

Signal Processing with MATLAB

OEM: MathWorks • Duration: 2 Days (16 hrs) • Code: MW-SIGNAL-PROCESSING-WITH-MATLAB

COURSE MODULES & TOPICS

Day 1 of 2

Signal Generation and Common Signal Analysis

- Creating discrete-time signals in the MATLAB environment
- Sampling and aliasing
- Creating signals using MATLAB timetables
- Performing time and spectral analysis with the Signal Analyzer app
- Generating streaming signals using System objects

Spectral Analysis

- Discrete Fourier transform
- Windowing and zero padding
- Power spectral density estimation
- Time-varying spectra
- Using a spectrum analyzer in MATLAB

Linear Time Invariant Systems

- LTI system representations
- z-transform
- Frequency and impulse response
- Visualizing filter properties
- Applying filters to finite and streaming signals

Day 2 of 2

Filter Design

- Filter specifications
- Interactive filter design
- Filter design function and live task
- Filter design with filter specification objects
- Reducing filter delay
- Frequency-domain filtering

Multirate Filters

- Downsampling and upsampling
- Noble identities and polyphase FIR structures
- Polyphase decimators and interpolators
- Design multistage and interpolated FIR filters

Adaptive Filter Design

- Basics of adaptive filtering
- Perform system identification
- Perform noise cancellation
- Improve adaptive filter efficiency