MEM 640 - TENTATIVE SYLLABUS

| WEEK 01 04/02/07 | INTRODUCTION  
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|  | • Course overview  
|  | • **Homework 1**: C programming review and DAC Circuit  

| WEEK 02 04/09/07 | CONTINUOUS-TIME SYSTEMS  
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|  | • Block diagrams  
|  | • Bode plots  
|  | • **Homework 2**: Block diagrams, differential equations, Bode plots  

| WEEK 03 04/16/07 | PC-104 and ISA DAC CARD LAB  
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|  | • 8255 ISA Card test  
|  | • Pre-lab 1: ISA-based DAC card  

| WEEK 04 04/23/07 | STABILITY ANALYSIS AND CLOSING THE LOOP  
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|  | • Routh Stability Criterion  
|  | • Root-Locus controller design (including MATLAB exercises)  
|  | • Lab 1: ISA-based DAC card  
|  | • **Homework 3**: Root-locus  

| WEEK 05 04/30/07 | PID CONTROL DESIGN – PART 1  
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|  | • Type, Transient and Steady-State response (MATLAB exercises)  
|  | • Pre-lab 2: ISA-based ADC card  
|  | • **Homework 4**: PID and Final Value Theorem  

| WEEK 06 05/07/07 | CLOSED BOOK MID-TERM  

| WEEK 07 05/14/07 | PID CONTROL DESIGN – PART 2  
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|  | • Lab 2: ISA-based ADC card (Motivation for Zero-order-hold)  

| WEEK 08 05/21/07 | DIGITAL DESIGN  
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|  | • Zero-order-hold (ZOH)  
|  | • Z-plane representation  
|  | • Lab 3: Real-world modeling of DC motor  
|  | • **Homework 5**: Z-transform  

| WEEK 09 05/28/07 | MEMORIAL DAY HOLIDAY – NO LECTURE  
| --- | --- |
|  | • Homework 5 due  

| WEEK 10 06/04/07 | ESTIMATION – PROJECT DAY  
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|  | • Least-squares and Kalman  
|  | • Project Demonstration  

| WEEK 11 06/11/07 | FINAL EXAM  
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|  | • Project Write Up Due  

**MEM640 Information**  
• Instructor: Paul Oh – [http://www.mem.drexel.edu/pauloh.html](http://www.mem.drexel.edu/pauloh.html) (Course web page too)  
• Email: paul@coe.drexel.edu  
• Phone: 215-895-6396  
• Classes: Mondays UG Lab 6:00-9:00 PM  
• Office Hours: TBD  
• Textbook (Recommended only): “Interfacing with C”, Howard Hutchings, Butterworth-Heinemann, ISBN 0750622288 (at Drexel bookstore, Amazon.com etc)