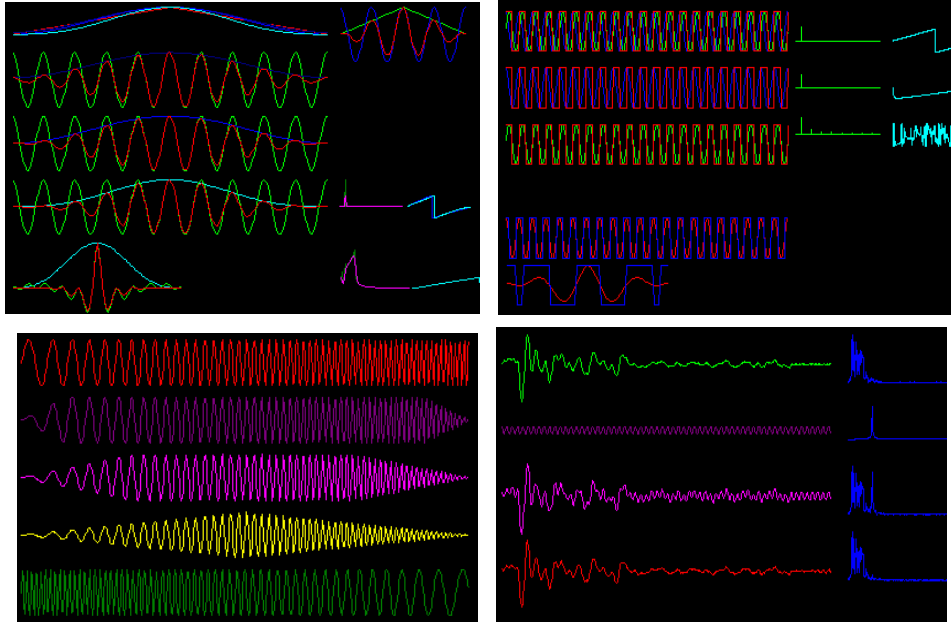


# GP-409: Seismic & Digital Signal Processing

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## Who Should Attend

Field, QC and Processing Geophysicists as well as Data Acquisition Engineers involved in any phase of seismic work flow.

## Overview

Digital Signal Processing (DSP) forms the foundations of several modern technologies; seismic, image processing, telecommunications and electronic engineering. A good knowledge of DSP, provides a deep understanding of all phases of seismic work flow, from acquisition to processing and finally interpretation. The course is conducted with real time signal processing facilities using state of the art computer based training (CBT) tools; Wavelets and WavePad. These training software will be distributed to the participants for signal analysis on their PCs.

## Contents

- Wave Components, Digitization, Sampling Rate and Dynamic Range
- Types of Wavelets, their Generation and Properties
- Convolution & Correlation
- Sweeps and their Correlation
- Blackman, Hamming, Hanning & Bartlet Amplitude Decay Functions
- Fourier Transform: Time and Frequency Domains
- Resolution: Convolution of Reflectivity Series with different Wavelets
- Petrophysical Logs: Synthetic Seismogram & Engineering Properties
- Zero Offset Forward Modeling of Geological Cross-sections
- Designing Gains: Scale to Maximum, Exponential & AGC
- Designing Low Cut, High Cut, Band Pass, & Notch Filters
- Designing Deconvolution Operator
- Random Noise, Fold and Stacking
- Laplace Transform
- Hilbert Transform – The Path to Attributes Analysis