ECE355 Cheatsheet

Hanhee Lee

August 30, 2024

Contents

List of Figures

List of Tables

Signals and General Systems

1 Continuous and discrete-time signals (Ch. 1.1)

2 Time dilation, shifting

3 Complex exponential signals (Ch. 1.3)

4 Step and impulse functions (Ch. 1.4)

5 General systems and basic properties (Ch. 1.6)

Linear Time-Invariant Systems

6 Impulse response (Ch. 2.1)

7 Convolution in discrete time (Ch. 2.1)

8 Convolution in continuous time (Ch. 2.2)

9 Properties of LTI systems (Ch. 2.3)

Fourier Series and Fourier Transform Representations

10 Periodic signals and Fourier series

11 Properties of Fourier series

12 Response of LTI systems to periodic signals

13 Aperiodic signals and Fourier transform

14 Fourier transform properties; time-frequency duality

Sampling

15 Bandlimited signals

16 The sampling theorem (Ch. 7.1)

17 Reconstruction (Ch. 7.2)

Communication Systems

18 Amplitude modulation systems

19 Envelope detection, coherent detection

20 Single-sideband modulation

21 Angle modulation

22 Concepts of digital communication