

# ENGR 1AR Introduction to Engineering Design: Autonomous Rover Summer Schedule

**Monday-Friday 9:00 am - 4:00 pm**  
**Location: Mathematical Science 2915**

**Instructor of Record:** Prof. Jacob Schmidt, Ph.D., [schmidt@seas.ucla.edu](mailto:schmidt@seas.ucla.edu)

**Tentative Course Outline and Schedule:**

Week	Date	Topic	Assignments (tentative)
1	6/26 - 6/30	<b>Class Introduction</b> - Introduction of mentors and course expectations <b>Electronics Lecture</b> - Computer-aided design in Solidworks - Fun CAD Design Practice	<b>Complete Pre-Class survey</b> <b>Download softwares assigned</b> <b>TinkerCad Assignment</b>
		<b>Intro to PCB Design</b> - Schematics drawing and pcb layout using Kicad <b>Soldering and Vinyl Cutting Workshop</b>	<b>PCB Assignment</b> <b>Soldering Project</b> <b>Form Groups</b>
		<b>Arduino Coding</b> - In depth coding including logic structures - Activity wiring up servos and H-bridges <b>Introduction to Bluetooth</b> <b>Model Rover Assembling</b> - Combine previous work and assemble a drivable dummy rover	<b>Wiring/Programming Projects</b> <b>Model Rover Assemble</b>
		<b>Solidworks Lecture</b> - Makerspace tour - CAD, assembly, lasercut <b>Model Rover design</b> - Design own layout of model rover	<b>Lasercut and 3d-print Assignment</b> <b>CAD design for Model Rover</b>
		<b>Scavenger Hunt</b>	
2	7/3 - 7/7	<b>Model Rover Test Drive</b> <b>Team Presentation</b>	<b>Model Rover Full assemble</b>
		<b>Introduction to Autonomy</b> - Progress from manual navigation to autonomous <b>Introduction to Mechanical Design</b> <b>Team Brainstorm</b>	

		<b>Presentation Workshop Team Design</b>	
		<b>Preliminary Design Review (PDR)</b>	<b>PDR Presentation</b>
		<b>Rover Manufacture</b>	
3	7/10 - 7/14	<b>Rover Manufacture</b> <ul style="list-style-type: none"> <li>- Rover must be able to move, using sensors</li> <li>- Testing and adjustments to build and program</li> <li>- Grabbing mechanism should be working</li> <li>- Testing and adjustments to build and program</li> </ul>	
		<b>Obstacle Course Practice Test Drive</b>	<b>Finish Rovers</b>
		<b>Final Project Competition Reflective Presentation</b>	<b>Final Competition</b>

- Course attendance is *extremely important*.