CPE 381 Midterm Exam material

	Must Know	Should Know
Chapter 0 – Introduction	X	
0.2 Examples of signal processing applications		X
0.3, 0.4	X	
Chapter 1 – Signals	X	
1.2 Classification of time-dependent signals	X	
1.4 Representation using basic signals	X	
Ex 1.2, 1.8, 1.9, 1.10, 1.11	X	
Chapter 2 – Systems	X	
2.2 System concept	X	
2.3 LTI continuous-time systems	X	
2.3.1 Linearity	X	
2.3.2 Time invariance	X	
2.3.5 Convolution integral	X	
2.3.6 Causality	X	
2.3.9 BIBO stability	X	
Ex. 2.1, 2.2, 2.3, 2.5, 2.16,	X	
Ex. 2.10,2.11,2.17		X
Chapter 3 – Laplace	X	
3.2 Two-sided Laplace	X	
3.3 One-sided Laplace	X	
3.4 Inverse Laplace transform	X	
3.5 Analysis of LTI systems	X	
Ex. 3.1, 3.2, 3.3, 3.4, 3.7, 3.8, 3.13, 3.14	X	
Ex. 3.22, 3.23, 3.26	X	
Ex. 3.15, 3.16, 3.17, 3.18, 3.24, 3.25, 3.27		X
Chapter 4 Fourier Series	X	
4.2 Eigenfunctions	X	
4.3 Complex exponential Fourier series	X	
4.4 Line Spectra	X	
4.5 Trigonometric Fourier series	X	
4.6 Fourier series from Laplace	X	
4.8 Time and frequency shifting -- modulation	X	
4.9 Response of LTI Systems to periodic signals	X	
Ex. 4.3, 4.4, 4.5	X	
Ex. 4.1		X

Additional material:

- Basic formulas
  - Arithmetic ($\sum_{n=0}^{N} n = \frac{N(N+1)}{2}$) and Geometric ($\sum_{n=0}^{N-1} a^n = \frac{1-a^N}{1-a}$) series,
  - basic trigonometric formulas
- Basic transformations
- All examples in class
- All homework solutions