

Institute of Technology and Business in České Budějovice

Vysoká škola technická a ekonomická v Českých Budějovicích

Institute of Technology and Business in České Budějovice (VŠTE) is a non-university university with a professional focus, which primarily develops applied and contract research. The focus of the implemented research respects both the accredited study programmes and the specific requirements of business and social practice. High-quality laboratory and instrumentation facilities and equipment are available for research and are being further expanded.

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Services

We provide companies with space, technical facilities and experts for development and research.

We also provide services in the following areas:

- digitalization of the production process, technical and economic optimization of production processes, subsequent introduction into production,
- problems of porosity of alloys, identification of physical-mechanical properties of materials, creation of predictive models suitable for technological processes, in synergy with computer technology responding to the needs of industrial practice with emphasis on Industry 4.0,
- implementation of transport surveys for carriers, optimization and rationalization of logistics processes,
- determination of pump characteristics,
- fire protection solutions,
- EEG biofeedback,
- development of composite materials based on cements, limes and other binders,
- 3D scanning and photogrammetry, digitization and model creation, diagnostics of building structures,
- design of production machines from TPV to the actual cooperation and control in production and construction,
- data analysis, instrumental measurement, statistical analysis.

We cooperate with other universities and research institutions on projects supported by the Ministry of Industry and Trade, the Czech Technology Agency, etc.

For the public sector we offer industrial experiments, physical and numerical simulations, technical and economic optimization of production processes and subsequent implementation into practice, analysis of building materials, 3D measurements, 3D design and manufacturing, laboratory melting and more. For municipalities, we offer traffic studies and analyses, research activities in the field of traffic safety in municipalities, modelling of traffic systems, etc. We offer environmental impact assessment, energy and economic evaluation of buildings.

Equipment / infrastructure

VŠTE has laboratories for teaching, research and industrial partners. The focus of the laboratories corresponds to the individual accredited disciplines, i.e. engineering, construction, transport and logistics, economics. In the laboratories, it is possible to investigate, for example, the properties of materials, perform measurements, the composition of materials or create new products on CNC. We have laboratories for packaging materials, road transport and unmanned aerial vehicles. The Department of Civil Engineering has a heavy laboratory, building insulation, indoor environmental quality and HVAC laboratories, 3D scanning and digital technology laboratories. We use state-of-the-art simulation software for numerical and physical simulations.

Precise measurements are performed using stationary 3D coordinate measuring technology or a mobile 3D scanner. Within the chemistry laboratory, we focus on organic and inorganic chemistry. We use gas chromatography, nuclear magnetic resonance or thermogravimetric analysis. In the field of environmental science we use, for example, a pyrolysis reactor. In the field of economics, the laboratory focuses, for example, on the topic of predicting the development of a company using neural networks.

Best practices / case studies of cooperation

- Research and development of zinc waste recycling technology for the production of high quality zinc alloy castings (for GD Druckguss s.r.o.).
- Research and development of refining technologies to increase the quality of aluminium alloys for high demanding castings (for MOTOR JIKOV Slévárna a.s.).
- Health-safe surfaces based on recycled rubber (for EKAZ Praha a. s.).
- Evaluation of the reliability of the prediction of the arrival of means of transport at public transport stops in České Budějovice (for the Transport Company of the City of České Budějovice).
- Analysis of the quality of transport services on selected regional railway lines (for GW Train Regio, a.s.).

Keywords

Internships, labs, engineering, transportation logistics, business economics, construction, building materials, 3D scanning, data analysis, predictive maintenance, EEG biofeedback, Industry 4.0