

Department of Electrical Engineering  
Stanford University  
EE265: Digital Signal Processing Laboratory  
Winter 2011

**Instructor:** Prof. Teresa H. Meng, CIS 209, thm@stanford.edu.

**Class time:** TuTh 2:15-4:05, Y2E2-111

**Office hours:** After class and by appointments.

**TA:** Chris De Sa <chris.m.desa@gmail.com>  
Christopher Li <chriswli@stanford.edu>

**TA office hours:** Please see the class website: <https://ccnet.stanford.edu/ee265/>

**Admin:** Trish Halloran-Krokel, CIS 210, trish@shasta.stanford.edu, 725-3938.

**Prerequisite:** EE 102A,B.

**Work Load:** At least 12 hours of work per week besides lectures.

**Reference:** Oppenheim and Schaffer, *Discrete-Time Signal Processing*, 3rd Edition.

**Lab work:** 7 lab exercises due on Weds during TA office hours.

**Homework:** 6 homework sets due on Mondays in class unless otherwise noted.  
2 late submissions allowed.

**Grading:** 50% lab exercises, 20% homework, 30% final project.

Date	Lecture Topic	Reading	Assignments Due
1/9	Lecture #1: Reviews	Chap. 2, 3, 5.0-5.4, 6	
1/11	Lab #1: TI DSP tutorial.	TI manual	
1/18	Lab #2: Working with hardware		Lab #1 due
1/23	Lecture #2: Sampling Theory, ADC and DAC	Chap. 4.0-4.5, 4.8	HW #1 due
1/25	Lecture #3: Allpass and Linear-Phase Filters	Chap. 5.5-5.7	
1/30	Lecture #4: Quantization Effects	Chap. 6.7-6.9	HW #2 due
2/1	Lab #2: Continued		Lab #2 ABC due
2/6	Lecture #5: DFT, DFS, and FFT	Chap. 8.1-8.7	HW #3 due
2/8	Lab #3: Filtering		Lab #2 DE due
2/13	Lab #4: Frequency Domain Calculation		
2/15	Lab #4: Continued		Lab #3 due
2/22	Lecture #6: Digital FIR Filter Design	Chap. 7.5-7.8	HW #4 due Lab #4 AB due
2/27	Lecture #7: Interpolation and Decimation	Chap. 4.6, 4.9	HW #5 due
2/29	Lab #5: Rate Conversion		Lab #4 C due
3/5	Lecture #8: OFDM and its Applications		HW #6 due
3/7	Final project issued		Lab #5 due
3/12	Final project discussion		

## Prerequisite Quiz:

1. What is the Laplace transform? What is the Fourier transform? What is the relationship between Laplace transform and the Fourier transform?
2. What is the Z transform? What is the discrete-time Fourier transform? What is the relationship between the Z transform and the discrete-time Fourier transform?
3. How to calculate the frequency response of a linear time-invariant system? How to define the transfer function of a linear time-invariant system?
4. What is an FIR filter? What is an IIR filter?
5. What is the direct form II of an IIR filter? How about direct form I?
6. What is a linear constant-coefficient difference equation? How to implement one such equation using a filter structure? How to implement the equation using a fast Fourier transform?

*If you have difficulties answering these questions, you should take EE102 first!*