



**«WATERFLOOD MANAGEMENT: PRODUCTIVITY DECLINE AND EOR»,  
5 days**

**COURSE OBJECTIVE:**

improvement of professional competencies of petroleum engineers in sphere of waterflooding as secondary recovery method allowing significantly raise oil recovery ratio versus primary method of formation depletion despite productivity and injection capability decline.

**ACQUIRED ABILITIES:**

- analyze and process field data for determine of physical and chemical reasons of bottom-hole zone and formation contamination;
- forecast injectability/productivity decline during waterflooding;
- forecast of low permeability zone occurrence;
- plan lab analysis of waterflooding and formation damage;
- simulate oil and water flow near well for validity increase of designed well operation modes;
- make a program for well production and waterflooding increase.

**COURSE CONTENT:**

<b>Module Name</b>	<b>Content</b>
Productivity of recovery wells and injectability of injection wells, development dynamic	Basic concepts: skin factor, production decline, precipitating and cuttings kinetics, sediments and chemical reactions. Sediments assessment and disposal. Decline of injection capacity, theoretical analysis and laboratory study.
Injected and oil-field water interaction	Chemical and physical aspects. Scenario analyses. Case studies: training.
Fractions motion	Fraction motion mechanisms. Fractions return and settling models. Lab analysis, case studies. Practical aspects: estimates and forecast.
Technics of waterflood efficiency growth	Injection rate management. Flow direction analysis, Injection shut-off. Productivity control. Case studies: USA, Great Britain, Brazil, Australia.