SIE 377 Fall 2025 Software for Engineers

Description of Course

Rapid prototyping of decision support systems using VBA and Python with Excel and external packages to solve for optimization, build models and simulations, and create scheduling and forecasting tools. Decision support system types include financial, supply chain, product portfolio and facility location and operations.

Course Prerequisites or Co-requisites

ECE 175 or CSC 127A or CSC 110

Instructor Contact Information

Office Hours Zoom Meeting: M-W-F 2:30 PM to 3:00 PM
Office Hours (online) : Book your slots via D2L -
UA Tools ->. zoom -> Appointments -> Schedules
Office Hours (In-person): M-W-F 3:00 PM to 4:30 PM
Office Hours (In-person) Location: B552 - Main Library

Please note:

Zoom sessions for online consulting need to be self-scheduled via zoom widget on D2L. You are encouraged to meet during these times about anything on your mind. However, if these times do not work with your schedule, other meeting times are available by appointment; please send the request via email.

For In-person meetings, the office location at main library can change on some days as booking may not be available for the same room. Please check this document or watch course notifications on Brightspace regularly for any changes in the office hours information.

Contact Policy:

Email: Your email should include the following Subject Line: **SIE 377 Student [Question / Request / Notification]**. Whether you choose Question, Request, or Notification depends on what you need. Then just ask your question, or make your request, or provide the notification in the text of the email.

Turn Around Time:

Instructor will try to respond as soon as possible, but please allow 24 hours depending on their commitments.

Course Objectives and Expected Learning Outcomes

By the end of this course, students should be able to do the following:

- Determine, design, and implement the appropriate modeling approach for a problem solution.
- Construct and use spreadsheets, tools, object models and programs to help solve engineering problems.
- Apply the techniques and skills learned to develop customized solution software for decision support.

Assessment	Weight	Learning Outcome	Description
Course Participation (including attendance, surveys) and Homework	20 %	All	• Each of these categories, Course Participation and Homework, are designed to provide practice, evoke, questions, and help self-assess progress and understanding. • Course Participation measures in-class engagement including participating by asking and answering questions, helping others, and submitting low-stake, ungraded but for credit activities which are based on real-world problems as practice. • Course participation also measures participation in surveys that might be launched during the semester for feedback and improving the learning experience. • Homework consists of more detailed practice like in-class activities, but usually much longer. Conventionally graded (e.g., A is 90 to 100%).
Midterm Exam 1	20%	All	• Comprehensive. • Delivered online and will include instructions and requirements for the problem(s) to the solved.
Midterm Exam 2	20%	All	• Comprehensive. • Delivered online and will include instructions and requirements for the problem(s) to the solved.
Final Exam	20%	All	• Comprehensive. • Delivered online and will include instructions and requirements for the problem(s) to the solved.
Semester Project	20%	All	• Each individual student will create a solution based on the requirements and characteristics described in the case study.

Grading Scale and Distribution

Semester grades use Regular Grades:

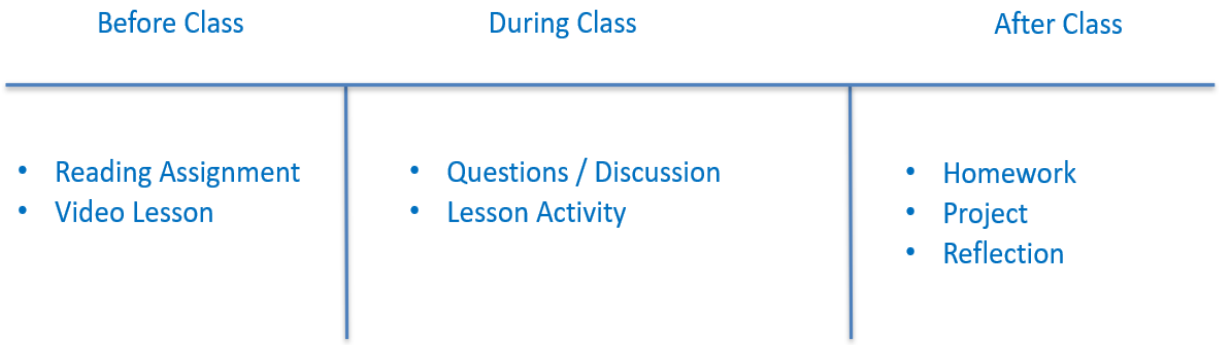
A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
E	0% - 59%

Course Format and Teaching Methods

The course will include lectures, in-class activities and discussion, projects, web-delivered content, and intermittent assessment.

Please make sure you visit the D2L site frequently to stay up to date. Any notices, changes, or corrections will be posted in the Announcements section of the course (Course Home) on D2L. All course information and materials will be posted on the site.

A quick overview of a typical class meeting is illustrated below:



There are very few lectures given during class. Most are pre-recorded, last 5 to 10 minutes, and are viewed prior to class. Class begins with questions and discussions based on what you want to discuss, have questions, or are curious about. If I have an agenda item to discuss, then I will cover that first so that we can move on to your interests. We will typically delve into a relevant learning activity, so please remember to bring your laptops to class. After class you will work on any assigned homework or project.

Active learning, partially represented by in-class activities mentioned in the last paragraph, reinforces important material, concepts, and skills. The activities I have designed for this course are experiential; based on real-world work that I have performed as an engineer and also assigned to engineering teams not as a learning

experience, but as part of our work. This representative work allows you to apply what you have learned, and what you are actively learning, to promote a personal bond between you and that work. I've also found that I don't know what questions I have until I try something firsthand.

Equipment, Operating System, and Software Requirements

For this course you will need daily access to a laptop or web-enabled device with webcam and microphone; regular access to a reliable internet signal; and the ability to download and run the following software: web browser, Adobe Acrobat, Microsoft Excel, Microsoft Access, Python and Pandas etc.

This course uses the Microsoft Windows 10 or 11 Operating System (OS) for programming languages and environments. If you are using an Apple Mac OS or any OS other than Windows 10, you will need to be able to access and use a cloud version of Microsoft Excel that will be provided by the University or use a University-supplied virtual machine and load the (also University-supplied) Windows 11 OS, along with the Windows versions of Excel and MS Access. No exceptions. The software we will be writing in this course does not work on the Excel version that runs on Apple products.

Reference Material (Optional, but very helpful)

- McGuire, Saundra Yancy, and McGuire, Stephanie, Teach Yourself How to Learn : Strategies You Can Use to Ace Any Course at Any Level, First Edition, Stylus Publishing, LLC., 2018.
    - From our Library: https://bit.ly/3g1xcol

Project Due Date and Final Examination Date and Time

Project Deadline:	Thursday	12/04	Before 08:00 AM
Final Examination: *	Thursday	12/18	10:30 am - 12:30 pm

** This date and time is set by the Office of the Registrar and states that the policy "As Confirmed by the Faculty Senate: No deviation from the exam schedule, once it is published, is authorized."*

List of ALL UA Final Exam Dates 2025

Absence and Class Participation Policy

Participating in the course and attending class meetings are vital to the learning process. As such, attendance is required at all class meetings. Absences may affect a student's final course grade. If you anticipate being absent, are unexpectedly absent, or are unable to participate in class online activities, please contact me as soon as possible.

When you miss a class meeting you are responsible for any in-class assignments

missed. If the assignment was to be handed in, then you are responsible for handing in the work as soon as possible. It is best if you hand in the work before the start of the next class meeting time.

Unless it is an emergency, you are required to send a request via email well in advance of any class or deadline that you might miss. If possible, I will work with you to help you complete missed work.

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at: http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop

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: https://deanofstudents.arizona.edu/absences

Class Meeting Recordings

For class meeting recordings, which are used at the discretion of the instructor, students must access the 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, personally recording a meeting, or using them in a manner inconsistent with University of Arizona values and educational policies are subject to suspension or civil action.

Classroom Behavior Policy

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.

Threatening Behavior Policy

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. 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 the Disability Resource Center (520-621-3268) to establish

reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit http://drc.arizona.edu.

If you have a reasonable accommodation, 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.

Use of Generative AI

In this course, generative artificial intelligence/large-language-models tools, such as ChatGPT, Claude, Copilot, Gemini/Bard, Dall-e, Bing, may be used for non-graded learning and research activities with appropriate acknowledgment and citation, but never for any activity that will be graded like Quizzes, Weekly Reflections, Homework, Exams, Micro-labs or Semester projects. When used for research, information gathering or as a learning tool, be conscious of the learning outcomes from this course. Steer clear of prompts that bypass analytical reasoning and diminish opportunities for critical thinking and problem-solving.

Students are responsible for investigating and deciding the accuracy, credibility, and source of any information they gain from these tools. In the context of semester project or any other group work, every student is responsible to make ensure that no group work is submitted that uses Generative AI resources without proper acknowledgement or citations. Please use the following guidelines for acknowledging/citing Generative AI: How to cite ChatGPT

Use of these tools for Homework, Exams, Quizzes, Weekly Reflections, Micro-labs or Projects is considered a violation of the Code of Academic Integrity and subject to the most severe sanctions listed in the section below about Code of Academic Integrity. If you are in doubt as to whether you are using Generative AI tools appropriately in this course, you are encouraged to discuss your situation with the instructor. Be aware that many AI companies collect information. Do not enter confidential information as part of a prompt. LLMs may make up or hallucinate information. These tools may reflect misconceptions and biases of the data on which they were trained and the human-written prompts used to steer them. You are responsible for checking facts, finding reliable sources for, and making a careful, critical examination of any work that you submit.

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.
- The University Libraries have some excellent tips for avoiding plagiarism, available at http://new.library.arizona.edu/research/citing/plagiarism.

- Re-distributing class notes and / or other course materials in any way is not permitted without the instructor's express written consent. This includes student notes or summaries that substantially reflect lectures or other materials. These resources are made available only for personal use by students.
- Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. This conduct may also constitute copyright infringement.

UA Nondiscrimination and Anti-harassment Policy

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

Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

Additional Resources for Students

UA Academic policies and procedures are available at http://catalog.arizona.edu/policies

Student Assistance and Advocacy information is available at http://deanofstudents.arizona.edu/student-assistance/students/student-assistance

Confidentiality of Student Records

http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa

Safety on Campus and in the Classroom

For a list of emergency procedures for all types of incidents, please visit the website of the Critical Incident Response Team (CIRT) at https://cirt.arizona.edu/case-emergency/overview.

Also watch the video available at https://arizona.sabacloud.com/Saba/Web_spf/NA7P1PRD161/common/learningeventdetail/crtfy000000000003560

University Policies

The university policies on absence and class participation, threatening behavior, accessibility and accommodations, academic integrity, and non-discrimination and anti-harassment may be found at https://academicaffairs.arizona.edu/syllabus-policies.

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.