

**UNLV ME 425/625 – Robotics 1 – Fall 2023 (last updated 11/10/23)**

Week	Topic								
Week 1 08/28/23	<table border="1"> <tr> <td>Lecture</td> <td>Introduction</td> </tr> <tr> <td>Lab</td> <td>BrixCC setup, NXC programming, Studio</td> </tr> <tr> <td>Programming</td> <td>NXC data types, if-then, loops, TextOut and FormatNum</td> </tr> <tr> <td>Homework</td> <td>NXC programming basics Studio: Casters</td> </tr> </table>	Lecture	Introduction	Lab	BrixCC setup, NXC programming, Studio	Programming	NXC data types, if-then, loops, TextOut and FormatNum	Homework	NXC programming basics Studio: Casters
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Week 2 09/04/23	<b>Labor Day – UNLV Holiday</b>								
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Week 6 10/02/23	<b>Project 1 Relay Race PLR Day (no lecture)</b>								
Week 7 10/09/23	<b>Project 1 Relay Race: Semi-Finals Competition Day</b>								

Week 8 10/16/23	<b>Midterm</b>	
	Part 1 Closed-book (60-min): Fill-in-the-blanks, essays, etc Part 2 Open-book (90-min): Hands-on LEGO construction	
Week 9 10/23/23	Lecture	DC motor theory and open-loop step response
	Lab	NXC File Handling NXC Timers Motor Open-Loop Step Response NXC Ultrasonic Sensors
	Homework	DC motor theory and open-loop step response NXC Timing
Week 10 10/30/23	Lecture	Electronics: Robot Sensing, Actuation and Communications
	Lab	DIY Touch Sensor and Voltage Supply RS-485 Communications Bluetooth Communications
	Homework	Communications
Week 11 11/06/23	Lecture	Path-Planning (Mazes) Part 1: Wall-Following Wall-Following PID Theory
	Lab	Domabot: Wall-Following PID
	Homework	Wall-Following and PID Theory
Week 12 11/13/23	Lecture	Path-Planning (Mazes) Part 2: Obstacle-Avoidance Obstacle-Avoidance PID Theory
	Lab	Domabot: Obstacle Avoidance PID Maze Solving
	Homework	Domabot: Obstacle Avoidance Maze Prop Mount
	<b>Introduce: Project 2 - Finals</b> <b>Form Teams – 2 people per team</b>	
Week 13 11/20/23	<b>No Lecture:</b> Teams demonstrate can navigate Everblock Maze Homework: None	
Week 14 11/27/23	<b>No Lecture:</b> Course Revealed and <b>PDR</b> (demonstrate robots can wall-follow, avoid obstacle, and extinguish lit candle) Homework: None	
Week 15 12/04/23	<b>Study Week Begins</b> <b>Project 2 Relay Race Finals</b>	
Week 16 12/11/23	<b>Finals Begin</b>	