ECE 455: Recommended Readings

1. **Tuesday, August 23**th - Overview of topic
   a. Textbook: Chapter 1
   b. Supplementary Text: Section 1, pgs. 2-3

2. **Thursday, August 25**th – Object modelling
   a. Supplementary Text: Section 2, pgs. 3-5

3. **Tuesday, August 30**th – Transformations
   a. Textbook: Section 3.2.1
   b. Textbook: Section 3.3.1
   c. Supplementary Text: Sections 3-4, pgs. 5-9

4. **Thursday, September 1**st – Point of view
   a. Supplementary Text: Section 5, pgs. 9-10

5. **Tuesday, September 6**th - General position interpolation

6. **Thursday, September 8**th – Catmul-Rom interpolation
   a. Supplementary Text: Section 6, pgs. 10-12

7. **Tuesday, September 13**th – Tension, bias, and continuity control
   a. Article: “Interpolating Splines with Local Tension, Continuity, and Bias Control” by Doris H. U. Kochanek and Richard H. Bartels

8. **Thursday, September 15**th – Hermite basis
   a. Finish Kochanek and Bartels article

9. **Tuesday, September 20**nd – Bezier splines

10. **Thursday, September 22**nd - Euler angles, Roll-Pitch-Yaw angles
    a. Textbook: Appendix B.1-B.2

11. **Tuesday, September 27**th – Quaternions
12. **Thursday, September 29th** – Mini Exam #1
   a. In class. Open book/notes

13. **Tuesday, October 4th** – Orientation interpolation
   a. Article: “Animating Rotation with Quaternions”

14. **Thursday, October 6th** – Denavit and Hartenberg parameters
   a. Textbook: Section 2.2.1
   b. Textbook: Appendix C.1

15. **Tuesday, October 11th** – Examples of DH parameters
   a. Textbook: Appendix C.4

16. **Thursday, October 13th** – Introduce kinematics
   a. Textbook: Section 2.3
   b. Textbook: Section 2.5
   c. Textbook: Appendix C.3

17. **Tuesday, October 18th** – Jacobian
   a. Textbook: Introduction to Chapter 5
   b. Textbook: Section 5.1.1
   c. Supplementary Text: Section 8, pgs. 15-16

18. **Thursday, October 20th** – Inverse kinematics
   a. Textbook: Sections 6.1-6.2.2
   b. Textbook: Section 6.3

19. **Tuesday, October 25th** – Feedback control
   a. Textbook: Section 11.3.1.1-11.3.1.2 P Control and First-Order Error Dynamics

20. **Thursday, October 27th** – Mini Exam #2
   a. In class. Open book/notes

21. **Tuesday, November 1st** – Numerical analysis and ill conditioning

22. **Thursday, November 3rd** – Singular value decomposition and condition number

23. **Tuesday, November 8th** – Singularities
   a. Textbook: Sections 5.3-5.4

24. **Thursday, November 10th** – Damped least squares
   a. Article: “Dealing with the ill-conditioned equations of motion for articulated figures” by Anthony A. Maciejewski

25. **Tuesday, November 15th** – Mini Exam #3
   a. In class. Open book/notes

26. Fall recess week of November 21st

27. Finals begin week of December 14th