



«IMPROVED COST-EFFECTIVE WATERFLOODING AND EOR», 5 days

COURSE OBJECTIVE:

improvement of professional competencies of engineers in sphere of enhanced oil recovery by means of waterflooding as main hydrocarbon recovery method.

ACQUIRED ABILITIES:

- Apply improved waterflooding and chemical methods for production enhancement;
- Manage projects for enhanced waterflood planning and design;
- Plan lab analysis and interpret results;
- Perform formation mathematic modeling;
- Calculate relative permeability and capillar pressure with lab testing.

COURSE CONTENT:

Module Name	Content
Formation physics	The impact of polymers, salinity and surface acting agents on wettability. Forecast of engagement angle, relative permeability, capillary pressure. Types of wettability. Differentiation of approaches: carbonate and sandstone. Well location for early and further waterflooding, EOR. Development analysis of the fields: North sea, Australia, Brazil.
Enhanced waterflooding technologies	Change of flow direction. Further waterflooding: carbonate and sandstones. Enhanced waterflooding modeling. Analytical model of waterflooding, production forecast. Practice.
Low salinity and smart waterflooding	Wettability change and fine-grained particles migration. Lab analysis of salinity. Calculation of relative permeability and capillary pressure with lab testing. Practice. Upscaling. Practice.
EOR mechanisms for polymers and surface acting agents	Nanopolymers and nanoparticles. Case study: Oman, North sea, Brazil. Sandstone and carbonate fields. Modern technics of chemical EOR. Methodology of lab and mathematic modeling.
Production history analysis	Enhanced waterflooding and EOR field cases. Examples of chemical EOR and enhanced waterflooding: North sea, USSR, USA, Australia, Brazil.