Brief Course Outline

Chapter 8: Transformers and Mutual Inductance

- Ideal transformers and impedance matching
- Mutual inductance
- Circuit analysis with equivalent circuits

Chapter 10: Network Functions and s-Domain Analysis

- Complex frequency and generalized impedance
- Network functions
- Poles-zeros, forced response and natural response

Chapter 11: Frequency Response and Filters

- Frequency response
- Filters and filters with op-amp
- Bode plots
- Butterworth filters and filter design

Chapter 12: Fourier Series Analysis

- Fourier analysis and spectral analysis
- Spectral circuit analysis

Chapter 13: Laplace Transform Analysis

- Laplace transforms and inversion
- Transform circuit analysis
- Impulse response and convolution

Chapter 14: Two-Port Networks

- Two-port networks
- Impedance, admittance, hybrid and transmission parameters
- Circuit analysis with two-ports

Chapter 15: State-Variable Analysis

- Circuit state equations
- Transfer solutions of state equations