Research areas

The following research is carried out within the Faculty's statutory activity:

RESEARCH TOPIC	DEPARTMENT	HEAD OF THE RESEARCH TEAM
Strength optimization of machine and structural components under dynamic loading.	Department of Mechatronics and Applied Mechanics	Assoc. Prof. Bogdan Wilczyński, Ph.D., D.Sc.
Research and development of dynamic and vibro-acoustic properties of complex mechatronic systems.	Department of Mechatronics and Applied Mechanics	Prof. Tomasz Krzyżyński, Ph.D., D.Sc.
Wear-resistant coatings based on chromium nitride. Carbon-based coatings for tribological applications. Coatings increasing corrosion resistance of materials used in implantology.	Department of Materials Engineering and Technology	Assoc. Prof. Jan Walkowicz, Ph.D., D.Sc.
Design of anti-wear multilayer coatings and surface layers on the basis of mathematical models and experimental investigations	Department of Biomedical Engineering	Prof. Jerzy Ratajski, Ph.D., D.Sc.
Research on static and dynamic characteristics of pneumatic muscles. Research on flow properties of pneumatic elements. Design of heating systems and control systems for them.	Department of Mechatronics and Applied Mechanics	Assoc. Prof. Tomasz Kiczkowiak, Ph.D., D.Sc.
Duplex coatings on stainless and tool steel deposited by low pressure nitriding in AEGD plasma and reactive magnetron sputtering or vacuum arc evaporation.	Department of Materials Engineering and Technology	Assoc. Prof. Witold Gulbiński, Ph.D., D.Sc.
Examination of the structure and properties of glass-ceramic and composite materials. Synthesis of aluminoboron whiskers in the glass-ceramic matrix in porous ceramic composites of aluminum oxide. Examination of the influence of molten polystyrene on the high temperature corrosion of FeCrAl alloys. Properties of the carbon and chromium-based coatings deposited on tools and constructional steel substrates.	Department of Materials Engineering and Technology	Assoc. Prof. Kazimierz Reszka, Ph.D., D.Sc.
Nanomaterials for biomedical engineering: nanocomposite materials.	Department of Biomedical Engineering	Prof. Stanisław Mitura, Ph.D., D.Sc.
Comparison of the visualization		

techniques of markers implanted to prostate using gating technology (IGRT). Nanomaterials for biomedical engineering: carbon nanopowders.	Department of Biomedical Engineering	Assoc. Prof. Iwona Gisterek, Ph.D., D.Sc.
Teacher training in the scope of theoretical and practical teacher education: needs and expectations. Student psychosocial capacity for studying.	Department of Pedagogy and Education Studies	Agnieszka Hłobił, Ph.D.

The following research is carried out within the research scheme for supporting the career development of young scientists in the year 2014:

RESEARCH TOPIC	DEPARTMENT	HEAD OF THE RESEARCH TEAM
Research on innovative character of knowledge-based enterprises.	Department of Mechatronics and Applied Mechanics	Adam Czarnota, M. Sc in Economics
The upper arm exoskeleton with a 7-DOF controlled by force sensors.		Sebastian Pecolt, Ph.D.