

ECE103
Spring 2025
14 weeks



**SCOTTSDALE
COMMUNITY COLLEGE**

A MARICOPA COMMUNITY COLLEGE

Course Information

Semester & Year:	Spring 2025
Course Title:	Engineering Problem Solving and Design
Course Prefix & Number:	ECE103
Section Number:	29499
Credit Hours:	2
Start Date:	Jan 27, 2025
End Date:	May 7, 2025
Room Number:	in-person at CM469
Meeting Days:	Mon/Wed
Meeting Times:	12:30-2:25 pm

Course Format

The course format for this course is 14-week in-person. We will meet on Mondays and Wednesdays in CM469. The class time will be spent on some lectures and lots of group work and discussion.

Instructor Information

Instructor:	Paniz Tavassoli
Email:	paniz.tavassoli@scottsdalecc.edu
Phone:	(480) 423-6015
Office Location:	CM-427
Office Hours:	Mon/Wed 9 - 9:30 AM and 12 – 12:30 PM Thursday 9 - 9:30 AM and 12 – 2:30 PM

Course Description

Fundamentals of the design process: engineering modeling, communication and problem-solving skills in a team environment. Emphasis on process-based improvements to the design process. Introduction to engineering as a profession.

Prerequisites

A grade of C or better in ECE102 or permission of Instructor or Division or Department Chair.

Course Competencies

1. Demonstrate project management, teamwork, and communication skills by working on design projects with multi-disciplinary teams.
2. Present the results of design projects in both written technical reports and oral presentations.
3. Apply appropriate problem-solving techniques to engineering problems using graphical, mathematical, written, and computer modeling tools.
4. Use an engineering design process to propose solutions to real-world problems.
5. Develop algorithms for implementation as computer code.
6. Apply computer code to analyze data, develop models, and/or operate equipment.
7. Use computer drawing software to create representations of physical objects.

Texts and Course Materials

All course materials are provided at no cost through the course website (Canvas). There is no textbook required.

View the [Accessibility Statements & Privacy Policies](#) of technologies used in this course.

Course Technologies

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Maricopa Systems

This course uses key Maricopa systems for course management and communication.

- Canvas Learning Management System
- Student Maricopa Gmail Account

Synchronous Communication Tools

This course requires students to participate in or submit assignments using desktop or cloud-based applications.

- Google Products
- Microsoft Office 365
- Adobe Creative Cloud

Streaming Media/Audio/Video Tools

This course uses YouTube videos

Student Assignment Tools

This course requires students to participate in or submit assignments using desktop or cloud-based applications.

- Google Products
- Microsoft Office (can be accessed freely through [mySCC](#))

Course Policies

The following are policies specific to this course. Students are also responsible for the college policies included on the [Student Regulations](#) page of the Maricopa Community College District website. Syllabus is subject to change at instructor's discretion.

Required Course Materials

- No textbooks
- Calculator (TI-83/84 recommended)
- Computer with internet access
- Webcam and Microphone (for communicating during office hours)

Instructional Contact Hours (Seat Time)

This is a two (2) credit-hour course. Plan to spend 4 hours on course content in class, and 4 hours on homework outside of class weekly.

Grading Standards & Practices

Grade Scale (traditional, no curve)

Letter Grade	Points Range	Assignment type	Percent of grade
A	90 – 100%	Assignments	40
B	80 – 89%	Team Projects	55
C	70 – 79%	Participation	5
D	60 – 69%		
F	0 – 59%		

Assignment types

Individual Assignments (40%): There will be graded assignments due nearly every class period throughout the semester. Some of this work will be done in class, some will be done on your own time for homework. Details such as due dates and submission types are available on Canvas Calendar, and it is the student's responsibility to stay informed of these details.

Any submission made during the lecture (except for in-class assignments) will automatically receive a 0%. If you work on assignments during class time (other than in-class assignments), you will receive a 0% for that assignment. Similarly, if you work on assignments for other classes during this class, you will receive a 0% for the assignment due that day.

Team Projects (55%): There will be three team projects (with associated reports). Each project will be presented in a different format.

- Estimating Arizona - website
- Going Viral - oral presentation
- 3-D printer project - competition

Participation (5%): This portion of your grade starts out as an A, but can be reduced by poor attendance, lack of participation in group work, etc.

Resubmission Policy – If you are given the opportunity to resubmit an assignment, you will have **only one chance** to do so. Use this opportunity wisely to enhance your understanding of the material. You are encouraged to seek guidance from me or consult our dedicated tutor.

Please note that I will not re-grade an assignment more than once.

Reconsideration of Graded Assignments – If your answer is incorrect and the correct solution has already been provided on your graded assignment, please do not resubmit it or request reconsideration. The solution has been shared to support your learning.

Late submission of assignments

No *project submissions* will be accepted late.

Assignment submissions will be accepted up to 3 days late. Any submission received between 1 minute and 3 days late will incur a 30% deduction from its score.

Submissions more than 3 days late will not be reviewed and will receive a 0%. Please do not reach out to me after the due date to explain why you did not submit your assignment on time. If you wish to submit late work without receiving a late penalty, you must communicate with me **before the due date** and provide written proof. If approved, the late penalty will be waived. Otherwise, my late submission policy will be enforced.

Working in Teams and Plagiarism

Working in teams is an essential aspect of both engineering and this course. There are multiple team projects throughout the course (refer to the schedule). Most other assignments, however, will be completed individually.

While you are encouraged to discuss assignments with your classmates to help each other, the work you submit must be your own. Any instance of copying on an assignment will result in a grade of 0 for all students involved. Repeated violations will result in the initiation of the official plagiarism procedures outlined in the student handbook.

All team members are required to respond to any correspondence within **36 hours**. Failure to do so will result in a **30% penalty on the project**. ***Additionally, if a student does not participate or fulfill their assigned responsibilities within the team, they will receive a 0 for that project.***

Tutoring

It is mandatory to register for the **"SCC Computer Science/Engineering Open Lab" Canvas course**. The registration link is available on Canvas.

This course provides access to our online **Discord** tutoring platform, where you can connect with a dedicated tutor and check their availability for assistance.

Response Time, Grade Protests

Students can expect a response time of 24 hours (on weekdays) for the instructor to respond to messages sent via the Canvas LMS or email. Students can expect assignments to be graded within 7 days of the assignment's due date. Students have up to 7 days after an assignment is graded to dispute a grade. Once the 7-day window has passed, grades will not be reviewed. To dispute a grade, please speak with the instructor after class or send an email. ***No late work or grade disputes will be accepted during or after the last week of class.***

Attendance Policy

The maximum allowable "instances of no participation" is 3. An "instance of no participation" is defined as a missing assignment, a lack of contribution to an in-class discussion, or absence from class. Upon the 4th instance, the student may be withdrawn from the course.

It is your responsibility as a student to attend every class. You are expected ***to stay informed*** about everything discussed during class sessions. If you miss a class, it is still your responsibility to learn and understand the material covered.

Students may be excused from class due to official SCC-sanctioned events, religious observances, medical reasons, or legitimate emergencies. They should inform the instructor of the absence by email as soon as possible, and provide documentation as requested by the instructor.

Generative Artificial Intelligence (AI) Policy

Generative AI can be defined as "a category of artificial intelligence (AI) algorithms that generate new outputs based on the data they have been trained on. Unlike traditional AI systems that are designed to recognize patterns and make predictions, generative AI creates new content in the form of images, text, audio, and more." Some examples of generative AI tools include but are not limited to: ChatGPT, Google Bard, Microsoft Copilot, Stable Diffusion, GrammarlyGo, and Adobe Firefly.

In this class, **all the work submitted must be your own original work**. The use of generative AI tools will be considered **academic misconduct** (see Administrative Regulation 2.3.11 1.B(b)) and will be treated as such. If you are unsure if the tool or website you are using is a generative AI tool, please contact the instructor for further clarification before using the tool or website.

Learning Tools and Your Privacy and Security

SCC utilizes a variety of software applications and web-based tools operated by third party vendors to support student learning. To allow student access to the application, site or tool, certain identifiable information may be required to establish a user name or password, and submit work and/or download information from these tools. Inherent with all internet-based tools, there is a risk that individuals assume when electing to use these tools, as they may place information at risk of disclosure.

To use learning tools responsibly, please observe all laws and the Maricopa Community College District Student Conduct Code, such as copyright infringement, plagiarism, harassment or interference with the underlying technical code of the software. As a student using a learning tool, you have certain rights. Any original work that you produce belongs to you as a matter of copyright law. You also have a right to the privacy of your educational records. Your contributions to learning tools constitute an educational record. By using the tool and not taking other options available to you in this course equivalent to this assignment that would not be posted publicly on the internet, you consent to the collaborative use of this material as well as to the disclosure of it in this course and potentially for the use of future courses.

Student/Instructor Interaction

In this course, you can expect regular and substantive interaction (RSI) that aligns with Scottsdale Community College's mission to provide challenging and supportive learning experiences and the US Department of Education's requirement for regular and substantive interaction (RSI) for online courses. My commitment to your success includes the following:

- Being available during regularly scheduled student support hours as stated in the syllabus.
- Sharing weekly information about the course materials, including key information, explanations, examples, and resources via in-person, recorded, and/or text-based lectures.
- Providing group or individual feedback regularly on assignments.
- Promptly responding to student questions about the course sent via email, MOER messaging, the Canvas inbox, or the engineering discord.
- Posting announcements about the course content and activities updates.
- Monitoring your academic progress and communicating concerns, as needed.

My purpose and expectations

My purpose in being here is to serve you by being a thorough, helpful, and fair instructor, and so provide a solid foundation for further studies. However, the responsibility for grabbing hold of your education lies with you. I expect you to be respectful to me and your classmates and to realize what a gift and responsibility it is to be a student. The more genuine you are, the more you'll learn and the more fun it'll be for all of us. If you have questions/ concerns/struggles with anything, simply ask and you'll find help.

Students are responsible for the information contained in this syllabus, the Syllabus page in your Canvas course and the **College Policies & Student Services** page found in the First Steps module of your Canvas course. Students will be notified by the instructor of any changes in course requirements or policies.

ECE103 Course Schedule — Spring 2025 MW 12:30-2:25 pm

Schedule is subject to change at instructor's discretion.

Class #	Date	Before class	In Class Topics	Assign	Due by (11:59 pm on the day before)
1	1/27	Syllabus	Syllabus, Intro and Modeling	P: Estimating Arizona	-
2	1/29	Opening MATLAB First example: Penny Variables	Teamwork MATLAB	-	-
3	2/3	-	Report 1 Meetings	P: Report 2	- Report 1
4	2/5	Arrays Indexing Plots	MATLAB Project Time	A: MATLAB WS1	-
5	2/10	-	Project Time		-
6	2/12	If/Else	MATLAB Report 2 Meetings	A: MATLAB WS2	- MATLAB WS1 - Report 2
	2/17*	-	No class – Presidents' Day	-	-
7	2/19	While loops For loops	MATLAB	P: Website Team Evaluation Peer Evaluation A: MATLAB Loops	- MATLAB WS2
8	2/24	First script	MATLAB	A: MATLAB Wrap Up	- Website - Team Evaluation
9	2/26	User-Defined Function Example User-Defined Functions Slides	MATLAB	A: MATLAB Functions	- MATLAB Loops - Peer Evaluation

10	3/3	Susie's coffee.pdf	MATLAB	A: Susie's coffee	- MATLAB Wrap Up
11	3/5	Project Going Viral Sp24.docx	MATLAB Project Time	P: Going Viral	- MATLAB Functions
	3/10*		No Class- Spring Break	-	-
	3/12*		No Class- Spring Break		
12	3/17	Onshape Intro	Intro to Onshape Project Time	A: Onshape Exercises	-
13	3/19		Intro to Onshape Project Time		- Susie's coffee
14	3/24	Isometric to Orthographic example	Isometric to Orthographic Group Work	A: Onshape Orthographic	- Onshape Exercises
15	3/26	Bike rack demo	Project Time	A: Onshape Bike Rack	- Onshape Orthographic
16	3/31	-	Project Meetings		- Going Viral Progress Report
17	4/2	Assemblies Walkthrough	Project Time	P: Onshape Home Objects	-
18	4/7	-	Final Project Design Process	P: Project Report 1	- Bick Rack
19	4/9	-	Project Time		- Going Viral Technical Report - Team Evaluation
20	4/14		Progress Report 1	P: Project Report 2	- Onshape Home Objects - Progress Report 1
21	4/16		Project Time		

22	4/21	Progress Report 2	P: Project Report 3	- Progress Report 2
23	4/23	Project Time		
24	4/28	Progress Report 3	P: Final Project; Team Evaluation	- Progress Report 3
25	4/30	Project Time		-
26	5/5	Final Project Competition		- Final Project -Team Evaluation
27	5/7	Final Project Presentation		

Abbreviations: **A:** Assignment, **P:** project