**UNLV ME 729 – Robotics 2 – Spring 2022 (last updated 01/07/22)**

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| Week | Topic |
| Week 101/24/22 |

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| Lecture | Lesson A: Introduction |
| Lab | Computer to Computer Communications (RS-485)  |
| Homework | ASCII Communications |
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| Week 201/31/22 |

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| Lecture | Lesson B |
| Lab | Smart Servos (XL-320) – Dynamixel Wizard |
| Homework | XL-320 position and velocity characteristics |
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| Week 302/07/22 |

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| Lecture | Lesson C |
| Lab | Smart Servo (XL-320) – Firmware Programming (LED)  |
| Homework | LED related exercises |
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| Week 402/14/22 |

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| Lecture  | Denavit-Hartenberg Notation  |
| Lab | Smart Servo (XL-320) – Write: Wheel and Joint Modes -  |
| Homework | DH derivations and related Write exercises |

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| Week 502/21/22 |

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|  | **UNLV Holiday – Presidents Day** |
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| Week 602/28/22 |

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| Lecture  | Forward Kinematics |
| Lab | 2-DOF Planar Manipulator: Forward Kinematics  |
| Homework | Forward kinematics and related Position exercises |
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| Week 703/07/22 |

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| Lecture | Inverse Kinematics |
| Lab | 2-DOF Planar Manipulator: Inverse Kinematics |
| Homework | IK derivations and FK related exercises |
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| Week 803/14/22 | **UNLV Holiday – Spring Break begins** |
| Week 903/21/22 | **Mid-Term (Practical and Hands-On)** |
| Week 1003/28/22 |

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| Lecture | Trajectory Planning |
| Lab | 2-DOF Planar Manipulator: Line Trajectories |
| Homework | Trajectory Planning  |
| **Project Part 1** | Design 3-DOF robot or 2-DOF pan-tilt |
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| Week 1104/04/22 |

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| Lecture  | Jacobians |
| Lab | Smart Servo (XL-320) Read Position |
| Homework | Jacobians and Read Position exercises |
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| Week 1204/11/22 | **Project 1 Demo and Report Due**

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| Lecture  | Computer Vision 1  |
| Lab | Image Processing |
| Homework | Image processing exercises |

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| Week 1304/18/22 |

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| Lecture | Computer Vision 2 |
| Lab | Tracking |
| Homework | Visual servoing exercises |
| **Project Part 2** | Visually servoed Tracking |

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| Week 1404/25/22 | **Project Work Day** |
| Week 1505/02/22 | **Study Week Begins****Project 2 Demo and Report Due** |
| Week 1605/09/22 | **Finals Begin** |