

**DEPARTMENT OF MEASUREMENT**  
**<http://kmer.elf.stuba.sk/slovensky/index.html>**

**Head of Department**

**Prof. Ing. Viktor Smieško, PhD.**

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**I. STAFF**

Professors	Prof. Ing. Viktor Smieško, PhD., Prof. Ing. Július Bajcsy, PhD., professor emeritus
Associate Professors	Doc. Ing. Karol Kováč, PhD., Doc. Ing. Peter Kukuča, PhD., Doc. Ing. Rudolf Ravas, PhD., Doc. Ing. Lívia Syrová, PhD.
Assistant Professors	Ing. Mikuláš Bittera, Ing. Oľga Čičáková, Miroslav Kamenský, Ing. Eva Králiková, Ing. Iveta Ondrášová, PhD.
Senior Scientists	Mgr. Ján Grman, Ing. Jozef Hallon, Ing. Anton Krammer, Ing. Imrich Szolik, Ing. Rudolf Zubal'
Technical Staff	Ružena Nagyová (secretary)

**II. EQUIPMENT**

**II.1 Teaching and Research Laboratories**

- Automated Instrumentation Laboratory
- Electromagnetic Compatibility (EMC) Laboratory with a 4,5 x 4,5 x 8 m Semianechoic Shielded Chamber
- Precise Measurements Laboratory
- Visual System Laboratory

**II.2 Special Measuring Instruments and Computers**

- Calibrator DATRON 4700
- Digitizing Oscilloscopes up to 500 MHz 2 GS/s
- VXI System (VX 4236 Digital Multimeter, VX 5520 VXI SLOT O Resource Manager, VX 1500 VXI D-Size Mainframe - 13 Slot, VX 4223 Counter/Timer)
- HP 84100A EMC Design Development System (HP 8591A Spectrum Analyzer and HP 11945A Close Field Probe Set)
- Agilent E7405A 26GHz EMC Analyzer
- R&S Measuring Receivers 9 kHz - 1000 MHz (ESVP, ESH3, ESHS10 and ESVS10)
- Measuring Antenna Set (BiConLog, Log. periodic, Biconical, Active Rod and Active Loop Antennas)
- Line Interference Simulator Set - Schaffner NSG 200
- Schaffner BEST 96 - Burst, Surge and Power Drop-out Simulator
- EM TEST VCS 500 Combination Wave Generator
- Haefely PEFT - Electric Fast Transients/Burst Generator with EM 101 Coupling Clamp
- Haefely PESD 1600 - Electrostatic Discharge Simulator
- Rohde and Schwarz Signal Generator SMH (100 kHz ... 2000 MHz)
- Agilent E8257D PSG Analog Signal Generator 20 GHz
- RF Power Amplifier 50 W 20 – 1000 MHz
- Programmable AC Power Supply Chroma 61503 1500 VA Low Distortion

- EMC Measurement Software

### **III. TEACHING**

#### **III.1 Undergraduate Study (Bc.)**

Subject, semester, hours per week for lectures and for seminars or practical exercises, name of lecturer

Introduction to Engineering and Technical Documentation	(1st sem., 2-2h)	R. Ravas
Measurement of Electrical and Nonelectrical Quantities	(4th sem., 3-3h)	V. Smieško
Measuring Information Systems	(4th sem., 2-2h)	L. Syrová
Measuring Information Systems	(5th sem., 3-2h)	L. Syrová
Measurement	(4th sem., 2-3h)	P. Kukuča
Measurement	(5th sem., 2-3h)	P. Kukuča
Measurement of Electrical Quantities	(6th sem., 2-2h)	L. Syrová
Computer Control of Experiments	(6th sem., 2-2h)	V. Smieško
Automated Instrumentation	(7th sem., 2-3h)	V. Smieško
Microprocessor Engineering	(8th sem., 3-2h)	R. Ravas
Metrology and Testing	(8th sem., 2-2h)	P. Kukuča
Technical Diagnostics	(8th sem., 2-2h)	K. Kováč
Fundamentals of Visual Systems	(8th sem., 2-2h)	R. Ravas
Measurement Technology	(3th sem., 2-3h)	V. Smieško
Measurement Technology	(4th sem., 2-3h)	V. Smieško
Computer Architecture	(2nd sem., 3-2h)	R. Ravas
Measurement in Information Technology	(5th sem., 2-2h)	L. Syrová
Methodology of Measurement	(5th sem., 2-1h)	L. Syrová

#### **III.2 Graduate Study (Ing.)**

Distributed Measuring Systems	(1st. sem, 2-3h)	V. Smieško
Visual Systems	(1st sem., 3-2h)	R. Ravas
Telemetry and Information Transmission	(1st sem., 3-2h)	P. Kukuča
Digital Image Processing	(1st. sem., 2-3h)	R. Ravas
Diagnostic Systems	(1st. sem., 3-2h)	K. Kováč
Theory of Measuring Systems	(2nd sem., 3-2h)	R. Ravas
Digital Signal Processing	(2nd sem., 2-3h)	K. Kováč
Methods and Tools of Artificial Intelligence	(2nd sem., 3-2h)	R. Ravas
Metrology, Testing and Quality Control	(2nd sem., 3-2h)	P. Kukuča
Electromagnetic Compatibility	(2nd sem., 3-2h)	K. Kováč

**III.3 Distance Study**

Computer Architecture	(1st sem	R. Ravas
Measurement of Electrical and Nonelectrical Quantities	(4th sem.)	V. Smieško
Introduction to Measurement	(4th sem.)	L. Syrová
Measuring Information Systems	(7th sem.)	L. Syrová

**III.4 Undergraduate Study for Foreign Students (in English Language)**

Electrical Measurement	(3rd sem., 3-3h)	V. Smieško
Electronic Measurement	(4th sem., 3-3h)	P. Kukuča
Microprocessor Systems	(7th sem., 3h)	K. Kováč

**III.5 Graduate Study (Ing.) for Foreign Students (in English Language)**

Electromagnetic Interference and Compatibility	(1st sem., 3-3h)	K. Kováč
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**IV. RESEARCH PROJECTS**

- Alternative Methods for Assessment of Electromagnetic Compatibility (EMC) of Electronics Systems. VEGA, 1/3101/06, V. Smieško
- Modern Methods of Technical Diagnostics. VEGA, 1/3099/06, R. Ravas
- Support of Research and Development Infrastructure from the Point of View of Electromagnetic Compatibility Requirements. State Research and Development Program, 338/2003, K. Kováč
- The Effect of Market Environment upon the Transfer and Conversion of Electric Energy, R&D State Program – 2004 SP2606K0C02, J. Murgaš, Part 6.3: Problems of Electromagnetic Compatibility in Electric Systems, K. Kováč
- Research and Development of Technical Equipment of Electromagnetic Compatibility (EMC) for Electronic Devices with Semiconductor Inverters used in Railway Transport. APVV-99-028105, K. Kováč

**V. COOPERATION****V.1 Cooperation in Slovakia**

- Institute of Measurement Science, Slovak Academy of Sciences, Bratislava
- Slovak Institute of Metrology, Bratislava
- Nuclear Power Plants Research Institute, Trnava
- Department of Theoretical Electrical Engineering and Electrical Measurement, FEI TU Košice
- Slovak Institute of Technical Standardization, Bratislava
- Office for Standardization, Metrology and Testing of Slovak Republic, Bratislava
- National Security Authority, Bratislava
- Slovak Power Plants, Bratislava
- University of Žilina, Žilina
- Faculty of Mechatronics, Trenčín University, Trenčín
- Volkswagen Slovakia, a.s., Bratislava
- Slovak Electric Transmission System Inc., Bratislava

- Západoslovenská energetika, a.s., Bratislava
- Stredoslovenská energetika, a.s., Žilina
- Východoslovenská energetika, a.s., Košice

## V.2 International Cooperation

- Department of Measurement, Czech Technical University, Prague, Czech Republic
- Katholieke Hogeschool Brugge - Oostende, Oostende, Belgium
- University of York, York, England
- European Organization for Nuclear Research CERN, Geneva, Switzerland
- Institute of Logistics and Warehousing (ILIM), Poznań, Poland

## V.3 Membership in International Organizations and Societies

- V. Smieško: The European Academy of Sciences and Arts
- V. Smieško: IEEE - The Institute of Electrical and Electronics Engineers
- V. Smieško: IEE - The Institution of Electrical Engineers, Fellow
- V. Smieško: The International Information Academy
- P. Kukuča: IEE - The Institution of Electrical Engineers
- V. Smieško: URSI – Scientific Commission for Electromagnetic Noise and Interference

## V.4 International Scientific Projects

- JPD BA Goal 3-2004-SORO-4, MERTECH, ESF, 2005-2008, V. Smieško

## V.5 Contracts

- K. Kováč, V. Smieško, J. Hallon, I. Szolik, M. Bittera: Low Level Emission Measurements. Contract with National Security Authority, Bratislava
- K. Kováč, I. Szolik, M. Bittera: Development of New Functions in Software System for Equipment Intended for the Zonal Space Measurement and for the Measurement of Shielded Chamber Attenuation. Contract with National Security Authority, Bratislava
- K. Kováč, V. Smieško, I. Szolik: Development of Software Package EOMG (EUT Operational Mode Generator) Intended for Operating Mode Generation of Measured Device during Emission Measurement. Contract with National Security Authority, Bratislava
- K. Kováč et al.: EMC Testing and Consultancy for Small and Medium Enterprises.

## VI. THESES

### VI.1 Masters Theses

Masters theses supervised at the Department of Measurement. The names of supervisors are in brackets.

- [1] D. Bjel: Digital Precipitation Gauge with Data Transfer. (O. Čičáková)
- [2] M. Fica: 3-D Modelling. (J. Grman)
- [3] J. Fořko: Automation of Emission Measurement. (M. Bittera)
- [4] J. Heinrich: Pulse Disturbance Analyzer for Supply Network. (K. Kováč)
- [5] M. Chlebovec: Location of Road Vehicle. (P. Kukuča)
- [6] M. Janotík: 3-D Scene Reconstruction. (L. Syrová)
- [7] O. Jankovič: The Use of Wavelet Transform for the Testing of Defects Indication. (J. Grman)
- [8] M. Kočalka: Laboratory Practice Using Modems. (O. Čičáková)
- [9] N. Kvočiková: Calibration of Camera Parameters. (R. Ravas)
- [10] M. Laboš: Discrimination and Analysis of Moving Objects from Captured Frames. (J. Grman)
- [11] L. Noskovičová: Vectorization of Binary Images. (L. Syrová)
- [12] D. Ondrášek: Telematic Terminal of a Motor Vehicle. (P. Kukuča)

- [13] M. Sallay: Tracking and Discrimination of Moving Objects from Captured Frames. (J. Grman)
- [14] R. Šimko: Integration of Commercial and Open Source Solution for VoIP. (V. Smieško)
- [15] M. Zimány: Software System of Evaluation of Analog Devices Visual Outputs. (J. Grman)

## **VI.2 Doctoral Theses**

- [1] A. Kalaš: The Construction of Sensors of Nonelectrical Quantities. Package of Inventions, Master's Certificates, Utility Models and Publications. (V. Smieško)

## **VII. OTHER ACTIVITIES**

- Chairman of the Council of Universities of Slovak Republic (V. Smieško)
- Member of Slovak Republic Government Council for Science and Technology (V. Smieško)
- Member of Scientific Council of the Slovak Academy of Sciences (V. Smieško)
- Vice-chairman of in the Scientific Council for Electronics of the Slovak Academy of Sciences (V. Smieško)
- Member of Scientific Council of Institute of Measurement Science in Slovak Academy of Sciences (V. Smieško)
- Chairman of Scientific and Technology Council of the Council of Universities of Slovak Republic (V. Smieško)
- Membership in the Slovak Electrotechnical Committee (P. Kukuča)
- Membership in the Scientific Council of the Slovak Institute of Metrology (P. Kukuča)
- Membership in the Slovak National Technical Committees (K. Kováč, P. Kukuča)
- Membership in the Technical Subcommittees of IMEKO (TC1 - J. Bajcsy)
- Participation in the Program Committees of Conferences:
  - Electrical Engineering and Information Technology 2006, Trenčín (V. Smieško)
  - International Conference Applied Electronics 2006, Plzeň (P. Kukuča)
- Membership in the Editorial Boards of Journals:
  - Journal of Electrical Engineering (J. Bajcsy, V. Smieško)
  - AT&P Journal (V. Smieško)
  - EE - Journal of Electrical and Power Engineering (V. Smieško, P. Kukuča)
  - Metrology and Testing (P. Kukuča)
  - Measurement Science Review – on-line edition (V. Smieško)
  - Acta Electrotechnica et Informatica (V. Smieško)
- Auditor of Slovak National Accreditation Service (J. Bajcsy, K. Kováč)

## **VIII. PUBLICATIONS**