

**ECE661-101 Control System Components**  
**6:00 – 9:05 PM Wednesday**  
 Rev. -

**Fall 2014**

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**Schedule**

Week	Date	Topic	HW	Quiz	Quiz based on Lect/HW
1	9/3	Introduction to mechatronics & model-based design	1	-	-
2	9/10	Mathematical modeling of physical systems	2		-
3	9/17	Signal conditioning, sampling theorem	3	1	1
4	9/25	Signal conditioning, A/D and D/A conversion	4	2	2
5	10/1	Performance specification & analysis, freq. response	5	3	3
6	10/8	Review of control design methods	6	4	4
7	10/15	Digital angular position sensors	7	5	5
8	10/22	Analog linear position sensors	8	6	6
9	10/29	Sensor interface embedded development with FPGAs	9	7	7
10	11/5	Stepper Motors	10	8	8
11	11/12	Continuous drive actuators - brushless DC motors	11	9	9
12	11/19	DC motor selection – design project overview	12	10	10
	11/26	No Class – Thanksgiving Break			
13	12/3	Inertial sensors (rate gyros & accelerometers)	-	11	11
14	12/10	Design project student presentations – final exam review		-	-
15	12/18	Final exam	-	-	-

**Grading Scheme:** Project -- 20%, Quizzes -- 40% (4% each), Final -- 40%

**Required Software:**

- MATLAB / Simulink 2013b or 2014a
- Altera Quartus II with DSP Builder v13.1

**Text:** Primarily class handouts and/or web-based reference material

**Reference:** *Control System Design: An Introduction to State-Space Methods*, Friedland, McGraw Hill.

**Notes:**

- Of the 11 quizzes, the best 10 count toward the grade
- Students should bring to class each week their laptop with required software installed
- Laptops used only during quizzes and remain closed otherwise