

## TRAINING CONTENT

# FUNDAMENTAL OPERATION OF THE ASPEX PSEM

This course provides an in-depth training on the basic operation of an ASPEX Scanning Electron Microscope and Energy Dispersive Spectrometer (SEM/EDX).

### *BASIC PRINCIPLES OF SEM*

#### **Electron Beam Formation and Signal Detection**

- Description of the instrumentation features which allow for optimal beam generation and the acquisition of images and spectrum

#### **Sources of Detectable Signals**

- An overview of the ASPEX detectors and how they process the signals which are generated from your samples

#### **SEM Imaging**

- Discussion and demonstration of ASPEX's Perception Software features and user-interface for obtaining quality Secondary and Backscattered Electron images

#### **Filament and Gun Operational Conditions**

- The need and rationale behind various filament operational conditions and how to properly saturate, align, and optimize the beam using the Perception Software

#### **Focus and Stigmatism**

- An outline of the instrumental and software aspects which control the Focus and Stigmatism of your instrument, as well as, their importance in obtaining good quality images

#### **Energy Dispersive Spectroscopy**

- An overview of X-ray production, interaction volumes, sample homogeneity and X-ray paths

#### **Energy Dispersive Spectrometer Operation**

- Overview of the optimal operational considerations and Perception Software capabilities

#### **X-Ray Mapping**

- A description of how and when an X-ray Map should be created and the information that can be gained by such images

### *BASIC SYSTEM MAINTENANCE*

#### **Filament Replacement**

- Recognizing the need for filament replacement and learning how to replace the filament

#### **Column Liner Tube Replacement**

- Cover the characteristics of dirty column liners and demonstrate how to replace the liner tube

#### **System Calibration Check**

- A step-by-step procedure on how to inspect your instrument's calibration and determine if there is a problem that needs to be addressed

#### **Mechanical Pump Oil and Mist Filter Exchange**

- Demonstration of the proper replacement of the pump oil and mist filter