

Micromouse

Program Syllabus

Fall 2025 - Spring 2026



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Course Description

Micromouse is a year-long technical program where engineering students will learn how to design, program, and assemble an autonomous maze-solving robot (mouse). Though it may sound simple, this challenge demands exceptional problem-solving skills as you put your classroom knowledge to the test in a real-world scenario! Some concepts utilized include PCB design, soldering, embedded programming in C/C++, microcontrollers, and physical sensor use.

Meetings will be held once a week, consisting of concept lectures, assembly workshops, and open lab time for troubleshooting and staff assistance. At the year, the goal is to compete at the All American Micromouse Competition (AAMC) at UCLA.

Enrollment Requirements

Undergraduate students attending the University of California, Irvine, can apply for course enrollment. The deadline for application submissions is **October 3rd, 2025, at 11:59 PM**. Submitting an application does not guarantee acceptance to the program. Students who receive a course acceptance offer must pay the course deposit and fee before enrollment.

Course Deposit + Fee

Once you have formed a team with up to 2 other Micromouse members, each team is required to pay **\$150**. If you plan to work alone, then you must be prepared to pay the entire fee on your own. In exchange, your team will receive a project kit that contains all the parts necessary to assemble a Micromouse. The course is structured to include 4 checkpoints. Upon completion of a checkpoint, your team will receive \$12 back meaning if your team completes the program, it only costs \$102.

Parts Kit Component List

- Blue LED
- Green LED
- Red LED
- MOSfet (x5)
- 10uH SMD Inductor
- Emitter (x4)
- Receiver (x4)
- 22pF SMD Capacitor (x2)
- 0.1uF SMD Capacitor (x5)
- 1uF SMD Capacitor (x7)
- 10uF (Ceramic) SMD Capacitor (x2)
- 10uF(Tantalum) SMD Capacitor
- 100uF THT Capacitor (x2)
- 10nF (Ceramic) SMD Capacitor
- 0 Ohm SMD Resistor
- 36 Ohm SMD Resistor (x4)
 - 75 Ohm SMD Resistor (x2)
- 750 Ohm SMD Resistor
- 600 Ohm SMD Ferrite Resistor (x2)
- 1.8K Ohm SMD Resistor (x4)
- 10K Ohm SMD Resistor
- 20K Ohm SMD Resistor
- 47k Ohm SMD Resistor (x9)
- Black Test Point (x4)
- 3.3 Regulator
- 5V Regulator
- SMD Button (x4)
- Slide Switch
- Ideal Diode (x2)
- MOSfet (higher gate V)
- Buzzer
- Dipsocket
- Encoder
- Motor (x2)
- JST Cable (x2)
- Wheel
- Breakout for JST SH-Style Connector (x2)
- Motor Mount
 - Battery Pack
 - ST-LINK v2
 - Microcontroller
 - Motor Driver
 - USB to TTL Serial Adapter
 - Mouse PCB

Schedule

Listed below is the schedule for each academic quarter (Dates/content are subject to change):

Meetings will be held every week unless specified otherwise. Time and Location are TBD.

Week	Fall Quarter	Winter Quarter	Spring Quarter
0	Applications Open	Soldering	Firmware Finalized
1			
2	Decisions		
3	PCB Design		
4			
5			
6			
7			
8	Firmware (Basics) + Floodfill Integration	AAMC 2026	
9			
10			
Finals			
Break	Floodfill Design		

Agreement

By signing this document, you agree to the statement below:

I hereby agree to pay the required one-hundred fifty-dollar fee (\$150.00) along with my team in exchange for mouse materials. I understand that if I do not form a team that I will be solely responsible for this fee. I understand that I am eligible to refund my Micromouse kit only until the PCB order date if I choose not to continue with the program. I understand that upon completion of a checkpoint, my team will receive \$12 back.

I understand that inappropriate behavior or any other form of misconduct inconsistent with the club constitution or bylaws may result in my removal from the Micromouse program without reimbursement of the deposit.

Participant's Full Name (*Print*): _____

Participant's Signature: _____ / Date: _____

Liability Release

On this day of _____ intending to be legally bound hereby, the undersigned agrees and does hereby release from liability and to indemnify and hold harmless the Institute of Electrical and Electronics Engineers at the University of California, Irvine, and any of its officers as regards to the Micromouse program and related workshop events. This release is for all liability for personal injuries, attorney fees and property losses or damage occasioned by, or in connection with any activity or accommodations for this program. The undersigned further

agrees to abide by all the rules and policies promulgated by the Institute of Electrical and Electronics Engineers at the University of California, Irvine and/or its affiliate groups and vendors throughout the program.

Participant's Full Name (*Print*):

Participant's Signature: _____ / Date: _____

If the participant is under 18 years of age, a parent or guardian must sign below:

Parent's Full Name (*Print*):

Parent's Signature: _____ / Date: _____