



NATIONAL RESEARCH TOMSK POLYTECHNIC UNIVERSITY

P. Chubik
Rector

2019

TPU Historical Background



- TPU was founded as Tomsk Technological Institute on **April 29 (May 11, new style) 1896** by the Decree of the Russian Emperor Nicholas II
- TPU was opened on **December 6 (18), 1900** as Tomsk Technological Institute of Emperor Nicholas II
- Lectures started on **October 9 (21), 1900**
- TPU served as the basis for more than three dozens of universities, academic and regional research institutes established in Novosibirsk, Krasnoyarsk, Omsk, Kemerovo, Irkutsk, Barnaul, Novokuznetsk, Tomsk and other cities of the country

TPU Achievements



- **1940** – order of the Red Banner of Labor
- **1953** – commissioning of a **television broadcast center**, the first behind the Urals (fifth in the country)
- **1965** – start-up of **synchrotron** SIRIUS being the largest in the country (1.5 GeV)
- **1967** – launch of a research nuclear **reactor**, the second in the USSR and the only one behind the Urals
- **1971** – order of the October Revolution

TPU Achievements



5100



- **1997** – inclusion of TPU into the List of the Most Valuable Objects of Cultural Heritage of the Peoples of the Russian Federation under the Decree of the RF President
- **2009** – awarded category «National Research Tomsk Polytechnic University»
- **2013** – winner of the competition on Competitiveness Enhancement of the Leading Russian Universities among Global Leading Research and Education Centers
- **2005, 2016** – winner of the RF Government Award in the Field of Quality

Among 180 000 graduates:



M.A. Usov

(1883–1939)

Academician of the USSR AS.
Graduated in 1908.



M.L. Mil

(1909–1970)

Outstanding aircraft designer.
TPI student from 1925 to 1928.



N.I. Kamov

(1902–1973)

Founder of Russian helicopter
engineering. Graduated in 1923.

N.V. Nikitin

(1907–1973)

Designer and constructor of Ostankino
TV tower, high-rise buildings of MSU
and a number of other constructions.
Graduated in 1930.



K.I. Satpaev

(1899–1964)

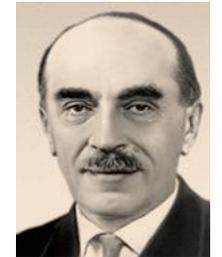
Academician of the USSR AS.
Founder and the first president of
Kazakhstan AS. Graduated in 1926.



N.N. Semenov

(1896–1986)

Academician of the USSR AS. Nobel Prize
winner in chemical kinetics.
Post-graduate student from 1918 to 1920.



International Rankings



5th in Russia after MSU, MIPT, HSE, MEPhI



11th in Russia after MSU, SPbU, NSU, BMSTU, TSU, MIPT, MGIMO, MEPhI, HSE



10-12th in Russia together with HSE and SPbU after MSU, SPbU, MIPT, NSU, TSU, UrFU, ITMO, KFU, MISIS



New Moscow International University Ranking The Three University Missions

8th in Russia after MSU, SPbU, MIPT, HSE, MEPhI, NSU



Engineering and technology **201-250**

2nd in Russia after MSU



Engineering & Technology **277**

9th in Russia after MSU, NSU, SPbU, MIPT, SPbU, BMSTU, MGIMO, ITMO, MISIS

Chemical Engineering **201-250**

2nd in Russia after NSU



position in the world by subject **Mechanical Engineering** **76-100**

The **one and only** Russian university in this subject area

TPU Campus

TOTAL AREA – 329, 000 m²



29
university buildings



15
hostels



Science Park



8, 424 m² of sports facilities



International Culture Center



7, 500
computers



200
Wi-Fi zones



15
NGOs



TPU Library containing over
2.6 mln books



9
sports clubs



400-meter-long
athletic facility of the
Olympic standard



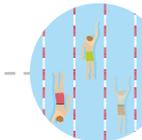
skiing lodge



artificial football
pitch



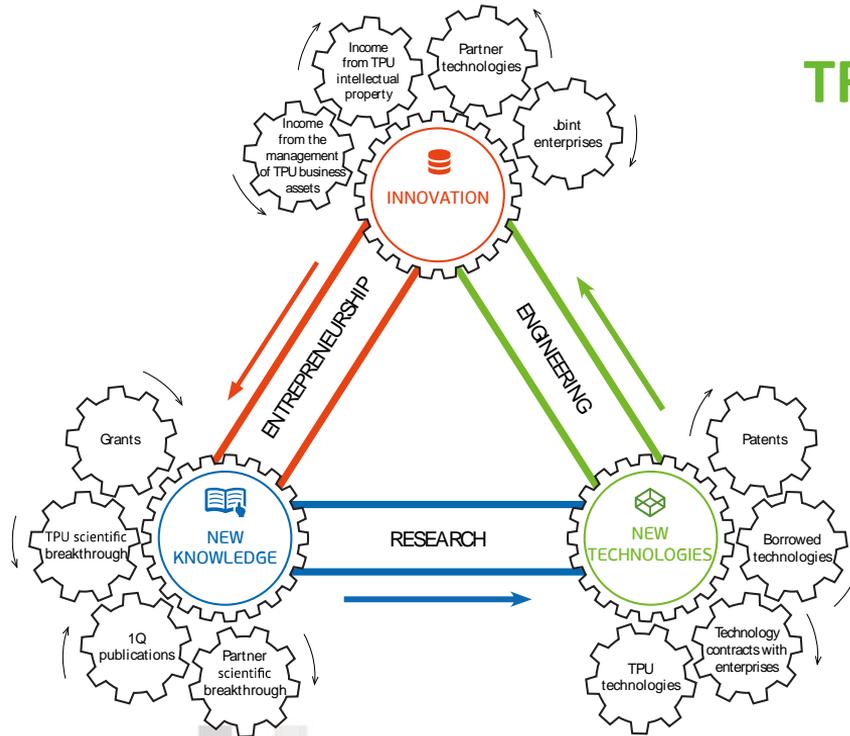
rock climbing facility



25- meter
swimming pool



TRIANGLE OF INNOVATIONS



- unique integrated approach to research, engineering and entrepreneurship
- focus on Asia thus ensuring innovations and training of engineering and scientific elite
- equidistance from geographical centers of Russia, Asia and Eurasia



School of Core Engineering Education

7 subdivisions: Mathematics & Computer Sciences, Natural Sciences, Social Sciences & Humanities, General Technical Subjects, Foreign Languages, Russian Language, Physical Education



School of Nuclear Science & Engineering

- Division for Nuclear-Fuel Cycle
- Division for Experimental Physics
- The Weinberg Research Center



School of Non-Destructive Testing & Security

- Division for Electronic Engineering
- Division for Control and Diagnostics



School of Computer Science & Robotics

- Division for Information Technology
- Division for Automation and Robotics



Research School of Chemistry & Applied Biomedical Sciences



School of Engineering Entrepreneurship



School of Energy & Power Engineering

- Division for Power and Electrical Engineering
- The Butakov Research Center



School of Earth Sciences & Engineering

- Division for Geology
- Division for Oil and Gas Engineering
- Division for Chemical Engineering



School of Advanced Manufacturing Technologies

- Division for Materials Science
- The Kizhner Research Center



Research School of High Energy Physics

Education

12169 – Students
875 – Post-graduates
256 – Doctors of Science
1045 – Candidates of Science

Cohort

31 – Bachelor and Specialist
Degree programs
36 – Master Programs
21 – Post-Graduate

Educational programs



387

professional
development programs



41

professional
retraining programs



1,000

e-courses

NETWORK BACHELOR'S PROGRAMS

- 8 programs (158 students)

PROGRAMS IN ENGLISH

- 10 master's programs (183 students)
- 1 specialist's degree program (19 students)

NETWORK PROGRAMS AND DOUBLE DEGREE PROGRAMS

- 16 network master's programs (10– with international partner universities)
- 12 partner organizations, 9 international
- 223 students

NETWORK MASTER'S PROGRAMS IMPLEMENTED WITH INTERNATIONAL PARTNER UNIVERSITIES:

- Heriot-Watt University
- University of Bourgogne-Franche-Comté
- University Grenoble Alpes
- Technical University of Munich
- Anhalt University of Applied Sciences
- Aachen University of Applied Sciences
- Czech Technical University in Prague
- Al-Farabi Kazakh National University
- Almaty University of Power Engineering and Telecommunications
- Karaganda State Technical University

Export of Educational Services

2, 601 students from **7** CIS countries

- 1, 852** – Kazakhstan
- 567** – Uzbekistan
- 98** – Kyrgyzstan
- 52** – Tajikistan
- 23** – Turkmenistan
- 8** – Ukraine
- 1** – Azerbaijan

1, 172 students from **33** non-CIS countries

- 491** – bachelors, specialists and masters
- 68** – post-graduates
- 231** – pre-university courses
- 382** – academic exchange programs

In **2018** TPU awarded diplomas to **725** - international students, including to **197** students from non-CIS countries: **130** bachelors, **1** specialist and **66** masters

Academic Mobility

Outgoing:

- In 2018, **372** TPU students received training (internship) in **176** universities and companies of **27** countries worldwide



Incoming:

- In 2018, **346** students from **38** partner universities from **17** countries received training (internship) at TPU



Laboratories under the supervision of foreign scientists

The following International Research and Educational Laboratories were established in frame of successful proposals following the RF Government Decree No. 220 on the Measure to Attract the Leading Scientists to Russian Institutions of Higher Professional Education:

2010	2013
 <p>Tomsk Open Laboratory for Material Inspection research supervisor <i>Prof. Hans-Michael Kröning (Germany)</i></p>	 <p>Arctic Sea's Carbon Research International Lab research supervisor <i>Prof. Igor Semiletov (USA)</i></p>
 <p>Laboratory of Hydrogen Power Engineering Technologies research supervisor <i>Prof. Thorsteinn Ingi Sigfusson (Iceland)</i></p>	 <p>Elderly People's Well-Being Improvement Technologies International Lab research supervisor <i>Prof. Fabio Casati (Italy)</i></p>

- **Laboratory of X-ray Optics** was established together with the National Academy of Sciences of Armenia (research supervisor A. Mkrtchyan, Armenia)
- **Laboratory of Thermosetting Polymers** established together with SIBUR-Holding as part of Research and Educational Center KHIMTECH (research supervisor Francis Verpoort, Belgium)

TPU Mega-Platforms

Science Park



Tomsk RASA
Center



Space
Technology
Center



Center of 3D-printing
In Space



Center of Resource Efficient
Subsurface Use



Metrology Center



Laboratory of Industrial
Robotics



Center of collective use Composition of
Substances and Materials

Center for Geological Training in Khakassia



Research Nuclear Reactor



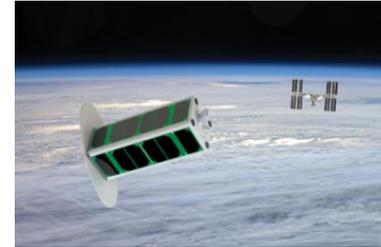
THE EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH (CERN)

- TPU takes part in 4 major experiments within CERN
- TPU researchers commissioned by CERN to develop the following:
 - The newest methods of diagnostics and management of proton beams in the Large Hadron Collider (in collaboration with international teams of researchers)
 - Diamond and sapphire radiation-resistant detectors
- In 2018, the first master's thesis analyzing experimental data obtained from the Large Hadron Collider was developed in TPU



INTERNATIONAL SPACE STATION (ISS)

- Tomsk-TPU-120 satellite was designed and launched from the ISS to the outer space. It is the first Russian spacecraft designed using 3D-technologies and unique materials
- The first Russian 3D printer operating in zero-gravity conditions was developed (Long-Term Program of Scientific and Applied Studies and Experiments planned in the Russian segment of the ISS)
- Unique multilayer nanocomposite coatings for portholes of the Russian segment of the ISS as part of the large-scale space experiment Peresvet



- TPU is a member of **9** international associations and consortiums, including **CESAER** (Conference of European Schools for Advanced Engineering Education and Research), **CLUSTER** (Consortium of Leading European and Asian Technical Universities)
- TPU is a participant of the **BRICS Network University**
- Sino-Russian Think Tank in the framework of One Belt and One Road Initiative established at TPU jointly with the Chinese Academy of Science and Technology for Development (CASTED). Its strategic goal is to assess the social and economic impact of engineering solutions

CESAER

conference of european schools
for advanced engineering education
and research



International Recognition

- Research centers of world corporations-partners of TPU:



 **LAPP GROUP**

Schneider
Electric



Microsoft®




WOODWARD

Danfoss

SAP®

HUGHES®



THANK YOU!



**TOMSK
POLYTECHNIC
UNIVERSITY**

