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Recommended training plan for specialists of petroleum industry within OGE Academy programs

| Level Work area | Basic | Advanced | Expert |
|-----------------------|--|---|---|
| Enhanced recovery | Enhanced recovery. Hydraulic fracturing and acidizing Hydraulic fracturing. Design and control Enhanced oil recovery: geological and technological aspects | Production cost reduction. Wellwork evaluation. Decision tree construction while wellwork selection. Physical and chemical EOR technics Formation damage and EOR Well injectivity: prediction, damage prevention, stimulation Petroleum Resources Management System (PRMS) | Multistage hydraulic fracturing Hydraulic fracturing quality assurance Productivity enhancement in gas-condensate reservoirs: theory, design, case studies Modern EOR technics Production performance support at different stages of field development Improved cost-effective waterflooding and EOR Seismic interpretation, integration with Rock Physics data |

| Level | Basic | Advanced | Expert |
|------------------------------------|---|--|---|
| Work area | | | |
| Production technology & Facilities | Subsea production Design and operation of subsea pipelines and subsea systems Modern oil production technology. Oil and gas facilities fundamentals Artificial lift | Dropped objects prevention system at drilling and downhole facilities Flow assurance in heavy oil production Horizontal wells: applicability, construction, completion, productivity & flow rate measurement Unconventional hydrocarbons Corrosion management principles | Applied integrated reservoir and production modeling Offshore development: environmental aspects Completion and workover supervising, onshore and offshore Completion design, onshore and offshore Horizontal and multilaterall wells. Well completion. Smart wells Complication control (scale, asphaltene deposits, corrosion) |
| Fluid analysis | Basic well log interpretation Applied well test design and analysis (gas) Applied well test design and analysis (oil) Physical and chemical analysis of rocks and fluids | Advanced well log interpretation Advanced well test design and analysis (gas) Advanced well test design and analysis (oil) Well logging for reservoir management | Reservoir fluid sampling and PVT analysis Machine Learning and Data Science for Upstream Professionals Seismic interpretation, integration with Rock Physics data |
| Offshore Oil & Gas Engineering | Subsea production Drilling and workover, offshore Russia Offshore operation features Modern offshore oil and gas facilities Design and operation of subsea pipelines and subsea systems | Offshore oil and gas facilities International standards for casing and tubing design, offshore and onshore Well planning and design: offshore Russia Offshore drilling | Offshore developments Offshore seismic: data processing and analysis Applied integrated reservoir and production modeling Environmental loads on offshore structures in the Arctic Offshore developments: ecological documentation Offshore developments: ecological documentation and environmental impact assessment Seismic interpretation, integration with Rock Physics data |

| Level Work area | Basic | Advanced | Expert |
|--------------------------------|--|---|---|
| Ecology | Offshore developments: ecological aspects Dropped objects prevention system at drilling and downhole facilities | Ecological damage prevention: oil spill disasters Ecological damage prevention and countermeasure: oil spill disasters | Offshore developments: ecological documentation and environmental impact assessment |
| Field geology and well logging | Basic geological modeling Basic well log interpretation Physical and chemical analysis of rocks and fluids Sedimentology: lithofacies and formation analysis Rock physics and geophysics in petroleum geology Petroleum system modeling for sedimentary basins Gas condensate study Carbonate basin: genesis, secondary alteration, study methods Fundamentals of HCS modeling Oil & gas traps, reservoir simulation | Advanced geological modeling Advanced well log interpretation Production logging and well monitoring Well logging for reservoir management Neural networks for geological easement development Modern well testing technics Petroleum Resources Management System (PRMS) Geomechanical modeling | Reservoir fluid sampling and PVT analysis Offshore seismic: data processing and analysis Reef complexes Modern geophysical study technics Machine Learning and Data Science for Upstream Professionals Seismic interpretation, integration with Rock Physics data Rock Physics for modeling of effective reservoir physical properties |

| Level | Basic | Advanced | Expert |
|-----------------------|--|---|--|
| area | | | |
| Drilling and workover | Drilling and workover, offshore Russia Basic drilling for non-professionals Drilling, completions and well testing Dropped objects prevention system at drilling and downhole facilities | Directional drilling Drilling Fluid Engineering Workover operations Risk management in well construction Drilling and workover supervision Deviated well construction Drilling supervising, onshore and offshore | MWD of horizontal and directional wells Geo-steering and M/LWD Well Planning: process design for directional and horizontal wells drilling Underbalanced drilling, tools and technology Well profile design Coiled tubing in drilling and workover Flushing fluids mixing and application Modern well completion and workover techniques: horizontal and multilateral wells. Rigless-techniques Completion and workover supervising, onshore and offshore |
| Field development | Multidisciplinary approach to reservoir simulation Petroleum geochemistry Basic reservoir simulation: modern approaches to design, application and assessment Development of gas fields Basic waterflooding: physics, technologies, field cases Model control: part 1 - geological modeling Model control: part 2 - reservoir modeling Oil and gas production for non-specialists | Effective Reservoir Management Waterflood management: productivity decline and EOR Advanced reservoir simulation: modern approaches to design, application and assessment Developing oil fields with massive gas caps Advanced waterflooding: physics, technologies, field cases Smart field: from tools to optimization Neural networks for geological easement development Geomechanical modeling | Waterflood in carbonate reservoirs Heavy oil waterflooding Reservoir simulation: practical aspects Applied integrated reservoir and production modeling Reservoir simulation: modern approaches to design, application and assessment (expert level) Machine Learning and Data Science for Upstream Professionals Improved cost-effective waterflooding and EOR Modern well completion and workover techniques: horizontal and multilateral wells. Rigless-techniques Rock Physics for modeling of effective reservoir physical properties |

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| Level Work area | Basic | Advanced | Expert |
|---------------------------------|---|---|--|
| Soft skills | Effective communication: maximum communication tactics (training) Stress management: individual action plan Personal effectiveness: planning and selfmotivation (training) | Modern manager: advanced leadership and coaching Team building and development: effective management of group processes Successful international cooperation: features of business communication with foreign partners Effective communication and personal growth (based on Schultz von Thun and Riemann-Tomann models) | |
| International affairs | Basic Petroleum English Basic Petroleum English for management | Advanced Petroleum English Advanced Petroleum English for management Successful international cooperation: features of business communication with foreign partners | Oil trading |
| Information Technologies | Basic Excel practical training for oil and gas professionals | Advanced Excel practical training for oil and gas professionals Advanced MICROSOFT EXCEL Smart field: from tools to optimization Neural networks for geological easement development | MICROSOFT EXCEL.: Visual Basic for Applications MICROSOFT EXCEL: enhanced options Machine Learning and Data Science for Upstream Professionals |

| Level Work area | Basic | Advanced | Expert |
|--|--|---|--|
| Economy, management and consulting | Budget as a business planning tool Production management. H&R management | Project management: standards and technologies Advanced sales management Business assessment and decision making Advanced strategic analysis Advanced MICROSOFT EXCEL | Internal procurement for petroleum sector: optimization technics Strategic management in Oil & Gas business: theory and practice MICROSOFT EXCEL: Visual Basic for Applications MICROSOFT EXCEL: enhanced options |

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