



**«DEVIATED WELL CONSTRUCTION», 5 days**

**COURSE OBJECTIVE:**

improvement of professional competencies of engineering and managerial personnel of production companies involved in well construction and operation.

**ACQUIRED ABILITIES:**

- Collection, analysis and processing of data required for tasks solution in oil and gas wells construction and operation;
- Operate complicated process systems (automated field, monitoring system, etc.), make decisions under uncertainty and multicriteriality;
- Application of innovative methodology of production tasks solution including those based on relevant issues of extra-long offshore well drilling;
- Innovative risks analysis while implementation of new technologies and equipment with further supervision recommendation;
- Application of planning methodology for deviated well construction.

**COURSE CONTENT:**

Module Name	Content
Design of directional and horizontal deviated wells	Function and construction features of directional wells. Horizontal wells construction. Horizontal drilling. Strengths and shortcomings of horizontal wells. Issues and solutions. Design of directional and horizontal wells. Drilling course features. Hole crooking. Min & max horizontal intensity. Formation micro scanner, efficient deviation angle patterns. Educational game.
Deviated track drilling	Equipment for horizontal deviated wells drilling. New drilling bits. Bottom hole motor (BHM). Function, configuration, operation principle, series, power parameters, elements design. BHM design development. Assembly equipment. Surface support units. TDS (top drive system). Deviated wells drilling technics. Drilling string operation for different drilling methods. BHM operation while horizontal well drilling. New engines. Control of deviated wells drilling. Core equipment. Wellhead equipment. Measurement and registration of operation parameters. Pros & cons of automated control systems for horizontal well drilling. New control equipment. Geo-steering. Gravimeter and magnetic meter. Magnetic fields

	influence on geophysical coordinates updating. Well logging while drilling.
Emergency prevention while deviated well construction	Drilling troubles and its sources. Classification of troubles. Perennially frozen rocks sinking (construction at Arctic continental shelf). Control and recovery methods. Emergency while drilling. Drilling fluid losses. Showings of oil-gas and water. Sticking.