**Training protocol for SEM JEOL:**

* **Key Features of the JEOL JSM-IT800 SEM:**
  + Schottky Field Emission Electron Gun (FEG) for high-resolution imaging.
  + Capable of high magnification (up to 1,000,000x) and high resolution (up to 1 nm).
  + Advanced features for imaging and analysis, such as Energy-Dispersive X-ray Spectroscopy (EDS), and more.
  + Variety of imaging modes (SE, BSE, etc.).
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* **SEM Operation Basics**
* **Instrument Control Overview**: Column & Electron Gun: The Schottky FEG and its benefits for high resolution and stability, Sample Stage: Movement (X, Y, Z) and tilt controls, Vacuum System: Importance of maintaining vacuum for optimal imaging**.**
* **Detection Systems:** SE Detector (Secondary Electrons): For topography imaging, BSE Detector (Backscattered Electrons): For compositional imaging and contrast, Other modes STD, LDF, BD, SHL. Adjusting magnification, accelerating voltage, and probe current.
* **Adjusting Imaging Parameters:** Focusing the image (using the fine and coarse focus), Modifying working distance for optimal image clarity, Selecting the appropriate accelerating voltage and beam current.
* **Advanced Features and Analysis Techniques**
* **EDS (Energy Dispersive X-ray Spectroscopy**): Explanation of the EDS system and how it integrates with the SEM, Setting up the EDS for elemental analysis, Interpreting EDS spectra (peak identification, calibration).
* **Image Calibration and Data Collection:** Calibration of magnification and resolution, Saving and exporting images in different formats (e.g., TIFF, JPEG), Using software tools for image analysis (e.g., measuring dimensions, obtaining pixel intensity data).