



VILNIUS GEDIMINAS
TECHNICAL UNIVERSITY

RESEARCH ACTIVITIES

Vilnius Gediminas Technical University (VGTU) is an innovative university with highly qualified and creative specialists. University is the leader among the higher education institutions of technological sciences strongly focusing on the European Research Area. In order to achieve the best results in research, the university shifts towards multidisciplinary science. VGTU carries out R&D activities in 14 institutes, 3 research centres and 33 research laboratories. The biggest innovation potential – infrastructure and human resources of VGTU are concentrated in the following priority areas:

- sustainable building,
- environmental and energy technologies,
- sustainable transport,
- mechatronics,
- information and communication technologies,
- technology management and economics,
- fundamental research on materials and processes.

VGTU is ready to participate in local and international projects and collaborate with the business sector, it fosters both national and international collaboration and helps to establish ties between research institutions and the business sector. Over 40 percent of the university's income for R&D comes from scientific services.

The university organizes over 30 scientific conferences per year, both national and international, publishes over 20 scientific journals, 12 of them are published with “Taylor&Francis” publishing house.

University is involved in several international technology networks and organisations, thus, it enhances its standing as the state of the art research institution.



SUSTAINABLE BUILDING AREA

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INNOVATIVE BUILDING MATERIALS, STRUCTURES AND TECHNIQUES FIELD

Scientific Institute of Thermal Insulation

Refractory materials intended for extreme conditions.

Laboratory of Building Products Technology

Building materials (ceramic, binder, gyps, lime) durability research; recycling technologies; cement structures corrosion.

Laboratory of Building Materials (accredited)

Innovated methodology for noise impact assessment in urban area and protect against noise in buildings by means of construction products with improved acoustics performance.

Laboratory of Acoustics (accredited and EC notified)

Faculty of Architecture

Building structures and building physics; structural solutions for renovation process.

Department of Building Structures

Faculty of Environmental Engineering

High modulus asphalt concrete; soft asphalt, noise reduction asphalt, optimized macro texture pavement surfaces; solar reflective pavements.

Road Research Institute

Occupational safety and health; fire and rescue analysis.

Department of Labour Safety and Fire Protection

Faculty of Civil Engineering

Testing and microstructural analysis of soil; numerical FEM and DEM simulation; analysis and design of foundations and retaining walls.

Department of Geotechnical Engineering

In situ testing and numerical simulation of piles, retaining walls and shallow foundations.

Research Laboratory of Geotechnical Engineering

Research, design and development of calculation methods for layered, composite, durable, sustainable and e-structures.

Department of Reinforced Concrete and Masonry Structures

Research on adaptable building structures.

Research Laboratory for Composite Building Structures

Research on steel, timber and composite structures; development of innovative structural solutions.

Department of Steel and Timber Structures

Development of theory and methods for structural optimization.

Department of Structural Mechanics

Development of modern composite materials from local raw materials and industrial wastes; research and modification of cement based compositions with chemical and mineral additives.

Department of Building Materials

ENERGY EFFICIENT THERMAL INSULATION MATERIALS AND STRUCTURES FIELD

Scientific Institute of Thermal Insulation

Thermal insulation materials for modern buildings; development of energy efficient multifunctional materials.

Laboratory of Thermal Insulating Materials (accredited and EC notified)

Faculty of Civil Engineering

Development, investigation and design of energy-efficient structures, composites and structures with thermal insulating interlayer.

Department of Reinforced Concrete and Masonry Structures

Research on low and nearly zero-energy buildings, energy conservation in buildings.

Department of Construction Technology and Management

ARCHITECTURE, URBAN PLANNING, LANDSCAPE ARCHITECTURE AND REGIONAL PLANNING FIELD

Faculty of Architecture

Research and design of architectural and urban objects; regeneration of architectural heritage; theory and critics of architecture; problems of architectural composition.

Department of Architecture

History, theory and critics of architecture, urban design; design of architectural objects; semantics and psychology of architecture; cultural heritage and its regeneration.

Department of Architectural Fundamentals and Theory

Teaching methods in drawing, painting, sculpture, applied graphics, interdisciplinary art; artistic quality of public space; interaction of art and architecture.

Department of Art

History, theory and practice of urban design, landscape architecture, urban and regional planning; sustainability in built environment; regeneration of historic environment.

Department of Urban Design

History, theory and practice of industrial product design.

Department of Design

Design and research of architectural, urban, landscape architecture and regional planning objects; sustainability in built environment.

Institute of Architecture

Faculty of Environmental Engineering

Sustainable urban planning; planning of urban transportation systems and engineering infrastructure; planning of urban infrastructure.

Department of Urban Engineering

Investigation of territory planning and evaluation of sustainability; monitoring and application of GIS technologies in territorial planning.

Research Institute of Territorial Planning

SUSTAINABLE LIFECYCLE OF THE BUILDINGS FIELD

Faculty of Environmental Engineering

Life cycle analysis of building and its energy systems.

Department of Building Energetics

Long life pavements; low emission pavement materials; recycling and reuse of pavements, pavement structures with optimized life cycle.

Road Research Institute

Faculty of Civil Engineering

Development of mathematical and experimental methods for environmental and fire safety improvements.

Department of Labour Safety and Fire Protection

Analysis, design and reconstruction of foundations; evaluation of soil to structure interaction; improvement of soils.

Department of Geotechnical Engineering

Investigation of structures damaged due to insufficient ground response; profiling, testing and modelling of soil.

Research Laboratory of Geotechnical Engineering

Investigation and testing of buildings, analysis of reliability of civil engineering structures and methods for their strengthening and reconstruction; composite materials for strengthening and reinforcing of existing structures.

Department of Reinforced Concrete and Masonry Structures

Investigation, modelling and forecasting of construction, real estate and housing sectors.

Department of Construction Technology and Management



SUSTAINABLE BUILDING AREA

PROJECTS

Construction21 – A European Green Building Exchange, 2011-2013. Intelligent Energy Europe. *Department of Urban Design*

Collaborative Action Towards Societal Challenges Through Awareness, Development and Education (CASCADE), 2013-2015. Framework 7. *Research Institute of Smart Building Technologies*

Students Achieving Valuable Energy Savings (SAVES), 2014-2017. Intelligent Energy Europe. *Department of Construction Economics and Property Management*

Master and Post Graduate Education and Training in Multidisciplinary Teams Implementing EPBD and Beyond (IDES-EDU), 2010-2013. Intelligent Energy Europe. *Department of Construction Economics and Property Management*

Establishment of Voluntary System for Development and Recognition of Professional Competences and Skills of the Building Workforce in Lithuania in Relation to Requirements for Nearly Zero Energy Buildings (BUILD UP SKILLS LITHUANIA II), 2014-2016. Intelligent Energy Europe. *Department of Construction Technology and Management*

Sustainable Zero Carbon ECO-Town Development Improving Quality of Life Across EU, (ECO-Life), 2010-2016. Framework 7. *Department of Construction Technology and Management*

SPECIAL FACILITIES

- Universal automated test bed of 2000 kN capacity with the set of various controllers and dedicated software DION 7 for the testing of building structures subjected to static and dynamic multi-cycle loading.
- Automated digital APS equipment for determining the mechanical properties of soils (oedometer, triaxial and direct shear tests) and dedicated equipment for microstructural analysis of soils.
- Self-propelled drilling assembly CME 55 mounted on Renault 38019 chassis and set of geotechnical investigation devices made by Pagani Geotechnical Equipments for anchoring, sampling and penetration tests.
- Universal testing machine LFV 600 with heat chamber and dedicated software DION 7 for the testing of building products subjected to tensile loading and high temperature.
- Climatic chambers KSK-12.5 and KTK 800 with the set of controllers and data processing software for testing of various properties of building materials, products and structures.
- Noise meter “SL-1353”; Traffic counters and classifiers with rubber tubular sensors “Marksmen 400”; Laser speed meter “TraffiPatrol” in Department of Urban Engineering.
- Universal automated digital systems for testing of foundations in field (1000 kN capacity) and laboratory (2000 kN capacity).
- Universal servohydraulic testing machines LFV 5000 and D 2000 with the set of various controllers and dedicated software DION 7 and PROTEUS for the testing of building structures (materials, products) subjected to compressive loading.
- Road of experimental pavement structures, bitumen component composition determination equipment (asphalts, resins, saturated, aromatics) in Road Research Institute.



SUSTAINABLE TRANSPORT AREA

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ENERGY SAVING AND ENVIRONMENT-FRIENDLY TRANSPORT MEANS FIELD

Faculty of Transport Engineering

Saving of transport energy resources.

Department of Railway Transport

Internal combustion engines ecological and economical parameters; use of Brown's gas, natural gas (or biogas); hydrogen fuel blends; water injection in internal combustion engines.

Department of Automobile Transport

Alternative energy, energy storage; geothermal system.

Department of Transport Technological Equipment

TRANSPORT SYSTEMS AND TRAFFIC MODELLING, OPTIMIZATION, SAFETY AND MANAGEMENT FIELD

Faculty of Environmental Engineering

Road infrastructure management systems; traffic safety.

Department of Roads

Optimization of winter road maintenance; road safety improvement, accident analysis and prediction modelling.

Road Research Institute

Faculty of Transport Engineering

Traffic dynamic processes and pollution of the environment; research methods and application of vehicle traffic flows; intelligent, dynamic tire monitoring system; vehicle dynamics; sustainable mobility; optimization of dynamics processes; hydrodynamics of pipeline systems and equipment.

Department of Transport Technological Equipment

Railway transport safety and environment problems; strategies of rolling-stock management; optimization of rolling-stock traction.

Department of Railway Transport

Modelling of intermodal transport.

Competence Center of Intermodal Transport and Logistics

Automotive diagnostics and reliability research; vehicle to vehicle communication system analysis; accidents modelling and assessment; vehicle movement dynamics and its modelling; road traffic safety modelling; vehicle active and passive systems impact on driving dynamics.

Department of Automobile Transport

Safe transportation of dangerous goods.

Department of Logistics and Transport Management

Antanas Gustaitis' Aviation Institute

Research on air traffic control and management technologies.

Department of Aviation Technologies

Research on UAV technologies; research on low speed aerodynamics and flight dynamics.

Department of Avionics

Department of Aviation Mechanics

TRANSPORT AND LOGISTICS TECHNOLOGY, INTERACTION OF TRANSPORT MODES FIELD

Faculty of Transport Engineering

Green transport corridors; development of intermodal transport networks and innovative intermodal technologies.

Competence Center of Intermodal Transport and Logistics

Logistics and transport technologies; transport politics; interaction of transport modes; solutions of city logistics.

Department of Logistics and Transport Management

THE NEW MOVEMENT TECHNOLOGIES, INTELLIGENT TRANSPORT SYSTEMS FIELD

Faculty of Environmental Engineering

Intelligent transport systems, transport communication; weigh-in-motion; traffic monitoring.

Road Research Institute

Faculty of Transport Engineering

Maintenance of railway rolling-stock.

Department of Railway Transport

Use of existing and new developed intelligent transport system.

Competence Center of Intermodal Transport and Logistics

Vehicle slip simulating systems, drivers and vehicle behavior characteristics, braking efficiency and tire adhesion evaluation studies.

Department of Automobile Transport



SUSTAINABLE TRANSPORT AREA

PROJECTS

Network of European-Asian Rail Research Capacities (NEAR2), 2012–2014. Framework 7. *Department of Railway Transport*

Best Practice Factory for Freight Transport (BESTFACT), 2012–2015, Framework 7. *Competence Centre of Intermodal Transport and Logistics*

E-Maritime Strategic Framework and Pilot Implementation (eMAR), 2012–2014, Framework 7. *Competence Centre of Intermodal Transport and Logistics*

BSR TransGovernance - MLG Support to the Implementation of PA 11 in the EU Baltic Sea Strategy (BSR TransGovernance), 2014–2014. Baltic Sea Region Programme. *Logistics and Transport Management Department*

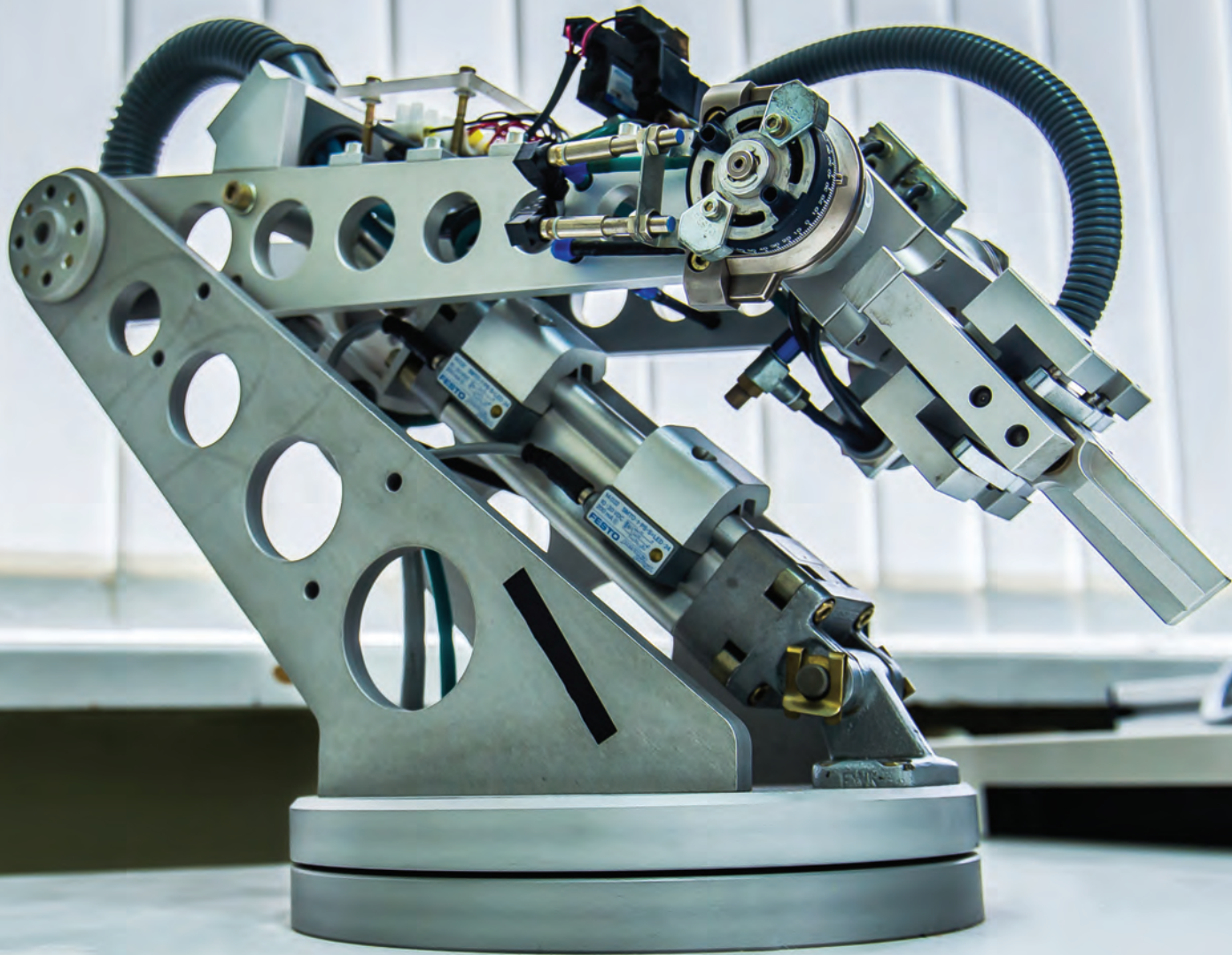
Connecting Authorities for Safer Heavy Goods Traffic in the Baltic Sea Region (C.A.S.H.), 2009-2012. Baltic Sea Region Programme. *Logistics and Transport Management Department*

Aviation Noise Research Network and Coordination (X-NOISE EV), 2010-2014. Framework 7. *Laboratory of Acoustics*

Carbon Footprint of Freight Transport (COFRET), 2011-2013. Framework 7. *Transport Research Institute*

SPECIAL FACILITIES

- Vehicle dynamic characteristics measurement equipment CORRSYS-DATRON. Measurement of vehicle speed, acceleration, slip angle, distance, vehicle body bounce, pitch, rolls angles, vehicle tire and suspension displacement.
- Mobile metal analyser PMI-MASTER PMI-MASTER PRO. Used for the precise analysis of key elements, rapid material verification, positive materials identification (PMI) and sorting of different metals.
- The Pocket AE Acoustic Emission (AE) system AE-2 - is a computerized hand-held instrument for AE testing and leak detection applications. Used in any remote, short term AE application and evaluation.
- ADIASYSTEM is a computer based method for measurements on elevators and escalators and for proper documentation of test results. Specific measurements with the ADIASYSTEM® procedures can be applied for initial acceptance tests, periodic tests, verifications and expert opinion investigations.
- Chassis Dynamometer MAHA LPS 3000. Measures vehicle speed, engine speed, power, torque, wheel traction power, transmission losses.
- Eddy current engine load stand AUTOMEX AMX 200 with gasoline engine HR16DHE. Measures gasoline consumption.
- Locomotive AC traction motors testing training laboratory equipment using locomotive with AC traction motors testing training laboratory equipment it is possible to receive different type speed-torque characteristics. For this test is using frequency converter and low power AC electric machines.
- Diesel-electric powered locomotives with direct current (DC) traction generator testing training laboratory equipment using this testing training laboratory equipment it is possible to make more experiments for DC traction motors and generators and receive typical characteristics.



MECHATRONICS AREA

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SMART EMBEDDED SYSTEMS FIELD

Faculty of Electronics

Embedded systems for signal processing.

Department of Electronic Systems

Faculty of Mechanics

Creation and research of robotic systems.

Department of Mechatronics and Robotics

MECHANICAL AND MECHATRONIC DEVICES AND PROCESSES FIELD

Faculty of Mechanics

Development of mechatronic systems, research and diagnostics of their tribological, metrological properties; design of technological processes in CAD/CAM systems.

Department of Mechanical Engineering

Investigations of process and machine dynamics; investigation of printing systems, materials and technological processes in packing production.

Department of Printing Machines

Development and application of computational methods in mechanics and engineering.

Institute of Mechanical Science

Faculty of Transport Engineering

Diagnostics of heavy rotor with tilting pad journal bearings; investigation of dynamic process of automatic impulse extinguishing; rolling stock dynamic processes; identification and prediction of traffics and accidents. Machine dynamics and optimisation.

Department of Transport Technological Equipment

INNOVATIVE CONSTRUCTIVE AND MULTIFUNCTIONAL MATERIALS, NANOSTRUCTURES FIELD

Faculty of Mechanics

Advanced welding technologies, equipment and materials; oxy-acetylene, plasma and arc sprayed multifunction coatings.

Department of Materials Science and Welding

Assessment of properties of the printing materials (paper, ink).

Department of Printing Machines

BIOMECHATRONICAL SYSTEMS FIELD

Faculty of Mechanics

Biosignal analysis and recognition; measurement and modelling of human gait and limbs motion in 3D space; modelling, design and technologies for sandwich covers.

Department of Biomechanics

ELECTRICAL AND ELECTRONIC DEVICES AND SYSTEMS FIELD

Faculty of Electronics

Optimisation of mechatronic systems; investigation of linear and rotational mechatronic systems and their elements.

Department of Automation

Methods of electromagnetic parameter measurement of materials used in electrical engineering; development of automated systems for AC parameters measurement of logic IC and DAC and strain monitoring systems.

Department of Electrical Engineering

Analysis of electromagnetic fields and electrodynamic devices.

Department of Electronic Systems

Electric power converters and control algorithms; development and design of integrated circuits for nanoelectronics applications.

Department of Computer Engineering

High magnetic and electric field generation and application.

Institute of High Magnetic Fields



MECHATRONICS AREA

PROJECTS

Effective Mechanism for Implementing Solar Energy in Kurzeme and Klaipeda (LLIII-159). Supervisor: R. Urbanavičius, 2010-2011. Latvia–Lithuania Programme. *Department of Mechatronics and Robotics*

Innovative Materials Solutions for Transport, Energy and Biomedical Sectors by Strengthening Integration and Enhancing Research Dynamics of KMM-VIN (INNVIN), 2012-2015. Framework 7. *Institute of Mechanical Science*

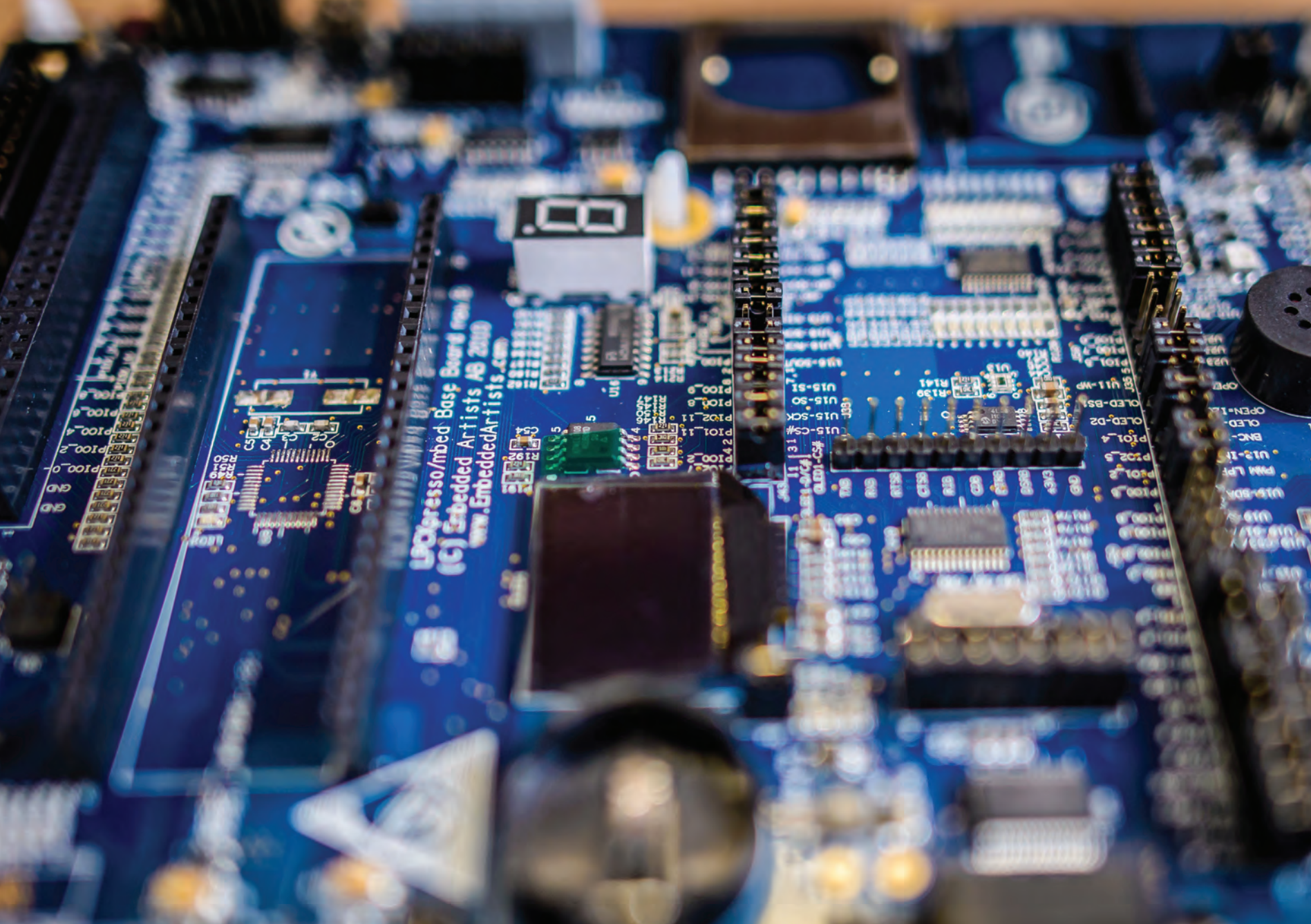
Development of Specialized Frequency Converter for the Serial Production, 2012-2013. High-tech Development Programme. *Department of Computer Engineering*

Development of Magnetic Field Meter for Electric Power Systems (MAGEPS), 2011-2013. High technology Development Programme. *Institute of High Magnetic Fields*

Development and Validation of Control by Lithuanian Speech Unit Model for the Disabled (GALIA), 2012-2014. *Department of Electronic Systems*

SPECIAL FACILITIES

- Vibroacoustic Diagnostic Machine for research of vibration insulating and tribological system; “Bruel and Kjaer”.
- 5-axis CNC center Ultrasonic 10 DMG Sauer.
- PMI-MASTER Pro for mobile metal analysis with optical emission spectroscopy (OES). Oxford Instruments.
- Industrial robotic system Motoman SSF 2000.
- Universal hardness and Microhardness Tester; Zwick/Roell.
- Delsys Trigno 16ch EMG system.
- Tobii T120 Eye Tracker enable to conduct on-screen eye tracking studies for a wide variety of research purposes. (The framerate: 60 Hz–120 Hz; Accuracy: 0.5 degrees; Drift: 0.1 degrees; Spatial resolution: 0.3 degrees; Head movement error: 0.2 degrees; Head movement box: (width x height) 30 x 22 cm at 70 cm; Tracking distance: 50–80 cm; Max gaze angles: 35 degrees; Top head-motion speed: 25 cm/second; Latency: maximum 33 ms; Blink tracking recovery: maximum 8 ms; Time to tracking recovery: 300 ms.).
- Compact high magnetic field source with pulse duration of 0,5-1 ms, B up to 40 T for the research of magnetic field impact to the various materials and investigation of magnetic field sensors.
- Setup for electroporation of biological cells (up to 4 kV, pulse width from ns to ms).
- Scanning electron microscope (SEM) Tescan VEGAIII LMU with LaB6 accessory. This microscope is a compact scanning electron microscope (SEM) fully integrated with a selected energy dispersive X-ray microanalyser and lanthanum hexaboride cathode, with super-high imaging quality and high levels of automation.
- PE 2000 RF Plasma Etcher for reactive gas plasma etching and surface treatments. This system is used for R&D applications, such as photoresist strip, BPSG removal, oxide and nitride layer etch, surface treatment of plastics and plasma cleaning.



INFORMATION AND COMMUNICATION TECHNOLOGIES AREA

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INFORMATION TECHNOLOGIES, ONTOLOGICAL AND TELEMATIC SYSTEMS FIELD

Faculty of Electronics

Computer network security.

[*Department of Computer Engineering*](#)

Faculty of Fundamental Sciences.

Research of service-based systems.

[*Departments of Information Systems*](#)

[*Departments of Information Technologies*](#)

Multimedia applications and visualisation systems.

[*Departments of Graphical Systems*](#)

Research on information and IT security.

[*Department of Information Systems*](#)

Parallel algorithms and distributed computing.

[*Department of Mathematical Modelling*](#)

SMART COMMUNICATION TECHNOLOGIES FIELD

Faculty of Electronics

Self-formation technologies for multiband transceivers.

[*Department of Computer Engineering*](#)

Cognitive radio and software defined radio; multimedia communications; internet of things.

[*Department of Telecommunications Engineering*](#)

[*Research Institute for Telecommunications*](#)

Faculty of Environmental Engineering

Simulation, planning and integration of energy supply and use systems.

[*Department of Building Energetics*](#)

DIGITAL SIGNAL PROCESSING TECHNOLOGIES FIELD

Faculty of Electronics

IT systems development, application and analysis; innovative methods for machine vision systems development.

[*Department of Electronic Systems*](#)

GEOINFORMATION SYSTEM TECHNOLOGIES AND THEIR APPLICATION FIELD

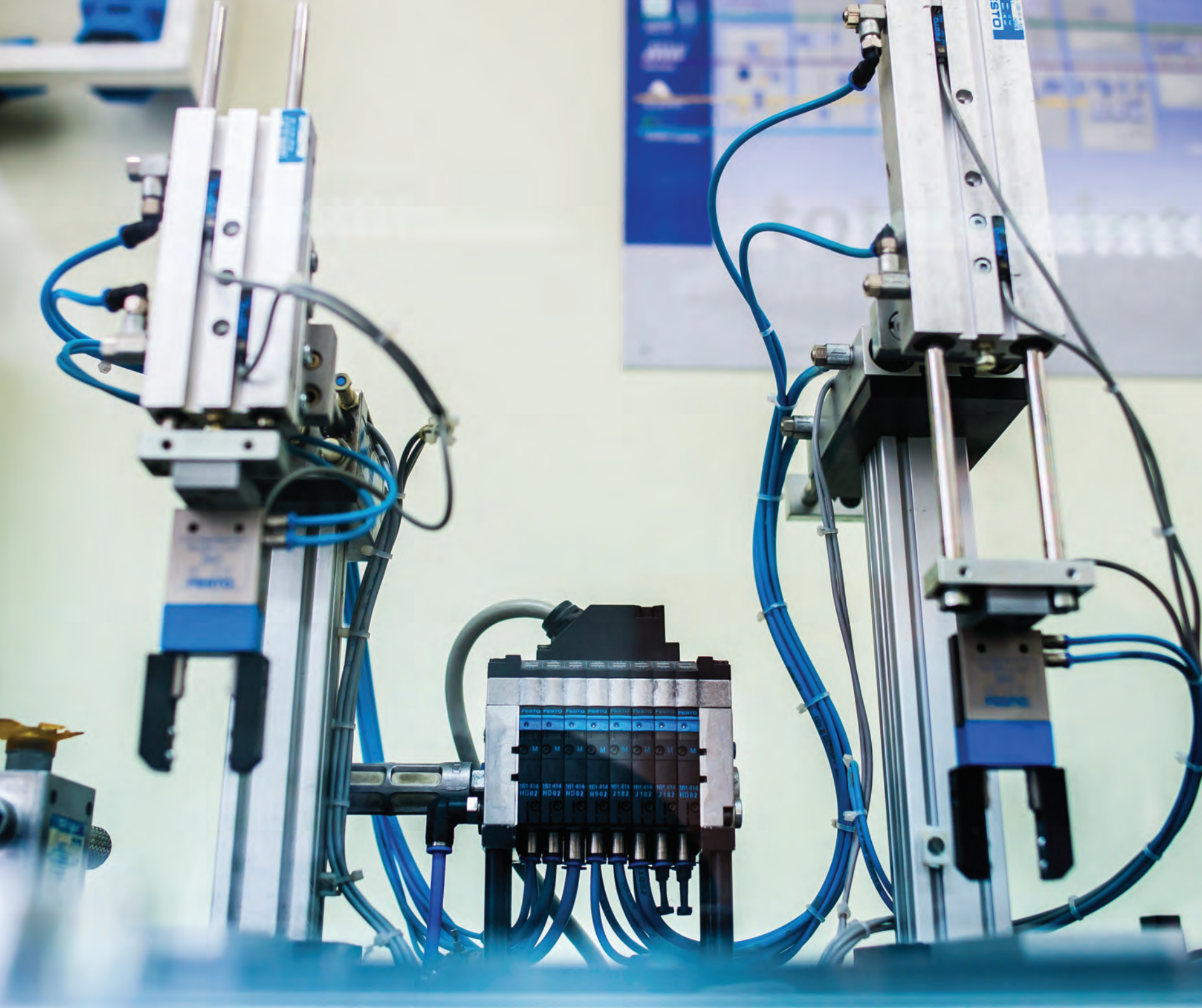
Faculty of Environmental Engineering

Updating of geodetic networks, digital maps and cadastre information systems.

[*Department of Geodesy and Cadastre*](#)

Theoretical and experimental research in geodesy.

[*Research Institute of Geodesy*](#)



INFORMATION AND COMMUNICATION TECHNOLOGIES AREA

PROJECTS

Techno-Economic Regulatory Framework for Radio Spectrum Access for Cognitive Radio/Software Defined Radio (TERRA), 2010-2014. COST. [Laboratory of Telecommunication Engineering](#)

Development and Validation of Control by Lithuanian Speech Unit Model for the Disabled (GALIA), 2012-2014. [Department of Electronic Systems](#)

Development, Research and Implementation of the Methods, Theory and Means for the Calibration of Mechatronic Measuring Systems of Nanometric Resolution, 2012–2015. Global Grant Programme. [Research Institute of Geodesy](#)

Biometry, Identity and Information Security for E-Services Business (BIOMET SECURITY), 2008-2013. EUREKA. [Research Laboratory of Security of Information Technologies](#)

Matrix FEM: Development of 3.5D Counter Prototype for Informational Building Models, 2012-2014. EU Structural Funds. [Department of Information Technologies](#)

SPECIAL FACILITIES

- Laser distance meter, Digital planimeter Sokkia KP-90N, Digicat 200 Cable-Pipe location detector, GNPS receiver Trimble 5700, Total Station DTM 352, Laser level kit Rugby in Department of Geodesy and Cadastre.
- EDM instrument indoors calibration base and Kyviškės calibration baseline; Set of stationary magnetometer (Suspended dIdD system), set of portable magnetometer (ENVI PRO), Theodolite with attachable magnetometer (MinGeo 010 A); Gravimeter (CG-5); Laser scanner (Leica ScanStation C10-3D laser scanning system); Precision total stations (Leica TS30 and 1200+).



TECHNOLOGY MANAGEMENT AND ECONOMICS AREA

TECHNOLOGY MANAGEMENT AND ECONOMICS AREA

UNIVERSAL SUSTAINABILITY RESEARCH FIELD

Faculty of Business Management

Social and economic transformations.

Department of Social Economics and Business Management

Modelling of sustainable economy development.

Department of Finance Engineering

Department of Social Economy and Business Management

Sustainable development of socio-economic systems.

Department of Social Economics and Business Management

Department of Economics and Management of Enterprises

Solution of economic problems of environment protection.

Department of Finance Engineering

Competitiveness of business organizations and its development.

Department of Economics and Management of Enterprises

Department of Finance Engineering

Business legal system.

Department of Law

Faculty of Creative Industries.

Cultural factors of sustainability of socio-economic systems.

Creative Entrepreneurship and Communication department

Department of Philosophy and Political Theory

Department of Physical Training

Sustainability and change of language systems in intercultural communication.

Department of Lithuanian Language

Department of Foreign Languages

Communication in development of creative society.

Creative Entrepreneurship and Communication Department

Department of Philosophy and Political Theory

HIGH VALUE-ADDED ECONOMY FIELD

Faculty of Business Management

Research of accounting and auditing theory and methodology; financial system development; evaluation of business projects and risk management; integrated business value and risk management; creation, development and implementation of regional business risk informative system.

Department of Finance Engineering

Quantitative evaluation of socio-economic systems; economics and management of enterprises.

Department of Economics and Management of Enterprises

INTEGRATED COMMUNICATION STRATEGIES AND CONCEPTS FIELD

Faculty of Business Management

Knowledge management.

Department of Business Technologies

CREATIVE INDUSTRIES, DIGITAL SOCIETY DEVELOPMENT FIELD

Faculty of Business Management

Business negotiations in integrated communications systems.

Department of Economics and Management of Enterprises

ICT in management of organizations.

Department of Business Technologies

Faculty of Creative Industry

Concepts and models of innovation and creativity in creative industries

Creative Entrepreneurship and Communication Department

Development of the ideas in the creative society under influence of new media.

Department of Philosophy and Political Theory

Development of languages in creative society, sustainability and change of language systems in intercultural interaction, problems of applied linguistics: contrastive linguistics, discourse analysis language pedagogy, speciality language acquisition.

Department of Foreign Languages

Development of languages in creative society, sustainability and change of language systems in intercultural interaction, sociolinguistics, problems of applied linguistics: codification, the research of language for professional purposes, discourse analysis language pedagogy.

Department of Lithuanian Language

Physical recreation satisfaction in the city, solutions for urbanized areas; public health promoting concepts, innovative forms of recreation demand and supply analysis, solutions for development.

Department of Physical Training

INNOVATION MANAGEMENT FIELD

Faculty of Business Management.

Innovations, marketing, new technologies and international relations developing knowledge economy.

Department of International Economics and Business Management



TECHNOLOGY MANAGEMENT AND ECONOMICS AREA

PROJECTS

Sustainable Human Development for MED Countries (SHuMED), 2014-2015. Framework 7. [*Department of Economics and Management of Enterprises*](#)

Qualification, Innovation, Cooperation and Keybusiness for Small and Medium Enterprises in Baltic Sea Region (BSR Quick), 2009-2012. Baltic Sea Region programme. [*Department of Economics and Management of Enterprises*](#)

To Conduct a National Economic Activity and Integration into the EU and Opportunities for Sustainable Development and Consequences of Modelling Regard to Innovation Storage Possibilities to Develop the Country's Competitive Potential, 2012-2014. Long term Institutional Economics Research Programme 2012-2014. [*Department of Finance Engineering*](#)

Forecasting and Modelling of Country's Economic Activity, Integration to EU, and Sustainable Development Possibilities and Consequences Considering Innovation Accumulation Possibilities in Order to Improve Competitive Potential of the Country, 2012-2014. Long term Institutional Economics Research Programme 2012-2014. [*Department of Finance Engineering*](#)

A Complex Research on the Impact of Environmental Factors on a Creator (KAVA), 2012-2015. EU Structural Funds. [*Creative Entrepreneurship and Communication department*](#)

SPECIAL FACILITIES

- Biometric equipment Mirametrix S2 Eye Tracker.
- Software INVESTIS to forecast sustainable investment return.
- Recorder DR-680, CS-DR680 yes yes no.
- Portable recorder, Tascam DR-100Mk2.
- Audio mixer, JuisedLink JL-CX231.



FUNDAMENTAL RESEARCH ON MATERIALS AND PROCESSES AREA

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MATHEMATICAL MODELS AND METHODS OF PHYSICAL, TECHNOLOGICAL AND ECONOMIC PROCESSES FIELD

Faculty of Civil Engineering

Development of mathematical models and methods and application in construction and related fields.

Department of Construction Technology and Management

Faculty of Fundamental Sciences

Modelling of fractional dynamic systems.

Department of Physics

Application of statistical analysis methods.

Department of Mathematical Statistics

Modelling of IT systems, physical and technological processes.

Department of Mathematical Modelling

Modelling of construction elements and mechanical structures; applications of computational mechanics.

Department of Strength of Materials and Engineering Mechanics

MODELLING OF BIOCATALYTIC PROCESSES FIELD

Faculty of Fundamental Sciences

Protein purification out of natural and recombinant sources.

Research Laboratory of Bioinformatics

Biocatalytic mediation processes.

Department of Chemistry and Bioengineering

MATERIALS AND TECHNOLOGIES OF ENERGY SOURCES FIELD

Faculty of Fundamental Sciences

Electrical, magnetic and optical characteristics of the materials sensitive to radiation.

Radiation Research Laboratory

Characteristics and technologies of semiconductor nanoformations in solar elements and optoelectronics devices; photoelectric elements and sensors.

Department of Physics



FUNDAMENTAL RESEARCH ON MATERIALS AND PROCESSES AREA

PROJECTS

Mathematical Modelling and Optimization of Electrical Power Cables for an Improvement of Their Design Rules (POWEROPT), 2013-2015. EUREKA. *Department of Mathematical Modelling*

Innovative Materials Solutions for Transport, Energy and Biomedical Sectors by Strengthening Integration and Enhancing Research Dynamics of KMM-VIN (INNVIN), 2012-2015. Framework 7. *Institute of Mechanical Science*

SPECIAL FACILITIES

- Universal automated test beds (200–2000 kN) for mechanical tests with static and dynamic multi-cycle loads equipped with SPIDER 8 data processing systems and KATMAN EXPRESS software.
- Enzyme purification system GE Healthcare AKTA purifier 100.
- System TFF Millipore Pellicon2 Bioreactor 5 A 0,5 m².
- Fermenter FerMac 320.
- Real-time PRG equipment Qiagen-Rotorgene-Q.
- Capillary electrophoresis apparatus with a detector Agilent 7100 capillary.
- Spectrophotometer uv-vis dynamica HALO DB-30.
- Cell culture system analysis module for fluorescence.
- High-capacity cell culture growing and analyzing system.
- Microscope Eclipse Ci-L.
- Laminar box MARS 1500 with UV lamp.
- Lumi/LumiSolarProfessional–High Resolution Electroluminescence-measurement System for Characterization of Solar Modules.
- Spectroscopic Ellipsometer SE 800 PV.



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