



«HORIZONTAL WELLS: APPLICABILITY, CONSTRUCTION, COMPLETION, PRODUCTIVITY & FLOW RATE MEASUREMENT», 4 days

COURSE OBJECTIVE:

Improvement of professional competencies of petroleum engineers and managers of production companies operating in sphere of oil and gas wells construction and operation, as well as specialized in directional, horizontal and multi-hole drilling.

ACQUIRED ABILITIES:

- Justify construction solution in relation with directional and horizontal well profile,
- Approve drilling equipment,
- Analyze actions of orientable and non-orientable bottom-hole assembly,
- Select well completion and penetration schemes,
- Interpret and analyze measuring systems indication,
- Well control in case of gas, water and oil shows.

COURSE CONTENT:

Module Name	Content
Overview	Tasks and objectives of horizontal wells construction. History of horizontal wells construction techniques. Horizontal wells as EOR. Productivity of horizontal wells. Productive formation anisotropy.
Horizontal wells drilling technique	Introduction to planning of horizontal wells drilling. Horizontal wells drilling technique: enhanced recovery, production and drilling strings runout.
Horizontal wells construction facilities	Ground support equipment. TDS. RC equipment. Modern equipment for horizontal wells construction. Rotary steering systems.
Offshore horizontal wells construction	Offshore horizontal wells construction Features of directional wells construction at drilling rig.
Calculation of actual profiles. Subsurface rocks mechanics	Geo-steering. Methods of actual profile calculation. Prevention of wells concussion. Rock mechanics at design and construction of wells: hole stability, swabbing effects.
Features of horizontal wells washing	Circulation system operation. Functions of well washing. Drilling fluids requirements. Back reaming. Equivalent circulating density (ECD).



Bottom-hole assembly for construction of horizontal wells	Bottom-hole assemblies (BHA) used for construction of horizontal wells. Types of drill-string failure. Pressure influencing BHA details: axial and torque compression, bending, vibration.
Stick. Casing running.	Sticking and its liquidation. Casing running in horizontal wells. Casing floating.
Cementing of horizontal wells	Cementing of horizontal wells.
Well control in case of gas, oil, and water show	Well control. GOWS liquidation preparation.
Well completion	Horizontal wells completion. Inflow control device (ICD). Completion systems for sand entry prevention. Completion of shale fields. Fracturing in horizontal wells.
First and second well penetration. Well logging	First and second horizontal wells penetration regimes. Determination of fluid type. Logging and down-hole treatment at horizontal wells. Well tractor.