

UNLV ME 425/625 – Robotics 1 – Fall 2015 (last updated 11/22/15)

Week	Topic	
Week 1 08/24/15	Lecture	Course Intro
Week 2 08/31/15	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 09/07/15	Labor Day – UNLV Holiday	
Week 4 09/14/15	Lecture Lab Programming	Simple Machines II: Cams, Springs and Linkages LEGO cams, springs and linkages LEGO NXC: ultrasonic and infrared sensors
Week 5 09/21/15	Lecture Lab	Simple Machines III: Ratchets, Drives and Gearing LEGO ratchets, drives and gearing ML-CAD
Week 6 09/28/15	Lecture/Lab	(IROS Travel) Guest Lecture (30-min): Hubo humanoid Putting it all together: Automata Examples (The Gymnast) Email: Team's proposed Project
Week 7 10/05/15	Teams Work on Automata Project Programming LEGO NXC: file handling	
Week 8 10/12/15	Due: Lecture Programming	Automata Presentation; Hardcopy Report Due Motor Theory LEGO NXC: Timers; Data Acquisition (Motor OL Step Response)
Week 9 10/19/15	Quiz Part 1 Closed-book (60-min): Fill-in-the-blanks, essays, etc Part 2 Open-book (90-min): Hands-on LEGO construction	
Week 10 10/26/15	Lab Lecture	WhIP Construction; Gyro sensor, calibration, filters; multi-threaded processes PID control
Week 11 11/02/15	(Humanoids Travel) Teams Complete work WhIP Project (e.g. move in a square, line-following)	
Week 12 11/09/15	Lab	Teams WhIP Project due – and show demo NXT Motorized Winch-and-Cart

Week 13 11/16/15	(NSF Travel) Teams Complete work on Motorized Winch-and-Cart Project; attempt PID	
Week 14 11/23/15	Lab	Teams Motorized Winch-and-Cart Project due Damped Compound Pendulum: System ID and Modeling
Week 15 11/30/15	Lab	Damped Compound Pendulum PID control
Week 16 12/07/15	Finals Begin	