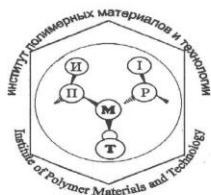


**Институт полимерных
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**Review of the graduate program
“6M070800 – Petroleum Engineering”**

Reviewer: Iskander Gussenov
PhD in Petroleum Engineering
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After I review the graduate program, I can conclude the following. The graduate program 6M070800 is designed for petroleum engineers who pursue a master of technical science. This two-year, full-time program is supposed to provide students a solid scientific background in different branches of petroleum engineering, including hydrocarbon exploration, reservoir management, fluid dynamics, reservoir simulation and enhanced oil recovery. Also, the students have a wide choice to elect specific courses like advanced petrophysics, reservoir evaluation methods, geomechanics, drilling and placement of horizontal and multilateral wells, advanced economic assessment of petroleum industry projects, just to name a few. In my opinion, the inclusion of these elective courses into the tuition program is necessary to train the students to effectively utilize the workflow concepts now prevailing in the oil industry, and prepare them to work in multidisciplinary teams.

I would also like to highlight that the tuition program includes research and pedagogical practice modules, which are obligatory for all students. Thus, the program is not just about formal lectures, problem classes and computer exercises. It is supposed to develop research skills and pedagogical background, which, in my opinion, makes it different from undergraduate courses.

Hopefully, after completing the obligatory course “history and philosophy of science” students will become more interested in acquiring additional knowledge of physics, chemistry and applied mathematics through their future careers. Also, this course can help understand how science, technology and society interact with one another, at different times, in different places and on different issues. History and philosophy of science I studied during my master's program at the University has turned out to be one of the most valuable courses I ever had.

Based on the above, I can recommend the graduate program to be implemented, as, in my opinion, it meets the requirements laid out for the future professionals in Petroleum Engineering.

Sincerely,
PhD, Iskander Gussenov

Almaty/January 2019

Исх.№: 003

28.01.2019

РЕЦЕНЗИЯ

на программу послевузовского образования

по специальности – «Нефтегазовое дело»

Образовательная программа по специальности – «Нефтегазовое дело» разработана заведующим и профессорско-преподавательским составом кафедры «Нефтяная инженерия» Института геологии и нефтегазового дела имени К.Турысова КазННТУ имени К.И.Сатпаева.

Образовательная программа по специальности «Нефтегазовое дело» определяет программные образовательные цели, результаты обучения обучающихся, необходимые условия, содержание и технологии для реализации образовательного процесса, оценку и анализ качества обучающихся вовремя обучения и после окончания. ОП включает учебную программу, содержание дисциплин и результаты обучения и другие материалы для обеспечения качественного образования обучающихся.

Образовательная программа содержит модуль обязательных дисциплин и дисциплины по выбору, знания которых позволяют освоить научно-исследовательский модуль и практико-ориентированный модуль.

Таким образом, рецензируемая Образовательная программа по специальности – «Нефтегазовое дело» позволяет готовить специалистов конкурентноспособных как внутри страны, так и на международном рынке труда и интегрировать национальную программу в мировое образовательное пространство, а также отвечает требованиям нормативно-правовых документов, регламентирующих разработку ОП.

Рецензент

Советник директора КМГП
Доктор технических наук
профессор

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№ 019/0076
от 20 07 2019 г.

НАО «КазНИТУ им. К.И.Сатпаева»
Ректору И.К. Бейсембетову

РЕЦЕНЗИЯ

На образовательную программу по специальности 6М070800 – Нефтегазовое дело, уровень программы «Магистратура», разработанную профессорско-преподавательским составом кафедры «Нефтяная инженерия» Института Геологии и Нефтегазового дела Казахского Национального Исследовательского Технического Университета имени К.И. Сатпаева.

Образовательная программа «Нефтегазовое дело» составлена в тесном сотрудничестве с индустрией и призвана осуществлять обучение магистрантов нефтегазовому делу. Для поступления в магистратуру установлены требования по освоению необходимых пререквизитов, тем самым позволяя изучать материал более углубленно.

Эта программа дает магистрантам необходимый объем знаний и навыков, требующихся для работы в области разработки и добычи нефти и газа, а также проведения научных исследований.

Явным преимуществом данной образовательной программы является наличие аккредитации международного авторитетного агентства ASIIN, высоко котирующегося в Европе и специализирующегося на инженерных и естественных науках.

Магистрантам предоставляется возможность получения двойной международной квалификации магистра по результатам второго года обучения в зарубежных университетах-партнерах США, стран Западной Европы и России. В частности, у магистрантов, обучающихся по данной программе, есть возможность продолжить обучение по специальности «Подземные резервуары энергии» по программе дудипломной магистратуры, разработанной совместно с французским Университетом Лотарингии (Франция). Магистранты активно участвуют в программе академической мобильности в университетах Западной и Восточной Европы. Стоит отметить тесные академические и научные связи с Университетом Штата Пенсильвания, занимающего пятое место в мировом рейтинге университетов по направлению «добыча полезных ископаемых» по версии агентства QS World University Rankings, мирового лидера в сфере оценки университетов.

Я рекомендую данную образовательную программу, так как она отвечает мировым стандартам в области послевузовского образования.



Система менеджмента качества СТ РК ИСО 9001-2009 (ISO 9001:2008)
Система менеджмента профессиональной безопасности и здоровья СТ РК OHSAS 18001-2008
Система экологического менеджмента СТ РК ИСО 14001-2006 (ISO 14001:2004)

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С уважением,

Директор



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Ref: 13/84
05.02.2019

To: **Head of Petroleum
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From: **A. Jamankulov
Asset Development Lead
for NCSPSA & Pearls
Shell Kazakhstan Development B.V.**

REVIEW OF THE PETROLEUM ENGINEERING GRADUATE PROGRAM

Shell Kazakhstan employees (Arman Jamankulov Asset Development Lead for NCSPSA & Pearls, Jasmeet Saluja Asset Development Lead for KGK, Zhuldyz Galiakpar Social Performance Advisor) visited Satpayev University, Oil & Gas faculty during the 15th – 16th Nov 2018 trip. The purpose of the visit to get acquainted with current education program and initiate Industry Advisory Board (IAB).

The graduating department «Petroleum engineering» carries out development and implementation of professional educational program in the specialties of the graduated studies and is responsible for the compliance of the educational process with the state compulsory standard of graduate education and the qualification requirements for licensing educational activities.

The department «Petroleum engineering» that implements professional graduated study programs provides:

- Graduated students have a chance for research internship at The University of Lorraine (France); including research center LEMTA, engaged with mechanical engineering. Some of the students currently doing their research with Colorado School of Mines (USA) and The Pennsylvania State University (USA).
- The department has six research grants financed by government, four research projects are sponsored by private oil companies and foundations, one grant for commercialization of obtained research results. Research areas cover main petroleum domains: transportation, drilling, reservoir and production engineering. Graduate students have the potential for conducting relevant research that meet the conditions of oil and gas industry.
- Department has a computer class with certain software's available for simulation of some petroleum processes from geology to transportation. Educational licenses were granted by Schlumberger.

The scientific component of the educational program formed from research work (for educational programs of scientific and pedagogical direction) or experimental research work (for specialized educational programs), the preparation of scientific / methodical publications and the implementation of a thesis for the academic degree of (PhD) or doctor in profile.

The graduate educational program in petroleum engineering provides necessary knowledge, research skills and gives certain opportunities. We refer to the assessment and recommendations given by Dr. Erdal Okzhan, professor and department head of petroleum engineering.

**Asset Development Lead
for NCSPSA & Pearls
Shell Kazakhstan Development B.V.**



A. Jamankulov



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January 29, 2019

To Whom It May Concern:

I have looked at the Master Degree program in petroleum engineering that is under development at Satbayev University and have got some thoughts as follows.

Global energy consumption is growing rapidly as the world is developing. However, oil and gas resources will be much less accessible in future, and far more advanced technology will be required to extract them. This means that the future hydrocarbon production will deal with unconventional resources, such as heavy oil, shales, gas hydrates and tar sands. The petroleum industry, therefore, needs more highly qualified engineers specializing in a wide range of areas.

All specialty aspects of graduate petroleum engineering program that meet Department of Petroleum Engineering faculty's areas of expertise can serve as potential specialization areas for both course selection and thesis topics. Example areas of particular emphasis by the department include reservoir engineering, reservoir pressure maintenance by waterflooding and gas injection, tertiary recovery, computational fluid flow, drilling, process economics, computer-visualization of petroleum systems and transportation of oil and gas by pipelines.

The programs aim to provide students with all the skills and knowledge necessary for their chosen profession so that they are immediately operational upon graduation. The programs also prepare them for changes that will occur in the context of the current power generation transition.

The educational program offering knowledge of the physics of reservoirs and rock-fluid interactions should be key factors for optimizing production. The complementary skills of engineers are essential to its success. Through this program, students should master the methods and tools used to optimize more sustainable production of oil and gas fields.

Students in the subject areas of process and petroleum engineering at Satbayev University benefit from the detailed instruction they receive on a suite of industry-standard software packages that include: PETREL, Eclipse, tNavigator, Techlog, KAPPA and PIPESIM.

There is a lot of research going on in many different areas. Chemicals for fracturing, new hydraulic fracturing techniques, new chemicals for EOR, new ways to produce from oil sands including SAGD and VAPEX processes, new algorithms for reservoir and geomechanics simulations, ways to couple rock mechanics and fluid flow simulations, ways of upscaling, production of coal bed methane. There is a special laboratory with modern equipment at Satbayev University to support these research activities.

However, the reviewed program has no support discipline in physical chemistry helping students to better understand a variety of processes taking place in some petroleum engineering technologies such as the enhanced oil recovery. In addition, a discipline that describes how different loads impact the materials stability and possible degradation would also be useful.

In summary, my conclusion is that the petroleum engineering graduate program at Satbayev University is dignified program comparing to any other international prototype.

Sincerely,

Serguei Lvov

Serguei N. Lvov
Professor, Energy and Mineral Engineering & Materials Science and Engineering
Director, Electrochemical Technologies Program of the EMS Energy Institute