UNLV ME 425/625 – Robotics 1 – Fall 2021 (last updated 07/27/21)

Week	Topic	
Week 1 08/23/21	Lecture	Introduction
Week 2 08/30/21	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 09/06/21	**Labor Day – UNLV Holiday**	
Week 4 09/13/21	Lecture Lab Programming	Simple Machines II: Cams, Springs and Linkages LEGO cams, springs and linkages LEGO NXC: ultrasonic and infrared sensors
Week 5 09/20/21	Lecture Lab	Simple Machines III: Ratchets, Drives and Gearing LEGO ratchets, drives and gearing ML-CAD (or Solidworks)
Week 6 09/27/21	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 10/04/21	Due:	**Automata Presentation; Hardcopy Report Due**
Week 8 10/11/21		**Midterm** Part 1 Closed-book (60-min): Fill-in-the-blanks, essays, etc Part 2 Open-book (90-min): Hands-on LEGO construction
Week 9 10/18/21	Lecture Programming	Motor Theory LEGO NXC: File handling Timers; Data Acquisition (Motor OL Step Response)
Week 10 10/25/21	Lecture Lab	**Robot Sensing**: ADC: binary, voltage dividers LEGO touch sensor; ohmmeter; potentiometer, voltmeter
Week 11 11/01/21	Lecture Lab	**Robot Actuation**: ADC: operational amplifiers LEGO temperature sensing; DAC power supply; aliasing
Week 12 11/08/21	Lecture Lab	**Robot Communications**: I2C LEGO PCF8574 LEDs, DIPs

Week 13 11/15/21	Lecture Lab	**Robot Interfacing**: H-Bridges Relays and Transistors
Week 14 11/22/21	Project:	**Teams Work on NXT H-Bridge Project** **Project Due**
Week 15 11/29/21	**Study Week Begins**	
Week 16 12/06/21	**Finals Begin**	