

OILFIELD CHEMISTRY.

Development paths and application of oilfield chemistry for production, treatment,
transportation of oil and enhanced oil recovery

The Program “Oil production and treatment”

No.	Name of study units and subjects of the Program “Oil production and treatment”	Total hours	Including		
			lectures	Practical sessions	Lab practicum
1.	World oil-and-gas resources.	2	2		
1.1	Importance of hydrocarbon resources. Fuel and energy balance of Russia and the World. Conventional and unconventional hydrocarbon resources. Offshore oil and gas resources.				
2.	Oil field treatment	22	20		
2.1	Mechanisms of oil-water emulsions building and destruction. Formation of interlayer oil-water emulsions.	2	2		
2.2	Mechanisms of oil-water emulsion destruction and demulsifying reagents.	2	2		
2.3	Theoretical framework for application of surfactants in oilfield experience	2	2		
2.4	Oil production problems: paraffin deposits. Methods to remove and prevent.	2	2		
2.5	Oil production problems: scale buildup. Methods to remove and prevent.	2	2		
2.6	Types of oilfield equipment corrosion and means of its minimizing.	2	2		
2.7	Oil field bacterial flora. Negative consequences of the sulfur reducing bacterial activity and methods to control them.	2	2		
2.8	Oil and gas hydrogen sulfide stripping. Hydrogen sulfide and oxygen scavengers.	2	2		
2.9	Stimulation technique for operating procedures of oil and gas treatment.	2	2		
2.10	Metrological assurance for crude oil and oil products quantity and quality control systems.	2	2		
2.11	Methods for determining the effectiveness of reagents, used in oil production and treatment.	2			2
3	Modern methods of oil and gas production stimulation and enhanced oil recovery.	8	8		

	Classification of enhanced oil recovery methods.				
3.1	Operating procedures for enhanced oil recovery methods.	2	2		
3.2	Surfactants used in operating procedures for enhanced oil recovery.	2	2		
3.3	Well bottom zone stimulation methods. Water suppression, hydrophobization. Stimulation of oil and gas production by method of formation hydraulic fracturing.	2	2		
3.4	Operating procedures and compositions for treatment of bottomhole formation zones with hard to recover reserves.	2	2		
4	Technical regulation in the oil and gas industry at the present stage.	2	2		
5	Economic value of innovation.	2	2		
	In total:	36			