

# Tentative Syllabus for Spring 2013

Week	Lecture			Lab
1	Jan 15	Introduction to vibrations. Harmonic motion: parameters and initial conditions, work and energy. Examples (torsional,plasma, LC circuit, etc)	Jan 17 Applications : pendulum , molecular, two-body oscillators, vertical oscillator.	1: Introduction to MATLAB
2	Jan 22	Chapter 2: complex exponentials; phasors; Phase differences; alternative representations	Jan 25 Chapter 3:The effect of damping on oscillations;	3: Numerical Solutions of Differential Equations
3	Jan 29	Forced oscillations; Impedance and admittance	Jan 30 Forced oscillations (steady state); phase differences	2: LCR Circuit
4	Feb 5	Forced oscillations (steady state); frequency response	Feb 7 Review	4: Further Investigation of Oscillators
5	Feb 12	<b>Exam 1</b>	Feb 14 Discussion of Exam 1; Fourier series I (harmonic analysis)	5: Damping in an RLC Circuit
6	Feb 19	Fourier series example	Feb 21 Automotive shock absorber system	6: Frequency Response
7	Feb 26	Coupled Oscillators I	Feb 28 Coupled Oscillators II	7: Fourier Series
8	Mar 5	Review	Mar 7 <b>Exam 2</b>	8a: Coupled Oscillators
9	Mar 12	<i>Spring Break</i>	Mar 14 <i>Spring Break</i>	
10	Mar 19	Exam 2 discussion; Introduction to waves (Sinusoidal waves	Mar 21 Waves: field equations;	8b: Coupled Oscillators
11	Mar 26	transmission lines; Impedance	Mar 28 Wave reflection and transmission	9: Transmission lines
12	Apr 2	Examples (sound waves)	Apr 4 Example: Matched load	10: Reflections
13	Apr 9	Wave energy and power, more transmission lines	Apr 11 Standing waves I	11: Transmission Lines II
14	Apr 16	<b>Exam 3</b>	Apr 18 Exam 3 discussion; Standing waves II	12: Standing waves
15	Apr 23	Group and phase velocities of waves	Apr 25 Water Waves	13: Group Velocity and Dispersion
16	Apr 30	Water waves field campaign	May 2 Results from field campaign and Waves summary	No lab