

# Volgograd State Technical University



**Volgograd State Technical University (VSTU)** is one of the largest universities of the Volga Region, famous educational and scientific center in the South Russia.

Educational activities include 28 Bachelor programmes, 3 specializations, 22 Master programmes, 33 PhD programs in the field of chemical engineering, materials science and technologies of materials, machine building, metallurgy, transport complexes, weapon systems, automobile transport, computer science, instrument engineering, food engineering, economics and management.

The University carries out a large amount of fundamental and applied researches, realizes its developments as science-intensive products.

### Primary scientific programs:

1. Dynamics, strength, reliability of machines, mechanisms and details.
2. Hydrodynamics and heat and mass transfer in rheologically complex environments.
3. Formation of physical bases for explosive welding and development of technological processes of production of composite layered and fibrous materials on their base.
4. Methods of quality and optimization evaluation.
5. Improvement of the effectiveness of auto tractor internal combustion engine.
6. Improvement of properties of work pieces for mechanical engineering by optimization of metallurgical and engineering processes.
7. Development of advanced polymer materials with improved service properties.
8. Fine organic synthesis. Chemistry and engineering of organic compounds.
9. Theory and design of computing means, systems, complexes and nets.
10. Strength and service reliability of over loaded transmissions.
11. Development of constructions, technologies of production and diagnosis of automobile automated brake systems.
12. Systems of automated design.
13. Research and development of mechanical processing and means of automated management, control and adjustment methods.
14. Scientific rationale of economic reform.

Strategic partnership of VSTU is based on mutually beneficial cooperation with leading educational scientific enterprises and organizations, cooperation with State administrative bodies, business community, leading foreign universities and research centers, international organizations.

Scientific partners of VSTU are:

- scientific affiliates of RAS: Engineering Science Institute, Institute of Metallurgy and Material Science named after A.A. Baykov, Institute of General Nonorganic Chemistry, Institute of Organic Chemistry, Institute of Physical Chemistry;

- field scientific and research institutes: vniMEDMASH (<http://www.vniimetmash.ru/en/>), VNIIM named after A.A. Bochvara (<http://bochvar.ru/>), CNIITMASH ([http://www.o-zavod.com/Katalog\\_prod.html](http://www.o-zavod.com/Katalog_prod.html)), VIAM (<http://viam.ru/>), GTERPC "Salut" (<http://salut.ru/index.php?lang=eng>), NPO "Kompozit" (<http://npo-kompozit.tiu.ru/>), Krylov State Research Center (<http://krylov-center.ru/eng/>), CNII "Prometey" (<http://crism-prometey.ru/Eng/StartEng.htm>), CKB "Rubin" (<http://www.ckb-rubin.ru/en/main/>), EWI named after E.O. Paton (<http://paton.kiev.ua/en>) and others;

- industrial enterprises and holdings: JSC "Lukoil", JSC "SUAL-Holding", JSC "GMK Norilskiy nickel", RKK "Energy" named after S.P. Korolev, JSC "Kaustik", FGUP "Barrikady", CJSC "Sevmashenterprise", JSC "Severstal", CJSC "Tubular metallurgic company", JSC "Promsynthesis" and many others.

**400005, Volgograd, Lenin ave., 28.**

**tel./fax: (8442) 23-00-76,  
(8442) 23-99-41.**

**E-mail: [rector@vstu.ru](mailto:rector@vstu.ru)**

**Web-site: <http://vstu.ru>**

# INNOVATIONS OF VOLGOGRAD STATE TECHNICAL UNIVERSITY

Materials for synthetic sport coatings, corresponding the requirements of International Federations of Athletics (IAAF), Handball (IHF), Basketball (FIBA), etc. according to the criteria: vertical deformation, strength dumping, tribological properties, injury and fire safety, hygienic and durable abilities.



Products prepared upon the unique technology of explosive welding are widely used in enterprises of nuclear energetics, petrochemical field, metallurgic enterprises: bimetal tube plates are used in NPP “Loviiza-II” (Finland, “Kozloduy” (Bulgary), “Kharagua” (Cuba), Leningradskaya” (Russia); composite copper-aluminum contact units are used in JSC “GMK “Norilskiy nickel”, JSC “Moscow plant Electroshield”, Sayano-Shushenskaya hydroelectric power station; in petrochemical mechanical engineering there are used bimetal bodies and tube plates (hastelloy+steel, brass+steel, stainless steel+carbon steel and others); titan-aluminum composites are used for antenna feeder systems of space systems International Space Station, “Energy – Buran”, “Marine start” and others.



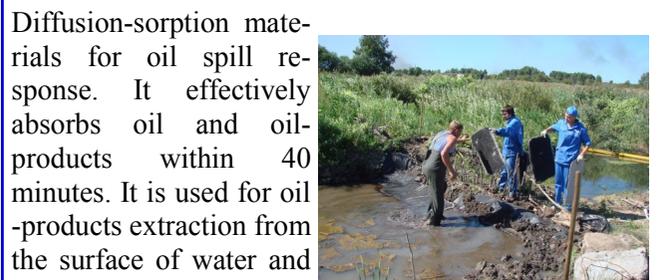
Methods, algorithms, calculation and optimization programs of springing systems prototype parameters for an automobile platform of the next generation.



Stepping machines for cargo transfer or for work with processing equipment in difficult terrain conditions.



Cationic polyelectrolytes and polymer-colloid complexes are high-efficiency reagents in technology of separation of liquid dispersed systems.



Diffusion-sorption materials for oil spill response. It effectively absorbs oil and oil-products within 40 minutes. It is used for oil-products extraction from the surface of water and soil.

Since 2000 Volzhsky Complex of Research and Technology functions within VSTU. It is a research center with experienced production (technopark of the University) which solves challenging, scientific, engineering tasks in the field of development and production of fabricated rubber products for petroleum exploration and production sector, tube production, river, hydro technical, navigational facilities and marine terminals, for highways infrastructure development and others.

## Range of products of VCRT

- rubberized fabric hose for various purposes;
- rubberized shafts and rolls;
- pneumohydraulic membranes;
- complex-cisternal profiles;
- formed fabricated rubber products of large size;
- calendered rubber cloth;
- Rubber fabricated plates of wide format;
- ebonite products;
- linings for ore-pulverizing mills;
- rescue boats, afloat life saving appliances;
- gaskets;
- packer;
- separators and other fabricated rubber products.

