



### «OFFSHORE OIL AND GAS FACILITIES», 5 days

#### COURSE OBJECTIVE:

improvement of professional competencies of petroleum engineers in sphere of surface/subsea tieback and offshore fields development with respect to reliance requirements for productivity optimization of the separate construction components and the whole system.

#### ACQUIRED ABILITIES:

- Basic understanding of hydrometeorological and geological conditions of construction and operation of offshore facilities;
- Basic understanding of hydrocarbon recovery scheme and offshore fields facilities to select appropriate way of field development;
- To estimate the chose and components combination of recovery system (including subsea systems);
- To compare different recovery systems in view of its efficiency, maintenance, security, etc.;
- To carry out the calculation required for recovery system and facility's components selection;
- To select offshore facility and construction types (both fixed and floating) and use suitable terminology;
- To understand the purpose and application conditions of construction equipment;
- To assess the ways of offshore constructions decommissioning.

#### COURSE CONTENT:

Module Name	Content
Hydrometeorological conditions of continental shelf	Methods of hydrometeorological conditions forecast. The impact of hydrometeorological (wind, wave, flow, ice) and seismic conditions on design of marine fixed platform and jack up floating drilling rigs. Seismic micro zoning (SMZ). Forecast and assessment of risks for marine constructions and subgrade (geo-environment) interaction.
Preliminary study of operation area. Hydrometeorological and seismic conditions. Offshore prospecting	Analysis of anomaly in subgrade of fixed platform and jack up floating drilling rigs (occluded gas, loosened foundation soil, etc.) Analog exploration method application for fixed platform and jack up floating drilling rigs engineering.
Design engineering of marine oil-and-gas constructions	Case studies of design and construction of marine oil-and-gas structures according to following sections of design documentation:

(MOGC)	Engineering surveys (ES). Construction and space-planning solutions. Construction organization plan. Environment protection activities. Case studies of marine pipelines design. The features of substructure and upper structure of oil platforms. Calculation of MOGC external hydrometeorological effects. Operational risks assessment. Calculation of stability of jack up floating drilling rigs ashore (drift, tipping and bearing power). Operational risks assessment. Assessment of piled solution of fixed platforms. Stability calculation before pile setting. Analog exploration method application for fixed platforms engineering (concept stage). Model trials of fixed platforms for external loads (ice, wave, washing-out, etc.).
Best practices of offshore fields development	Marine construction and vessel types. Upper structures of MOGC (construction and setting, core modules, modules placing). Subsea production modules. Main offshore production regions, its specific character. Features of offshore wells construction and workover. Hydrocarbon shipment and transportation offshore technics. Decommissioning of offshore constructions. Design of offshore fields' development: western approaches. Review of the largest field development projects. Practice: selection of offshore fields' development concept.
Design features of offshore fields development	Integration of geology, field development and facilities. The features of well planning regarding the identification of well pad number and location. Restrictions in sphere of production, well stimulation, EOR technics for offshore fields. Economic aspects of offshore field development.