Physical Processes Addressed:
- Understanding the Fourier transform and its applications in signal analysis.
- Implications of discrete Fourier transform and its practical implementations.
- Sampling theorem and aliasing in signal processing.

Key Concepts:
- Fourier transform: Decomposition of signals into frequency components.
- Discrete Fourier transform (DFT): Conversion of discrete time-domain data into discrete frequency-domain data.
- Nyquist frequency: The maximum frequency that can be accurately represented given a sampling rate.
- Sampling theorem: Describes the conditions under which a signal can be accurately reconstructed from its samples.
- Fast Fourier transform (FFT): An algorithm for efficient computation of the discrete Fourier transform.
- Power spectrum: Representation of the distribution of power versus frequency in a signal.

Chapter Summary:
- Introduction to Fourier Transform: The Fourier transform allows representation of signals in terms of their frequency components rather than time domain representation.
- Discrete Fourier Transform: Addresses the numerical computation of Fourier transform for discrete time-domain data.
- Sampling Theorem and Aliasing: Discusses the limitations and implications of sampling in signal processing.
- Fast Fourier Transform: Introduces the efficient algorithm for computing the discrete Fourier transform.
- Power Spectrum: Describes the distribution of power versus frequency in a signal and its significance in signal analysis.

Equations:
- Fourier transform equation: $Y(f) = \int_{-\infty}^{\infty} y(t)\, e^{-i2\pi ft}\, dt$
- Discrete Fourier transform equation:
  $Y_n = \sum_{m=0}^{N-1} y_m\, e^{-i2\pi nm/N}$
- Nyquist frequency: $f_{Nyquist} = 1/(2\Delta t)$
- Power spectrum: $P(f) = |Y(f)|^2$

Questions I Have:
- How does the FFT algorithm efficiently compute the discrete Fourier transform?
- Can you provide an intuitive explanation for the concept of aliasing in signal processing?