

UNLV ME 425/625 – Robotics 1 – Spring 2021 (last updated 01/18/21)

| Week | Topic | |
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| Week 1 01/25/21 | Lecture | Introduction |
| Week 2 02/01/21 | Lecture Lab Programming | Simple Machines I: Levers, Shafts and Cranks LEGO levers, shafts and cranks LEGO NXC: hello world, motors and touch sensor |
| Week 3 02/08/21 | Lecture Lab Programming | Simple Machines II: Cams, Springs and Linkages LEGO cams, springs and linkages LEGO NXC: ultrasonic and infrared sensors |
| Week 4 02/15/21 | President's Day – UNLV Holiday | |
| Week 5 02/22/21 | Lecture Lab | Simple Machines III: Ratchets, Drives and Gearing LEGO ratchets, drives and gearing ML-CAD (or Solidworks) |
| Week 6 03/01/21 | Lecture/Lab Programming Project | Putting it all together: Automata Examples (The Gymnast) Email: Team's proposed Project LEGO NXC: File handling Teams Work on Automata Project |
| Week 7 03/08/21 | Due: | Automata Presentation; Hardcopy Report Due |
| Week 8 03/15/21 | Spring Break | |
| Week 9 03/22/21 | Midterm | |
| | Part 1 Closed-book (60-min): Fill-in-the-blanks, essays, etc Part 2 Open-book (90-min): Hands-on LEGO construction | |
| Week 10 03/29/21 | Lecture Programming | Motor Theory LEGO NXC: File handling Timers; Data Acquisition (Motor OL Step Response) |
| Week 11 04/05/21 | Lecture Lab | Robot Sensing: ADC: binary, voltage dividers LEGO touch sensor; ohmmeter; potentiometer, voltmeter |
| Week 12 04/12/21 | Lecture Lab | Robot Actuation: ADC: operational amplifiers LEGO temperature sensing; DAC power supply; aliasing |
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| Week 13 04/19/21 | Lecture Lab | Robot Communications: I2C LEGO PCF8574 LEDs, DIPs |
| Week 14 04/26/21 | Lecture Lab | Robot Interfacing: H-Bridges Relays and Transistors |
| Week 15 05/03/21 | Project: | Teams Work on NXT H-Bridge Project Project Due Study Week Begins |
| Week 16 05/10/21 | | Finals Begin |