

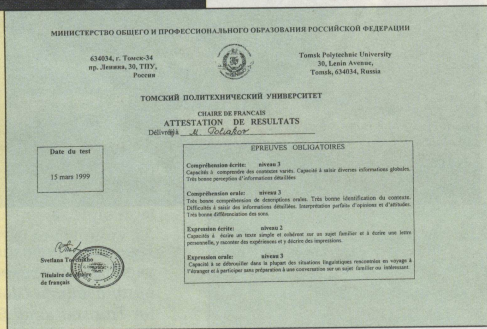
и квалификаций, присваиваемых Томским политехническим университетом, соответствующие документы были направлены в инженерно-технические советы Кипра и Пакистана. С целью международной аккредитации университета, сертификации программ и более широкого признания во всем мире документов об образовании, полученном в ТПУ, соответствующие материалы отправлены в Open University Validation Services (Великобритания), Global Alliance for Transnational Education, Accreditation Board for Engineering and Technology (США). В марте 2000 г. ТПУ впервые в России прошел международную сертификацию в Global Alliance for Transnational Education как вуз, реализующий транснациональные образовательные программы.

В заключение следует отметить, что приведенные примеры новаторства Томского политехнического университета в сфере высшего образования на всех этапах столетней истории свидетел-

ствуют о значительном вкладе университета в развитие высшей школы, а также о том, что само новаторство стало одной из основных традиций ТПУ, позволяющей вузу не только сохранять и укреплять свои лидирующие позиции в России, но и завоевывать их в мировом образовательном пространстве.

Over one hundred years Tomsk Polytechnic University has formed its traditions that improved the quality of education. The old traditions define the image of TPU today, one of the leading universities of Russia, which has contributed and contributes much to the development of higher education in our country. At one time modern traditions were rather innovations created by Tomsk polytechnicians during the formative years. Let's remember only some of them which have been recognized and succeeded by the whole system of higher education of the Russian Federation and the Soviet Union.

Orientation towards topical needs of the society. Since its opening Tomsk Institute of Technology has been oriented towards meeting social needs in teaching of top specialists for industry. At the beginning of the 20th century peculiarities of the economic development in Siberia made specific demands on education. The main peculiarity was that in former times small and average enterprises preponderated in Siberia. They needed comprehensively educated specialists who could combine fundamental knowledge and practical experience and were ready to begin their activity under variable economic conditions and successfully decide engineering and other vital problems. TIT has started to train such specialists forming the traditional orientation of engineering education towards the combining of theory and practice. Our alumni N.I. Kamov, N.V. Nikitin, M.A. Kapelushnikov, N.N. Urvantsev and many other outstanding scientists, designers, and directors having been educated within the spirit of this tradition contributed much to the development of the scientific and technological potential of our country.

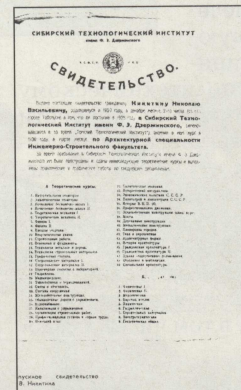


Поляков Александр - магистрант группы 8M44 АВТФ. Лучший студент года ТПУ (1999). Стажировался в Сорбонне, 1999 г.  
Polyakov Alexander, a magistracy of group 8M44 AVTF. The best student of TPU, year 1999, Sorbonna trainee in 1999.

# Ancient traditions

and innovations of Tomsk polytechnicians

A.I. Chuchalin, I.I. Kalyatsky



Первые выпускники из инженерно-технической школы в С. Сибири - братья Сибирского политехнического университета 1923 г.



Первое санаториальное инженерно-техническое здание в С. Сибири - здание Сибирского политехнического университета 1923 г.

**Никитин Н.В. (1907-1973)**  
Инженер-архитектор. Д.т.н., член-корр. АН Архитектуры и строительства, лауреат Ленинской и Гос. премий. Автор проекта Останкинской телебашни и ряда высотных сооружений в России и за рубежом. Награжден (посмертно) золотой медалью им.В.Г.Шухова в 1991 г. за создание особо ответственных высотных сооружений.

**Nikitin N.V (1907-1973)**  
An engineer-architect. Doctor of technical science, the Corresponding member of Architecture and Construction Academy, Lenin and State Laureate. The author and the constructor of Oostankino Tower and several high-risers in Russia and abroad. He was awarded (posthumously) the Gold Medal of Shuhov V.G. in 1991 for the construction of most important high-risers.

## Ancient traditions and innovations

Tomsk Institute of Technology, later Tomsk Polytechnic Institute has fulfilled its historical mission. In the Asian part of Russia it has formed the scientific and educational potential of technology. About 20 higher educational institutions and research institutes were established on the basis of TPI which became the successors of the traditional unity of science and industry.

In the postwar 40's Tomsk Polytechnic Institute developed the intensive engineering courses for mining and metallurgical industry of the Ural and Siberia. Open higher engineering courses (three-year education) prepared approximately 1200 engineers with pertinent theoretical and practical knowledge. Most of the students graduated from the intensive engineering courses became later directors of large industrial enterprises. Among them M.I. Shadov, former Minister of coal industry of the USSR, V.P. Romanov, Hero of Socialist Labor, the Principal of the Coal Industry Administration of Kuzbass, S.I. Nedorezov, former Manager of 'Kuzbassshakhtmontazh' Trust, and others.

In the 1950s new faculties and departments were opened at TPI in a very short time with a view to meet scarce-discipline requirements for such industries as radio engineering, electronics and automatics, nuclear engineering, cybernetics and computer science. For the first time in the Soviet Union the Faculty of Industrial Organizers was opened at TPI in the

1960s. Due to the quality assurance requirements increased in the 70-80s, the Institute provided the goal-oriented intensive courses to prepare specialists for enterprises-customers. Graduates who followed this educational system were attaining profound professional knowledge oriented toward a certain industrial field.

Under new socio-economic conditions of the 90's, Tomsk Polytechnic



University almost first in Russia transferred to the multi-level system of education. During the past five years the University has trained specialists in five new lines of study and twenty-five disciplines. Four new faculties have been organized: Faculty of Economics & Management, Faculty of Humanities, Faculty of Languages & Communication, and Faculty of Natural Science & Mathematics. Eight new departments, five campus branches and seven representations were



• Конференция ректоров вузов, ТПИ, 80-е годы.  
The conference of the rectors in TPI, 80s.

opened in different cities of Siberia, Far East, and abroad.

Meeting topical personal and social needs TPU continues to improve the structure and content of its educational programmes and implements them in the field of life science and engineering sciences and also in scholarship and economy. Our experience offered to the Russian Ministry of Education and other universities will be of use. TPU is now steadily in the lead not only among higher educational institutions of Siberia, but also of Russia.

Fusion of science and education. Another tradition of Tomsk Polytechnic University laid by E.L. Zubashev, the organizer and first director of TIT, is the fusion of research and educational processes. This tradition was developing for one hundred years assuming various forms which more effectively improved the educational quality.

In the 1960s for the first time in the Soviet Union A.A. Vorobiev, the Rector of TPI, created the unique scientific-educational associations called 'Research Institutes on a Public Basis'. Hundreds of TPI students participated in the research and educational activities of associations set up by the University faculties and departments, basic research and sectoral laboratories. Six scientific and educational centres have been established: Research Institute for High Voltages, Research Institute for Non-Destructive Testing, Research Institute for Radiation Physics, Research Institute for Hydrogeology, Research Institute for Chemistry and Chemical Engineering, and Research Institute for Machine Building and Automated Technologies.

In the years 1967 and 1972 the 1st and 2nd All-Union Scientific Conferences on the student research were held in Tomsk on the initiative of Tomsk Polytechnic Institute. The Russian Ministry of Education recommended the applying of the experience of Tomsk politechnicians in all domestic

educational institutions. Student research was included in curricula of a number of disciplines offered by TPI.

As a result of the experiment with 'Research Institutes on a Public Basis',



independent state-budget research institutes were organized later which are effectively operating today. Integration of educational and research processes made it possible for many of our graduates to become distinguished scientists and administrators. Among them G.A. Myesyatz, Vice President of the Russian Academy of Sciences and F.I. Peregudov, former Deputy Chairman of the State Committee for Higher School of the USSR. The former and the present rectors of Tomsk universities, such as I.P. Chuchalin, I.I. Kalyatsky, G.M. Rogov, Yu.P. Pokholkov, I.N. Pustynsky, Yu.A. Zaharov, and V.V. Evstigneev exercised and exercise the substantial influence on the development of higher education.

Inter-institutional cooperation. One of the most important innovations of the 60s was the establishment of the Coordinating Board for Educational Institutions at Tomsk, which has become the prototype of the new form of the regional government of educational institutions and coordination of their educational activity. By the decision of the Ministry of Education of the USSR the Boards of Rectors in all large cities of the country have been established and later Boards of Rectors of universities of Russia.

The Board of Rectors of the Tomsk-city realized the wide inter-institutional cooperation for the first time in the

Деканы ТПИ, 1984 г.  
TPI deans, 1984.



## Ancient traditions and innovations

country. Municipal communities for basic activities were created, such as inter-institutional departments, recruiting office, patent division, repair and construction trust, canteen trust, clinic and hostel, and stadium. The practical experience of the Tomsk Board of Rectors was approved by the Board of the Ministry of Higher Educational Institutions of the USSR and recommended for all educational institutions of the Soviet Union.

In the 1960s Tomsk Polytechnic Institute organized the creative community of eight polytechnic educational institutions of the Ural and Siberia (in Tomsk, Omsk, Sverdlovsk, Chelyabinsk, Perm, and Izhevsk). Annual meetings of the representatives of these educational institutions enriched each other to a considerable extent and fostered the development of education in eastern part of the country.

Government of the higher educational institution. In 1967 TPI organized the laboratory for governing the educational institution, which has started the elaboration of the governmental procedures for educational and research units of higher educational institutions. In 1970 the Main Government Council of the Russian Federation was founded. The model 'Automatic Control System – Higher Educational Institution' and sectoral 'Automatic Control System – the Russian Ministry of Higher Educational Institutions' were developed and implemented that years.

Under the leadership of Professor V.Z. Yampolsky the governmental procedure models were developed at TPU to plan and analyze its activities. During further years our specialists have elaborated the basics of qualimetric of the activity performed by a higher educational institution, its faculties and departments.

Two All-Russia Scientific Conferences on institutional government were held in Tomsk. The principal research findings on the improvement of the institutional government were discussed and approved by the conferences. Currently the Russian Ministry of Education effectively uses the basic rating standards elaborated by Tomsk polytechnicians that time.

For the first time in Russia in the 1990s Tomsk Polytechnic University formulated the systems project for a technical university. On its basis about a hundred institutes were reconstructed in technical universities. The Association of Technical Universities of Russia was established. At the same time TPU has elaborated the concept of the University Development Program. For the past ten years TPU has successfully implemented two such programs. New Development Program for the years 2001-2005 is currently in progress. In the middle of the 90s TPU formulated the Educational Standard of a higher educational institution including federal, regional, and college components. By the order of the Russian attestation, accreditation and





expert evaluation appropriation TPU officers developed teaching materials on the university further development and improvement of the educational content under modern socio-economic conditions. A number of seminars for presidents and vice presidents of Russian universities were held at TPU.

The System of the Quality of Educational Services Management and Specialist Training is currently elaborated in TPU on the basis of international standards ISO 9000. This System will greatly influence the government of our University and also the development of the whole educational system of Russia.

Integration into the world educational area. The University has been performing the international cooperation in the field of education and research already for a hundred years. It was developing rather intensively until the revolution of 1917, but in the soviet time international relations were restricted for known reasons, mostly due to the fact that Tomsk was the closed city for foreigners. In 1991 Tomsk Polytechnic University switched to the new step of the international cooperation. The Russian-American Centre, the Russian-German Centre and other international centres have been founded at TPU. Scores of students and instructors take part in academic interchanges. At present 62 scientific and educational association agreements came in force with universities and scientific societies of 26 countries of the world.

Tomsk Polytechnic University was among the first Russian universities, which declared the integration into the world educational area to be the major priority. Since 1998 TPU has been implementing the unique Programme of Language Training Improvement for students and academics. This Programme is intended for attaining fluency in foreign languages on a level with international certificates.

Until quite recently TPU mainly was importing educational services from Europe and the USA in fields of economy, management, social science, and foreign languages. At the end of the 1990s the University developed and confirmed the export policy of educational services. The goal of the policy is to intensify the University activity in

the home and foreign educational services market.

As a result of the comparative analysis of Russian and foreign programs general principles of developing new integrated syllabi and international programs have been formulated, including the tuition of foreign students. The main criteria for syllabi and 'export version' programs are the maximal recognition by the foreign market of educational services and maximal concentration of everything available at TPU in different fields of knowledge, including experimental findings provided by scientists of the advanced scientific schools, high technologies, and methodical achievements.

The initial step was devoted to the development of professional educational programs leading to bachelor and master's degrees in Electrical Engineering, Mechanical Engineering, Computer Science, and Chemistry. These programs meet the requirements



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of the international standards and are intended for reading them in English. Somewhat later the Environmental Protection Program was developed. Programs on Physics, Thermal Engineering and Geology are currently in progress.

The programs formulated in 1999 were submitted to the Russian Ministry of Education. The Ministry considered these programs as meeting the State educational standards of the Russian Federation. In Russia Tomsk Polytechnic University was first granted the right to implement these programs in English subject to providing the required organizational and methodical support and staffing. By the Minister's Decree TPU was charged to conduct the experiment on foreign students' teaching in English and diffuse its experience among other Russian institutions.

TPU has formulated the teaching set of materials in English in more than 60 courses, including the Internet delivery. The University faculty improves their qualifications in gaining fluency in foreign languages. TPU participated in seven international educational fairs and exhibitions (Cyprus, Kuwait, Pakistan, Vietnam, and Iran) where it presented the promotional materials and educational programs. TPU has made contracts with a dozen of recruiting agencies in Asian, North African, and Mediterranean countries.

Teaching aids developed in English are used for tuition of foreign students arrived from China, Korea, Pakistan and Cyprus. Some specialist courses in English will be delivered to Russian students within the framework of the Programme of Language Training Improvement.

**Межевзковский Русско-немецкий центр образования и научных исследований при ТПУ создан 27 мая 1993 года для решения задач:**

- осуществление дополнительных образовательных услуг в области подготовки специалистов с высшим образованием в ВУЗах г.Томска с углубленным знанием немецкого языка;
- разработка и реализация программы углубленного изучения немецкого языка для мест дисперсного проживания российских немцев;
- организация языковых, образовательных и производственных стажировок в Германии и Томске для школьников, научных работников, преподавателей и других специалистов;
- развитие связей России с немецкоязычными странами в области экспорта-импорта технологий и оборудования, обмена научной и учебно-методической информацией, проведение совместных работ ученых, преподавателей и студентов.

"Параллельная учеба в ТПУ и РНЦ дает мне широкие возможности всестороннего развития и профессионального совершенствования. Особенно мне нравится то, что я могу получить сертификат международного образца, что даст мне право участвовать в международных образовательных и научных программах."

**Елена Гершанович,**  
студентка 5 курса исторического факультета ТПУ



Генеральный консул ФРГ

Русско-немецкий центр совместно с ВУЗами г.Томска готовит специалистов с высшим образованием и углубленным знанием немецкого языка в соответствии с международным стандартом. Полученное образование позволит им в будущем успешно изучать зарубежный опыт, пропагандировать отечественный и работать в области экспорта-импорта технологий и оборудования по совместным программам в зарубежных и российских фирмах.

"Учеба в Русско-немецком центре - путь к становлению конкурентоспособного специалиста. Здесь Вас научат навыкам устного общения на немецком языке, переводу литературы по специальности, ознакомит с правилами ведения деловой переписки, технологией написания аннотации к статье и многому другому. Этому служит работа по специально разработанным методикам, оригинальным учебным комплектам, изданным РНЦ, широкое применение технических средств обучения, стажировки в стране изучаемого языка, индивидуальный подход к каждому студенту".

**Н.П.Бельтюкова,**  
Кандидат филологических наук,  
доцент кафедры немецкого языка ТПУ



Российские студенты на занятиях немецкого языка.

Встреча немецких и российских студентов на берегу.

### ПРАВИЛА ПРИЕМА

В центр зачисляются студенты любых курсов ВУЗов г.Томска, учащиеся других учебных заведений, а также все желающие приобрести или повысить знания немецкого языка. Дополнительные экзамены, в том числе и по немецкому языку, проводятся. Обучение ведется по индивидуальному плану, согласованному с проректором кафедрой и факультетами ВУЗов. Начать изучение немецкого языка можно в любое время года и с любого уровня, в том числе, с "нулевого".

"Обучение в РНЦ - это возможность получить высшее образование и одновременно глубоко изучить немецкий язык, что очень важно для выпускника, желающего быть высококвалифицированным специалистом."

**Денис Титков**  
студент 5 курса электротехнического факультета ТПУ



To deal with the problem of the international recognition of degrees and credentials conferred by TPU, the respective documents have been submitted to the Boards for Engineering and Technology of Cyprus and Pakistan. With a view to provide the international accreditation and recognition of TPU and its academic degrees and documents, and certification of its programmes, the appropriate documents have been sent to the following organizations: OUVS (Great Britain), GATE, and ABET (USA). For the first time in Russia TPU has underwent the international review conducted by GATE experts in March 2000 being the University which introduces transnational educational programmes.

It is worth noting that the mentioned innovations of Tomsk Polytechnic University in the field of higher education testify to its significant contribution to the development of education. Innovation in itself has become one of the chief traditions of TPU, which allows preserving and strengthening the University leading positions not only in Russia, but also in the world educational area.