



«SEDIMENTOLOGY: LITHOFACIES AND FORMATION ANALYSIS», 5 days

COURSE OBJECTIVE:

Development of professional competencies in sphere of lithofacies analysis of terrigenous strata which allows to consider test results in geological simulation, make facies-sedimentary cycles, electric facies, and seismic facies analysis, as well as perform chronostratigraphic correlation for improving of potential assessment.

ACQUIRED ABILITIES:

- Detailed core description with facies and sedimentation diagnostics;
- Evaluate quality of lab testing results;
- Select data required for geological simulation;
- Consider phasing, tools and methods of facies-sedimentary cycles analysis for geological modeling;
- Apply sedimentology in different parts of geology.

COURSE CONTENT:

Module Name	Content
Core handling. Special studies	Fundamentals. Special core studies – core logging. Core laydown and log matching. Potential mistakes. Practical tasks.
Core handling. Lithological and petrophysical studies	Main lithological studies, petrophysical functions. Secondary alterations and its influence on reservoir properties. Lithological studies for facial modeling. Practice.
Core handling. Description and facies	Facies classification. Main core diagnostic properties. Rock typing and facies detection. Practice on core description and facies diagnostics.
Sedimentation and facies environment. Continental	Continental sedimentation facies. Alluvial deposits (dejection cone, fluvial). Lacustrine deposits. Classification and features of deposits formation, structure and physiography of sediments. Examples of Western Siberia alluvial deposits.
Sedimentation and facies environment. Transitional	Transitional sedimentation environments: deltas, estuary, wetlands, beaches. Deltas classification, deltaic deposits identification characteristics, beach deposits.
Sedimentation and facies environment. Marine	Deep-sea turbidite and related sediments. Debris, grain-rich flow. High and low density turbidite flows. Facies features. Facies classification. Debris flows. Bouma circle.
Facies interpretation	Basic logs for interpretation. Electrometric model. Paragenic series.

	Facies interpretation technics. Diagnostics of continental facies. Diagnostics of marine facies.
Facies-sedimentary cycles. Correlation	Recognition of formation lithological composition and interwell log correlation. Composition, structure and methods of lithocycles detection. Lithocycles well log correlation. Facies cyclic well log structure: examples of Western Siberia deposits.
Seismic-facies analysis	Methods of seismic facial analysis. Sedimentation environment recovery and lithofacies prediction with interwell seismic data. Seismic attribute analysis and detection of the most efficient mapping environment.
Methodology of complex facies analysis	Staging of facies analysis with detailed stages description and examples of Western Siberia terrigenous deposits.
Conceptual geological model	Terms and definitions. Input data. Well logging, core, seismic survey. Input data fusion. Facies mapping and sedimentological logs.