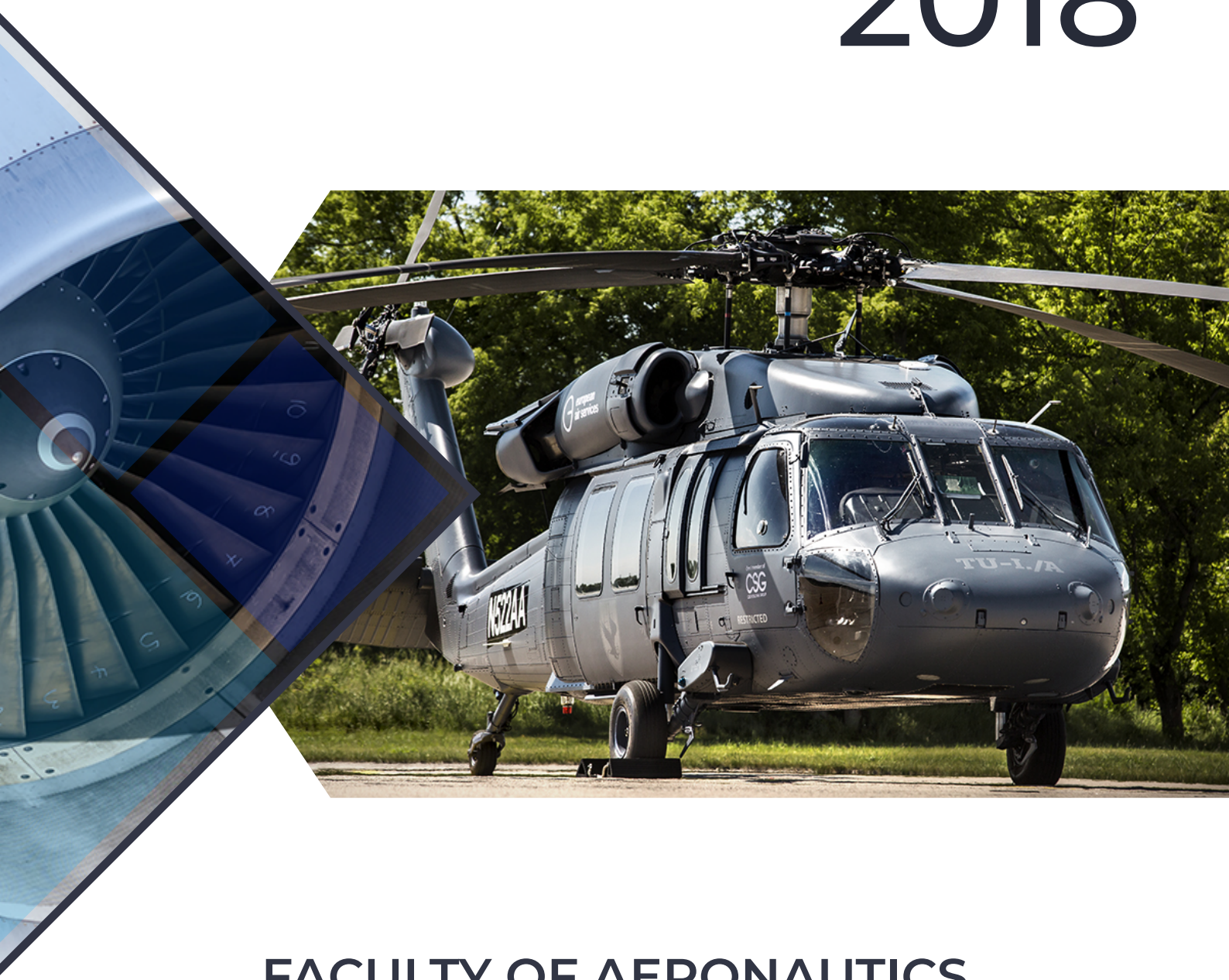
ANNUAL REPORT 2018



FACULTY OF AERONAUTICS

TECHNICAL UNIVERSITY OF KOSICE

Faculty
of Aeronautics

TECHNICAL UNIVERSITY OF KOSICE

FACULTY OF AERONAUTICS

SLOVAK REPUBLIC

ANNUAL REPORT

2018

SLOVAK REPUBLIC TECHNICAL UNIVERSITY OF KOSICE FACULTY OF AERONAUTICS

www.lf.tuke.sk

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Preamble

The quality requirements have accompanied all the universities since their establishment. The well-known 17th century materialist philosopher Thomas Hobbes, in his Leviathan published in 1651, said about the responsibility of universities for the quality of education: "If we acknowledge that universities are the springs of civic and moral doctrine from which preachers and rural nobility draw their strength to spread it to the people, we should definitely pay special attention to keeping these springs clean, not clouded by non-godly politicians, or influenced by evil spirits."

Perhaps none of us doubts the validity of this statement even after such a long time.

The reforms, initiated in 2017, continue with clear goals to improve the quality in core activities, i.e. education, research and publishing activities which was the main mission of the Faculty of Aeronautics TUKE in Kosice in 2018. Fulfillment of this mission was realized with maximum participation of all creative staff of the faculty, recognizing the demonstrable degree of responsibility of the faculty management and transparency in all activities.

Based on the definition given also by the University Education Act, including the faculties, their responsibilities for ensuring the quality of education provided, the Faculty of Aeronautics management tried to clearly define, elaborate, implement but also use the internal system of performance and quality monitoring. The priority objective of the internal system is to monitor the quality of all activities by defining the faculty's policies and procedures for its provision. Quality assurance itself includes tools, organization, division of responsibilities, degree of involvement of employees and students, ways of implementing, using, monitoring and reviewing the quality assurance and monitoring system.

The basic areas of study at the Faculty of Aeronautics in 2018 with the aim of improving the quality included the current study programs, criteria and rules for the evaluation of science and teaching staff and PhD students, quality of the teaching process, study materials, material and technical resources to support education, development and modernization of the whole faculty infrastructure.

From the evaluation and analysis of all activities of the Faculty of Aeronautics in 2018, compared to the years 2015, 2016 and 2017 presented in the above-mentioned Annual Report, we are pleased to say that in 2018 the faculty achieved the best results in its history so far in the absolute majority of the main activities monitored, including financial management.

Dr.h.c. Assoc. Prof. Ing. Stanislav Szabo, PhD., MBA. LL.M

Dean

ACADEMIC OFFICIALS OF THE FACULTY OF AERONAUTICS

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Chairman of academic senate: Ing. Juraj VAGNER, PhD.

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SCIENTIFIC COUNCIL

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Vice - chairman: Assoc. Prof. Ing. Peter KORBA, PhD.

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Assoc. Prof. Ing. Peter KORBA, PhD.

Ing. Radoslav ŠULEJ, PhD.

Mgr. Peter ČEKAN, PhD.

prof. Ing. František ADAMČÍK, CSc.

Assoc. Prof. Ing. Rudolf ANDOGA, PhD.

Assoc. Prof. Ing. Róbert BREDA, PhD.

Dr.h.c. mult. Prof. Ing. Paweł CZARNECKI, PhD., MBA, LL.M, MPH

prof. Ing. Milan DŽUNDA, CSc.

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Assoc. Prof. Ing. Michal HOVANEC, PhD.

Assoc. Prof. Ing. Jozef HUDÁK, CSc. mim. prof.

Dr.h.c prof. Ing. Miroslav KELEMEN, DrSc., MBA, LL.M.

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Assoc. Prof. Ing. Václav MOUCHA, CSc.

Assoc. Prof. RNDr. Ladislav TOMČO, PhD.

Assoc. Prof. Ing. Dušan NEŠTRÁK, CSc.

Assoc. Prof. Ing. Vladimír NĚMEC, Ph.D., prof.h.c.

Prof. Ing. Ján PIĽA, PhD.

Assoc. Prof. Ing. Karol SEMRÁD. PhD.

External members:

Ing. Ján BREJA

Prof. PŚ, dr hab. Małgorzata Dobrowolska, PhD.

prof. Ing. Zděnek DVOŘÁK, PhD.

Assoc. Prof. Ing. Beáta GAVUROVÁ, PhD., MBA., LL.M

Assoc. Prof. dr hab. inż. Jarosław KOZUBA, prof.nadzw.

Dr.h.c. prof. Ing. Miroslav LÍŠKA, CSc.

Assoc. Prof. Ing. Jindřich PLOCH, CSc.

Assoc. Prof. Ing. Radovan SOUŠEK, Ph.D.

Ing. Blažej ZAUJEC

Secretary:

Ing. Jarmila FERENČÍKOVÁ, PhD. (since 11-2016)

ACADEMIC SENATE OF THE FACULTY OF AERONAUTICS

Chairman: Ing. Juraj VAGNER, PhD.

Vice-chairmen: Assoc. Prof. Ing. Karol SEMRÁD , PhD.

Ing. František HEŠKO

Members: Assoc. Prof. Ing. Róbert BRÉDA PhD.

PhDr. Anna ČEKANOVÁ, PhD.

Ing. Jozef GALANDA , PhD.

Ing. Edina JENČOVÁ , PhD.

Ing. Alica TOBISOVÁ , PhD.

Ing. Karol SEMRÁD, PhD.

Bc. Miroslav SPODNIAK

Natália TRIŠČÍKOVÁ

Tomáš ZELINKA

FACULTY OF AERONAUTICS in the ACADEMIC SENATE of TUKE and UNIVERSITY COUNCIL of SR

Vice chairwoman: PhDr. Anna ĈEKANOVÁ, PhD.

Members: Ing. Juraj VAGNER, PhD.

Member of the Academic senate TUKE

Ing. Viktor BALAŠĈÍK

KOSICE – THE RESIDENCE OF THE FACULTY OF AERONAUTICS TUKE

Kosice is the second largest city of the Slovak Republic. The first written reference to the city with the historical name CASSOVIA dates back to the 13th Century. In the first half of the 14th century Kosice had already been a free royal town. In December 1654, there was the first grammar school established in 1657 - the University of Academia Cassoviensis, renamed in 1776 to the Royal Academy - Academia Regia Cassoviensis. Kosice city is also interesting with its architecture. The old town has been declared an Urban Conservation Area. In the centre, the Cathedral of St. Elizabeth is known as one of the most monumental expression of Gothic art in Europe.

The Technical University of Kosice was established in 1952, but in fact, the origin and roots of the two faculties go back to the 18th century and they are derived from the Mining Academy in Banska Stiavnica. The University is a state-supported institution. At present, the University consists of nine faculties. It has about 10 000 students and 900 academic staff members.

The Faculty of Aeronautics was established on 1 February 2005 as a successor of the Air Force Academy of Milan Rastislav Stefanik in Kosice, which had been a prestigious educational institution in Europe and in the world having provided university education for pilots and air operating personnel for over 30 years. The main mission of the faculty is to contribute to the tasks of the Technical University, especially in the area of air technologies, aeronautics and astronautics. The faculty from its beginning has focused on complex aviation issues, has provided university education and has conducted the scientific research and development in traditional areas of aviation: the management and security of aviation, aerospace engineering, avionics and construction, maintenance and operation of aeronautical products as a part of three scientific fields with accredited study programs at all three university degrees.

DEPARTMENTS

The scientific and teaching staff of the Faculty of Aeronautics, Technical University in Kosice includes five departments focusing on different special areas of aviation issues.

Departments	**Responsibilities**
Department of Avionics	teaching school subjects focused on avionics, airborne instrumnets, aircraft electrical systems, airborne radio and radio-technical systems and special systems of aircraft
Department of Aviation Technical Studies	related to the aviation engineering,aviation and industrial sensorics, magnetometrics, aviation mechanics and material, aviation electrotechniques, electronics and cybernetics
Department of Flight Training	preparation and simulator training for students of professional pilot and air traffic controller study programs
Department of Aviation Engineering	preparation of a ground and flight staff in the aircraft design theory, aircraft engines, ground servicing and airfield operations
Department of Air Transport Management	school subjects focused mainly on the area of management, organization and supervision of air transport operations, economics and civilian managerial regulations

EDUCATION AND COURSES

Courses offered

The Faculty of Aeronautics offers three types of full-time and part-time courses:

Bachelor´s Degree courses (3 years) leading to a title Bc.

Master´s Degree courses (2 years) leading to a title Ing.

Doctoral Degree courses (3 years) leading to a title PhD.

Level	**Title**	**Courses**		**Study field**
1.	Bc.	Air Transport Management	3772	Transport
	Bc.	Professional Pilot	3772	Transport
	Bc.	Air Traffic Controller	3772	Transport
	Bc.	Aircraft Operation	2353	Motor vehicles, rail vehicles, ships and airplanes
	Bc.	Avionics Systems	2613	Electronics

2.	Ing.	Air Transport Management	3772	Transport
	Ing.	Aircraft Operation	2353	Motor vehicles, rail vehicles, ships and airplanes
	Ing.	Sensorics and Avionics Systems	2613	Electronic
3.	PhD.	Air Transport Management	3772	Transport
	PhD.	Aircraft Operation	2353	Motor vehicles, rail vehicles, ships and airplanes
	PhD.	Aviation and Industrial Electronics Systems	2613	Electronics

CREDIT BASED SYSTEM

STATISTICS

The actual number of faculty staff members is 90 including 4 professors, 18 associate professors, 31 assistant professors, 4 research workers,1 lector, 26 administrative staff and technicians.

Number of students

The number of Bachelor´s students is 377, number of Master´s (Ing.) students is 230 and number of Doctoral students is 36.

STUDY LEVEL	Full-time students	External students	Total
Bachelor´s	377	-	377
Master´s	226	4	230
Doctoral	9	27	36
			643

DEPARTMENT OF AVIONICS

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The department provides courses focused mainly on: aerospace electronics, aircraft instruments, aircraft cybernetic systems, aircraft electrical systems, aircraft radio and radio systems, special aircraft onboard systems, aviation communication and information systems, signal processing and transmission.

The department performs scientific and research activities mainly in selected areas of avionics, aircraft instruments, aircraft electrical systems, aircraft radio and radio systems, special onboard aircraft systems, in selected areas of signal processing and transmission, accuracy and resistance of radio electronic systems to interference, operation, design and technical diagnostics of radio communication systems and aviation visual flight control systems.

It guarantees and conducts conversion courses for pilots and technicians in aircraft material of avionics, aircraft instruments, aircraft electrical systems, aircraft radio and radio systems, special aircraft on-board systems and aviation technology conversion courses in aviation security.

MANAGEMENT OF THE DEPARTMENT

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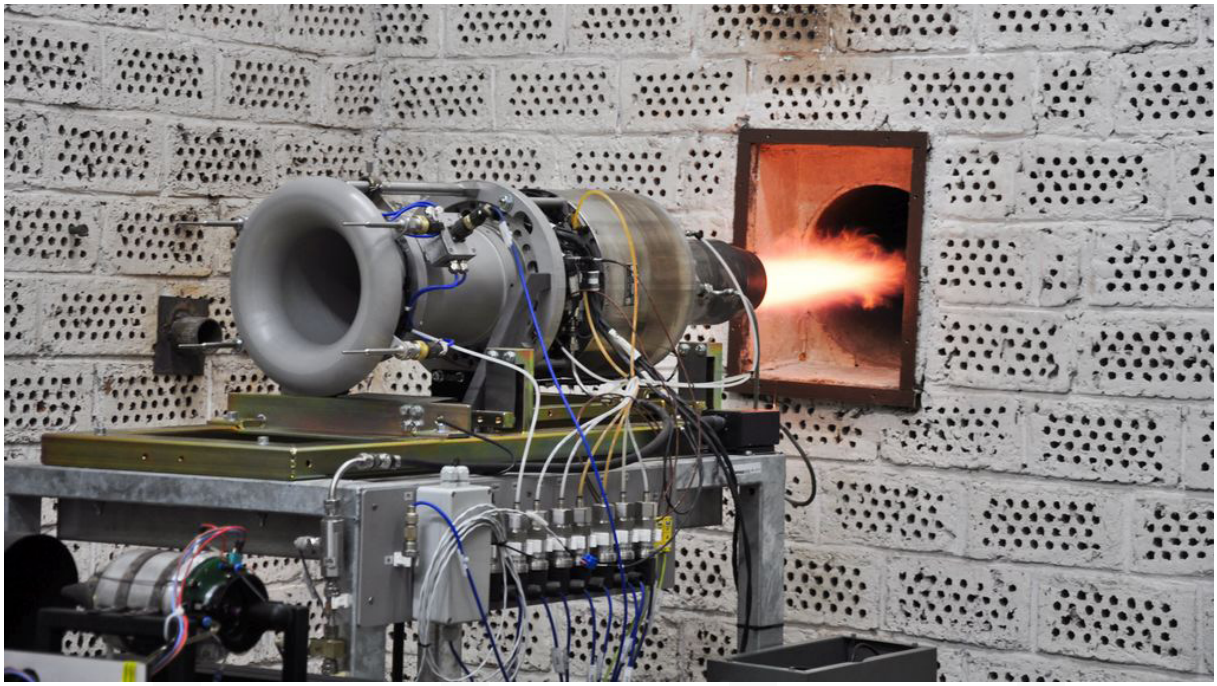
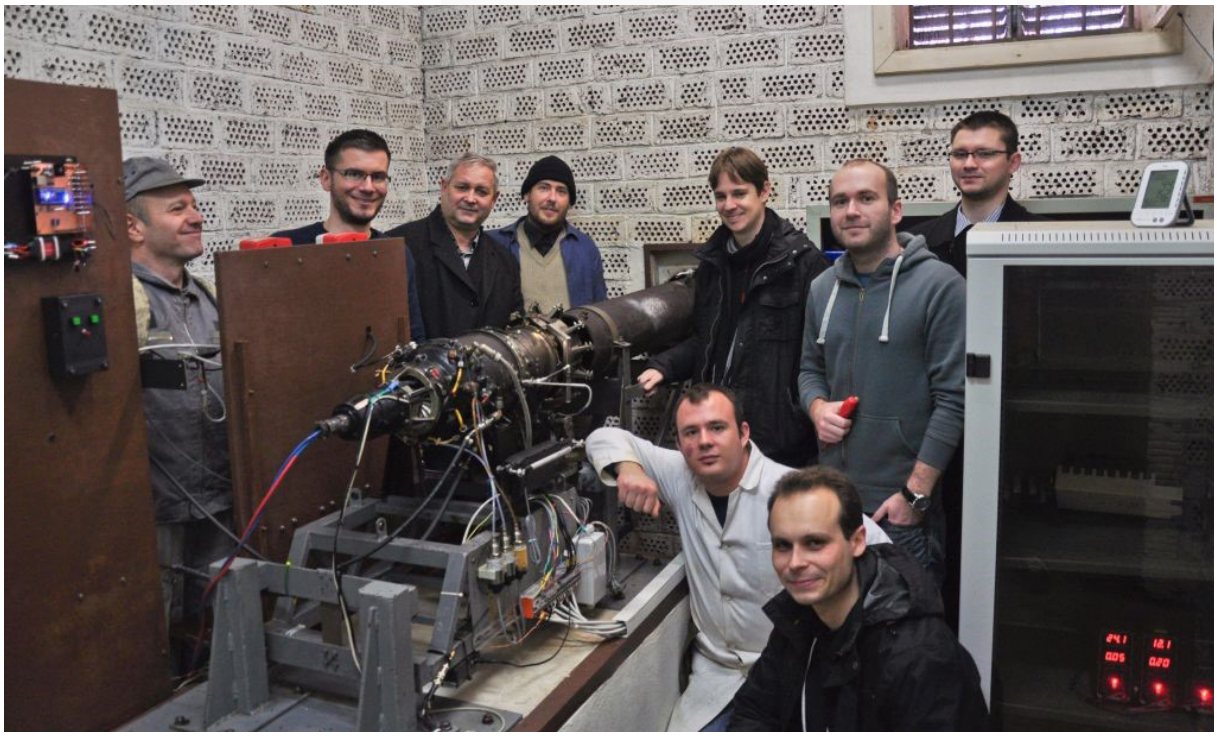
Laboratory of Aircraft Antenna Technology

The laboratory was built to investigate the influence of the shape of the aircraft / helicopter on the radiation characteristics of aircraft antennas and to investigate the appropriate positioning of the antennas on the aircraft / helicopter. The laboratory consists of a compact anechoic attenuation chamber, instrumentation and software equipment and an automated measuring workplace for measuring radiation characteristics of aircraft antennas. The equipment of the laboratory enables, among other things, the examination of the emission of equipment from the viewpoint of electromagnetic compatibility and enables the diagnosis of radio and radio-technical equipment. The laboratory software enables to model and simulate the radiation characteristics of aircraft, helicopters, and antennas and, if necessary, other objects.

Laboratory of Intelligent Aircraft Engine Control Systems

The Laboratory of Intelligent Aircraft Engine Control Systems (LIRSLM) is located on the premises of the Faculty of Aeronautics of the Technical University of Kosice. It is an interconnected workplace of a department of the Faculty of Electrical Engineering and Computer Science (Department of Cybernetics and Artificial Intelligence) and two departments of the Faculty of Aeronautics (Department of Avionics, Department of Aerospace Engineering). A substantial part of the laboratory are the testing rooms of small turbojet engines (MPM-20 and TJ-100), where objects and control rooms (controls) are located, which are separated from the test rooms by armoured thick-walled glass.





Laboratory of Instrumentation and Electronic Instrumentation Systems

The laboratory is designed for research and teaching in the field of flight aerometric and navigation instruments, airframe and engine instrumentation systems, aerometric computers, oxygen and altitude measurement and control systems, alert systems and flight parameter recording and registration systems used on board an aircraft.

Laboratory equipment: For teaching and research purposes, the laboratory is equipped for measuring and checking on-board instrument and electronic aircraft systems. The laboratory is equipped with fuel quantity and consumption measurement systems, barometric flight instruments and their control systems, total and static pressure and ambient temperature sensors, aerodynamic angle sensors, artificial horizon systems, course systems, inertial navigation systems and their control systems, flight data registrars, tachogenerators, systems for measuring electrical transmission of rotation, aircraft engine vibration sensors, aircraft engine tachometers, thermoelectric sensors, resistance thermometers. Generators, sources, oscilloscopes, counters, meters U, I, R, L, C, rheostats, capacitance and resistance cascades are used for laboratory measurements.

Laboratory of Avionic Systems

The laboratory is designed for research and teaching in the field of aircraft electrical machines, automatic aircraft control systems, unmanned means. The laboratory is equipped for measurement of static and dynamic characteristics of aircraft generators and electric motors, measurement of on-board electrical network elements. It enables to design and test algorithms for control of unmanned vehicles and digital aircraft systems. The laboratory is designed for teaching subjects focused not only on general avionics, but also on aircraft cybernetic systems, including the application of adaptive and intelligent algorithms in avionic cybernetic systems.

Laboratory equipment:

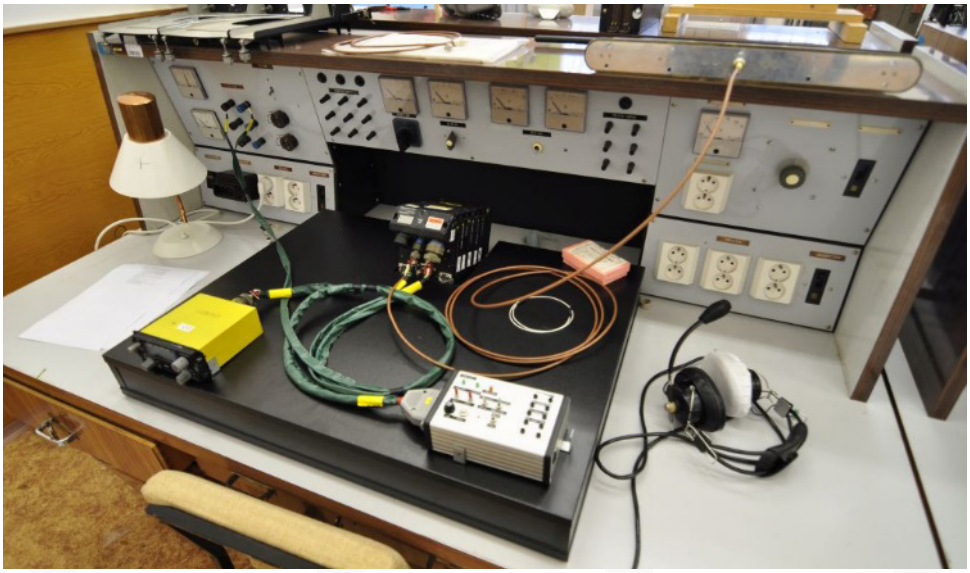
The laboratory for teaching and research purposes is equipped to measure and control aircraft generators, to control and adjust rotary converters, voltage regulator circuits, back-ups, and onboard network controls. It contains a stabilized source of DC and AC voltage, basic types of rotary and static converters and control-measuring technology for their measurement. The laboratory is equipped with elements and systems that represent components of automatic aircraft control systems and unmanned means.

Laboratory of Communication and Navigation Systems

The laboratory is designed for research and teaching in the field of radio communication, radio-technical and radio navigation systems of aircraft. Thanks to its instrumentation and material equipment it enables to perform measurements on circuits, analyze the functionality and operability of these systems.

Laboratory Equipment:

The laboratory for teaching and research purposes is equipped with radio-communication, radio-technical and radio-navigation systems used on aircraft. AN / ARC 210 aircraft radio stations, RTL-11, R-802, R-832, R-862, R-863, LUN-3520, LUN-3524, air navigation systems ARK-9, ARK-10 , ARK-15, RKL-41, RKL-52, ARK-U2 radio altimeters RV-3, RV-4, RV-5, RV-UM, A-031, A-035, ALT 1000 and systems of near, remote and global navigation VIR-32 and Garmin 150, where the selected parameters can be measured. Measurements are made using special control measuring instruments, such as. KP-11, KPO-11, KSR-5, block 28, block IK, KPRV-5. The measurement uses signal generators, counters, wattmeters, oscilloscopes, multimeters, spectrum analyzers, National Instruments LabView software with DAQ converter.



Digital Technology Classroom

The classroom serves for practical teaching of the subjects Digital Aircraft Technology and Navigation Systems I. and II. It houses a virtual complex of avionic systems, built on the simulation software Prepar3D. This virtual complex enables the students to practically demonstrate the functionality and configuration, including demonstrations, principles of aircraft navigation and communication systems, as well as flight management and control systems. The classroom also serves as a lecture room for 20 students.

Classroom equipment:

PC + projector, virtual complex of avionic systems

The Bachelor´s works:

Gecejová Natália	sk: Parametre servomechanizmov bezposádkových pros-triedkov en: Servomechanisms parameters of unmanned vehicles Najlepšia bakalárska práca na LF – ocenenie dekanom	Ing. Marek Češkovič, PhD.

Husarčíková Vladimíra	sk: Statická energia a jej účinky na lietadlo en: Static electricity and its effect on aircraft	Ing. Marek Češkovič, PhD.
Ivanko Marek	sk: Prostriedky vzájomného spojenia posádky en: Crew intercommunication devices	Ing. Marek Češkovič, PhD.
Karoľ Jakub	sk: Dynamické charakteristiky mikro turbo-kompresorových motorov en: Dynamic characteristics of micro turbojet engines	Assoc. Prof. Ing. Rudolf Andoga, PhD.
Kozlov Kyrylo	sk: Šlírový optický systém pre zviditeľňovanie rázových vĺn en: Schlieren optical system for visualization of shock waves	Ing. Peter Gašparovič, PhD.
Pajtáš Peter	sk: Uplatnenie metódy “Energy harvesting” v letectve en: Application of energy harvesting method in aviation	Ing. Martin Schőtter, PhD.
Pudrivskyi Yevhenii	Sk:Ovládanie a riadenie palubných prístrojov INS/IRS eng: Control instrumentation and contro INS/IRS l	Assoc. Prof. Ing. Róbert Bréda, PhD.
Rymskyi Viktor	sk: Modulárna avionika súčasného lietadla en: Modular avionics of the current aircraft	Assoc. Prof. Ing. Róbert Bréda, PhD.
Semchen-kov Oleksandr	sk: Návrh zástavby rádiostanice do malého lietadla en: Design of radiostation installation into a small aircraft	Ing. Marek Češkovič, PhD.
Tyshchenko Denys	sk: Elektro-energetický systém moderného dopravného lietadla en: The electrical power system of modern transport aicraft	Ing. Martin Schőtter, PhD.
Zelinka Tomáš	sk: Digitálne systémy ochrany letovej obálky en: Digital flight envelope protection systems	Assoc. Prof. Ing. Rudolf Andoga, PhD.

The Diploma works:

Bc. Artim Šimon	sk: Návrh ovládacích prvkov umiestnených v kabíne lietajúcich prostriedkov en: Design of controls located in the cabin of the aircraft	Ing. Marek Češkovič, PhD.
Bc. Broda Tomáš	sk: Vizualizácia meraných dát senzorov en: Vissualization of sensors measured data	Ing. Pavol Lipovský, PhD.
Bc. Cudrák Peter	sk: Digitalizácia ovládania rádiostanice R863 en: Digitalization of R863 radiostation control panel	Ing. Marek Češkovič, PhD.

Bc. Kőrősi Tomáš	sk: Teplotná komora na báze Peltierovho článku en: Temperature chamber based on Peltier cell	Ing. Marek Češkovič, PhD.
Bc. Kupčík Pavol	sk: Metóda merania stavu leteckej kompozitnej konštrukcie en: Method of mearurement of composite contruction condition	Ing. Miroslav Šmelko, PhD.
Bc. Leško Jakub	sk: Implementácia algoritmov pre autopilot PixHawk PX-4 en: Implementation of algorithms for the pixhawk autopilot	Assoc. Prof. Ing. Rudolf Andoga, PhD.
Bc. Madoš Radoslav	sk: Rozloženie prúdu na rukávovej anténe navigačného systému NDB en: Current distribution on the sleeve antenna of the NDB navigation	Assoc. Prof. Ing. Ján Labun, PhD.
Bc. Miftakhova Anastasiia	sk: Dynamické modelovanie malého bezposádkového letúna Skydog en: Dynamic modeling of a small unmanned airplane Skydog	Assoc. Prof. Ing. Rudolf Andoga, PhD.
Bc. Pavlenko Oleksandr	sk: Vplyv zmeny frekvencie na rozloženie blízkeho poľa antény en: The influence of frequency change on the distribution of the near field of the antenna	Assoc. Prof. Ing. Ján Labun, PhD.
Bc. Pillár Patrik	sk: Vyhodnotenie chýb INS s využitím softvérového nástroja en: Evaluating INS errors using a software tool	Assoc. Prof. Ing. Róbert Bréda, PhD.
Bc. Porochavý Jozef	sk: Systém ACARS pri dátovom prenose informácie v letectve en: The ACARS system for data transmission in aviation	Assoc. Prof. Ing. Ján Labun, PhD.
Bc. Predanocy Dušan	sk: Analýza súčasných trendov využitia termovízie v diagnostike leteckých motorov en: Analysis of Current Trends in the Use of Thermovision in Aircraft Engine Diagnostics	Ing. Martin Schőtter, PhD.
S Bc. irko Alexander	sk: Širokopásmový Step-Down menič pre použitie na palube UAV en: Wide range Step-Down converter for in UAV	Ing. Miroslav Šmelko, PhD.
Bc. Szőke Zoltán	sk: Meranie riadiacich signálov viacrotorového UAV en: Measurement of multirotoer UAV control signals	Ing. Miroslav Šmelko, PhD.
Bc. Štechová Andrea	sk: Počítačom podporovaná výučba systémov pobytového prostredia lietadiel en: Computer based learning of evironmental control system airplane	Assoc. Prof. Ing. Róbert Bréda, PhD.
Bc. Valiga Martin	sk: Riadenie modulu štartér-generátor eng: Starter-generator module control	Ing. Miroslav Šmelko, PhD.

Bc. Vőrőš Boris	sk: Letové charakteristiky malého bezposádkového letúna Skydog en: Flight characteristics of a small unmanned airplane Skydog	Assoc. Prof. Ing. Rudolf Andoga, PhD.
Bc. Zvirinský Michal	sk: Bezdrôtové ovládanie pozemného letiskového vybavenia en: Wireless control of airport technical divices	Ing. Miroslav Šmelko, PhD.

DEPARTMENT OF AVIATION TECHNICAL STUDIES

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Department of Aviation Technical Studies

Rampova 7, 041 21 Kosice

Web page: www.kltp.leteckafakulta.sk

Phone No.: +421 55 602 6155

Department Characteristics

The Department ensures the teaching of specialized electrotechnical subject for the aviation electrotechnical and engineering study programs at the FA and of the fundamental natural science subjects for all of the study programs at the FA.

Educational activities

The Department guarantees the university education provided:

- in the 1st degree of the university study - in the bachelor study program Avionics systems (the study branch 2613 Electronics), Aircraft operations (the study brunch 2353 Motor vehicles, rail vehicles, ships and aircrafts), Air Transport management, Professional Pilot and Air Traffic Controller (the study branch 3702 Transportation) and in the Aerospace Engineering study program (Field of Study 5.02.61 Aerospace Engineering).
- in the 2nd degree of the university study - in the master´s study program Sensors and avionics systems (the study branch 2613 Electronics), Aircraft operations (the study brunch 2353 Motor vehicles, rail vehicles, ships and aircrafts), Air Transport management (the study branch 3702 Transportation).
- in the 3rd degree of the university study - in the doctoral study program Aviation and industrial electronic systems (the study branch 2613 Electronics), Aircraft operations (the study brunch 2353 Motor vehicles, rail vehicles, ships and aircraft), Air Transport management (the study branch 3702 Transportation).

Research and development activities

The Department performs research and development activities in the chosen parts of the aviation electrotechnics:

- applied magnetometry in the aviation, space and industrial systems,
- development and optimization of magnetic sensors design and characteristics,
- development of effective calibration methods of sensors for aviation and industrial systems,
- development of communication technologies for remotely piloted aircrafts,

In the chosen parts of physics:

- study of dielectric properties of magnetic fluids,
- study of physical properties of chosen magnetic materials and magnetic microwires,
- study of magnetic principle of the heating mechanism - hypertherm in the magnetic nanoparticle system,

In the chosen parts of the mathematics with the focus on the:

- numerical methods of equations and partial differential equations,
- operational analysis, graph theory, hypergraphs and combinatory structures,
- didactics of the subjects' teaching.

Management of the Department

Head of Department	Assoc. Prof. Ing. Václav MOUCHA, CSc.
Manager for education	Ing. Miroslav ŠMELKO, PhD.
Manager for research and development	Assoc. Prof. Ing. Katarína DRAGANOVÁ, PhD., ING-PAED IGIP
Manager for development	Ing. Mária JOZEKOVÁ

Professors

Emeritus professor	prof. Ing. Dušan RODZIŇÁK, CSc.
	Assoc. Prof. Ing. Jozef HUDÁK, CSc.
	Assoc. Prof. RNDr. Ondrej HUDÁK, DrSc.
Associate professors	Assoc. Prof. Ing. Václav MOUCHA, CSc.
	Assoc. Prof. RNDr. Eva KOMOVÁ, PhD.
	Assoc. Prof. RNDr. Ladislav TOMČO, PhD.
Assistant Professors	RNDr. Kristína BUDAJOVÁ, PhD.
	Ing. Pavol LIPOVSKÝ, PhD., ING-PAED IGIP
	RNDr. Peter SZABÓ, PhD.
	RNDr. Katarína TIBENSKÁ, PhD.
	RNDr. Eva BARANOVÁ

Technicians

Technician	Ing. Martin MIČKA
Technician for educational activities	Ing. Mária JOZEKOVÁ
Technician	M.Eng. Ing. Marek KOŠUDA

PhD. students

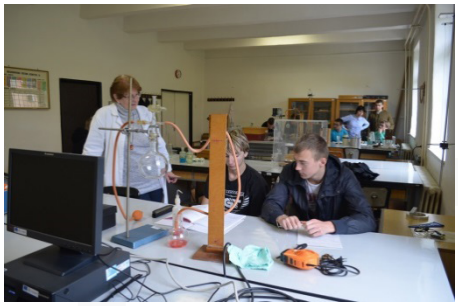
Internal PhD. student	Ing. František HEŠKO
Internal PhD. student	Ing. Jozef NOVOTŇÁK
Internal PhD. student	Ing. Martin FIĽKO
Internal PhD. student	M.Eng. Ing. Marek KOŠUDA
External PhD. student	Ing. Tomáš KLIMENT

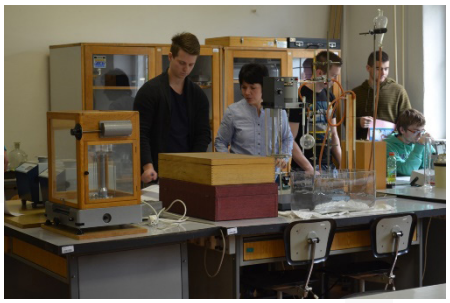
Laboratories and classrooms

- Laboratory of fundamental physical measurements of hydromechanics and thermomechanics

  The workstation is focused on the:

  Education of practical exercises from physics and measurement of the fundamental physical properties of the magnetic fluids. For this purpose the laboratory is equipped with many laboratory measurement devices as well as laboratory materials for the physical measurements.





- Laboratory for measurement of magnetic properties of matters

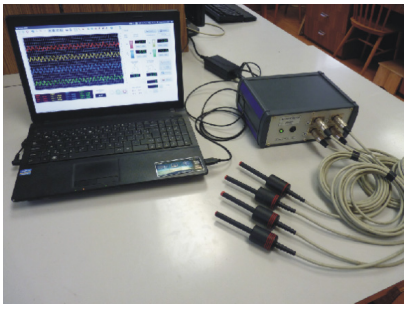
  The workstation is focused on the:

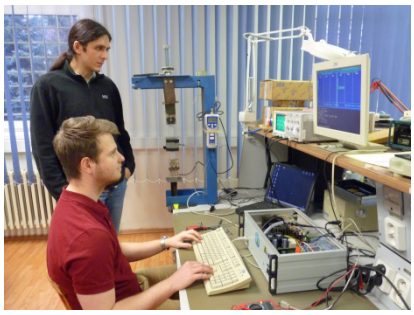
  - applied research of magnetic properties of magnetic materials. For this purpose the laboratory is equipped with the laboratory measurement devices, which can be used for the measurement and analysis of these properties.

- Laboratory of magnetometry and Laboratory of sensorics

  The workstations are focused on the:

  - research of magnetic sensors of the fluxgate type on the basis of amorphous magnetic materials and microwires, special magnetic and inductive position and movement sensors,
  - detection of ferromagnetic and conductive objects on the conveyor belts,
  - localisation of drill holes, cleaning sets in the pipes, water tubes and electrical distribution networks,
  - measurement of static and dynamic characteristics of magnetic materials,
  - measurement and analysis of weak magnetic field for the environmental purposes and electromagnetic compatibility, archaeological and geophysical applications

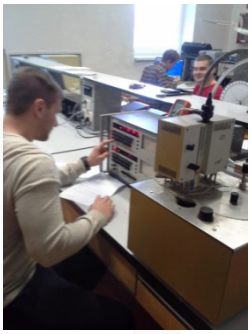




- Workstation of special tensometry

  The workstation is focused on the:

  - development of the special contactless tensometers based on the magnetic microwires
  - contactless compression and tension measurement
  - monitoring of the material ageing process,
  - contactless vibrodiagnostics.



- Laboratory of electronics

  The workstation is focused on the:

  - area of verification of parameters of analogue and digital electronic circuits, area of verification of the principles and fundamental functions of sensors for industrial, transport, aviation, security and safety systems, area of the verification of the fundamental tasks of the security systems. It offers multiple measurement workstations equipped with the fundamental electronic analogue and digital measurement devices, demonstrative measuring appliances and laboratory aids.

- Workstation of remotely piloted aircraft

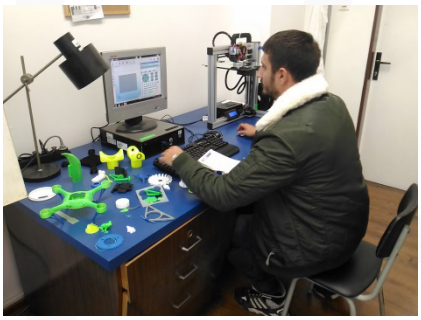
  The workstation is focused on:

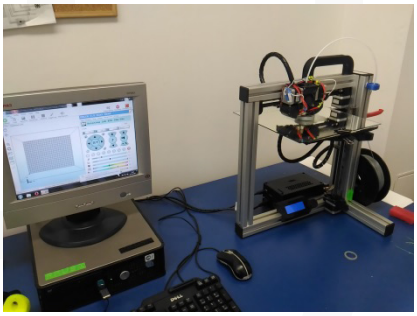
  - small remotely piloted aircrafts; the spatial, material and knowledge basis allows research, development, design, testing, education and applications of the remotely piloted aircraft.

- Workstation of CAD/CAM/CAE

  The workstation is focused on the:

  - engineering tasks in the area of computer aided design, manufacturing and engineering,
  - design and manufacturing of the forms for the plastic components, CAD/CAM models preparation using the 3D scanner,
  - manufacturing of the real models using the 3D printer from the provided CAD/CAM models,
  - manufacturing of the prototypes with the required shape using the NC machine from the supplied models,
  - realization of the engineering computational tasks using the CAE software.



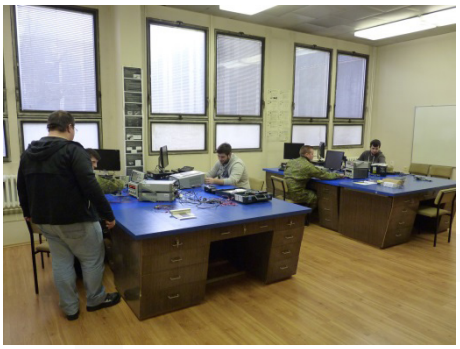


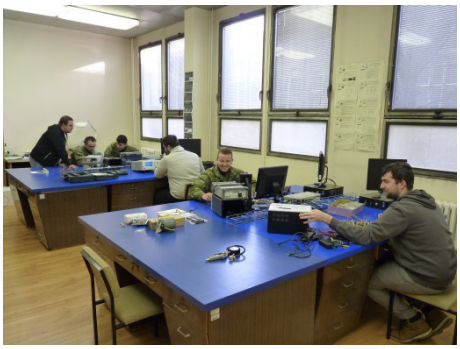
• Laboratory of Sensory Measurement Systems

The laboratory is intended for measurement and verification of basic properties, parameters and characteristics of elements of sensory measuring systems and their application for monitoring objects and processes. It is equipped with basic measuring technology and development tools for rapid prototyping and construction of IoT devices. It serves for the practical teaching of the subjects “Electrical Measurement”, “Systems for Data Acquisition and Processing” and “Sensory Measurement Systems”.

• Sensory Testing Laboratory

The laboratory is focused on testing of sensory, navigation and control subsystems. It is fully used for realization of experiments in solving scientific projects, doctoral studies and realization of bachelor and engineering final works of students focused on the application of sensorics. Design and implementation of new original circuits, sensors and systems as well as new integration and control algorithms for individual subsystems are expected.





Courses

The department offers courses from the high school mathematics (20 hours) and physics (20 hours). Courses are focused on the solution of fundamental tasks and problems from the high school mathematics and physics, which can significantly help to the successful pass through the first year of the university study at the Faculty of Aeronautics.

In addition to the university study the Department offers the specialized education of the aviation technicians according to the Part-66 in the M03, M04 and M06 modules, which allows obtaining the international license for the aircraft maintenance.

Membership in Committees, Boards and Organizations and Societies

Assoc. Prof. Ing. Václav MOUCHA, CSc.

- Membership in Scientific Boards
  Member of the Scientific Board of Faculty of Aeronautics TUKE
- Membership in Editorial Boards
  Member of the Editorial Board of the ACTA AVIONICA published by the Faculty of Aeronautics TUKE ISSN 1339-9853 (online), ISSN 1335-9479 (print)
- Membership in Slovak and International Organizations and Societies

  Vice Chairman of the Faculty expert committee of the Faculty of Aeronautics TUKE for the Study branch: 2613 Electronics - Doctoral Study Program: Aviation and Industrial Electronic Systems

Assoc. Prof. Ing. Jozef HUDÁK, CSc.

- Membership in Scientific Boards
  Member in the Scientific Board of the Faculty of Aeronautics TUKE
- Membership in Slovak and International Organizations and Societies
  Member of the Slovak Magnetic Society

  Member of the Faculty expert committee of the Faculty of Aeronautics TUKE for the Study branch: 2613 Electronics - Doctoral Study Program: Aviation and Industrial Electronic Systems

Assoc. Prof. RNDr. Eva KOMOVÁ, PhD.

- Membership in Scientific Boards
  Member in the Scientific Board of the Faculty of Aeronautics TUKE
- Membership in Slovak and International Organizations and Societies
  Member of the Slovak Magnetic Society

  Member of the Faculty expert committee of the Faculty of Aeronautics TUKE for the Study branch: 2613 Electronics - Doctoral Study Program: Aviation and Industrial Electronic Systems

Assoc. Prof. RNDr. Ladislav TOMČO, PhD.

- Membership in Scientific Boards
  Member in Scientific Board of Faculty of Aeronautics TUKE

- Membership in Slovak and International Organizations and Societies
  Member of the Slovak Magnetical Society
  Member of the Slovak Physical Society

  of the Faculty expert committee of the Faculty of Aeronautics TUKE for the Study branch: 2613 Electronics - Doctoral Study Program: Aviation and Industrial Electronic Systems

Ing. Katarína DRAGANOVÁ, PhD., ING. - PAED IGIP

- Membership in Slovak and International Organizations and Societies

  Member of the Executive Committee of the Slovak Magnetic Society

Ing. Pavol LIPOVSKÝ, PhD., ING. - PAED IGIP

- Membership in Slovak and International Organizations and Societies

  Member of the Executive Committee of the Slovak Magnetic Society

RNDr. Peter Szabó, PhD.

- Membership in Editorial Boards
  Member of the Editorial Board of the ACTA AVIONICA published by Faculty of Aeronautics TUKE ISSN 1339-9853 (online), ISSN 1335-9479 (print)
- Membership in Slovak and International Organizations and Societies
  Member of the Union of Slovak Mathematicians and Physicist
  Member of the American Mathematical Society

Ing. Miroslav ŠMELKO, PhD.

- Membership in Slovak and International Organizations and Societies

  Member of the Slovak Magnetic Society

RNDr. Katarína TIBENSKÁ, PhD.

- Membership in Slovak Organizations and Societies
  Member of the Slovak Physical Society

Ing. František HEŠKO

- Membership in the Academic Senate of FA
  Vice-chairman of the Student Section of the Academic Senate of the Faculty of Aeronautics TUKE

Important activities

Lecture

On February 15, 2018, a lecture on Web of Science was presented at the Faculty of Aeronautics, presented by RNDr. Peter Szabo, PhD. The lecture was divided into three topics:

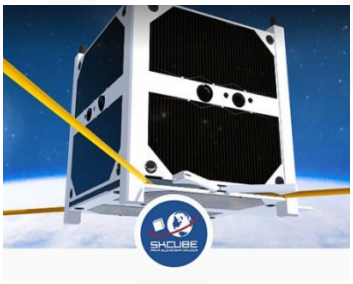
- WoS 2018 I - General context and finance
- WoS 2018 II - Author and Technology
- WoS 2018 III - Questions and Applications

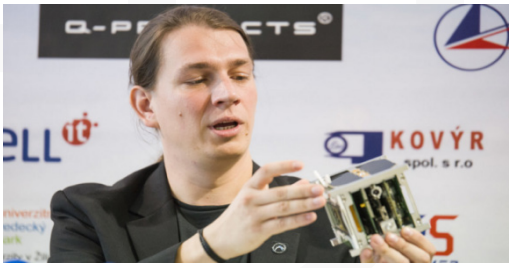
The lecture was focused on science knowledge, science classifications in connection with research work and WoS application.

Invited lecturers

On March 12, 2018, an interesting invited lecture by Jakub Kapuš about the first Slovak satellite skCUBE took place at the Air Faculty.

Jakub Kapuš is a co-founder of the Slovak Space Activities Organization (SOSA), the leader of the first Slovak skCUBE satellite project and the head of a start-up space technology company.

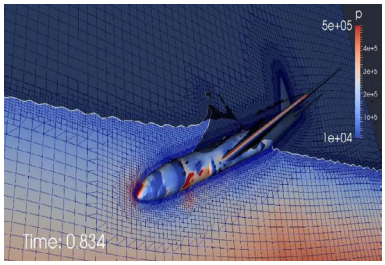




CEEPUS mobility grant

In the days 16.-20.4.2018 RNDr.Peter Szabo, PhD. received a CEEPUS mobility grant and visited the ELTE University, Faculty of Informatics in Budapest, Hungary.

During the visit, the lecture stay discussed topics on high-performance computers, which can serve to simulate the flight of aircraft.



Competition - Matlab Academy Challenge

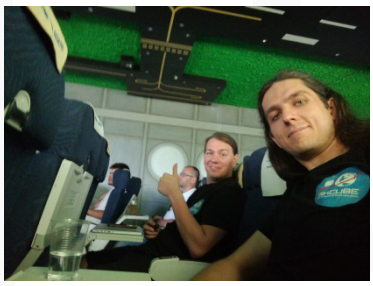
Technical University of Kosice in AR 2018/2019 received the Total Academic Headcount (TAH) license for MATLAB, Simulink.

Under this license, students and staff of the University were allowed to take free electronic courses and receive an electronic certificate. The course was intensively attended by RNDr. Peter Szabo, PhD.

In the period from 9/10/2018 to 10/12/2018 as part of the Matlab Academy Challenge course, a competition was announced at the Department of Aviation Technical Preparation in order to obtain as many certificates as possible. 17 students participated in the competition. Students received 107 certificates worth more than € 24,000. Graduates of the course received, in addition to the certificate, interesting prizes provided by Humusoft s.r.o. (distributor of MATLAB in the Czech and Slovak Republics), TUKE Faculty of Aeronautics and Company, Elfa s.r.o.

Aviation Youth Meeting

Between 13th and 15th July the "Aviation Youth Meeting" took place at the airport Lucenec in Bolkovce. The activity was organized by students of the Slovak universities, including students of the Faculty of Aeronautics. The main aim of the meeting was to get to know the young generation of Slovak pilots. This activity was attended by Ing. Miroslav Šmelko, PhD., who is also a member of the Slovak Space Activities Organization (SOSA). The program also included several professional lectures such as a lecture by Marian Sluek on the topic of the new division of airspace of the Slovak Republic. The second lecture was given by prof. Štefan Klein dedicated to the news in the project of a flying car. The third lecture was given by Jakub Kapuš with information on the project of the first Slovak satellite skCUBE.



Garrison day of children on Helicopter Wing in Presov

On June 1, 2018, there was an activity "Crew Day of Children", on the Helicopter Wing of Colonel Ján AMBRUŠ in Presov. The event was visited by children with parents, children from kindergartens with their teachers, pupils from primary schools. There were also some students from high schools and universities in the event.

Ing. František Heško from the Faculty of Aeronautics participated in this event as a member of the aeroclub Prešov.

Presentation and Demonstration of UAV and anty-UAV Systems

On 10 May 2018 at the Airport Slavnica, Ilava presented a presentation aimed at demonstrating UAV and anty UAV systems from SMEs from Poland and Redcap solutions from the Czech Republic.

EXCUBER introduced a face detection system that is fully autonomous and flexible.

MSP is a tactical drone manufacturer that cooperates with the Warsaw Research Institute.

AIRSEC is a Czech company offering its own anti-drone system and omnidirectional jammers.

This event was attended by Ing. František Heško and Ing. Ľubomír Stanko as representatives of the Faculty of Aeronautics.

Projects

The Department is yearly making applications for the project with the effort to obtain the financial support from the Cultural and Education Grant Agency (KEGA), Scientific Grant Agency (VEGA) and the Slovak Research and Development Agency (APVV). By the solved project is Department is able to obtain considerable financial resources.

1.

VEGA project	Project number 2/0141/16
Project title	Interaction of magnetic fluids with electromagnetic field
Project leader:	Assoc. Prof. RNDr. Ladislav TOMČO, PhD.

2.

VEGA project	Project number 1/0201/16
Project title	Magnetometers based on magnetic microwires
Project leader:	Assoc. Prof. Ing. Jozef HUDÁK, CSc.

3.

VEGA project	Project number 1/0374/17
Project title	Usability development of modern build-in contact-less micro sensors for modern composite construction operational safety improvement
Project leader:	Ing. Miroslav ŠMELKO, PhD.

4.

VEGA project	Project number 1/0269/17
Project title	Influence of the magnetic field and spin anisotropy on the base state and critical behaviour of two-dimensional quantum magnetic systems
Project leader:	RNDr. Katarína TIBENSKÁ, PhD.

5.

KEGA project	Project number 069TUKE-4/2017
Project title	Intensification of methods molecular - proteomic biology in the field of study 05/02/47 Biomedical Engineering
Project leader:	Assoc. Prof. RNDr. Ladislav TOMČO, PhD.

6.

KEGA project	Project number 052TUKE-4/2018
Project title	Creation of teaching aids for a specialized laboratory of magnetometry
Project leader:	Ing. Pavol LIPOVSKÝ, PhD.

7.

KEGA project	Project number 058TUKE-4/2018
Project title	Aircraft and space sensors for control of unmanned intelligent objects with protection and security subsystems and its implementation into the development of educational environment
Project leader:	Assoc. Prof. Ing. Václav MOUCHA, CSc.

8.

APVV project	Project number APVV-16-0079
Project title	Modern amorphous and polycrystalline functional materials for sensors and actuators
Project leader:	Assoc. Prof. RNDr. Eva KOMOVÁ, PhD.

9.

APVV project	Project number APVV-17-0184
Project title	Dynamics of domain walls and skyrmions in thin magnetic layer
Project leader:	Ing. Pavol LIPOVSKÝ, PhD.

Offers for Cooperation

The Department of Aviation Technical Studies of the Technical University of Kosice offers cooperation to universities and also private companies in the following areas:

- development of sensoric and electronic systems according to the specific user requirements,
- sensors based on the magnetic microwires,
- analogue circuits of the signal processing,

- UAV on-board electronics,
- magnetic measurements and measured data processing,
- testing and calibration of sensors,
- study of the physical properties of the magnetic fluids, chosen magnetic materials and magnetic microwires,
- numerical methods of solving ordinary and partial differential equations,
- operational analyses, graph theory, hypergraphs and combinatorial structures, didactics of subject teaching.

Cooperation

- Companies

INCOFF AEROSPACE s.r.o.

The several meetings took place based on the mutual cooperation on the VEGA 1/0374/17 project in 2017. The most important was the Incoff Aerospace offer to join the Aero Friedrichshafen 2017 expo in the common exhibition stand.

SOSA - Slovak Organisation for Space Activities

The Faculty of Aeronautics is a partner of the national project for the development and construction of the first Slovak satellite skCUBE, organized by the SOSA. The project is focused on the space engineering and one of the main tasks was to design and realize the small cube satellite named skCUBE. The satellite is in operation since June 2017. The participants of the project from the Faculty of Aeronautics are Ing. Miroslav Šmelko, PhD., Ing. Pavol Lipovský, PhD., Ing, Viktor Képeši, PhD., Ing. Tomáš Waispacher, Ing. Tomáš Kliment and Ing. Marek Češkovič, PhD.

TOMARK s.r.o.

The cooperation with the company is based on the participation at the structural analysis of the aircraft constructions produced by the Tomark company. The company has allowed to the students of the Faculty of Aeronautics to visit the company to see the manufacturing facilities production process of small aircrafts.

STATON s. r. o.

Cooperation with the company has been developed within the framework of the analysis for the magnetic field modelling and in the framework of the consulting activities in the area of large-scale wind turbine bearings.

- **Universities and institutes**

Institute of Physics, Faculty of science, Pavol Jozef Šafárik University in Košice

The cooperation is based on the scientific projects focused on the research of magnetic parameters of amorphous materials and microwires.

Faculty of Electrical Engineering and Informatics of the TUKE

The cooperation is based on the scientific projects focused on the research of magnetic parameters of amorphous materials and microwires.

Institute of Experimental Physics of the Slovak Academy of Sciences Košice

In terms of the cooperation the mechanisms of heating - hyperthermia in the system of magnetic nano-particles are researched. In addition to the usually used biocompatible spherical nanoparticles, the object of the research will be also specially until now not fully studied magnetosomes and magnetoferritin containing the spherical

magnetit nano-particles. The obtained knowledge for the achievement of the high specific power of the heating should allow the application of nano-particles in the cancer treatment in the biomedicine.

The dielectric properties of magnetic fluids based on the transformer oil will be studied as well. These fluids can be used in addition to their unique cooling and isolation properties also as the reliable seals for the electromagnetic devices.

- **Scientific societies**

Slovak Magnetic Society (SMAGS), member of The Association of Slovak Scientific and Technological Societies

The important activity of the FA TUKE is the cooperation between the SMAGS and the FA. The main activity is focused on the research and the development in the field of magnetism and spreading the information about the magnetism towards the wide society. SMAGS also helps to organize the multidisciplinary conferences such as CSMAG, Physics of Materials and Sensorics and Magnetometry. The Department of Aviation Technical Studies have members also in the Executive Committee of the society.

Publications

AAA .- Scientific monographs published by the foreign publishers

- ORAVEC, Milan - LIPOVSKÝ, Pavol - ŠMELKO, Miroslav: Nízkofrekvenčné magnetické polia v pracovnom prostredí / - 1. vyd - Ostrava : SPBI - 2018. - 144 p. - ISBN 978-80-7385-199-6.

AAB - Scientific monographs published by the domestic publishers

- DRAGANOVÁ, Katarína - LIPOVSKÝ, Pavol - ŠMELKO, Miroslav: Inertial Sensor Testing and Calibration / - 1. vyd. - Košice : Technical University of Košice - 2018. - 160 s.. - ISBN 978-80-553-2974-1.

- MOUCHA, Václav - LIPOVSKÝ, Pavol - KLIMENT, Tomáš: Kalibrácia 3D magnetometrov pre letecké a priemyselné systémy / - 1. vyd. - Košice : Technická univerzita v Košiciach - 2018. - 137 s. [6,6AH] [CD-ROM]. - ISBN 978-80-553-3262-8.

ADN - Scientific papers in the domestic journals registered in the Web of Science or Scopus databases

- BLAŽEK, Jozef - LIPOVSKÝ, Pavol - HEŠKO, František - REPČÍK, Dušan: Electromagnetic image of small UAV in very low frequency range / - 2018. In: Journal of Electrical Engineering. Roč. 69, č. 6 (2018), s. 438-441 . - ISSN 1335-3632

- PAČAIOVÁ, Hana - ORAVEC, Milan - ŠMELKO, Miroslav - LIPOVSKÝ, Pavol - FORRAI, Filip: Extra low frequency magnetic fields of welding machines and personal safety / - 2018. In: Journal of Electrical Engineering. Roč. 69, č. 6 (2018), s. 493-496 . - ISSN 1335-3632

Students scientific activities

27/03/2018 Students' Scientific and Research Activity (SSRA)

The knowledge from the VEGA 1/0374/17 project, by the researcher Ing. Miroslav Šmelko, PhD., was presented also in the Competition for the best scientific and research thesis within the frame of the

Students' Scientific and Research Activity (SSRA) 2018 by the:

- a student attending the second year of the master study programme Sensorics and Avionics systems Bc. Jozef Novotňák with the project entitled " Design of small aircraft engine control unit" in the section Avionic Systems. The contestant won first place.

The knowledge from the VEGA 1/0201/16 project, by the researcher Assoc. Prof. Assoc. Prof. Ing. Jozef Hudák, CSc,. was presented also in the Competition for the best scientific and research thesis within the frame of the Students' Scientific and Research Activity (SSRA) 2018 by the:

- a student of the third year of the bachelor's thesis Avionic Systems by Natalia Triščíková, under the guidance of Assoc. Prof. Ing. Jozef Hudák, CSc., PhD. with the title "Design of small aircraft engine control unit" in the section "Avionics and sensory systems". The contestant won second place.

DEPARTMENT OF FLIGHT TRAINING

Contact

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Technical University Kosice Rampova 7,
042 21 Kosice

Web page: lf.tuke.sk/klp

Phone No.: +421 55 602 6163

Head of Department:

Ing. Róbert ROZENBERG, PhD.

E-mail: robert.rozenberg@tuke.sk

Phone No.: +421 55 602 6162

DEPARTMENT PROFILE

The Department of Flight Training (KLP) was established on 01/09/1973 as one of the founding departments of the Military Aviation University of the Slovak National Uprising. The department provides teaching of subjects focusing in particular on the issue of theoretical training of flying personnel, ATC staff, simulation training of flying personnel and air traffic controllers. It also involves teaching students in the theoretical courses of flight training and air traffic control. Guaranteed university education is provided in bachelor´s study programs:

• Professional Pilot

• Air Traffic Controller

The Department of Flight Training also:

• carries out the research and development activities particularly in selected areas of flying personnel and air traffic controllers training, aviation safety and air transport control

• participates in the development and improvement of new methods in theoretical and practical training courses of flight preparation.

SCIENTIFIC WORK AND RESEARCH

• In the area of scientific work and research the virtual network in the department allows:

• research activities in the field of procedure proposals of the safety approach using the advanced satellite navigation systems - GBAS and SBAS,

• testing the potential uses of these practices in terms of flight technical errors FTE and limit values of alert to the loss of integrity IMAL, errors caused by human factors in conjunction with the issue of air traffic control,

• the proposal of operational procedures for crew and air traffic controllers applying procedures using GNSS; modelling of air traffic flow, exploring the runway and sector capacity.

Head of Department

Ing. Róbert ROZENBERG, PhD.

Sectretary

Ing. Lucia VARGOVÁ

Staff

Dr.h.c. prof. Ing. Miroslav KELEMEN, DrSc., MBA, LL.M.

doc. Ing. Vladimír NĚMEC, Ph.D., prof.h.c.

doc. Ing. Ján BÁLINT, CSc.

doc. Ing. Dušan NEŠTRÁK, PhD.

Ing. Stanislav ĎURČO, PhD.

Ing. Peter KAĽAVSKÝ, PhD.

Ing. Matej ANTOŠKO, PhD., ING-PAED IGIP

Ing. Ľubomír FÁBRY, PhD., ING-PAED IGIP

Ing. Jozef SABO, PhD.

PhDr. Anna ČEKANOVÁ, PhD.

Ing. Juraj VAGNER, PhD., ING-PAED IGIP

Assistants

Mgr. Dana DŽALAJOVÁ

Ing. Ladislav CHOMA

Mgr. Branko MIKULA

PhD students

JUDr. Jaroslav JEVČÁK

Ing. Hélia NÉMETHOVÁ

Ing. Zuzana ZGODAVOVÁ

DEPARTMENT OF AVIATION ENGINEERING

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The department provides courses focused on the theoretical training of ground and flying personnel in the areas of aircraft theory and design, aircraft engines, aircraft technical and operational ground support, aerodrome security and practical training of ground and flying personnel in these areas.

It also conducts short and medium-term courses in the field of aircraft type retraining and operational and security techniques for aviation personnel.

It performs scientific and research activities especially in the fields of aircraft and aircraft engine construction, construction of ground support for aircraft and aircraft engines, management and execution of work related to the use of aircraft and aircraft engines, management and work related to aerodromes and ground operations of aircraft and aircraft engines.

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DEPARTMENT OF AIR TRANSPORT MANAGEMENT

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DEPARTMENT´S PROFILE

The Department of Air Traffic Management (KMLP) was established on 01/09/2004, as one of the scientific and educational institutions after merging the Institute of Aeronautics of the Air Force Academy of General M.R. Stefanik with the Technical University of Kosice under the Law №455/2004 and Act №131/2002 on University Education. After completion of the transformation process on 01/02/2005 the Faculty of Aeronautics became part of TUKE. The department personnel has years of experience in training civilian and military aviation specialists, pilots and other members of the Air Force in air transport management. The Department of Air Transport management was transformed from the Department of Combat and Operational Use in Air Force - its predecessor, which was a part of the Air Force Academy in Kosice.

Guarantees provided university education in:

- Bachelor program in Air Transport Management
- Engineering study program in Air Transport Management
- Doctoral program in Air Transport Management

It carries out research and development activities in selected issues of air transport management with emphasis on:

- Management and marketing of airlines.
- Economic aspects of airlines.
- Issues of organization of airport activities and logistics.
- Aviation safety.
- Information systems in air traffic management.

STAFF

Professors:

- prof. Ing. Milan Džunda, CSc.

Associate Professors:

- Dr. h. c. Assoc. Prof. Ing. Stanislav Szabo, PhD., MBA, LL.M
- Assoc. Prof. Ing. Slavomír Kiš, CSc.

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- Mgr. Peter Čekan, PhD. (Vice-Dean for Development)
- Ing. Jozef Galanda, PhD.
- Ing. Peter Hanák, PhD.
- Ing. Edina Jenčová, PhD. (Manager for Development)
- Ing. Ján Kolesár, PhD.
- Ing. Dorota Liptáková, PhD.
- Ing. Lucia Melníková, PhD. (Manager for Education, Study Advisor)
- Ing. Ľuboš Socha, PhD., PhD.
- Ing. Radoslav Šulej, PhD. (Vice-Dean fo Education)
- Ing. Alica Tobisová, PhD., Ing.Paed.IGIP (Manager fo Science and Research)

Technical Staff:

- Helena Timková

PhD. Students (Internal):

- Ing. Daniela Čekanová
- Ing. Peter Dzurovčin
- Ing. Dorota Liptáková
- Ing. Zuzana Šusterová
- Ing. Sebastián Makó
- Ing. Marek Pilát
- Ing. Bc. Stanislav Szabo, MBA

Research workers

- Ing. Daniel Blaško, PhD., MBA
- Ing. Bc. Stanislav Szabo, MBA
- Ing. Iveta Vajdová, PhD
- Dr.h.c. mult. prof. Ing. Paweł Czarnecki, PhD., MBA, LL.M, MPH

LABORATORIES, SPECIALIZED FACILITIES

The department built general and specialized classrooms to ensure the teaching and scientific activities. In different subjects multimedia technology is used including multimedia software modules for computer-aided instruction and video. At the department, the number of computer technology is available for the production of multimedia programs and didactic presentation technology.

RESEARCH PROJECTS

Project identifier: *VH20172019027*

Project name: Simulation of intervention in cases of air accidents

Project duration: 2017 – 2019

Project scope: The aim of the project is to develop a methodology for training of firefighters and simulator for interventions in air accidents with an emphasis on the protection of critical infrastructure.

Chief researcher: Assoc. Prof. Ing. Vladimír Němec, PhD.

Researchers from the Department of Air Transport Management:

- Dr.h.c., Assoc. Prof. Ing. Stanislav Szabo, PhD., MBA, LLM
- Ing. Lucia Melníková, PhD.
- Ing. Daniel Blaško, PhD., MBA
- Ing. Edina Jenčová, PhD.
- Ing., Bc. Stanislav Szabo, MBA

- Ing. Iveta Vajdová, PhD.
- Ing. Alica Tobisová, PhD., Ing.Paed.IGIP

Project identifier: *VEGA - 1/0577/17*

Project name: Transfer of knowledge from laboratory experiments and mathematical models to the creation of a knowledge based system for assessing the quality of environmentally conveyor belts.

Project duration: 2017 – 2020

Project scope: The research focuses on the enclosed conveyor belts (type Ecotubelt) with a special design and construction. The long-term effort of the research in the area of conveyor belts is to improve their performance and quality. The main aim of the project is to implement current theoretical knowledge, the results of experimental research and computer methods in order to improve their quality. The basic part of the project will be the basic research aimed at acquiring complex knowledge about the properties of non-traditional closed conveyor belts by experimental research on the basis of valid standards (testing of mechanical, physical and special properties), structural and microstructural analyzes, mathematical and computer methods in order to achieve their sustainable quality with new technical standards. The output of the project will be the creation of a knowledge-based information system integrating knowledge of rubber technologies, results of laboratory and simulation experiments as well as mathematical models.

Chief researcher: prof. Ing. Daniela Marasová, CSc.

Researcher from the Department of Air Transport Management:

- Ing. Peter Koščák, PhD., Ing.Paed.IGIP

Project identifier: *KEGA - 002TUKE-4/2017*

Project name: Innovative didactic methods in the pedagogical process at universities and their importance for enhancing teachers' pedagogical mastery and the development of students' competences.

Project duration: 2016 – 2019

Project identifier: *APVV-15-0527*

Project name: The new generation of the airport handling system.

Project duration: 2016 – 2019

Project scope: The aim of the project is to design and subsequently implement competitive solutions based on the current research of the offered services and the level of deployment of L-DCS systems, which by its characteristics and supported by state-of-the-art proven technologies meet the highest criteria of reliability, safety and usability of the proposed solution in the field of its deployment. The primary objective are local carriers, airlines and airports operating in Slovakia, with a special focus on low-cost regional airlines and charter flights.

Researcher from the Department of Air Transport Management:

- Ing. Jozef Galanda, PhD.
- Ing. Radoslav Šulej, PhD.

Project identifier: *KEGA 009TUKE-4/2016 - Faculty of Mining, Ecology, Process Control and Geotechnology*

Project name: Design of the specialized training concept oriented to the development of experimental skills within the frame of education in the study branch logistics

Project duration: 01/2016 - 12/2018

Project scope: The main goal of the practice is a standardization of procedures and processes. This fact needs a continual mutual training process by systematic training concept for optimal training of interest group. The function of the project is a creation and development of the specialized training concept on the basis of experimental and computing – simulation approach with the focus of the solution of logistics processes in the selected enterprises and its integration to the educational process in all three levels of university and retraining education.

Chief researcher: prof. Ing. Daniela Marasová, CSc.

Researcher from the Department of Air Transport Management:

- Ing. Peter Koščák, PhD., Ing.Paed.IGIP

CO-PERATION

Co-operation in the Slovak Republic

- Ministry of Transport and Construction of the Slovak Republic
- Transport Authority of the Slovak Republic
- Air Traffic Services (LPS SR)
- Slovak Aviation Agency
- Testing and verification workplace of rubber products (TVP GV), FBERG TUKE
- TECHNISERV SR
- Košice International Airport

International Co-operation

- ALES, Czech Republic
- CAA (Civil Aviation Authority of the Czech Republic), Úřad pro civilní letectví ČR
- Czech Technical University in Prague
- Czech Airlines, ČSA, Czech Republic
- University of Defence in Brno, Czech Republic
- Technical University of Ostrava, Czech Republic

OTHER ACTIVITIES

Conferences, Seminars, Workshops

Co-organisation of the XIII. International Scientific Conference "***New Trends in Aviation Development 2018***"

General Chairman: Dr.h.c. Assoc. Prof. Ing. Stanislav SZABO, PhD., MBA, LL.M.,

Organizing Committee: Mgr. Peter Čekan, PhD.,Ing. Radoslav Šulej, PhD., Ing. Edina Jenčová, PhD., Ing. Lucia Melníková, PhD., Ing. Jozef Galanda, PhD., Ing. Iveta Vajdová, PhD., Ing. Bc. Stanislav Szabo, MBA, Ing. Peter Hanák, PhD.

Technical Program Committee: prof. Ing. Milan Džunda, CSc.

Co-organisation of „***The XII. International Scientific Conference „SAFETY AND TRANSPORT. Theory and practice in the field of safety and crisis management in transport***"

Guarantor of the Conference: Dr.h.c. Assoc. Prof. Stanislav Szabo, PhD., MBA, LL.M **Scientific Committee:** prof. Ing. Milan Džunda, PhD.

Organizing Committee: Ing. Alica Tobisová, PhD., Ing. Radoslav Šulej, PhD., Ing. Iveta Vajdová, PhD., Ing. Bc. Stanislav Szabo, MBA. Jr., Ing. Lucia Melníková, PhD., Ing. Luboš Socha, PhD., PhD., Mgr. Peter Čekan, PhD., Ing. Peter Hanák, PhD., Ing. Peter Kočšák, PhD., Ing. Edina Jenčová, PhD.

Co-organisation of the "***7th International Scientific Conference of Ph.D. Students and Young Scientists and Researchers - Faculty of Aeronautics, Technical university of Kosice***"

Guarantor of the Conference: Dr.h.c. Assoc. Prof. Ing. Stanislav SZABO, PhD., MBA, LL.M.

Scientific Comitee: prof. Ing. Milan DŽUNDA, CSc., Dr.h.c. mult. prof. dr.hab. Pawel Czarnecki, Ph.D., MBA, MPH

Organizing Committee: Ing. Iveta Vajdová, PhD., Ing. Bc. Stanislav Szabo, MBA, Ing. Alica Tobisová, PhD., Ing. Daniela Čekanová, Ing. Peter Hanák, PhD., Ing. Ľuboš Socha, PhD., PhD., Ing. Radoslav Šulej, PhD., Mgr. Peter Čekan, PhD.

Co-organisation of the worshop „***Airspace for All and Air Navigation Services***"

Guarantor of the Conference: Dr.h.c. Assoc. Prof. Ing. Stanislav SZABO, PhD., MBA, LL.M.

Program Committee: prof. Ing. Milan Džunda, CSc.

Organizing Committee: Mgr. Peter Čekan, PhD., Ing. Jozef Galanda, PhD., Ing. Peter Kočšák, PhD., Ing. Edina Jenčová, PhD., Ing. Lucia Melníková, PhD., Ing. Radoslav Šulej, PhD., Ing. Alica Tobisová, PhD.

PUBLICATIONS

Books, textbooks

AAA– Scientific/scholarly monograph published in foreign publishing

- Czarnecki, P. *Etika mediálneho prostredia*. Vedecká monografia. 1. vyd - Praha : Newton Academy - 2018. - 157 p.. - ISBN 978-80-87325-14-8.
- Czarnecki, P. *The ethics of media in Poland*. Scientific monograph. 1. vyd - London : Apsley Publishing - 2018. - 166 p.. - ISBN 978-1-5272-2376-9.

Patents, discoveries

AGJ – Copyright certificates, patents, discoveries

- SZABO, S. et al. *Nosný rám záťaže padáka* úžitkový *vzor SK 50104-2017 U1*. Banská Bystrica : ÚPV SR - 2018. - 7 s..

  [SZABO, Stanislav - MATISKOVÁ, Darina - MARASOVÁ, Daniela - BALARA, Milan]

- SZABO, S. et al. *Výkonová riadiaca jednotka padáka s nosným rámom záťaže zverejnená prihláška* úžitkového *vzoru SK 50118-2017 U1*. Banská Bystrica : ÚPV SR - 2018. - 6 s..

  [SZABO, Stanislav - MATISKOVÁ, Darina - MARASOVÁ, Daniela - BALARA, Milan]

- KUŠMÍREK S. et al. *Zařízení pro měření reakčního* času *Prihláška* úžitkového *vzoru*. Praha : Úřad průmyslového vlastnictví CZ - 2018. - 8 s.. Spôsob prístupu: https://isdv.upv.cz/webap-p/!resdb.pta.frm...

  [KUŠMÍREK, Stanislav - SOCHA, Vladimír - HANÁKOVÁ, Lenka - SOCHA, Luboš]

Journals

ADM - Scientific Articles in Foreign Journals registered in Web of Science or SCOPUS databases

- DŽUNDA M. et al. *Protection against high-frequency radiation of aviation electronic support systems used in air transport*. 2018. In: Transnav-International Journal on Marine Navigation and Safety of Sea Transportation. Vol. 12, no. 1 (2018), p. 183-186. - ISSN 2083-6473 Spôsob prístupu: http://www.transnav.eu/Article_Protection_Against_High-Frequency_D%C5%BEun-da,45,802.html...
  [DŽUNDA, Milan - ČEKANOVÁ, Daniela - ČOBIRKA, Ladislav - ŽÁK, Peter - DZUROVČIN, Pe-ter]
- SZABO, S. et al. *Evaluating efficiency in specialized hospital facilities – developing the model by way of the discriminant analysis*. 2018. In: Ekonomie a Management. Vol. 21, no. 3 (2018), p. 88-106. - ISSN 2336-5604
  [SZABO, Stanislav - MIHALČOVÁ, Bohuslava - GALLO, Peter - IVANIČKOVÁ, Marianna]
- SZABO, S. et al. *Effect of the load factor on the ticket price*. 2018. In: Problemy Transportu = Transport Problems : International Scientific Journal. - Gliwice (Poľsko) : Politechnika Slaska Roč. 13, č. 3 (2018), s. 39-47 [print]. - ISSN 1896-0596 Spôsob prístupu: http://transportprob-lems.polsl.pl/pl/Archiwum/2018/zeszyt3/2018t13z3_04.pdf...
  [SZABO, Stanislav - MAKÓ, Sebastián - TOBISOVÁ, Alica - HANÁK, Peter - PILÁT, Marek]

ADC – Scientific Articles in Foreign Current Content Journals

- HURNÁ, S., TEPLICKÁ K., STRAKA, M. *Use of statistical quantitative methods for monitoring quality parameters of raw materials***.** 2018. In: Przemysl chemiczny. Vol. 97, no. 1 (2018), p. 59-63. - ISSN 0033-2496
- LALIŠ, A. et al. *Generating synthetic aviation safety data to resample or establish new data-sets*. 2018. In: Safety Science. Vol. 106 (2018), p. 154–161. - ISSN 0925-7535 Spôsob prístu-pu: https://ac.els-cdn.com/S0925753516302260/1-s2.0-S0925753516302260-main.pdf?_tid=c0d84f05-103a-4e20-9... [LALIŠ, Andrej - SOCHA, Vladimír - KŘEMEN, Petr - VITTEK, Peter - SOCHA, Luboš - KRAUS, Jakub]
- ZGODAVOVÁ, K. et al. *Rationalization of the material consumption in a chemical-technological process of forming*. 2018. In: Przemysł Chemiczny. Vol. 97, no. 2 (2018), p. 200-2004. - ISSN 0033-2496
  [ZGODAVOVÁ, Kristína - MIHALIKOVÁ, Mária - HURNÁ, Soňa - STRAKA, Martin - MIKLOŠ, Vo-jtech]
- ANDOGA R. et al. *Intelligent situational control of small turbojet engines*. 2018. In: Internation-al Journal of Aerospace Engineering,. Vol. 2018, no. Article ID 8328792 (2018), p. 1-16. - ISSN 1687-5966 Spôsob prístupu: https://www.hindawi.com/journals/ijae/2018/8328792/...
  [ANDOGA, Rudolf - FŐZŐ, Ladislav - JUDIČÁK, Jozef - BRÉDA, Róbert - SZABO, Stanislav - ROZEN-BERG, Róbert - DŽUNDA, Milan] Karel - SCHLENKER, Jakub - SOCHA, Vladimír - SOCHA, Luboš - KUTÍLEK, Patrik]

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JETAGE

Title: **Annual Report 2018**

Technical University of Košice

Faculty of Aeronautics

Author: Dr.h.c. Assoc. Prof. Ing. Stanislav Szabo, PhD., MBA, LL.M.

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