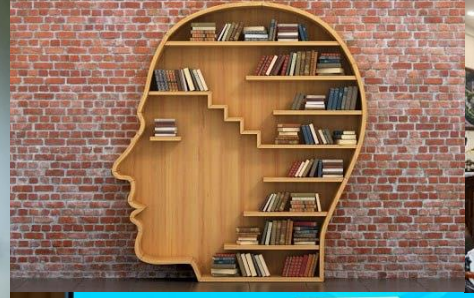
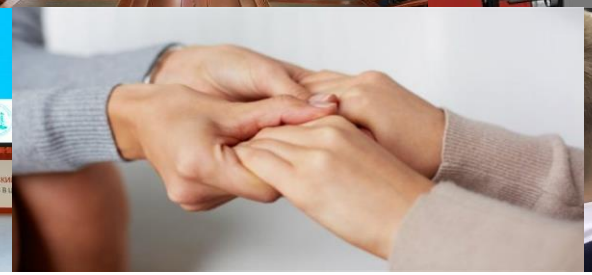
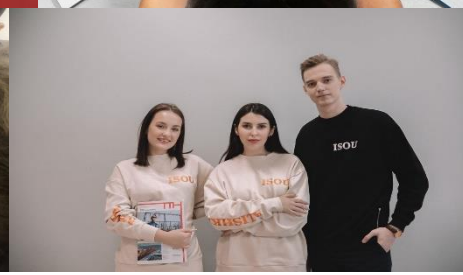







INDUSTRIAL UNIVERSITY OF TYUMEN SUSTAINABLE REPORT 2021











Contents

About the university

1956 - Year of foundation of the university

7 institutes

4 university branches

1 vocational education institution

1 general education lyceum

55 Academic chairs

9 Industrial chairs

33 laboratories

over 26000 students

over 3000 students engaged in science

7.6% of international students from 35 countries

over 400 educational programs

over 130 sustainability programs

28 MOOCs

4 programs in English

74 scientific projects

over 350 student projects presented at competitions

64 patents in the portfolio

over 1000 Academic staff

59 partners are foreign universities

47 partners are from the field of high technologies development

over 200,000 alumni over 65 years

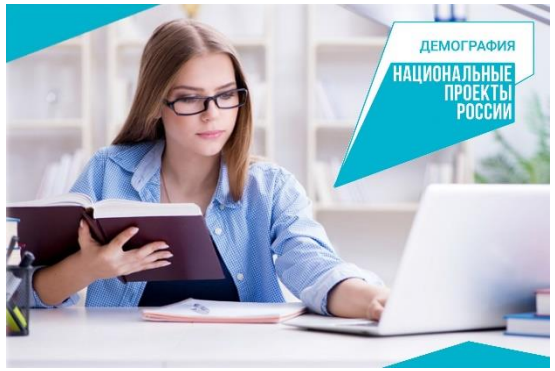
Graduates work in 50 regions of Russia and 45 countries

1 NO POVERTY

2 higher education programs
7 professional development programs
over 7000 students - recipients of scholarships
over 14000 students - recipients of other forms of financial assistance
146 participants of the Employment Promotion Project

✓ Industrial University of Tyumen (hereinafter referred to as IUT) twice hosted a charity event to collect things for the "Creativity", Tyumen Regional Center for Disabled Children and Orphans. The event was held as part of the implementation of the University's Social Responsibility Program and Corporate Volunteering.

✓ Within the framework of the "Promotion of Employment" federal project of the "Demography" national project, IUT acts as an educational platform that provides an opportunity for certain categories of citizens, who are unemployed, as well as people over 50 years old, women on parental leave to receive additional professional education to acquire the necessary skills and competencies and subsequent employment in a new job.



✓ The following types of scholarships operate at IUT: academic, social, scholarships of the Government of the Russian Federation, scholarships of the President of the Russian Federation, nominal scholarships, scholarships appointed by legal entities and individuals. In total, more than 7 thousand students became recipients of scholarships in 2021.

2 ZERO HUNGER

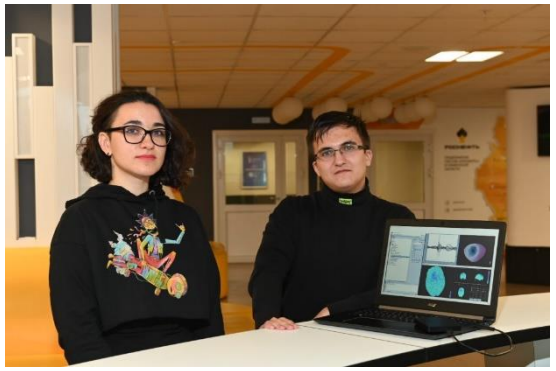
1 higher education program
over 400 students received food allowance

✓ Food supply facilities of the Industrial University of Tyumen provide a choice of sustainable foods. Hot meals are provided; a twelve days menu has been developed, taking into account dietary energy intake, including vegetarian dishes. The choice of suppliers of healthy foods is made in accordance with the TR CU regulations and is based on the principles of HACCP.

✓ In IUT, the purchase of food is carried out in compliance with the requirements and procedure for concluding contracts established by Federal Law No. 44 dated April 05, 2013 "On the contract system in the field of procurement of goods, work, services to meet state and municipal needs", Provisions on Procurement.

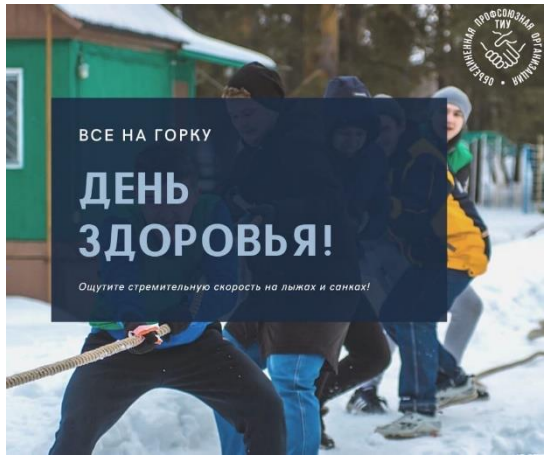
3 GOOD HEALTH AND WELL-BEING

1 higher education program
55 participants of donor campaigns, donated more than 30 liters of whole blood
over 5000 students and about 80% of staff were vaccinated
15000 students took a rapid HIV test



✓ Employees of the Center for Advanced Research and Innovative Development (hereinafter referred to as CARID) of IUT are working on the creation of a virtual reality system for working with the output data of magnetic resonance imaging (hereinafter referred to as MRI) and computed tomography (hereinafter referred to as CT) for the Federal Center for Neurosurgery of the Ministry of Health of the Russian Federation (the city of Tyumen). The goal of the project is to create a virtual environment for working with DICOM * data, which will allow processing MRI and CT medical data in a holographic space, as well as developing a number of functions for editing and processing input data using VR technologies. The uniqueness of the project is in the combined file of CT and MRI transferred into a 3D model and then displayed in virtual reality, programmed and created by the staff of CARID, in which the main tools of the surgeon will be implemented. When combining MRI and CT, it is possible to study in detail the structure of the brain and other parts of the human body before admission of a patient or an operation, as well as to conduct just the operation in a virtual environment.

*Digital Imaging and Communications in Medicine - the medical industry standard for creating, storing, transmitting and visualizing digital medical images and documents of examined patients



✓ In order to promote a Healthy Lifestyle (HLS), IUT arranges field events at the Olympia sports and recreation center (skiing and riding down the hills, sports competitions and many other outdoor activities).

✓ A meeting of 1st and 2nd year students with an expert from the Center for Prevention and Control of AIDS was held at the branch of IUT in Nizhnevartovsk. During the interactive lecture, the topic "HIV/AIDS: Awareness, Responsibility, Health" was considered. The students updated the information on HIV prevention, the epidemiological situation in the city and the district, and then underwent rapid HIV testing. The testing was anonymous and volitional. During the survey, new generation OraQuick saliva tests were used. The procedure was in attendance of a medical staff providing an individual counseling.

3 GOOD HEALTH AND WELL-BEING

- ✓ Employees and students of IUT took part in the donor initiative. The event was organized jointly with the Tyumen Regional Blood Transfusion Station. The donor-motor vehicle, located near the main building of the university, received everyone wishing to help patients in Tyumen hospitals. IUT employees are active participants in the event. There are employees with the title of "Honorary Donor of Russia".
- ✓ The educational program "Biotechnical and medical devices and systems" is being implemented at the Institute of Geology and Oil and Gas Production of IUT. The uniqueness of this field of study is represented by the connection of electronics, mechanics, cybernetics, computer science, programming, medicine and biology. This combination makes it possible to create new biotechnologies as follows: modeling and design of innovative medical products, bionic limb prosthetics, and stimulation of human visual and auditory functions by applying electrodes to the nerve centers of the cerebro-spinal axis. Students from the first year of study implement real engineering projects under the guidance of experienced teaching staff, IUT scientists and specialists from modern medical, technical and medical centers.
- ✓ In 2021, two students of the Department of Cybernetic Systems of IUT completed their qualifying papers on the basis of the Federal Center for Neurosurgery of the Ministry of Health of the Russian Federation. Topics of papers are as follows: "Development of software for segmentation of DICOM images and preoperative planning of spinal surgical interventions" and "Optimization of pattern cutting titanium sheets for cranioplasty". The developments were studied and introduced for possible implementation in the activities of the institution.
- ✓ IUT students are engaged in the study of electro-neurophysiological processes occurring in the organisms of experimental animals and humans, as well as the development of a neurocomputer interface. The new neurocomputer interface model is capable of restoring the feedback system by stimulating nerve fibers in real time. To achieve the result, it is necessary to complete experimental studies, create and test systems for receiving, analyzing and processing biomedical signals. The next step is to assemble a prototype and improve the technology.
- ✓ Employees and students of IUT are given the opportunity to get a free vaccination against coronavirus infection at the medical center of the university. In 2021, more than 5,000 students and about 80% of employees were vaccinated.

- ✓ IUT students proposed to automate the process of studying CT images using neural networks. In the application they are working on the neural network will algorithmically count all infected foci, calculate their area and automatically give an estimate. This approach will save the doctor's time; he will only have to make a conclusion decision. The project is already being tested at scientific conferences. The project participants have started the prototyping stage. By the end of the project activities, according to the design engineers, the finished product should appear.

3 GOOD HEALTH AND WELL-BEING

- ✓ A preventive action was held at the site of the Multidisciplinary Vocational Education Institution (hereinafter referred to as the MVEI) of IUT in collaboration with the Tyumen Department for Drug Control of the Ministry of Internal Affairs of Russia for the Tyumen Region. The lead investigator of the Department of Prevention gave a lecture on the topic "Prevention and consequences of the use of drugs, PAS". To increase the interest and the strength of grasp of legal material, the lecture came amid "Secrets of manipulation" film screening. The students made themselves aware with the legal information about the consequences that occur after the use of drugs, psychoactive substances (PAS) and other synthetic drugs, as well as the responsibility for the use, purchase, storage, manufacture, and sale of drugs. The students were provided with contact information for contacting, if necessary, obtaining appropriate advice and assistance.

- ✓ IUT dormitory No. 7 hosted events promoting healthy lifestyles as follows: “Even those who are not concerned” traditional quiz dedicated to the World AIDS Day; “We are for a healthy lifestyle" promotional action, the organizers of which reminded about the dangers and consequences of the use of PAS; as well as the quiz "If you want to live up to a hundred years without trouble give up cigarettes", inviting participants to test their awareness about the harmful effects of smoking.

- ✓ The development of student hockey was discussed at the Ministry of Sport of the Russian Federation. The event was attended by the Minister of Sports of the Russian Federation, the President of the Russian Hockey Federation, the President of the Russian Student Sports Union, the Director of the Student Hockey League, as well as rectors of universities and representatives of student sports organizations. The meeting participants discussed measures of state support for student sports leagues, mechanisms for supporting student hockey teams at universities, and issues of interaction between student and professional hockey teams. The student hockey development model is considered as a pilot project for the promotion of all student sports in the Russian Federation. The geography of teams participating in the Student Hockey League is growing. Rectors of universities are interested in creating teams as a tool for popularizing sports and promoting healthy lifestyles.
- ✓ IUT has a social university program, within the framework of which the members of the Trade Union Organization of IUT are provided with compensation for services in sports organizations.

4 QUALITY EDUCATION

2 higher education programs
2 additional education programs
28 MOOCs
98 courses in IET format
over 40 additional education programs for teaching staff
MOOC IUT audience:
8000 students - on the IUT Open Education Platform
6500 students - on the National platform of open education
14 unique courses are available at the IUT School of Engineering Reserve
4 graduation thesis presentations in the "Startup as a Diploma" format
60 industrial classes, 1666 students from 5 regions
609 students in profession-oriented classes from 20 Russian cities

✓ IUT is implementing the "Program for training managerial personnel for organizations of the national economy of the Russian Federation." IUT is the only university in the region that has received the right to implement the Presidential Program. Program features are as follows: classroom and self-study, traditional and interactive forms (seminars, including analysis of specific situations, business and role-playing games, trainings). Leading professors and associate professors of the university with extensive experience in vocational education, highly qualified business consultants, as well as project specialists, business trainers are involved in teaching. Advantages of the program are as follows: highly qualified teaching staff; acquisition of competencies that are important for senior and middle managers; internships, including foreign ones; the opportunity to develop and rationalize a startup, a business plan, an innovative project for implementation in practice. Areas of activity are as follows: strengthening the competitive advantages of any organization; promotion of investment activity; accelerating the implementation of projects for the development of small, medium and large businesses, non-profit organizations; ensuring the social and economic growth of the Tyumen region as a whole.

- ✓ The Competence Center according to the WorldSkills-Russia standards of the Multidisciplinary Vocational Education Institution of IUT has successfully passed accreditation and received the status of a specialized center of competence at the national level for the competence "Bricklaying". The national status of a specialized center of competence (SCC), assigned to the university, gives the right to hold regional championships and qualifying competitions for the finals of the national championship, interregional training camps, to participate in educational programs for the training of masters of the WorldSkills Academy, and also to become the host venue for training the national team.

- ✓ IUT master's student became the winner of the competition of scientific and diploma works of young specialists and scientists in standardization, metrology and quality management. The competition was held under the auspices of the Commission for Science and Education of the Public Council of Rosstandart as part of the roadmap for the development of standardization in the Russian Federation for the period up to 2027. The experts of the competition were representatives of the Federal Educational and Methodological Association 27.00.00 of the Ministry of Science and Higher Education of the Russian Federation, Peter the Great St. Petersburg Polytechnic University, ANCO "Russian Quality System", All-Russian research and development centre of metrology named after D.I. Mendeleev. According to the results of an expert assessment, 65 young scientists and students became award winners of the competition.
- ✓ IUT SHER in cooperation with RN-Purneftegaz LLC created a pre-profile engineering grade in which 26 students study, divided into two groups in the areas of "Game programming" and "3D modeling". Classes in project activities under the guidance of teachers of the School of Engineering Reserve of IUT are held in a full-time distance format. In 2021, SHER held a field session and presented the students' project defense of the engineering grade of school No. 4 of the city of Gubkinsky, Yamalo-Nenets Autonomous District. Project defense is the first deadline for students of the pre-profile grade. The project presented by the students is related to the oil and gas industry. This is a VR simulator that can be used both for playing and, in the future, for staff training. The schoolchildren's project was approved by the experts, who noted the relevance of the development and wished the young engineers success in mastering the studied disciplines.

4 QUALITY EDUCATION

✓ Rector of IUT Veronika Efremova took part in a meeting of the public council of the federal party project "Drivers of Growth" in the Tyumen region and made a report on the training of highly demanded and qualified specialists for the engineering industry. The topic of the meeting: “Problems and prospects for the development of the machine-building industry and the of IAP Siberian Petroleum Automatics Enterprise JSC. In her speech, the rector of IUT noted that today the university is training bachelors in mechanical engineering in such areas as "Technologies of production, repair and operation in mechanical engineering", "Management of innovations in mechanical engineering", "Computer-aided design systems", "Robotics and flexible manufacturing modules” , “Automation of technological processes and production” , “Materials science and technology of materials” . Also, a number of master's programs are being implemented at the university in the engineering profile. At the request of enterprises, the IUT Institute of Further and Distance Education (hereinafter as IFDE) conducts training in the industrial worker jobs as "Machine operator of a wide profile" and "CNC machine operator ".

✓ The Institute of Further and Distance Education of IUT is recruiting for training in nonprofessional occupations: an oil and gas production operator, a process compressor driver, an electrician for the repair and maintenance of electrical equipment, a mechanic for the repair of technological installations, a linear pipeline operator, a commodity operator, an assistant driller, a mechanic for instrumentation and automation, chemical analysis laboratory assistant, bricklayer. You can master the educational program with assignation of a category in two to four months. The skills and abilities acquired by the course leaver will allow him right along to come to the production. The geography of demand for training in nonprofessional occupations at IUT is wide starting from the Tyumen, Sverdlovsk, Kurgan and ending with the Amur region and neighboring countries (Kazakhstan, Azerbaijan, and Tajikistan). Vocational training at IFDE is in great demand both among corporate customers and individuals. The management of many enterprises trusts the quality of training. The portfolio building of IFDE educational programs relies firstly on the regional labor market. When training employees at IUT, more time is devoted to practical training.

✓ In 2021, the Youth Business Incubator (hereinafter as YBI) started its work at IUT, which received the status of the Federal Innovation Platform. The purpose of YBI is in development of conditions for professional self-realization of students, systemic support for talented youth, an acceleration platform for young entrepreneurs.

4 QUALITY EDUCATION

- ✓ The competitions of the VIII Open Regional Championship Young Professionals of Tyumen Region 2021" in the Brickwork competency were held at the Competence Center according to WorldSkills - Russia standards of the Multidisciplinary Vocational Education Institution of IUT. Within 15 hours participants were asked to complete two modules Cube and Labor, demonstrating horizontal, vertical and inclined masonry, as well as the use of ornament of 350 bricks. Students from the IUT Multidisciplinary Vocational Education Institution, the Agrotechnological Vocational Education Institution, the Tyumen Technical School of the Construction Industry and Municipal Economy, the Ishim Multidisciplinary Technical School and the Krasnoyarsk Civil Engineering Vocational Education Institution (out of competition) took part in the competition in the most difficult field of study. According to the regulations, the tasks for the participants were available three months before the start of the competition, but before the event itself, the experts made 30% of the changes. These conditions helped the contestants to prepare well for the final tasks.
- ✓ "INcorporation", a joint educational project of the Gazprom Neft Science and Technology Center and the Industrial University of Tyumen won the All-Russian Graduate. Awards competition in the "Best Student Relations Program" nomination. The competition is dedicated to corporate programs for the work of companies with graduates of schools and universities. Projects are evaluated by a jury of experts in the field of personnel management and university representatives. High points are awarded for novelty and creativity in working with young professionals, as well as for specific measurable results in terms of the number of attracted candidates or financial efficiency for the company. Team members of 7 bachelors and 10 masters of IUT during the year developed a concept for the development of the Chayandinskoye and Tazovskoye fields, which are at the active stage of development by Gazprom Neft PJSC. The association of students from different programs helped to form a systematic vision of the development of oil and gas fields. Students completed internships at the company, interacted directly with project managers, leading experts and specialists of the enterprise.
- ✓ Four teams of IUT students became finalists of the Startup as a Diploma program. Fifteen university students became participants in the experimental program for the defense of the final qualifying papers in the "Startup as a Diploma" format. The projects of the participants passed a rigorous selection and were finalized during the training under the pre-acceleration program. Representatives of the real sector of the economy were presented with projects on the topics "Development of a telegram-bot with a voice assistance function" , "Justification for the construction of a poultry waste processing plant" , "Intelligent system for design projects" and "Development of aesthetic hand prosthesis" .

4 QUALITY EDUCATION

- ✓ The building of a digital competency profile is one of the promising educational technologies that have been developed at IUT as part of the Digital Transformation of the Educational Process project. The competence model is formed at the stage of program design, based on the learning objectives, and reflects the requirements of professional standards. Then the content of the educational program is determined and control and measuring materials are developed. The Educon system contains algorithms for evaluating the results of the student's educational activities, including by connecting a digital competence model to the control and measuring materials of the program. At the implementation stage of the program, the system collects and interprets data, fixing the individual digital footprint of each student and tracking the dynamics of the group. For this, the input, current and final control of the achieved level of competencies is carried out. Analysis of the dynamics of the digital profile allows you to create an individual educational trajectory of the student, taking into account the available educational resources. In accordance with the logic of the organization of the educational process, personal pedagogical support is being built.

- ✓ A project session of Implementation of PBL in the environment of university engineering education was held at the IUT EG Higher School of Engineering. The goal was formation of uniform principles for organizing project activities. 55 participants presented by the directors of institutes and their deputies for educational and methodological work, heads of educational programs, teachers, industrial partners of the university and senior students of the Higher School of Engineering EG. Tasks achieved: analysis of the existing experience in organizing project activities; formation of a common understanding of the place and role of project activities in the educational process; development of mechanisms for cooperation between disciplines and joint design of the educational process. The project session is considered as a platform for developing new approaches to education in engineering areas. At the same time, the relevance of the problems of educational projects is being tested and verified by the industrial partners of the university presented by Tyumen Oil Research Center LLC, Gazprom Neft Scientific and Technical Center LLC, Novatek RTC LLC, KogalymNIPIneft, a branch of LUKOIL-Engineering LLC in Tyumen, Gazprom transgaz Yugorsk OOO, Transneft-Siberia JSC, etc.
- ✓ The only in the region dissertation council in the Economics and management of the national economy scientific specialty was created at IUT. Now it is possible to defend a dissertation for the degree of Doctor and Candidate of economic sciences at the university in two specializations: economics, organization and management of enterprises, industries, complexes; industry and management. The created dissertation council is designed to satisfy the need for scientific personnel in the Tyumen region as one of the largest constituent entities of the Russian Federation, in which oil and gas production and processing companies, mechanical engineering and power industry enterprises are located. The work plan of the new dissertation council for the next three years includes the defense of two doctoral and seven candidate dissertations. At the moment at IUT, according to the declared specializations, 17 doctors and 71 candidates of sciences with high publication activities are being employed; scientific schools have been created and are successfully running.

4 QUALITY EDUCATION

- ✓ The IUT General Education Lyceum is one of the best educational institutions, whose graduates successfully enter leading universities in the natural-mathematical and engineering-technical specialties. The study was conducted by the RAEX rating agency based on the statistics of admission of applicants to 37 leading technical universities of the country. Experts have compiled the top 200 schools preparing applicants for the best technical universities in the country. Nine schools of the Tyumen region are among the best educational institutions in Russia, while the Lyceum of IUT in this rating took 43rd place and the first among the educational institutions of the region, followed by the Physics and Mathematics School, the Gymnasium of Tyumen State University, lyceum No. 81, schools No. 92, 63, 65, 70 and gymnasium No. 12.
- ✓ 18 students of the IUT MVEI majoring in "Technical operation and maintenance of electrical and electromechanical equipment" tested their skills and abilities in conditions as close as possible to production.

Participants were given 4.5 hours to complete the four modules. Future electrical technicians were engaged in switching junction boxes and floor distribution boards, programming the logic relay and, finally, looking for faults. The only girl in the group coped with the task of high complexity along with the boys. A team of seven experts supervised the work of students during the exam under the guidance of a teacher of the professional cycle of the Tyumen School of Industrial and Social Technologies. They not only closely monitored the occupational health and safety compliance, but also helped the participants to tune in to the successful completion of the task, noting as a result the high level of training of IUT students.

- ✓ In 2021, IUT with the support of the "Tochka kipenia – Tyumen" coworking space, held "I call fire upon myself!" the second competition of university startups. This year, in addition to Russian teams, project teams from Beijing University of Civil Engineering and Architecture and Yangtze University (China), Azerbaijan University of Architecture and Civil Engineering and Baku Higher Oil School (Azerbaijan), Caspian University of Technology and Engineering named after Sh. Yessenov (Kazakhstan) responded to the initiative of holding and possible participation in the event. IUT presented eight project groups at the competition. The performance of the best student groups in the final of the competition was evaluated by the jury chaired by Vice President of Zapsibkombank Andrey Sidorov PJSC. The jury united the representatives of Riga, Beijing, Moscow (JSC Sitronics) and Tyumen. The experts discussed the creativity, relevance and novelty of the projects, assessed their economic efficiency, the possibility of MVP commercialization and risks.

- ✓ IUT continues to introduce the promotion of individual educational trajectories (hereinafter - IET), an educational format that determines the training of a new generation of engineers, taking into account global world processes. As part of the IET, the university is working on the design and testing of the main processes: cataloging (98 courses); choice of courses by students; compilation and management of personal dynamic schedules; managing the workload of a teacher, which will allow further scaling up the practice of applying IET to other departments of IUT.

4 QUALITY EDUCATION

- ✓ IUT students became the winners of the Legacy of prominent venture capitalists of Russia, the All-Russian competition on the history of entrepreneurship in the Success Story of Pre-Revolutionary Entrepreneurship nomination. The essay of "Russia is strong with its provinces. N.M. Karamzin: the history of the life and work of the Tyumen merchant Vasily Lavrovich Zhernakov (1861-1936)" was submitted for the competition. The work contained a description of the life of the merchant V.S. Zhernakov and his family, his contribution to the development of Tyumen and nearby cities was outlined; the progressiveness and versatility of his activities were analyzed. In total, more than 800 authors from 61 regions of the country claimed the title of heritage experts; the winners were determined in 10 nominations. The All-Russian competition on the history of entrepreneurship is aimed at attracting students to the study and popularization of the history of Russian entrepreneurship, identifying the best courses and supporting scientific research on the history of entrepreneurship among university faculty members.

- ✓ For more than three years, IUT has been implementing digital educational content: massive open online courses (MOOCs), virtual labs, simulators and trainers made in three-dimensional graphics with the maximum imitation of real production processes. Today, the university has a fully functioning video laboratory for filming and an in-house platform for hosting MOOCs. At the same time, there is a fairly serious experience in developing online courses in engineering, geology and oil and gas, construction and other areas of training. They are used in organizing the educational process not only at IUT, but also at other universities. Over the past academic year, more than 8 thousand people received access to MOOCs on the IUT Open Education Platform and 6.5 thousand Russian students on the National Open Education Platform. MOOCs allow students to fully master a particular discipline, and give specialists the opportunity to expand their knowledge in the professional field, using the advantages of digital educational technologies. Virtual simulators and laboratory work, developed at the Institute of Further and Distance Education of IUT, help students and trainees to develop practical skills in real conditions, because this is a simulation of the workflow in virtual running.
- ✓ In 2021, IUT continued its partnership with the International Center of Competence in Mining and Engineering Education under the auspices of UNESCO. A graduate student of IUT became the winner of the Actual problems of subsoil use XVII International Forum-Competition of students and young scientists. Partnership with the International Center of Competence in Mining and Engineering Education under the auspices of UNESCO gives the right to students and graduate students of IUT to take part in specialized double degree programs with foreign universities.


SAINT PETERSBURG MINING UNIVERSITY
TOPICAL ISSUES 2021
THE BEST PRESENTER AWARD
CERTIFICATE
THE XVII INTERNATIONAL FORUM-CONTEST OF STUDENTS AND YOUNG RESEARCHERS "TOPICAL ISSUES OF RATIONAL USE OF NATURAL RESOURCES"
May 31 — June 6, 2021, St.Petersburg
This is awarded to
NATALIA VORONOVA
Industrial University of Tyumen
for the effective presentation at the breakout session on
Topical Issues and Contradictions of Modern Society Development
Rector of Saint Petersburg Mining University
Chairman of the Governing Board of International Competence Centre for Mining-Engineering Education under the auspices of UNESCO
Vladimir Litvinenko
Director of International Competence Centre for Mining-Engineering Education under the auspices of UNESCO
Vladimir Borzenkov
Ref. No 05-637/04.06
St. Petersburg 2021

4 QUALITY EDUCATION

- ✓ IUT students, along with other participants, completed a six-day intensive educational program as part of the International Oil and Gas Youth Forum. The program includes master classes by leading experts in the oil and gas industry, blitz hackathons, business games, expert lounges, training sessions. The participants were taught the principles of Agile, Scrum methodology, project management, and were given guided instructions for creating a startup from scratch, paying special attention to the development of soft skills. As a result, the awards were received not only by the winning teams. For individual achievements, extraordinary solutions and competencies in the process of completing tasks throughout the hackathon, the best participants were awarded. One of the students of IUT received a letter of recommendation from the Ministry of Energy of the Russian Federation, the other received a certificate of participation in the forum.

- ✓ IUT in cooperation with the Department of Education of the city of Tyumen, implements socially significant career guidance projects for schoolchildren of industrial classes and specialized classes, which involve about 40 schools in the region. The projects were created to popularize and increase the prestige of engineering professions, specialties and areas, taking into account the needs of the economy and the demand of the labor market. Industrial classes are professionally oriented classes, the training in which is aimed at studying profile disciplines with a focus on a specific professional area at IUT. Industrial classes are also included in the "School-University-Enterprise" lifelong education infrastructure, and their composition is formed from students who have completed grade 9 of general education schools and have a high rating according to the results of the BSE. In 2021, the project covered 1666 schoolchildren. The educational process is implemented in 60 industrial classes created in five regions of the Russian Federation: in the city of Tyumen, in the cities of the south of the Tyumen region, Khanty-Mansi Autonomous Okrug, YaNAO, Kurgan, Sverdlovsk regions. They train those who plan to get an engineering education in the future, which mean they need high-quality training in physics and mathematics. In addition to teaching compulsory subjects, IUT teachers immerse children in the history of construction development; teach the basics of business planning, architecture and design, CAD engineering design, building design, logistics and unmanned vehicles. Another career guidance project, profile classes, is formed on a competitive basis by groups of students in grades 10-11 of general educational institutions for advanced profile training for the purpose of following higher education in engineering areas of training. The project is being implemented in Tyumen and 19 other cities of Khanty-Mansi Autonomous Okrug, YaNAO, Tyumen, Sverdlovsk, Orenburg regions and covers more than 600 students. In the 2021-2022 academic year, talented schoolchildren of the region, together with IUT teachers, were engaged in project activities, attended lectures and practical classes in specialized disciplines, were trained for the Unified State Examination and Olympiads in specialized classes of partner enterprises, such as Gazprom PJSC, Rosneft Oil Company PJSC, LUKOIL PJSC, NOVATEK PJSC, Mostostroy-11JSC.

4 QUALITY EDUCATION

- ✓ Non-Governmental Environmental Foundation named after V.I. Vernadsky summed up the results of the competition for scholarships for the 2021/2022 academic year. IUT students are among the Foundation's scholarship holders. The winners of the competition were selected from 182 students from universities in Russia, Belarus, Kazakhstan, Kyrgyzstan and the Czech Republic. The first stage for students of Tyumen universities was held at IUT, where the regional competition commission has been successfully working for a number of years. Together with the central commission, it evaluates the achievements of participants in research and public activities in the field of sustainable development of the fuel and energy complex, the development of applied aspects of environmental education, environmental education, and raising the level of environmental culture of citizens.
- ✓ The IUT Non-Destructive Testing in Construction online course was among the best e-courses for LMS Moodle of the Edcrunch Award Product-2021 International Competition of Technological Products in Education in the Open Technologies nomination. The course is aimed at forming a system of knowledge, skills and abilities in the field of non-destructive testing in the construction industry, in the construction of residential and public facilities, transport facilities in the manufacture of structures in the construction industry. The course presents an analysis of existing non-destructive testing methods aimed at solving practical problems in the construction industry. Considerable attention is paid to the use of ultrasonic waves for the control of technical characteristics and flaw detection, as one of the main methods in world practice.

- ✓ The results of the First Interregional Championship in the field of the oil and gas industry, traditions and crafts of the North according to the standards of WorldSkills (YamalSkills) were summed up in the YaNAO. The YamalSkills championship united the training of young specialists on two topics: the competencies necessary for the implementation of international investment projects in the Yamalo-Nenets Autonomous Okrug, and the traditional competencies aimed at preserving the way of life of the northern nomadic peoples. Competitions were held in 16 competencies, some of which were developed with the involvement of experts from enterprises under the general motto "TECHskills as new technologies for young professionals." 84 representatives of Yakutia, Tyumen, Volgograd, Kogalym, Noyabrsk, Muravlenko and other cities of Yamal took part in the championship. Participants performed tasks in four modules: maintenance and control of the technological mode of installations for dehydration, desalination, oil stabilization, maintenance of a pumping station, control and maintenance of centrifugal pumping units, as well as control and regulation of the chemical reagent flow unit. IUT at YamalSkills was represented by 7 students of the MVEI, branches in Surgut and Noyabrsk, two of which received the highest award; five more students were awarded certificates of participation.

4 QUALITY EDUCATION

✓ IUT has a School of Engineering Reserve (hereinafter referred to as SHER). As part of the career guidance project, SHER, starting from the first form, is preparing "engineers of the future." Participants study advanced technical disciplines, mainly through practical methods. Training is carried out in project, academic and olympiad fields of training. SHER has 14 unique areas: Lego robotics, Arduino robotics, Webdesign, 3D-Animation, Mechatronics, Petroleum Engineering, Prototyping, Graphic design, Unmanned aircraft systems, Project chemistry, 3D modeling and others. Schoolchildren are offered both year-round education and attending courses lasting from several weeks to several months. SHER is the organizer of all-Russian competitions and thematic educational sessions at the sites of the largest children's centers such as Artek, Sirius and Okean.

✓ A training session was held at the Process Factory site in accordance with the curriculum of the course "Fundamentals of Lean Production" of the Program for Management Training for Organizations of the National Economy of the Russian Federation (hereinafter referred to as the Presidential Program) as part of cooperation between IUT and the Regional Competence Center in the field of labor productivity. The participants got acquainted with the basic tools of lean manufacturing, studied and tested the enterprise information center, a tool for visual production management, as well as a problem solving board that allows you to find problems that prevent you from achieving your goals. The team developed measures to eliminate the identified problems and implemented the developed solutions.

✓ In-person defense of the Open Competition for Heads of Educational Programs (hereinafter - HEP) took place at IUT. As a result, the jury supported the applied bachelor's program "Mechatronics and Robotics", "Robotics and Flexible Manufacturing Modules" and the Master's program "Human Resource Management (Administration, consulting and personnel audit in the context of digitalization)". The jury included representatives of the industrial partners of the university and authorities interested in the implementation of educational programs.

✓ Possible options for solving problems related to the digital transformation of education, the creation of a digital environment, the shortage and training of personnel, the experience of introducing IT technologies and individual services, VR and gamification, the implementation of digital projects were considered at the Digitalization of Education round table within the XIV Tyumen digital forum and exhibition INFOTECH-2021. IUT took part in the event and shared its experience in building a system of work with industrial partners in the framework of project activities.

5 GENDER EQUALITY

2 higher education programs
2 further education programs
56% of scientific and pedagogical workers and researchers are women
30% of IUT graduates are women

- ✓ Rector of IUT Veronika Efremova was awarded a Certificate of Honor from the All-Russian public-state organization "Union of Women of Russia" and the medal "Daughters of the Fatherland" for outstanding contribution to the implementation of the Education National Project. The awarding took place within the framework of the regular meeting of the Tyumen regional branch of the All-Russian public-state organization "Union of Women of Russia" in the West Siberian Innovation Center.
- ✓ The Ministry of Science and Higher Education of the Russian Federation has launched the Women's League mentoring project, where female students can find a mentor to help them gain work experience and build a career path. IUT rector Veronika Efremova has become one of the women leaders who are ready to take patronage over the project participants. The Women's League was first presented at the Russian Creative Week and discussed at the Eastern Economic Forum. More than 50 women leaders from various sectors have confirmed their participation in the first season of the project: education, culture, business, public service and economics.

- ✓ The grand opening of the exhibition "Names of Beautiful Women" took place at IUT, which told about the professional feat of the participants in the development of the oil and gas complex of Western Siberia. The main characters of the exhibition dedicated to the 80th anniversary of the Women's Union of Russia were talented and selfless Siberians among which were geologists, builders, scientists, the first teachers and graduates of IUT.
- ✓ The final round of the 23rd Championship of the Russian Student Volleyball League among women's teams of the Western Conference was held at the IUT site. Eight strongest teams from the universities of Kaliningrad, Surgut, Yekaterinburg, Kurgan, Barnaul, Tyumen competed for tickets to the finals of the Student Volleyball League Championship. The women's team of the Industrial University of Tyumen became the absolute winner of the final.
- ✓ In 2021, IUT approved the University's Social Responsibility Program, which regulates, among other things, combating discrimination based on ethnicity, age, gender, and other grounds.
- ✓ IUT holds an annual competition of mentoring "School of Adapters". The number of students who have passed the school of mentorship equals 70, of which female students are 40.

- ✓ IUT has a mentoring program of tutoring, in which female students participate. Tutorial Topics are as follows: «Preparation for course selection», «Reflection on the intermediate results of mastering the courses», «Examination period», «Personal responsibility», «Netiquette». 1323 students are involved in the program, of which 40% are female students.

6 CLEAN WATER AND SANITATION

3 higher education programs
1 further education program

✓ In 2021, IUT hosted the XXII National Scientific and Practical Conference with international participation "Water resources as the basis of global and regional projects for the development of Russia, Siberia and the Arctic in the XXI century." The event was attended by representatives of the scientific community from the Center for the Study of Glaciers of the National Academy of Sciences of Tajikistan and the Tajik Technical University named after the academician M. S. Osimi, Hamburg University and Kyrgyz State University of Construction, Transport and Architecture named after N. Isanov, as well as scientists from Russian universities from Moscow, Krasnoyarsk, Omsk, Yakutsk and other cities. Over two days, offline and online, the participants presented more than 130 reports in six sections. Topics of reports: results of the agreement on improving the quality of the water supply and sanitation system in Tyumen and the Tyumen region; the concept of development of ecological safety of the coastal zone of water bodies; influence of light and melatonin on diurnal and seasonal physiological changes in Arctic conditions; the influence of demography on the productive forces of the region, their interconnection and interdependence. Within each section, a competition was held among students for the best scientific report. A group of young IUT scientists worked on solving the problem of eliminating harmful and non-condensable industrial waste gases in the section "Water: Problems and Solutions".

✓ IUT scientists have developed a way to desalinate seawater using wave energy. Autonomous energy-saving installations can be used to supply water to small coastal cities, towns and hotels, as well as to supply fresh water to coastal and floating greenhouses in which plants are grown. Distilled water for the preparation of hydroponic nutrient solutions is produced from seawater using low-grade wave energy in standard reverse osmosis desalination plants. The low-potential energy of sea waves is characterized by a low wave height and high availability; such waves exist almost always and everywhere in ice-free seas. Air conditioning (cooling) in greenhouses is carried out by side walls of the greenhouse and the bottom cooled by sea water without the use of expensive energy-intensive compression air conditioning systems. To heat the air in greenhouses at low ambient temperatures, the residual energy of the discharged brine water is used. Rational use of space is ensured by the location of the greenhouse facility inside a floating platform with a low center of gravity, with a transparent flat roof for insolation and does not involve the use of land with expensive land. The performance of one floating module using low-grade energy of sea waves and reverse osmosis standard desalination plants is at least 10,000 liters of fresh water per day, which is enough to prepare nutrient solutions necessary for growing plants by hydroponics and drip irrigation in greenhouses of a sufficiently large area.

7 AFFORDABLE AND CLEAN ENERGY

5 higher education programs
1 secondary vocational education program
5 further education programs

✓ IUT students were recognized as the winners of the All-Russian Engineering Competition (REC) in the nomination "Best Graduate Qualification Work". During the competition days, students and young scientists solved extraordinary problems, received advice from leading specialists from high-tech enterprises, and participated in an acceleration session. In the final events of the National Research Nuclear University "MEPhI", the final qualification works at the bachelor's and master's levels were presented to the REC industry experts. These days they were held at the National Research Nuclear University MEPhI. Under the terms of the competition, students developed final qualification works as a project within the framework of priority areas of scientific and technological development of the Russian Federation.

✓ Improving the Reliability of Operative Current Sources, IUT student's project was recognized as one of the best final qualifying works at the All-Russian Engineering Competition among bachelors. The experts highly appreciated the elaboration of the business part of the project, the relevance of the problems being solved and the practical significance of the work. In fact, it is aimed at developing a new circuit solution for uninterruptible power systems at electric power facilities and increasing the resource and service life of lead-acid batteries that are used in these systems. The work of another student of IUT, aimed at the transition to environmentally friendly and resource-saving energy, was awarded a diploma of the winner of the competition. Such an alternative will improve the efficiency of the use of energy resources in the processes of processing hydrocarbon raw materials with the solution of problems of energy and resource saving. As part of the 2021 competition, 1065 applications from representatives of 118 universities were considered, 122 students reached the final. The winners and prize-winners of the competition were 53 students and post-graduate students from 26 Russian universities.

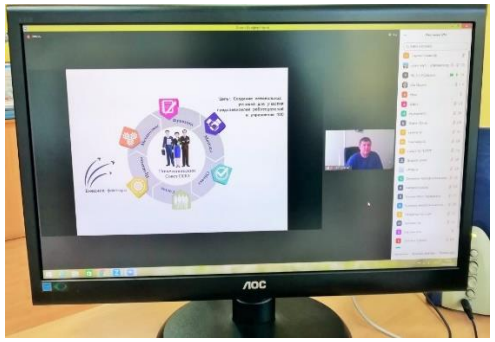
✓ IUT hosted the National Scientific and Practical Conference of Students, Postgraduates, Scientists and Specialists with International Participation of Energy Saving and Innovative Technologies in the Fuel and Energy Complex, dedicated to the 65th anniversary of the Industrial University of Tyumen. The conference was attended by more than a hundred students, graduate students, young scientists and specialists from Tyumen, Kazan, Perm, Krasnoyarsk, Novosibirsk and other cities. During the conference, the participants exchanged scientific and technical experience, encouraged young scientists to create energy-saving and innovative technologies in the fuel and energy complex (FEC), and solved a number of scientific and technical problems. The work was held in six sections as: Architecture and construction; Machine-building production; Heat power engineering; Chemical production; Ecology and industrial safety; Power industry and electrical engineering, Automation and control in technical systems.

8 DECENT WORK AND ECONOMIC GROWTH

8 higher education programs
1 program of secondary specialized education
6 further education programs
1 MOOCs
IUT is the provider of the Presidential Management Training Program
208 IUT faculty members received the highest qualification category
157 employees of IUT from among the administrative staff were promoted
over 60 industrial partners
IUT is in the TOP-100 Russian universities in terms of the success of graduate employment

✓ IUT is implementing the "Program for training managerial personnel for organizations of the national economy of the Russian Federation." IUT is the only university in the region that has received the right to implement the Presidential Program. Features of the program are as follows: classroom and self-study, traditional and interactive forms (seminars, including case studies, business and role-playing games, training sessions). Leading professors and associate professors of the university with extensive experience in vocational education, highly qualified business consultants, as well as project specialists, business trainers are involved in teaching. Advantages of the program: highly qualified teaching staff; acquisition of competencies that are important for senior and middle managers; internships, including foreign ones; the opportunity to develop and justify a startup, a business plan, an innovative project for implementation in practice. Areas of activity: strengthening the competitive advantages of any organization; promotion of investment activity; accelerating the implementation of projects for the development of small, medium and large businesses, non-profit organizations; ensuring the social and economic growth of the Tyumen region as a whole.

8 DECENT WORK AND ECONOMIC GROWTH



✓ A conference of employees and students of the university was held at IUT. As part of the event, a report was presented on the implementation of the IUT Collective Agreement for 2018-2021 and a new document was adopted for the period up to 2024. The main results of the collective agreement 2018-2021were as follows: increase in salaries of employees; advanced training of employees (208 teachers received the highest qualification category, 157 employees from among the administrative and managerial and administrative and economic personnel received a promotion); organization of medical and preventive and sanitary measures, fire safety measures and the provision of personal protective equipment, the development of physical culture and sports; implementation of the payment of financial assistance to employees, payments on mortgage lending (62 participants), as well as on additional social benefits and guarantees.

✓ IUT once again entered the ranking of the preference for hiring university graduates in leading Russian companies. The Public Chamber of the Russian Federation and the MAKO Association conducted a survey of large companies of Gazprom, Gazprom Neft, Rosseti, Bashneft, Inter RAO, Prosveshchenie, RusHydro, SIBUR Holding, PhosAgro " , "Roscosmos" , "Rosenergoatom" , "Rosatom" , "Sberbank" , etc. According to the study, most companies trust graduates of those universities with which they implement joint programs for targeted training of specialists, specialized competitions for student projects, and also open base of special training courses and departments.

✓ Representatives of IUT became participants in the first meeting of the NEFORMAT 2021 press club, organized by the TIC group of companies, the Chief Administration for Construction of the Tyumen Region, the Gallery of Tyumen Developers, and Kvartirny Vopros, the estate property newspaper. The meeting discussed the personnel issue in the construction industry of the Tyumen region. The participants talked about supply and demand in the labor market, the interaction of educational institutions with employers, the impact of the coronavirus pandemic and the lockdown on the shortage of labor in regional construction, and discussed measures taken to eliminate the shortage of personnel. The university trains specialists for the construction industry according to the levels of higher education as bachelor's, master's, specialist's and postgraduate studies, the number of budget places is increasing every year. The percentage of employment of graduates of the Construction Institute, according to the Pension Fund, is about 85%. Approximately 50% are employed in construction organizations, while 35% are employed in related companies working with construction companies. The curator of the Headquarters of Student Teams of IUT spoke about the successes and points of growth of student construction brigades in the Tyumen region, the results of past years and development prospects.

8 DECENT WORK AND ECONOMIC GROWTH

- ✓ To provide students and graduates with the knowledge and professional competencies they need to achieve success in highly qualified areas, the university launches projects that are an adequate response to the changing external environment:
  -interactive training within the framework of programs that promote the development of social and behavioral skills as classes at the Career School: sessions on business communications and raising the level of business culture, effective and conflict-free teamwork, stress management, social mobility, activity, initiative. Participants receive skills for effective employment, which allows them to increase their competitiveness in the labor market;
  -project activities that allow the shaping and development of cognitive skills: self-development, time management skills, management skills, achieving results, solving non-standard
- ✓ IUT is a platform for holding events that help students navigate labor market trends and decide on their future place of work: the annual Alumni Fair (participants: more than 60 leading enterprises in Western Siberia, more than 1000 students), Company Days (participants: about 20 companies as strategic partners and more than 3,000 students), Job Fair of subsidiaries and organizations of Gazprom PJSC, recruiting sessions and competitive selection for employment in the company, specialized Olympiads, competitions, championships, career-oriented events (excursions to the facilities of industrial partners, participation in the project "Professional training 2.0", business games).

- ✓ Within the framework of the federal project "Promotion of Employment" of the national project "Demography", IUT acts as an educational platform that provides an opportunity for certain categories of citizens (for unemployed, people over 50 years old, women on parental leave) to receive further professional education to acquire the necessary skills and competencies for employment in a new job.
- ✓ For more than three years, IUT has been implementing digital educational content of massive open online courses (MOOCs), virtual labs, simulators and training equipment made in three-dimensional graphics with the maximum imitation of real production processes. In 2021, the number of MOOCs created by the university has doubled. All courses posted on the platform undergo a preliminary examination. Of these, the best ones are selected according to unique topics that meet all the necessary criteria. In 2021, the courses “Wood and Plastic Structures” , “Oil and Gas Wells Overhaul” , “Chemistry and Physics of Polymers” became available to visitors. To date, more than 900 courses from leading Russian universities are presented on the national platform. IUT is included in a cohort of 16 universities that are developers of the Open Education platform.

8 DECENT WORK AND ECONOMIC GROWTH

✓ The largest Russian Internet recruitment company HeadHunter has presented the rating "Top-100 Russian Universities in terms of graduate employment success". The experts analyzed 3.9 million resumes of applicants with higher education presented on the labor market during 2020 - the first half of 2021. The Industrial University of Tyumen is in the top five. The rating was compiled according to the following criteria: the level of salaries that graduates applied for during 2020 - the 1st half of 2021; the proportion of university graduates applying for top management positions; the number of resumes of university graduates in the professional field "Top Management"; the total number of resumes of university graduates. A total of 300 Russian universities with over 3,000 students participated in the ranking (excluding Moscow universities and military educational institutions). The salary expectations of university graduates of different years were analyzed. The experts also considered what proportion of managers and representatives of top management were among the total number of applicants with a diploma from the relevant university.

✓ IUT is actively developing a project aimed at successfully promoting the employment of graduates and organizing practical training for students, a multifunctional service, "Facultetus" as a digital career environment. The service allows you to track the activity of students, graduates and employers in a single multi-university network. The site capabilities create an effective funnel of students and employers, providing digital interaction between graduates and representatives of the business community, regardless of their geographical presence, which greatly increases the chances of graduates to find employment in a competitive environment. Today, more than 6,000 digital profiles of students and graduates of the university, 340 profiles of employers offering more than 1,400 vacancies are registered on the platform.

✓ Representatives of ZapSibNeftekhim (SIBUR) OOO met with IUT students and informed about the development program for young professionals, career opportunities and job prospects. The company traditionally focuses on students who strive to gain additional competencies and participate in various events, in particular, the CASE-IN International Engineering Championship, where SIBUR representatives act as experts.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

16 higher education programs
3 further education programs
3 MOOCs

✓ IUT professors became the first scientists in Russia who presented the methodology for designing and calculating cylindrical gears with arched teeth. The methodology is based on scientific achievements described in 25 Ph.D. theses and 4 doctoral dissertations, and has over 80 copyright certificates and patents. It allows one to calculate gears, taking into account the geometry, operating modes and loading areas, gearing features, finishing with the fatigue characteristics of the material used, while the calculation accuracy complies with state standards (GOST). According to experts, arched gears have a number of fundamental advantages compared to spur, helical and herringbone gears, where arched teeth are more durable. The gears self-align under load and adapt to the inevitable misalignment of the teeth and external load. With non-rigid machine bodies (tractors, locomotives, top drive of drilling rigs, rear axles of cars, drives of pumping units), the durability of gears increases several times. For example, in the heavy duty operation of the top drive of drilling rigs, the probability of failure is 15%, and if arch gears are installed, then the probability of failure drops to 2-3%.

✓ The EG IUT School of Engineering team presented at the IV All-Russian competition of student scientific works on the Arctic topics a project of a gas production system with the introduction of an inverted pump to automatically eliminate the accumulation of water in the well. The work was recognized the best in the section "Production, processing and transportation of hydrocarbon resources in the Arctic". The key difference between the gas production system is that water from the bottom of the production well is not lifted up, but is pumped into the underlying reservoir. This eliminates the need to separate water from surfactants or periodically reduce the diameter of the tubing. Team members said that there are no such systems in gas fields yet. Now the EG IUT School of Engineering team is working on the creation of a test installation, where the guys will test the software that regulates the operation of the system with an inverted pump.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

✓ As part of the defense of their graduation theses, undergraduates of the IUT educational program "Technological solutions for the construction of wells in fields with complex geological and technological conditions for their development" investigated and substantiated the effect of reinforcing additives on the physical and mechanical properties of the formed cement, the development of technologies for limiting and eliminating water inflows in oil wells, and even proposed a solution to the problems of rational use of gas emissions in the Black Sea.

✓ A team of IUT scientists is working on technologies for the production of low-pressure gas from the Cenomanian productive complex. According to researchers, new technologies will increase the country's resource base. IUT researchers have already analyzed the existing technologies for the production of traditional gas for similar mining and geological conditions of the Cenomanian deposit, studied the deep structure of the productive complex in Western Siberia, as well as the nature of its saturation along the height of the deposit based on the analysis of the results of testing the first exploration gas wells deposits. In addition, the basic criteria that need to be based on the development of a new technology are determined. In the near future, the university will start to scientifically substantiate the adopted approach, build a mathematical model, conduct laboratory studies and test hypotheses.

✓ IUT created proprietary technologies for hardening the surface of aluminum parts in ozone-containing solutions, with the imposition of ultrasound and vibration. The new power supply expands the possibilities of technological operations for the formation of hardening coatings on aluminum, whose wear-resistant properties open up great opportunities for scientists.

✓ Professor of the Department of Technosphere Safety of IUT received a patent for the invention of a forced ventilation valve with an air purification function. It can be effectively used in residential and office buildings. The valve is mounted in the outer wall of a multi-storey building between the window opening and the heating radiator. The device has a fixed effective fan that supplies external air to the room. The valve also contains several filters based on safe natural sorbents, in particular crushed shungite rocks and zeolite, a natural crystallized mineral of volcanic origin. Their action is complemented by a thin porous titanium dioxide plate and ultraviolet lamps. It allows to qualitatively purify the supply air and oxidize organic pollutants to safe compounds. The software has already been tested in the testing laboratory of the Sanitary and Epidemiological Supervision.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

- ✓ IUT scientists proposed an innovative development of an environmentally friendly method of handling and disposal of drilling waste to obtain building material and soil. The project was successfully tested with the assistance of an industrial partner of the university and is currently at the stage of commercialization. The study is devoted to the development of drilling waste disposal technology, which is based on a physical and chemical method of waste treatment by introducing natural environmentally friendly components aimed at improving the physical and chemical, water-physical and mechanical properties of the waste, which will reduce the anthropogenic impact on the environment and ecological effect.
- ✓ Teaching Assistant of the Department of Drilling Oil and Gas Wells of IUT presented the best scientific and technical developments of young scientists and specialists at the XI competition of LUKOIL-Engineering LLC, the technology of completion of production wells with horizontal completion (using retrievable liners). The novelty of the technology lies in the mechanism for fixing the liner, which is lowered into the horizontal section of the well, with its possible subsequent extraction without drilling out the packer-anchor system. The result is the development of a secure lock between the latch lock located at the bottom of the casing string and the latch connection of the running liner, in order to install, hang and then retrieve it.
- ✓ IUT took part in the exhibition VUZPROMEXPO-2021, where leading Russian universities and the country's largest industrial companies presented more than 350 scientific and technological developments. IUT scientists presented a pump with a gearbox for the extraction of high-viscosity oils and natural bitumen from marginal wells. The university development has already passed pilot tests. Such a pump will be indispensable for use in all marginal wells that have opened reservoirs with high-viscosity oil.

- ✓ IUT hosted the Transport and transport-technological systems International Scientific and Technical Conference. The conference was attended by representatives of the academic community and industrial partners of the university from 20 cities of Russia, as well as Belarus. The conference participants discussed the results of research work on issues related to the problems of operation and maintenance of transport and technological machines, exchanged research experience in the field of their modernization and technologies of transport processes. About 90 scientific articles are presented for publication in the collection of conference materials. The collection is placed in the Scientific Electronic Library (eLibrary.ru) and included in the Russian Science Citation Index. The reports of representatives from IUT covered changes in the nomenclature of scientific specialties of the Higher Attestation Commission, topics of car tourism, concepts for improving vehicles and other changes taking place in the scientific and educational environment.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

- ✓ The IUT postgraduate project received grant support in the amount of seven million rubles under the Start program of the Innovation Assistance Fund. Young scientists have developed and submitted to the competition technological compositions for well treatment, which will increase the oil recovery factor. The project was selected in the N3 nomination. New materials and chemical technologies. In total, 30 applications were received for the Start-2 competition, of which seven were recommended for funding. New chemical reagents made from domestic raw materials and designed to restore and improve the reservoir properties of reservoirs, minimize corrosion processes, salt deposits of various genesis underground and surface equipment, optimize oil treatment in the fields, maintain high oil recovery factors.
- ✓ As part of the Student Scientific Works Competition in the field of IT, students of the IUT Construction Institute presented about two dozen projects on topics in the relevant industry: Smart Mirror, systems designed for designers and the formation of their individual educational trajectory, a chat bot created for the company Novaya Zemlya and others. Among the interesting ones, noted by the jury of the competition, is the project to develop a software and hardware complex for automobile refrigeration units. The controller the team is working on is designed to monitor and manage multiple transport metrics in refrigeration and heating applications, from food to pharmaceuticals. Another project of Intellectual System for the selection and placement of personnel for construction projects is at the stage of prototype development.
- ✓ As part of the implementation of the technological project of Digital core of the world-class West Siberian Scientific and Educational Center, a youth laboratory was opened at the university. The project of the laboratory for vibration and hydrodynamic modeling passed the examination of the Russian Academy of Sciences and received a conclusion report on the feasibility of financing fundamental research until 2024.

- ✓ IUT joined the National Association of Robotics Market Participants. The university plans to come up with a number of initiatives to improve regulatory documentation, interact more closely with graduate consumer enterprises and update the subject of project activities.
- ✓ In the Yamalo-Nenets Autonomous Okrug, the first and only laboratory of Earth cryology and geotechnical safety in Russia was launched on the basis of the Scientific Center for the Study of the Arctic. Purpose was considered as the adaptation of advanced scientific and technical developments to the conditions of the Far North. Tasks to perform: ensuring geotechnical safety of design; construction and operation of capital facilities and artificial structures located in difficult natural and climatic conditions of the Arctic region. One of the divisions of the laboratory will deal with the issues of geocryology - the study of the parameters of the climatic and physical properties of soils. The second sector, construction is aimed at creating structures for capital construction projects, roads, railways, industrial civil engineering.

10 REDUCED INEQUALITIES

2 higher education programs
1 further education program
2 MOOCs
Inclusive education - 60 students (not given)
10-15 students with disabilities enter annually
over 50 workers with disabilities
45 IUT students entered the TOP-100 best students of Tyumen
65% of first generation students
435 international students from low income countries

✓ Industrial University of Tyumen was recognized as the winner of the regional stage of the Russian Organization of High Social Efficiency All-Russian competition. The university was recognized as the best in two categories at once for the development of social partnership and for shaping a healthy lifestyle in non-production organizations.

✓ 45 representatives of IUT were among the winners of the "Top 100 Best Students of Tyumen" rating. The selection took place on the platform "Future" of the online ecosystem for entrepreneurs we-enter.ru. The participants of the first rating were students of the Industrial University of Tyumen and Tyumen State University, as well as the State Agrarian University of the Northern Trans-Urals.

✓ Within the framework of the federal project "Promotion of Employment" of the national project "Demography", IUT acts as an educational platform that provides an opportunity for certain categories of citizens (for unemployed ones, as well as for people over 50 years old, and women on parental leave) to receive further professional education to acquire the necessary skills and competencies for employment in a new job.

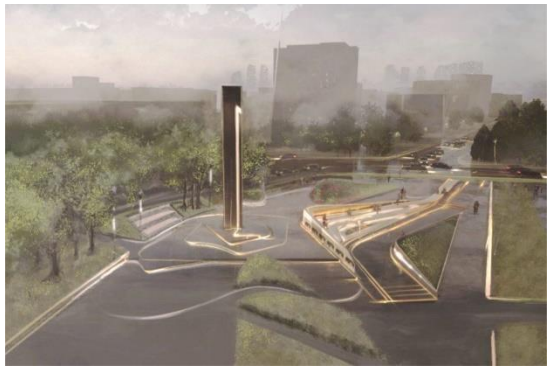
10 REDUCED INEQUALITIES

- ✓ An IUT student won bronze in the World Paralympic Triathlon Series, which took place in Yokohama (Japan). The series was attended by 67 athletes from 20 countries. The program of the competition included swimming at a distance of 750 m, cycling 20 km, running 4980 meters.
- ✓ Industrial University of Tyumen is a university where everyone can realize his potential on an equal footing. Particular attention is paid to the organization and development of an accessible environment for students with disabilities (HIA). There are about 60 students with disabilities in inclusive education at IUT. Every year, 10-15 people with disabilities enter the leading technical university in the region, most of them with somatic disorders and diseases of the musculoskeletal system. For such students, conditions are created that provide unhindered access and stay in classrooms, toilets and other premises. Educational buildings are equipped with call buttons, parking spaces for disabled people and their attendants are provided. All buildings have multimedia classrooms and the Talking City system. For students with disorders of the musculoskeletal system, a specialized computer room with audio and video equipment has been created, the Zodchiy swimming pool, and the stadium of the Polytechnic Department of the MVEI of IUT have been equipped. The library and publishing complex is equipped with special places; there is a Braille display and special software for students with visual impairments. The university provides high-level social and psychological, as well as psychological and pedagogical support for students with disabilities. Each student with a disability is assigned a mentor who helps him throughout the entire period of study. About 50 teachers and employees underwent advanced training under the program "Organizational, Psychological and Pedagogical Principals of Inclusive Education". For five years, the volunteer center of the National Championship in professional skills among the disabled and people with disabilities "Abilimpics" has been operating at IUT. Every year, about 50 university students are trained for the regional stage of the championship.

- ✓ An IUT international student has won the 2021 EEUA Award for My Dream Campus. The annual Internationalization of Higher Education Award (EEUA 2021) is a competition for international university projects. It is awarded to universities for achievements in the field of internationalization of higher education and the active promotion of Russia (CIS) in the world.

11 SUSTAINABLE CITIES AND COMMUNITIES

22 higher education programs
5 further education programs
IUT is included in the Federal Register "All-Russian Book of Honor" for active participation in the social and economic development of the region
over 100 IUT students participated in the urban redevelopment



✓ The project of a 4th year student of the Institute of Architecture and Design of IUT won the competition for the development of a draft design of the City of Labor Valor stele, symbolizing the feat of the Soviet people during the Great Patriotic War. According to the project, the existing parking lot will turn into a territory with green areas, paths and an amphitheater for the rest of the townspeople and guests of the city, for holding patriotic events. The monument will be erected next to the Nikolai Masharov Square, at the intersection of Maurice Thorez and Respubliki streets. The location for the installation of the stele is not accidental as the Machine Tool Plant, which contributed to the victory in the Great Patriotic War, was located nearby.

✓ Professor of the Department of Technosphere Safety of IUT received a patent for the invention of a forced ventilation valve with an air purification function. It can be effectively used in residential and office buildings. The valve is mounted in the outer wall of a multi-storey building between the window opening and the heatin radiator. The device has a fixed effective fan that supplies external air to the room. The valve also contains several filters based on safe natural sorbents, in particular crushed shungite rocks and zeolite, a natural crystallized mineral of volcanic origin. Their action is complemented by a thin porous titanium dioxide plate and ultraviolet lamps. All this allows to qualitatively purify the supply air and oxidize organic pollutants to safe compounds. The software has already been tested in the testing laboratory of the Sanitary and Epidemiological Supervision.

11 SUSTAINABLE CITIES AND COMMUNITIES

✓ Students of the Institute of Architecture and Design of IUT received the prestigious award of the IV All-Russian competition "Ideas that Transform Cities" by presenting a project for the improvement of the old district of Tyumen. The competition, aimed at identifying and supporting talented youth, brought together designers, urbanists, architects and artists from 85 regions of the Russian Federation. The concept for the renovation of the territory provides for the formation of a comfortable public space of one of the most significant urban hubs. It is proposed to locate a public park area there, open to the guest street Yamskaya, connecting it with the Zatyumensky eco-park. A number of small architectural forms and functional locations are also offered from public pavilions with exhibition fragments to open sheds with play venues for city residents. The concept also provides for a new residential area and a business center with an exploitable roof and original landscaping.

✓ The idea of a student of the Tobolsk branch of IUT to create a Mendeleev Park space in Tobolsk was presented at the NeGorod Rural Entrepreneurship Support Forum. The main goal of the forum is to search for new points of investment development in the Tyumen region. It will be an educational and entertainment park with a chemical theme. A huge illuminated fountain is planned in the center. There is a lot of greenery everywhere, gazebos and carousels in the form of molecules of chemical compounds, as well as educational pavilions, laboratories and much more. The conference annually brings together students, scientists and practitioners to talk about promising areas of research and achievements in the field of construction and architecture. About twenty questions were submitted for discussion from the problems of utility infrastructure to the investment attractiveness of the region. The conference was held at four venues, 170 Russian and foreign students from Tyumen, Moscow, Novosibirsk, Nizhny Novgorod, Perm, Ufa, Bishkek (Kyrgyzstan), Pavlodar and Taraz (Kazakhstan) took part in it.

✓ In the Yamalo-Nenets Autonomous Okrug, the first and only laboratory of Earth cryology and geotechnical safety in Russia was launched on the basis of the Scientific Center for the Study of the Arctic with the purpose of adaptation of advanced scientific and technical developments to the conditions of the Far North. Tasks were considered as ensuring geotechnical safety of design; construction and operation of capital facilities and artificial structures located in difficult natural and climatic conditions of the Arctic region. One of the divisions of the laboratory will deal with the issues of geocryology which is the study of the parameters of the climatic and physical properties of soils. The second sector of construction is aimed at creating structures for capital construction projects, roads, railways, industrial civil engineering.

✓ Over a hundred members of IUT student construction teams worked in 2021 for redevelopment in Tyumen, Tobolsk, Salekhard (YaNAO), Dimitrovgrad (Ulyanovsk region), Alushta (Republic of Crimea) and Kursk. The leadership of IUT supports the activities of student teams and for the sixth year in a row provides students with work, allows not only to improve the dormitories and buildings, but also to earn money. On the one hand, the students help the university prepare for the new academic year, on the other hand, they acquire skills in finishing and construction work, and receive their first earnings. Most of them are students of the Construction Institute, of which about 30 are freshmen.

✓ A strategic session of the world-class West Siberian Trans-regional Scientific and Educational Center (SEC) was held at the site of the Industrial University of Tyumen. More than 120 representatives of companies participating in the SEC and universities worked for a week on the Concept of an inter-university campus in the context of the development of the urban environment of the city of Tyumen. The work of the groups was organized in three areas as Campus and Student Environment, Internal Functionality of the University Space and University Open to the City. 18 representatives of IUT took part in the study teams. The result of discussions and consultations with leading federal experts was the concept of an interuniversity campus in the context of the development of the urban environment of the city of Tyumen.

✓ The Industrial University of Tyumen found a solution to improve the efficiency of strip-membrane foundations. To date, with the use of strip-shell foundations, one of the varieties of which are strip-membrane ones, about 23 buildings have been built in the Tyumen region and Yamal. The design was developed by a team of researchers from the Department of Construction Production of IUT. The new type of foundations has a complex configuration as a base convex upwards towards the ground in the span. The design in general form is tape monolithic support contours and a reinforced concrete shell fixed in them. This type of foundation is an alternative to a solid monolithic slab; it reduces the consumption of concrete and reinforcing steel by 50%. Tape-membrane foundations are used in the construction of low and medium-rise buildings. For high-rise buildings (above 20 floors), a strip thin-walled shell foundation or a combined pile foundation with a shell grillage is used. The development is protected by a patent owned by IUT.

11 SUSTAINABLE CITIES AND COMMUNITIES

✓ Scientists from the Industrial University of Tyumen proposed a new constructive solution for the construction of highways on permafrost soils. The development, according to the researchers, will be relevant for all areas of permafrost, and this is 60-65% of the territory of Russia. Every year in the summer, the suprapermafrost layer defrosts here, which freezes in winter and thaws to a constant depth in summer. During thawing, the base is deformed and the roadbed sags. The proposed solution makes it possible to stabilize the base of the subgrade, that is, to keep it in a frozen state at any time of the year. To do this, it was decided to wrap a heat-insulating material with a roller, which contributes to the preservation of permafrost in the base of the road and reduces the number of deformations that occur during thawing. Due to this, the overhaul life of the road and the economic effect increase by 2-3 times. As a roller, a waterproof big bag is used, stuffed with granular heat-insulating material (diatomite was used in laboratory conditions). The closest analogue of the solution is a construction in which the wrapping material is anchored into the frozen ground with metal.

✓ The team of the IUT Institute of Architecture and Design won the Arch-Idea 2021 competitive and educational program, which took place as part of the 100+ TechnoBuild International Exhibition Forum in Yekaterinburg. Together with teams from the Ural capital and other regions, young IUT architects presented concepts for the improvement of the territory of the Nizhny-Isetsky pond in Yekaterinburg. The main objective of the Arch-Idea program is the development of architectural concepts for the territories of Yekaterinburg and the detailed planning of the city's comfortable environment. During the development of the project, the IUT team did a lot of work to analyze the current situation, identify functional areas, and specify their thematic field. The result was the idea of creating a metaphorical path for the Nizhny-Isetsky corridor. It connects two historically important areas at opposite ends of the pond as Plotina and Uktus. The students also put into the project a bright idea that has historical roots to arrange on this territory a non-trivial objet d'art of an Airship. The idea of a new dominant came up from an historical event as once a real airship actually landed in this place.

✓ Industrial University of Tyumen is included in the Federal Register "All-Russian Book of Honor" in 2021. The university received a standard certificate and a certificate for active participation in the social and economic development of the region and inclusion in the Federal Register based on the recommendation of the Government of the Tyumen Region. The inclusion of IUT in the Federal Register means recognition of its exceptional importance for the development of the Tyumen region at the level of state and municipal executive authorities, confirms its business and public reputation.

✓ A group of researchers led by a teaching assistant at the Department of Motor Transport Operations at IUT developed the Tyumen Tram 2030 project, which was presented at the PTV Express competition and brought the developers a victory, as well as a prize of €7,500. As part of the project activities and the educational process, students of the Transport Institute of IUT at the micro level created two traffic models on the section of Respubliki Street in Tyumen. They also assessed the changes in traffic parameters during the implementation of the plans of the Program for the Comprehensive Development of the Transport Infrastructure of the City of Tyumen until 2040 to introduce tram routes. The creation of main (including tram) and bringing public transport routes is a modern approach to the development of the route network in cities. As part of the study, algorithms for adaptive control of traffic light facilities were developed, and with the help of simulation models, a reduction in time delays during movement was calculated. For individual transport, travel time will decrease by 27% (compared to 2021), and for public transport by 59%. The study applied traffic modeling using four PTV software products for macro-level traffic forecasting, micro-modeling, ITS performance modeling, traffic signaling, and pedestrian traffic.

✓ The Industrial University of Tyumen has developed an individual project for a new, side interchangeable type for a road junction. The invention significantly improves the throughput of the intersection and can be used in the design of highway intersections with 2-8 lanes. The project was originally designed for the intersection of Shirotnaya and Montazhnikov streets in Tyumen. To turn direct traffic flows, the structure rises roughly to the second floor, and the change of sides is carried out using several exits. When driving straight on the main street, the sides change with an offset to the left for an unhindered left-hand maneuver. Compared to typical road interchanges, the number of conflict points (places where a car is likely to collide) has been reduced by about 20%. The project is designed to be as cost-effective as possible, and during its implementation there is no need to demolish the surrounding buildings and structures. Interchange construction costs are also reduced by the short ramp lengths. The solution of the new transport interchange was patented by IUT, the project was presented to the Mostostroy-11 company.

11 higher education programs
1 secondary vocational education program
1 further education program
2 MOOCs

✓ At the first meeting of the Expert Council of the Startup as a Diploma program, IUT students presented a project for the construction of a poultry waste processing plant, after which they met with the management of Borovskaya Poultry Farm PJSC. The purpose of the meeting was to consider various options for strategic cooperation in the preparation of an investment project. The team members presented their hypothesis for launching a poultry waste recycling plant to reduce environmental risks in the region. The chief engineer of the factory shared his experience in solving the problem raised. The management of the poultry farm expressed its readiness to support innovative ideas and experiments aimed at eliminating environmental pollution factors. As a result of the meeting, a cooperation plan was developed for the implementation of the project at the production site of Borovskaya Poultry Farm PJSC.

✓ IUT scientists proposed an innovative development of an environmentally friendly method of handling and disposal of drilling waste to obtain building material and soil. The project was successfully tested with the assistance of an industrial partner of the university and is currently at the stage of commercialization. The study is devoted to the development of drilling waste disposal technology, which is based on a physical and chemical method of waste treatment by introducing natural environmentally friendly components aimed at improving the physical and chemical, water-physical and mechanical properties of the waste, which will reduce the anthropogenic impact on the environment and ecological effect.

✓ Students of the Industrial University of Tyumen and Tyumen State University (Russia), Kokshetau University named after Shokan Ualikhanov NCJSC (Kazakhstan) and the Kyrgyz State University of Transport Construction and Architecture (Kyrgyzstan) were trained at the I International Summer School "Ecoengineering", which was held at the IUT site. The main point of the program was the joint work with the teachers of the Department of Technospheric Safety of IUT on scientific projects devoted to the most relevent modern environmental problems. Participants from Kyrgyzstan developed a project for the recycling of wastewater, and environmentalists from Kazakhstan proposed to introduce a network of eco-restaurants of GREEN KITCHEN. Tyumen students from IUT and Tyumen State University generated ideas for setting up a plant for collecting organic waste and plastic containers.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

- ✓ Scientists from the Industrial University of Tyumen have developed a technology for obtaining nano- and microdispersed iron-containing powder from groundwater treatment waste. It can be used in the mining industry to reduce the cost of oil production. At least 70 percent of the target component can be obtained from the waste of the Tyumen water purification process in its pure form. This is due to the special hydrogeological composition of groundwater: part of the Tyumen region, Yugra, Yamal, Tomsk, Omsk, Novosibirsk are located on the vast Vasyugan swamps. Groundwater is shallow and contains a lot of iron in various compounds. The technology for producing iron-containing powder includes several steps. First, contaminated water from water treatment plants is settled or driven through a system of cyclones. It is then passed through a press filter, resulting in a rust-colored powder that looks like wet flour. Further, a high-temperature gas-dynamic installation is included in the work, however, it is possible to work with a static layer at temperatures from 350 to 900 degrees. The smallest iron-containing particles, similar to those obtained using this technology, are successfully used today for magnetic non-destructive testing, and in total, researchers have identified about a dozen areas of their use. The powder can be used in 3D printers that print metal products, produce LFP batteries (lithium iron phosphate) and other useful things based on it.
- ✓ An IUT Master' s Degree student became the winner of X Science Slam with the project "Dirty Breaking: About Waste Recycling" , dedicated to the culture of recycling and disposal of municipal solid waste and the use of the same waste as a secondary energy source (biogas). As a solution to the problem with municipal solid waste, the researcher proposes to build a waste processing plant directly on site, thereby eliminating transportation to landfills or factories, and receive environmentally friendly biogas fuel in the process of processing. The unit is used for heat supply of low-rise buildings.

- ✓ In 2021, IUT approved the University's Social Responsibility Program, which reflects measures to minimize the use of plastic items and disposable tableware. By the end of 2023, the share of plastic packaging in the total amount of disposable tableware used at the university will be reduced by 10%.
- ✓ IUT holds annual campaigns to collect waste paper for further processing.
- ✓ Volunteers of the Ecoprosvet team took part in the EcoHelp urban environmental hackathon at the Quantorium-Tobolsk technopark. Project teams of schoolchildren aged 11–17, consisting of three to five people, were invited to participate. The participants were offered project topics as follows: "Biofuel for cars", "Recycling", "Studying the environment with the help of various technical means", "Ecodesign" and "Ecomathematics". Kvantorium-Tobolsk the children's technopark held for the second time an ecological hackathon "EcoHelp", which was attended by pupils of the technopark, schoolchildren of schools in the city of Tobolsk. In total, 14 projects were presented at the hackathon, among which was the project "Ecology - the future of the fuel industry" from the Tobolsk Industrial Institute.

13 CLIMATE ACTION

7 higher education programs
2 further education programs

✓ The IUT Polymers team took the 3rd place in the Autumn Cup of the IX season of the CASE-IN International Engineering Championship. The IUT team has been distinguished among 85 students from 23 universities in 18 regions of Russia and the Republic of Belarus. The students had to propose new measures to reduce emissions of air pollutants for enterprises operating in permafrost conditions. The Polymers team from IITE from IUT has developed a technology for capturing carbon dioxide from atmospheric air with its further processing into diamonds. IUT students received the right to enter postgraduate and master's programs at 20 partner universities on preferential terms.

✓ Bookcrossing zones are organized in the buildings of IUT; these are the specialized venues where everyone can take a book. Bookcrossing is not just a desire to share an interesting book, it is also a dream to turn the world into a huge free library.

✓ Eco-boxes for separate collection of waste were created in the buildings of IUT.

14 LIFE BELOW WATER

3 higher education programs

✓ The EG IUT School of Engineering team submitted a design for a gas production system with an inverted pump to automatically eliminate water accumulation in the well. The work was approved as the best in the section of Production, processing and transportation of hydrocarbon resources in the Arctic. The key difference between the gas production system is that water from the bottom of the production well is not lifted up, but is pumped into the underlying reservoir. This eliminates the need to separate water from surfactants or periodically reduce the diameter of the tubing. Team members said that there are no such systems in gas fields yet. Now the EG IUT School of Engineering team is working on the creation of a test installation, where the students will test the software that regulates the operation of the system with an inverted pump.

✓ In 2021, IUT hosted the XXII National Scientific and Practical Conference of Water resources as the basis of global and regional projects for the development of Russia, Siberia and the Arctic in the XXI century with international participation. The event was attended by representatives of the scientific community from the Center for the Study of Glaciers of the National Academy of Sciences of Tajikistan and the Tajik Technical University named after academician M. S. Osimi, Hamburg University, Kyrgyz State University of Construction, Transport and Architecture named after N. Isanov, as well as scientists from Russian universities from Moscow, Krasnoyarsk, Omsk, Yakutsk and other cities. Over two days, the participants presented more than 130 reports in six sections offline and online. Topics of reports are as follows: results of the agreement on improving the quality of the water supply and sanitation system in Tyumen and the Tyumen region; the concept of development of ecological safety of the coastal zone of water bodies; influence of light and melatonin on diurnal and seasonal physiological changes in Arctic conditions; the influence of demography on the productive forces of the region, their interconnection and interdependence. Within each section, a competition was held among students for the best scientific report. A group of young scientists from IUT worked on solving the problem of eliminating harmful and foul-smelling industrial waste gases at the section of Water: Problems and Solutions.

15 LIFE ON LAND

1 secondary vocational education program
3 further education programs
1 MOOCs

- ✓ Six students from the Adrenaline team of the Industrial University of Tyumen as part of the Tyumen regional branch of the All-Russian Student Rescue Corps (ARSRC) in 2021 provided assistance in fighting fire to professional firefighters, representatives of the Ministry of the Russian Federation for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters and the Federal Forest Protection Service. The composition of the consolidated grouping of the ARSRC includes 24 volunteers from Tyumen, Yekaterinburg, Moscow and Omsk. The team has extensive experience in emergency situations; each volunteer has received special training and is a certified lifeguard.
- ✓ IUT and McDonald's jointly organized the Clean Victory eco-run. The event is held as part of the all-Russian environmental campaign #MyEcoDay, aimed at popularizing care for the environment and separate waste collection.
- ✓ Students of the Industrial University of Tyumen and Tyumen State University (Russia), Kokshetau University named after Shokan Ualikhanov NCJSC (Kazakhstan) and the Kyrgyz State University of Transport Construction and Architecture (Kyrgyzstan) were trained at the I International Summer School "Ecoengineering", which was held at the IUT site. The main point of the program was the joint work with the teachers of the Department of Technospheric Safety of IUT on scientific projects devoted to the most relevant modern environmental problems. Participants from Kyrgyzstan developed a project for the recycling of wastewater, and environmentalists from Kazakhstan proposed to introduce a network of eco-restaurants of GREEN KITCHEN. Tyumen students from IUT and Tyumen State University generated ideas for setting up a plant for collecting organic waste and plastic containers.
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- ✓ IUT students annually take part in city youth volunteer clean-up in Tyumen, Noyabrsk, Nizhnevartovsk, Tobolsk.
- ✓ IUT students annually take part in environmental campaigns. 12 IUT students took part in the action "Save the Forest". Also, students took part in the actions "My EcoDay", the quest "Forest Mania", "Alley of Big Changes", "1000 Trees", "Water of Russia". As part of the last 50 students of IUT participated in the cleaning of coastal facilities from debris.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

6 higher education programs
1 further education program
over 3000 students participating in preventive lectures
150 teachers

✓ As part of the School of Parliamentarism, an educational project implemented by the Tyumen regional branch of the All-Russian public organization of Young Guards of United Russia, the Deputy Governor of the Tyumen Region gave a lecture to students of the Industrial University of Tyumen. At the meeting, the government representative spoke about the implementation of the national project of Digital Economy of the Russian Federation and regional projects as Information Infrastructure, Personnel for the Digital Economy, Information Security, Digital Technologies, Digital Public Administration. The representative of state authorities paid special attention to the implementation of the project of Unified card of the resident of the Tyumen region. The card is integrated into the Mir Russian national payment system, and data from other documents will be recorded on it. The implementation of the project will help the regional government to monitor the development of the economy in the Tyumen region. At the end of the lecture, the meeting participants asked the speaker questions about the safety of the impact of 5G technology on human health and living organisms, the government's actions to protect the population from environmental damage, and they were also interested in the impact of artificial intelligence on education.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

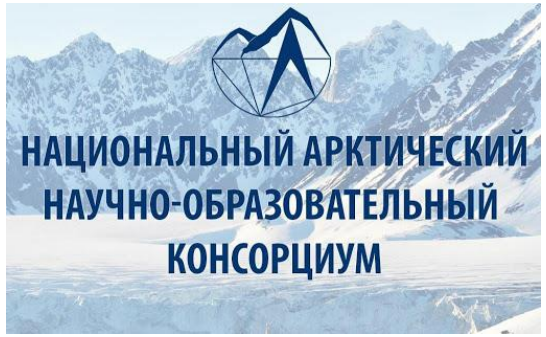
✓ IUT students discussed measures to prevent extremism at the Together Discussion Platform, which was organized by the Coordinating Council of National Associations of the Tyumen Region. Representatives of the prosecutor's office, the police, and the committee for nationalities, religious organizations and national-cultural associations said that it is young people who are often the main target of the activities of underground leaders. This also applies to the ideologists of religious intolerance, nationalism, and destructive political ideologies. Preachers of extremism are looking for new followers in educational institutions, social networks, mosques, and sports clubs. It is important not to lose focus and remain vigilant, to act on the principle as consider deeds, and do not perceive the words. It is quite difficult to place a person who has joined an extremist movement back to a normal society.

✓ Rector of IUT Veronika Efremova took part in a meeting of the public council of the federal party project of Growth Drivers in the Tyumen region and made a report on the training of highly demanded and qualified specialists for the engineering industry. The topic of the meeting: "Problems and prospects for the development of the machine-building industry and the enterprise of IAPh SibNA JSC. In her speech, the rector of IUT noted that today the university is training bachelors in mechanical engineering in such areas as Production, repair and operation technologies in mechanical engineering, Innovation management in mechanical engineering, Computer-aided design systems, Robotics and flexible production modules, Automation of technological processes and production, Materials science and technology of materials. Also, a number of master's programs are being implemented at the university in the engineering profile. At the request of enterprises, the Institute of Further and Distance Education of IUT conducts training in the industrial worker jobs as Machine operator of a wide profile and CNC machine operator.

✓ Employees of the IUT corporate security department held a series of meetings with university students. More than 250 students received information about the historical roots and legal basis for combating corruption in the Russian Federation, about measures taken in accordance with federal legislation at the Industrial University of Tyumen.

17 PARTNERSHIPS FOR THE GOALS

3 higher education programs
over 10 partnership agreements
over 1200 students participating in the Company Days project



- ✓ The rector of IUT took part in the meeting of the Council of the National Arctic Scientific and Educational Consortium (NASEC). In total, over 30 delegates from the leading universities of the country took part in the meeting. Issues discussed: about the scientific and educational center "Russian Arctic: new materials, technologies and research methods"; on the results of the work of the Association "National Arctic Research and Education Consortium" in 2020 and on the community development roadmap for 2021; on the financial plan of the NASEC Association for the current year.
- ✓ IUT and Almaz-Antey JSC, group of companies of aerospace defense, signed a cooperation agreement. The agreement between the university and the Almaz-Antey JSC reveals the possibilities of cooperation in the field of application of the results of the research activities of the university, as well as technical, innovative, information-analytical, expert activities.
- ✓ IUT and the West Siberian branch of Sberbank PJSC signed the Green Memorandum. The document defines the main directions and formats of interaction between participants in the field of increasing the environmental culture of the population, financial and digital literacy, conducting environmental reviews of programs and projects, and taking measures to develop environmental education and upbringing. The memorandum is aimed at the joint development of programs and projects in the field of nature management and environmental safety, the implementation of practical steps to form and support eco-projects, the introduction of best practices in the field of sustainable development in business processes.

- ✓ IUT and the Tyumen regional branch of OPORA RUSSIA signed a cooperation agreement. The main goal of cooperation is to increase entrepreneurial activity in the field of scientific, technical and innovative activities, support youth initiatives in the field of entrepreneurship and employment of university students. Areas of cooperation are as follows: creating conditions for the formation of students' competencies in the field of entrepreneurial activity; promoting the development of innovative and technological entrepreneurship; strengthening mechanisms for the protection of intellectual property.
- ✓ IUT and Noyabrskenergoneft LLC entered into a cooperation agreement. Areas of cooperation are as follows: the opportunity for students to visit the production facilities of the enterprise; selection for targeted training; employment and passing all types of practices; advising on the preparation of course and final qualifying works; participation of employees of the enterprise in the development and preparation of curricula and work programs of educational courses; assistance in the implementation of research work; professional retraining and advanced training; postgraduate and doctoral studies at the university.

17 PARTNERSHIPS FOR THE GOALS

- ✓ IUT and ELION-Tyumen LLC became partners in the training of engineering personnel. Areas of cooperation are as follows: creation of a specialized laboratory; participation in the work of the state examination commission; conducting excursions to the enterprise and Company Days at IUT; employment of graduates of specialized areas of training as Petroleum Engineering, Management in technical systems, Information systems and technologies, Technospheric security.
- ✓ Industrial University of Tyumen and the SITRONICS Group of Companies signed an agreement on the establishment of a joint Competence Center at the university as a technological educational and research cluster for the development of digital technologies. As part of the agreement, IUT will provide training for unique specialists in the fields of Information Systems and Technologies and Software Engineering based on project-based learning. The Competence Center being created at the university at the request of the SITRONICS group of companies will provide qualified personnel for participation in the implementation of joint projects.
- ✓ The platform of Russia as a country of opportunities and IUT signed an agreement on cooperation and interaction. Objectives of cooperation are as follows: to build a uniform approach to the organization of personal and professional diagnostics of participants in competitions and projects of the Russia as the Land of Opportunities ANCO in Russian universities; provide support for career for participants in competitions and projects; ensure the development of practice-oriented education aimed at the formation of business competencies among students; to implement the concept of a single point of entry for the projects of Russia as the Land of Opportunities ANCO at Russian universities.

- ✓ The Industrial University of Tyumen and Scientific and Information Company Innovations of the Fuel and Energy Complex LLC signed an agreement on cooperation in the field of education, science and innovation. Priority areas of cooperation: support for promising innovative projects; organization of internships for university students; joint implementation of research work in the field of software development; promotion of innovative developments in various branches of economic activity on the territory of the Tyumen region and the Russian Federation, as well as the CIS countries.
- ✓ In 2021, new agreements were updated/signed with: Adamson University (Philippines), Belarusian National Technical University (Belarus), Kyrgyz State University of Construction, Transport and Architecture named after N. Isanov (Kyrgystan), Shenyang University of Technology (China), Beijing University of Civil Engineering and Architecture (China).
- ✓ Industrial University of Tyumen became a resident of the Telecommunication Technologies Autonomous Non-Commercial Organization for Assistance in the Development of Digital Infrastructure ANCO TT, a consortium formed by Rostelecom PJSC, the Rostech State Corporation and the Element Group of Companies. The agreement was signed as part of the digital transformation of the university.

17 PARTNERSHIPS FOR THE GOALS

- ✓ IUT signed a cooperation agreement with Kreativ LLC. The company is engaged in the development and implementation of web applications. Areas of cooperation: organizing and conducting practical training of students at the sites of the enterprise; employment of graduates; participation of company representatives in the educational process; conducting joint research work; holding social and cultural events and PR campaigns. It is assumed that the university will carry out work on the requests of Kreativ LLC, and the company will take part in improving the material and technical base of the university. As part of practical training, students will be able to get to know the real work of Kreativ LLC, test their knowledge, and improve soft-skills, as well as learn how to work in a team, present a project, conduct it in accordance with the standards of modern production, and evaluate the advantages and disadvantages of their activities. Working with the experts of Kreativ LLC opens up new prospects for students in the labor market. The experience that company representatives can share can give them a clear idea of how the current players in the rapidly developing IT technology market work from the inside even before graduation. In addition, students will have the opportunity to practice, together with a team of professionals, to bring the idea to the final product.

- ✓ IUT signed a cooperation agreement with Shenyang University of Technology (China). The agreement was concluded in order to promote comprehensive exchange and high-level cooperation in the field of science and technology, culture, education, training, as well as to promote joint and mutual contacts and exchanges of talents, technologies, projects, resources.
- ✓ In IUT, within the framework of cooperation on the employment of graduates, Days of companies are held. Partner companies are as follows: Schlumberger (340 students), Gazprom Neft PJSC (200 students), RN-Yuganskneftegaz LLC (192 students), Sberbank PJSC (170 students), LUKOIL-Western Siberia LLC (90 students), ZapSibNeftekhim LLC (60 students), ARS-Prom LLC (60 students), JSC Rosgeologia (52 students), Branch of Lukoil-Engineering - KogalymNIPIneft LLC (32 students), Integra-Services LLC (30 students).
- ✓ IUT and the Federal Center for Neurosurgery of the Ministry of Health of the Russian Federation continue to cooperate on the creation of innovative software for neurosurgical systems and technologies.

- ✓ IUT became one of 39 members of the Digital Universities consortium. One of the main tasks of the association is the development of uniform technological standards for the IT infrastructure and digital university services with the further formation of a market for IT solutions for higher education.
- ✓ IUT continues to interact with Gazprom PJSC. Together with the company, the university is working on innovative projects, is engaged in socially significant activities, and transforms the educational space, developing partnerships in achieving the planned strategic goals.

17 PARTNERSHIPS FOR THE GOALS

✓ Within the framework of the St. Petersburg International Economic Forum, a working meeting was held for rectors of universities that train personnel for key sectors of the economy and industry of the Russian Federation. Goals: establishment and development of a network of educational, scientific and innovative, international, information and analytical, industry and youth cooperation within the framework of medium-term development programs for universities on a bilateral and multilateral basis; detailed study of possible areas of cooperation; preparation of draft framework agreements between educational institutions.

✓ IUT joined the Consortium of Network Electronic Libraries (NEL). The activities of the consortium are connected with the creation of a single fund of electronic educational and scientific literature for higher education, which is hosted on the Lan ELS platform. It currently contains 38,000 publications from 295 participating universities. Within the framework of the project, the participating universities place the literature published by the university on one platform and get access to the books of other members of the NEL consortium. Due to the interaction, a single fund of educational and scientific literature is formed in all disciplines and areas of training. The platform combined the content of previously created industry-specific NEL; these are network projects with agricultural, technical, pedagogical, medical literature, books on culture and art, textbooks on economics, management, law, physical culture and sports.

✓ Young ecologists from Russia, Kyrgyzstan and Kazakhstan were trained at the IUT site at the 1st International Summer School “Ecoengineering” . For six days, the participants had the opportunity to attend the lectures and ask questions to leading scientists from Russia, Kazakhstan, Poland and Slovenia. Master classes and excursions were organized for the students. The Tyumen waste sorting plant turned into a scientific and educational platform for one day, where the participants learned how the plant works, looked at the production building and auxiliary facilities. This knowledge will help students prepare real projects. The main point of the program was the joint work with the teachers of the Department of Technospheric Safety of IUT on scientific projects devoted to the most relevant modern environmental problems.

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