

UNLV ME 425/625 – Robotics 1 Session 1002
Fall 2021 (last updated 08/20/21)

Week	Topic	
Week 1 08/24/21	Lecture	Introduction
Week 2 08/31/21	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 09/07/21	Lecture Lab Programming	Simple Machines II: Cams, Springs and Linkages LEGO cams, springs and linkages LEGO NXC: ultrasonic and infrared sensors
Week 4 09/14/21	No Class – Business Trip (AVATAR XPrize Competition)	
Week 5 09/21/21	Lecture Lab	Simple Machines III: Ratchets, Drives and Gearing LEGO ratchets, drives and gearing ML-CAD (or Solidworks)
Week 6 09/28/21	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 10/05/21	No Formal Class Teams Work on Automata Project	
Week 8 10/12/21	Due:	Automata Presentation; Hardcopy Report Due
Week 9 10/19/21	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 10/26/21	Lecture Programming	Motor Theory LEGO NXC: File handling Timers; Data Acquisition (Motor OL Step Response)
Week 11 11/02/21	Lecture Lab	Robot Sensing: ADC: binary, voltage dividers LEGO touch sensor; ohmmeter; potentiometer, voltmeter
Week 12	Lecture	Robot Actuation: ADC: operational amplifiers

11/09/21	Lab	LEGO temperature sensing; DAC power supply; aliasing
Week 13 11/16/21	Lecture Lab	Robot Communications: I2C LEGO PCF8574 LEDs, DIPs
Week 14 11/23/21	Lecture Lab	Robot Interfacing: H-Bridges Relays and Transistors
Week 15 11/30/21		Study Week Begins Teams Work on NXT H-Bridge Project
Week 16 12/07/21		Finals Begin