09:00 – 09:30	Arrival & System Check (30 min) WLAN access verification SmartLab Studio II license activation Dataset download and workspace setup
09:30 – 09:45	Welcome & Workshop Overview (15 min) Workshop objectives and structure Overview of modern powder XRD workflows Introduction to SmartLab Studio II
09:45 – 10:30	Hardware Configuration & Data Collection Optimization (45 min) SmartLab configurations for powder diffraction Optics and alignment concepts Influence of data quality on quantitative analysis
10:30 – 10:45	Coffee Break (15 min)
10:45 – 11:15	Qualitative Phase Identification (30 min) Data import and preprocessing Background treatment and peak detection Efficient phase search/match strategies
11:15 – 12:15	Quantitative Phase Analysis: Rietveld Refinement (60 min) Rietveld method fundamentals Refinement strategy and parameter selection Constraints, correlations, and convergence Interpretation and reporting of results
12:15 – 13:00	Lunch Break (45 min)
13:00 – 14:00	Quantitative Phase Analysis: Direct-Derivation Method (60 min) Principles of the Direct-Derivation approach When and why to use the DD method Comparison with Rietveld refinement Quantification exercises using representative datasets
14:00 – 14:15	Coffee Break (15 min)
14:15 – 15:45	Ab-initio Crystal Structure Determination from Powder XRD (90 min) Data requirements and preparation Indexing and unit-cell determination Space group determination Structure solution and refinement workflow Practical examples using SmartLab Studio II
15:45 – 16:00	Wrap-Up (15 min) Common pitfalls and troubleshooting Final discussion and Q&A