and Tools	10
No Class - Spring Break	*No Class - Spring Break*			
No Class - Spring Break	*No Class - Spring Break*			
Visit GT 338	*Lab Time*	3/13	Engineering Topics/Questions	10
Arduino and Basic Circuits	Arduino	3/18	CAD Drafting	5
Communicating Designs - Presentations	Presenting, Videos	3/20	CAD Drawing of Solution	10
			Group Present Prototype	10
Engineering Ethics	Ethics and Recalls	3/25	Group Prototype and Test Check-in Photos	10
Visit GT 338	*Lab Time*	3/27	Ethics - Product Recall	10
Flex Class: Topics Q&A	Student Questions	4/1	Report 3 (Model, Test, Refine, Opt)	20
Intellectual Property	Intellectual Property	4/3	Group Video of Problem, Solution, and Test Plan	10
Reliability and Beta Testing	User Testing	4/8	IP Research	10
Owala Design / Report Help	Open Discussion	4/17	Group User Testing Feedback Plan	10
Phase Gates	Phase Gates Process	4/22	**SRI Extra Credit**	10
			Engr 1000 Survey Extra Credit	5
No Class	*No Class*			
No Class	*No Class*	4/24	***Final Report***	100
Finals Week / Final Presentations	Final Design	4/29	***Group Final Presentation***	20
			Final Peer Evaluation	10

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. You are encouraged to not just copy exactly what is generated, please edit the technical jargon and/or make it your own 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.