DEVELOPMENT OF OIL AND GAS FIELDS

SUBJECT
Galina A. KOVALEVA
Ph. D., Associate Professor

Alexey M. ZINOVIEV
Ph. D., Associate Professor
Alexey M. Zinoviev
Ph. D., Associate Professor

WORKLOAD OF THE SUBJECT

5 term
99
exam
5 term
2,75

6 term
108
credit
6 term
3

7 term
81
exam
7 term
2,25

- Underground hydro-mechanics of hydrocarbons
- Physical and mathematical foundations of oilfield seismic exploration

- Computer methods for modeling hydrocarbon deposits
- Design, analysis of development and development of hydrocarbon fields
WORKLOAD

CLASSROOM WORK

Practical classes: 36 hour
Lectures: 54 hour
Laboratory work: 54 hour

Total: 144 hour
GOALS
Providing theoretical and practical knowledge on development of oil and gas fields

TASKS
- To study the basics of production processes in the operation and maintenance of oil production facilities
- To develop methods and technologies for the rational system of the development and use of natural resources
- To develop methods of forming and regulating the operating modes of oil and gas development and production facilities
- To use a set of geological, industrial and technological information to analyze the current state and determine the prospects for further development of operational objects
- To get knowledge on methods and methods of control, regulation and formation of a rational system of development and use of natural resources
The process of developing fields. Reserves and resources of hydrocarbon fields

Indicators of development of oil and gas fields. Operating modes of oil and gas reservoirs

Systems and technologies for developing fields

Development of deposits in natural modes

Development of deposits with the use of flooding

Hydrodynamic calculations for circuit and in-circuit development systems

Influence of geological and physical factors on development efficiency

Forecast the effectiveness of the development model and the characteristics of the displacement

Regulation by technological methods, cyclic impact on the reservoir and the direction of change of filtration flows
LECTURES

- Guidance documents for the preparation of project documents for the development of oil fields.
- Geological and physical characteristics of productive layers.
- Features of construction of geological and hydrodynamic models of productive layers with different study of deposits and for different monitoring purposes.
- The state of development of the field.
- Field development design.
- Methods of increasing oil recovery and intensification of oil production.
- Technical and economic analysis of development options.
5 TERM

PRACTICAL CLASSES

6 TERM

- Setting into operation the field under the trial operation project
- Study of heterogeneity of layers by geological and lithological profiles
- Modes of field development
- Determining the impact of development rate and input speed on development indicators
- Construction of maps of current selections taking into account flood systems
- Determination of oil production, pressure and oil flow rates in a flood control system
- Determination of oil pressure and flow rates in an intra-circuit flooding system
- Forecast of efficiency of oil recovery coefficient using statistical models
- Estimation of technological efficiency of the field by displacement characteristic
- Construction of displacement characteristics for a given reservoir and determination of the efficiency of field development
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<tr>
<th>5 TERM</th>
<th>LABORATORY WORK</th>
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<tbody>
<tr>
<td></td>
<td>The allocation of objects of working out fields</td>
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<td>Construction of the schedule of development of fields; allocation of stages of development</td>
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<td>Determination of flood systems based on current selection maps</td>
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<td>Primary processing of field data</td>
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<td>6 TERM</td>
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<td>Determination of final oil recovery by the rate of production decline</td>
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<td>Estimation of the distribution of residual reserves by the area of the field</td>
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<td>7 TERM</td>
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<td>Introduction of RN-KIN software package (complex of tools for oil engineering / « Reservoir Engineering System Tools (RN-REST))</td>
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<td>Calculations of the main indicators of development on the characteristic of displacement for the long-term period</td>
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<td>Geological and technological events. Transfer to the overlying horizon in the RN KIN program</td>
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<td>Operational assessment of technological efficiency of new wells introduction</td>
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EQUIPMENT AND LABORATORIES
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