

SIE 498A Systems Engineering Senior Design Spring 2021

Instructor: Prof. Hannah Budinoff
Office: ENGR 129
Email: hdb@arizona.edu
Weekly meeting: TBD
Office Hours: by appointment

COURSE DESCRIPTION

Teams of students will use material taught in the SIE curriculum to address a customer's needs and help a real-world client design or improve a system. Students will use a system design process, discover system requirements, identify project and technical risks, and develop a project plan and schedule. Students will communicate orally and in writing. A series of design reviews will monitor project goals, schedule, risk and progress. 498A should be taken in the student's second to last semester.

INSTRUCTIONAL OBJECTIVES

The objective of the Senior Design Project is to utilize the knowledge and skills gained from the Systems Engineering curriculum to address and solve a problem(s) of interest to industry. Students are expected to develop project opportunities and project sponsorship in coordination with their faculty mentor, prior to the beginning of the SIE 498A semester. These projects do not have to be for pay because there is academic credit received for the work performed. However, it is permissible to be paid if the industry sponsor has the resources and inclination to do so. The scope of the proposed project must be determined in consultation with the industry sponsor and the faculty mentor. The project must utilize and demonstrate knowledge, skills, and tools gained from classes in the Systems Engineering curriculum.

TEXTBOOK

There is not a required textbook for this course.

PREREQUISITES

Senior Status

COURSE REQUIREMENTS

Students will work together in small teams on the project discussed above in, “Instructional Objectives;” all team members will receive the same grade for the overall project. There are six project deliverables: a requirements verification review presentation to the client, a written project proposal, a preliminary design review report, a preliminary design review presentation to the client, a critical design review report, and a critical design review presentation to the client (example formats on D2L).

COURSE EVALUATION

- Written Proposal..... 10%
- Requirements Review Presentation..... 10%
- Preliminary Design Review Report..... 15%
- Preliminary Design Review Presentation..... 15%
- Critical Design Review Report.....25%
- Critical Design Review Presentation..... 25%
- Final Grade: A (90~100), B (80~89), C (70~79), D (50~69), E (<50)

COURSE ACTIVITIES SCHEDULE

Requirements Verification

Review Presentation: Not later than two weeks after the initial client meeting

Written Project Proposal:

Not later than two weeks after Requirements Verification Review Presentation

Preliminary Design Review Report and Presentation:

Not later than the seventh week of the semester

Critical Design Review Report and Presentation:

Not later than the fourteenth week of the semester

ABSENCE AND CLASS PARTICIPATION POLICY

Students work towards course deliverables on time lines developed in consultation with the faculty mentor, project sponsor(s), and team members.

Required University Policy Statements are below:

The UA’s policy concerning Class Attendance, Participation, and Administrative Drops is available at: <http://catalog.arizona.edu/2015-16/policies/classatten.htm>

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, <http://policy.arizona.edu/human-resources/religious-accommodation-policy>.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: <http://uhap.web.arizona.edu/policy/appointed-personnel/7.04.02>

Participating in the course and attending course events are vital to the learning process. As such, attendance is required at all scheduled meetings. Students who miss class due to illness or emergency are required to bring documentation from their health-care provider or other relevant, professional third parties. Failure to submit third-party documentation will result in unexcused absences.

CLASSROOM BEHAVIOR POLICY

Systems Engineering Senior Design is intended to replicate the professional engineering work environment as faithfully as possible in an academic setting; as such, behavior and personal conduct commensurate with expectations in the professional engineering work environment are expected of students at all times.

Required University Policy Statement below:

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (i.e. texting, chatting, reading a newspaper, making phone calls, web surfing, etc.). Students are asked to refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

THREATENING BEHAVIOR POLICY

Systems Engineering Senior Design is intended to replicate the professional engineering work environment as faithfully as possible in an academic setting; as such, behavior and personal conduct commensurate with expectations in the professional engineering work environment are expected of students at all times.

Required University Policy Statement below:

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to one's self. See: <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

ACCESSIBILITY AND ACCOMMODATIONS

Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact Disability Resources (520-621-3268) to establish reasonable accommodations. For additional information on Disability Resources and reasonable accommodations, please visit

<http://drc.arizona.edu/>.

If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate. Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

CODE OF ACADEMIC INTEGRITY

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See:

<http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

UA NONDISCRIMINATION AND ANTI-HARASSMENT POLICY

The University is committed to creating and maintaining an environment free of discrimination, <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

ELECTIVE NAME AND PRONOUN USAGE

This course supports elective gender pronoun use and self-identification. As the course includes group work and discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect.

SPRING 2021: SPECIAL GUIDANCE

This class is scheduled to be taught in the IN-PERSON modality.

- **Meeting Times:** We will be meeting remotely until the University notifies us that in-person meetings may commence. We will meet each week by Zoom (date and time TBD) to discuss project progress and deliverables, and conduct student presentations.
 - When the COVID-19 situation permits teaching on campus, we will revisit the topic of scheduling in-person meetings.
- Face coverings are required in our classroom: Per UArizona's Administrative Directive, face coverings that cover the nose, mouth, and chin are required to be worn in all learning spaces at the University of Arizona (e.g., in classrooms, laboratories and studios). Any student who violates this directive will be asked to immediately leave the learning space, and will be allowed to return only when they are wearing a face covering. Subsequent episodes of noncompliance will result in a Student Code of Conduct complaint being filed with the Dean of Students Office, which may result in sanctions being applied. The student will not be able to return to the learning space until the matter is resolved.
 - The [Disability Resource Center](#) is available to explore [face coverings and accessibility considerations](#) if you believe that your disability or medical condition precludes you from utilizing any face covering or mask option. DRC will explore the range of potential

options as well as remote course offerings. Should DRC determine an accommodation to this directive is reasonable, DRC will communicate this accommodation with your instructor.

- **Physical distancing is required in our classroom:** During our in-person class meetings, we will respect CDC guidelines, including restricted seating to increase physical distancing. Any student who does not maintain physical distance from others may be asked to immediately leave the learning space. Noncompliance may result in a Student Code of Conduct complaint being filed with the Dean of Students Office, which may result in sanctions being applied.
- **Classroom attendance:**
 - If you feel sick, or may have been in contact with someone who is infectious, stay home. Except for seeking medical care, avoid contact with others and do not travel.
 - Notify your instructors if you will be missing an in person or online course.
 - Campus Health is testing for COVID-19. Please call (520) 621-9202 before you visit in person.
 - Visit the UArizona COVID-19 page for regular updates.
- **Academic advising:** If you have questions about your academic progress this semester, or your chosen degree program, please note that advisors at the Advising Resource Center can guide you toward university resources to help you succeed.
- **Life challenges:** If you are experiencing unexpected barriers to your success in your courses, please note the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office can be reached at 520-621-2057 or DOS-deanofstudents@email.arizona.edu.
- **Physical and mental-health challenges:** If you are facing physical or mental health challenges this semester, please note that Campus Health provides quality medical and mental health care. For medical appointments, call (520-621-9202. For After Hours care, call (520) 570-7898. For the Counseling & Psych Services (CAPS) 24/7 hotline, call (520) 621-3334.
- **Equipment and software requirements:** For this class you will need daily access to the following hardware: laptop or web-enable device with webcam and microphone; regular access to reliable internet signal; ability to download and run the following software: Zoom
- **Remain flexible:** If pandemic conditions warrant, the University may require that we return to remote operations. If that is the case, we will notify you by D2L Announcement and email that we are moving to remote operations.
- **Class Recordings:**
 - Class recordings will be made. Contact me in advance if suggest ways to address if you do not wish to be identified by name during course meetings.
 - For lecture recordings, which are used at the discretion of the instructor, students must access content in D2L only. Students may not modify content or re-use content for any purpose other than personal educational reasons. All recordings are subject to government and university regulations. Therefore, students accessing unauthorized recordings or using them in a manner inconsistent with UArizona values and educational policies are subject to suspension or civil action.

SUBJECT TO CHANGE STATEMENT

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.