**UNLV ME 729 – Advanced Robotics – Fall 2016 (last updated 08/18/16)**

|  |  |
| --- | --- |
| Week | Topic |
| Week 108/29/16 |

|  |  |
| --- | --- |
| Lecture | Course Intro – Issue Purchase List |
|  |  |

 |
| Week 209/05/16 | **UNLV Holiday – Labor Day** |
| Week 309/12/16 |

|  |  |
| --- | --- |
| Lecture | Robot Sensing: ADC: binary, voltage dividers |
| Lab | LEGO touch sensor; ohmmeter; potentiometer, voltmeter |

 |
| Week 409/19/16 |

|  |  |
| --- | --- |
| Lecture | Robot Actuation: ADC: operational amplifiers |
| Lab | LEGO temperature sensing; DAC power supply; aliasing |

 |
| Week 509/26/16 |

|  |  |
| --- | --- |
| Lecture  | Robot Communications: I2C |
| Lab | LEGO PCF8574 LEDs, DIPs |
|  |  |

 |
| Week 610/03/16 |

|  |  |
| --- | --- |
|  | Project #1 (Issued) |
|  |  |

 |
| Week 710/10/16 |

|  |  |
| --- | --- |
|  | Project #1 In-class time (P.Oh on-travel for IROS) |

 |
| Week 810/17/16 | Project #1 Due (Presentation and Hard-copy) – and Mid-term |
| Week 910/24/16 |

|  |  |
| --- | --- |
| Lecture | Robot Control: Lagrange and State Space |
| Lab | LEGO Ball-and-Beam (BNB) – Construction |

 |
| Week 1010/31/16 |

|  |  |
| --- | --- |
| Lecture | Robot Control: PID and LQR |
| Lab | LEGO Ball-and-Beam (BNB) – Simulation and Real-World |

 |
| Week 1111/07/16 |

|  |  |
| --- | --- |
|  | Project #2 (Issued) |
|  |  |

 |
| Week 1211/14/16 |

|  |  |
| --- | --- |
|  | Project #2 In-class time (P.Oh on-travel for Humanoids) |
|  |  |

 |
| Week 1311/21/16 | **Project #2 Due (Presentation and Hard-copy) – Thanksgiving 11/24/16**

|  |  |
| --- | --- |
| Lecture | Robot Computer Vision |
| Lab | AR Toolkit |

 |
| Week 1411/28/16 |

|  |  |
| --- | --- |
| Lecture | Robot Path Planning: Potential Fields |
|  | Project #3 (Issued) |

 |
| Week 1512/05/16 | **Study Week Begins**

|  |  |
| --- | --- |
|  | Project #3 In-class time |
|  |  |

 |
| Week 1612/12/16 | **Project #3 Due (Presentation and Hard-copy) – Finals Week** |