2017-2018 academic year

		
Head of the Department of Mechanics, Ph.D., Professor Z.B.Rakisheva	The staff of the Department of Mechanics	Graduates of the department of mechanics 2018

The purpose of the department: Training of specialists in the field of theoretical and celestial mechanics, mechanics of deformable solids, fluid mechanics, gas, plasma and power engineering, machine mechanics and robotic systems. Mechanics - is the science of the motion of matter in space and time under the influence of various forces. It includes cosmogony and the movement of continents on our planet, underwater currents in the oceans and severe atmospheric processes, the movement of the Sun, Earth, Moon, rockets and satellites, the development of unique mechanisms and robots and their management, the creation of new materials, the theory of catastrophes, oil and gas in underground seams and processes in various reactors and installations, and much more.

Specialties:

Bachelor's program. Duration of training: 4 years
5B060300 - Mechanics.
5B074600 -Space engineering and technology.

Master's Courses (Scientific and pedagogical magistracy). Duration of training: 2 years
6M060300 - Mechanics.
6M074600 - Space engineering and technology.

Specialized magistracy. Duration of training: 1.5 years
6M074600 - Space engineering and technology.
Educational programs:

- Space monitoring;
- Design of space vehicles;
- Mechanics of machines and manipulators, the creation of intelligent robots.

Doctoral studies
6D060300 - Mechanics. Duration of training: 3 years
6D074600 - Space engineering and technology. Duration of training: 3 years

Joint educational programs:
National:
Since 2014, under the program of joint training of specialists with "Gylim Ordasy", a master degree program and doctoral study have been opened in the specialty "Mechanics" and since 2017 master degree program and doctoral study by the specialization "Space engineering

and technology" have been opened with the Institute of Mechanics and Engineering Science named after. acad. U.A. Joldasbekov. Educational programs were jointly developed and a set of students was conducted.

International:

The Kazakh-French scientific and educational center "Geoenergetics" was established in September 2010 at the suggestion of the French side on the basis of the Kazakh National University named after A.Ya. al-Farabi, Kazakh National Technical University. K. Satpaev and the National Polytechnic Institute of Lorraine, France.

The purpose of the Center's work is to train Kazakhstan's own scientific elite in the above-mentioned area based on its own scientific and pedagogical staff of local universities and using the expertise of the French system of higher education in the field of educational technologies.

In the center of Geoenergetics there is a joint Master's program, which gives out a double Franco-Kazakh diploma, a joint program for PhD doctors, scientific and industrial consortiums.

Educational-laboratory base:

Creation of the teaching and laboratory base of the department is dictated by the need for conducting educational and scientific experiments. The laboratory base of the Department of Mechanics includes laboratories for the mechanics of materials, solid mechanics, theoretical and applied mechanics, hydraulics and filtration, structural mechanics, robotics and manipulators, fluid mechanics, gas, plasma and geoenergetics, a space technology laboratory with a ground station for communication with low orbiting satellites.

Sphere and objects of professional activity of graduates of the department:

Teaching of a number of subjects of the natural and technical cycle in higher education, teaching physics, mathematics, computer science in secondary schools, research activities in the field of mechanics and technical sciences, engineering activity in scientific research and production and production institutions, workers in the field of industry and energy, completing of the work on designing, adjustment of operation of space technology.

The companies and organizations in which the internship students of the Department of Mechanics:

JSC «NK «Kazakstan Ġarysh Sapary», SSE Institute of Mechanics and Engineering Science named after academician UA Dzholdasbekov, SLLP «Institute of Space Engineering and Technology», KazMIRD at RSE on PVC«Karaganda State Technical University», SLLP «Institute of the ionosphere», SLLP «Astrophysical Institute named after V.G. Fesenkov», «International Space School named after V.N. Chelomea», JSC «Kazakhstan Road Research Institute», SSE Research Institute of Mathematics and Mechanics, SLLP «Cartography and Geoinformatics», LLP «Galam», LLP «GreenWell Mechanics», LLP «Q-ALT TECHNOLOGIES», LLP «Vima», LLP «Almatyenergoservis», LLP «Institute of High Technologies», JSC "Kazgeokosmos".

АО «НК «Қазақстан Ғарыш Сапары»	
ДТОО «Институт космической техники и технологий»	
КазМИРР при РГП на ПХВ «Карагандинский государственный технический университет»	
ДГП Институт механики и машиноведения им. Академика У.А.Джолдасбекова	
ДТОО «Институт ионосферы»	
ТОО «Галам»	
АО «НЦКИТ»	
ТОО «GreenWell Mechanics»	
ТОО “Q-ALT TECHNOLOGIES”	
ДТОО «АФИФ»	

АО «Казахстанский дорожный научно-исследовательский институт»	АО «КаздорНИИ»
ТОО «Алматыэнергосервис»	АЛМАТЫЭНЕРГОСЕРВИС
ТОО «Институт высоких технологий»	Институт Высоких Технологий КАЗАТОМПРОМ
КазНИТУ имени К.Сатпаева	SATBAYEV UNIVERSITY
Назарбаев Университет	NAZARBAYEV UNIVERSITY
Компания АО «КАЗГЕОКОСМОС»	KGC KazGeoCosmos
вразийский университет имени Л.Н. Гумилева	ЕУРАЗИЯ ҰЛТТЫҚ УНИВЕРСИТЕТІ
Акционерное общество «Национальная компания «Қазақстан Ғарыш Сапары»	ҚАЗАҚСТАН ҒАРЫШ САПАРЫ
Алматинский университет энергетики и связи	АУЭС

Olympics:

Annually the Faculty of Mechanics and Mathematics of KazNU named after al-Farabi conducts subject Olympiads for schoolchildren and students, in which the Department of Mechanics actively participates.

The Department of mechanics is organizer of annual Olympiad on Mechanics for students of higher educational institutions of the Republic of Kazakhstan.

Participant of the International Olympiad on Radio Electronics in Samara (Russia).

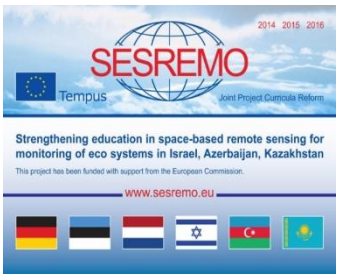
Organizer of robotics championships in conjunction with the Kazakhstan Federation of Educational and Sport Robotics "Kazrobotics".




International educational projects:

Improvement of higher education in the field of monitoring of ecosystems by Earth-based instruments in Israel, Azerbaijan, Kazakhstan (Coordinator-Berlin Technical University, Tempus SESREMO) (2013-2017 years). They are implemented in "SET".

Applied training program on the development of outer space and intelligent robotic systems / APPLE (Coordinator-Berlin Technical University, Erasmus +)(2016-2019 гг.) They are Implemented in "SET" and "Mechanics".



Academic mobility

Annually undergraduates pass scientific internships and summer schools in leading foreign universities, including at the Berlin Technical University (Germany), in the AHC of the Scientific and Technical University (Poland), at the Samara State Aerospace University. academician S.P. Korolev (Russia), at the National Technological University of Calicut (India).

At the department pass traineeships students and undergraduates from foreign universities through international exchange programs, CASEU, IAESTE and others:

CASEU. The master of the Polytechnic University of Valencia completed an internship during the 2016-2017 school year.

IAESTE. 2015 - 2 students (USA, Croatia); 2016 - 3 students (South Korea, Poland, Spain); 2017 - 4 students (Slovakia, Czech Republic, Poland, Austria)

Within the framework of the Agreement on Cooperation between KazNU and "American Councils for International Education", 2 students from the United States received training and practical training at the Department of Mechanics.

Undergraduates Summer School at the Technical University of Berlin, Germany

Undergraduates Summer School at the National Technological University of Calicut, India

Internship undergraduates at the Samara State Aerospace University. Academician S.P. Koroleva, Russia

Internship undergraduates at the AGH Scientific-Technical University (Poland)

International partner universities:

United States of America: University of Pittsburgh, University of Bridgeport, University of Aeronautics Embry Riddle;

Europe: University of Lorraine, Technical University - Sofia, AGH Scientific Technical University, Berlin Technical University, Twente University, Tallinn Technical University, Warsaw University of Natural Sciences;

Japan: Tokyo University, Nagoya University;

India: National University of Technology Calcutta, Hindustan College of Engineering and Technology;

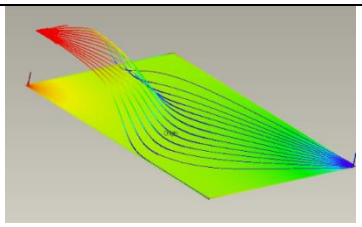
Russia: Peoples' Friendship University of Russia, Samara State Aerospace University. academician S.P. Korolev.

Соединенные Штаты Америки	
Университет Питсбурга	
Университет Бриджпорта	
Embry-Riddle AerUn	
Европа	
Университет Лотарингии, Франция	
Технический университет - София	
АГХ Научно-технический университет им. Станислава Сташица,Краков,Польша	
Берлинский технический университет	

Университет Твенте	
Таллинский технический университет	
Япония	
Токийский университет	
Университет Нагоя	
Индия	
Национальный технологический университет Каликута	
Хиндустанский колледж инженерии и технологии	
Хиндустанский институт технологии и науки	
Россия	
Российский университет дружбы народов	
Самарский государственный аэрокосмический университет им. академика С.П. Королева	

Scientific directions of the department:

National level:

Laboratory of Mechanics of Liquid, Gas, Plasma and Energy: - Underground Hydrodynamics; - Tasks of geotechnology; - Alternative energy.	
Laboratory of Space Technologies: - Space technologies; - Space monitoring; - - Celestial mechanics	
Laboratory of Robotic Systems: - The tasks of controlling robots and manipulators.	

Within the framework of the PTF project "Creation of a national scientific school for the development of space engineering and technologies. Designing, assembling and launching the first Kazakh nanosatellite "with the participation of the teaching staff, doctoral students and undergraduates of the department, the first Kazakhstani student nanosatellite Farabi-1 was developed and launched.

International level:

The World Bank project is implemented at the department:

- Technology of seasonal accumulation of solar thermal energy for heating and hot water supply of a residential area / multi-storey buildings (Head - Tungatarova M.S., PhD).

The authors of the project offer the technology of seasonal accumulation of solar thermal energy (SASTE), which allows storing a large amount of solar heat for heating systems and hot water supply of buildings. The SASTE technology is not designed for single-storey or small buildings, but is designed for large objects, such as residential areas or multi-level buildings, where the technology can function as a centralized heating and hot water system.

Within the framework of the project "Stimulation of productive innovations" of the grant program of the GTNS / GNP, an innovative enterprise of GreenWell Mechanics LLP was created. Head - Tungatarova MS)	GreenWell MECHANICS