

MEAM 520: Introduction to Robotics

Course Schedule (Fall 2020)

(last updated: August 13, 2020)

Week	Tuesday	Thursday	Notes
8/31	Introduction	Background and Definitions <i>Read: SHV Ch. 1</i>	
9/7	Rotations in 2D and 3D <i>Read: SHV B.1-B.4, 2.intro-2.5</i>	Homogeneous Transformations <i>Read: SHV 2.6-2.8</i>	Lab 0 due 9/9
9/14	Forward Kinematics of a Serial Manipulator <i>Read: SHV 3.1-3.2</i>	Denavit-Hartenberg Parameters <i>Read: SHV 3.2</i>	Pre-lab 1 due 9/16
9/21	Inverse Position Kinematics <i>Read: SHV 3.3-3.4</i>	Inverse Orientation Kinematics <i>Read: SHV 3.3-3.4</i>	Lab 1 due 9/23
9/28	Quaternions Paper reading	Trajectory Planning in Joint Space <i>Read: SHV 5.5</i>	Pre-lab 2 due 9/30
10/5	Trajectory Planning in Configuration Space <i>Read: SHV 5.1, 5.4</i>	Probabilistic Trajectory Planning <i>Read: SHV 5.4</i>	Lab 2 due 10/7
10/12	Velocity Kinematics <i>Read: SHV 4.intro-4.4</i>	More Velocity Kinematics <i>Read: SHV 4.5-4.7</i>	Pre-lab 3 due 10/14
10/19	Inverse Velocity Kinematics <i>Read: SHV 4.9, 4.11</i>	Jacobians and Statics <i>Read: SHV 4.10, 4.12</i>	Lab 3 due 10/21
10/26	Trajectory Planning with Potential Fields <i>Read: SHV 5.2</i>	Real-Time Planning Paper reading	Pre-lab 4 due 10/28
11/2	Joint Space Dynamics <i>Read: SHV 7.1-7.3</i>	More Joint Space Dynamics <i>Read: SHV 7.4-7.7</i>	Lab 4 due 11/4
11/9	Actuation and Control <i>Read: AKKK 7.2-7.3, SHV 6.intro-6.3</i>	PID Control <i>Read: SHV 6.3</i>	Pre-lab 5 due 11/11
11/16	Sensing and State Estimation <i>Read: AKKK 8.1-8.3</i>	Modern Planning and Control Paper reading	Lab 5 due 11/18 Project proposal due 11/20
11/23	Special Topics: Soft Robots	Thanksgiving – No class	
11/30	Special Topics: Legged Robots	Future Outlooks Paper reading	Mid-project update due 12/2
12/7	Final presentations	Final presentations	Final project due 12/10 (no penalty deadline: 12/14)