Master's Degree Program

RELIABILITY OF TECHNOLOGICAL MACHINES AND EQUIPMENT OF THE OIL AND GAS COMPLEX

The program is offered for students directions 15.03.02 "Technological machines and equipment" 21.03.01 "Oil and gas business", master course in "petroleum engineering Technology", "Reliability of machines", "Technological provision of the quality and operational properties of details of machines" and wishing to master contemporary methods of scientific research career advancement in the field of ensuring reliability of oil and gas machinery and equipment. Individual master's theses in this field are aimed at developing students' research skills and developing patentable technological devices, both at the level of modernization and for new types of technological machines and equipment of the oil and gas complex. Students follow all stages of the research process, and are evaluated in accordance with the developed scoring system of criteria from the justification of the relevance of the problem, the scientific novelty of the proposed solutions to the results of experimental testing and simulation of processes. The program aims to develop students' creative reverse engineering skills. It is performed both in the laboratories of the Institute of Oil and Gas of the Siberian Federal University, and at the enterprises of the oil and gas complex of the region.

Program length: 2 years
Starting date: September, 1st
Language of instruction: Russian
Tuition fee per year: 182,000 rubles (~2474,51 USD)
Program Leader: Eduard A. Petrovsky

Prerequisites:
- Bachelor's degree in a specialized specialty
- Preparation for the oral exam.
- Production experience is welcome

Qualification: Master's Degree

Skills/ objectives:
- Development of innovative patentable technological devices for ensuring the reliability of oil and gas technologies.
- Master the method of predicting the reliability and service life of machines.
- Study of modern methods of diagnostics and testing of machines.
- Application of reliability assurance methods at the design stage of technological and technical complexes.
- Development of new technologies for ensuring the operational properties of parts that determine the reliability of machines.
- Application of modern digital technologies to assess the state of reliability of machines at all stages of the life cycle.

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CURRICULUM

- The philosophy aspect of the technological structures of society
- Mathematical modeling and optimization of production machinery oil and gas complex
- Theoretical foundations of reliability in the design process
- Technology petroleum engineering
- Applied analysis of random values
- Technological providing of operating properties of parts and quality in the repair of vehicles
- Maintenance of reliability of machines' exploitation
- Physical and chemical foundations of failures of technical systems
- Risk assessment and analysis
- Applied software products, theory of similarity and dimensions in reliability assurance
- Diagnostics of technological machines for reliability
- Machine quality management
- Production management.

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