



**«WELL INJECTIVITY: PREDICTION, DAMAGE PREVENTION, STIMULATION»,
5 days**

COURSE OBJECTIVE:

Improvement of professional competencies of petroleum engineers in sphere of injectivity decline while waterflooding, including prevention, limitation and elimination.

ACQUIRED ABILITIES:

- Define reasons of productivity impairment;
- Apply means of injection wells simulation;
- Detect well damage;
- Plan lab analysis;
- Predict well performance based on results of lab analysis;
- Develop technics and technologies of injection wells simulation on basis of field and lab data.

COURSE CONTENT:

Module Name	Content
Injection damage typology	Types of Injectivity damage. Prevention, limitation and elimination of damage – case studies, examples. Reasons and mechanisms of well Injectivity revision - case studies, examples.
Mathematic modeling of rock damage under conditions of fracturing	Rock damage modeling. Practice. Key formulas for Injectivity pre-estimate. Damage caused by drilling. Practice.
Injectivity lab analysis	Evaluation of Injectivity variation coefficient - practice. Injectivity lab analysis – practice. Case studies: Oman, North Sea, USSR, USA, Australia, Brazil.
Prediction of well performance	Prediction of well performance on basis of lab analysis results and well operation history. Injected water quality. Case studies: USA, Australia, New Zealand, Brazil, China.
Injectivity of horizontal, fractures, perforated and combined wells	Injectivity of horizontal wells. Injectivity of perforated and fractured wells. Injectivity of combined wells. Injectivity reduction during production simulation. Injected wells simulation. Russian and foreign case studies. International experience of Injectivity reduction and injected wells simulation.