

**DEPARTMENT OF ELECTRICAL POWER ENGINEERING**

<http://www.kee.elf.stuba.sk>

**Head of Department**

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**I. STAFF**

Professors	Prof. Ing. Pavol Horňák, DrSc., Prof. Ing. František Janíček, PhD., Prof. Ing. Alfonz Šmola, PhD.
Associate Professors	Dr.h.c. Prof. Ing. Štefan Fecko, DrSc., professor emeritus Doc. Ing. Anton Beláň, PhD., Doc. Ing. Ivan Daruľa, PhD., Doc. Ing. Dionýz Gašparovský, PhD., Doc. Ing. Daniela Reváková, PhD., Doc. Ing. Pavol Šandrik, PhD.
Assistant Professors	Ing. Žaneta Eleschová, PhD., Ing. Vladimír Horník, Ing. František Krasňan, PhD., Ing. Vladimír Ondrejka, PhD.
Research Workers	Ing. Milan Boháč, Ing. Martin Smieško
Technical Staff	Katarína Knežíková, Eva Molotová
PhD. Students	Ing. Attila Kment, Ing. Dragan Minovski, Ing. Martin Mucha, Ing. Adriana Nováková, Ing. Marek Pípa, Ing. Marek Podmanický, Ing. Ľubomír Polonec, Mgr. Miroslava Smitková, M.Sc. Sandra Tabišová, Ing. Lucia Tekerová, Ing. Askar Turabekov

**II. EQUIPMENT**

**II.1 Teaching and Research Laboratories**

- Laboratory of High Voltage Technology
- Laboratory of Lighting Technology
- Solar Energy Laboratory
- Laboratory of Electrical Installations
- Laboratory of Special Problems of Power Engineering
- Laboratory of Electrical Protections

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

- Power network analyzer BK 550
- Power network analyzer Dranetz 658
- Cascade transformer, 1200 kV, 1500 kVA
- Impulse generator, 2500 kV, 100 kJ
- Installation system Instabus EIB
- Photometric integrator  $\varnothing$  3 m
- Spectrofotometer
- Luminance meter

**III. TEACHING**

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

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

Transmission and Distribution of Electrical Energy	(4th sem., 3-2h)	Ž. Eleschová
High Voltage Technology	(5th sem., 2-3h)	V. Ondrejka
Modelling and Simulation Basis	(5th sem., 3-2h)	A. Beláň, V. Kutiš
Short Circuits and Power System Stability	(6th sem., 3-2h)	D. Reváková
Lighting Technology	(6th sem., 3-2h)	A. Smola
Software for Energy Applications	(6th sem., 1-3h)	A. Beláň
Electrical Installations	(7th sem., 2-3h)	D. Gašparovský
Theoretical Photometry and Colorimetry	(7th sem., 3-2h)	P. Horňák
Economics and Control in Electrical Power Engineering	(7th sem., 3-2h)	D. Reváková
Power Stations	(7th sem., 3-2h)	I. Daruľa
Electrical Part of Power Stations	(8th sem., 3-2h)	I. Daruľa
High Voltage Technology	(8th sem., 2-3h)	P. Šandrik
Substations	(8th sem., 3-2h)	F. Janiček
Electrical Power Equipment	(8th sem., 2-2h)	D. Gašparovský

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

Steady State in Power System	(1st sem., 2-2h)	D. Reváková
Electrical Networks	(1st sem., 2-2h)	D. Reváková
Theoretical Photometry and Colorimetry	(1st sem., 2-2h)	P. Horňák
Light Sources and Ballasts	(1st sem., 2-2h)	A. Smola
Electrical Part of Power Stations	(2nd sem., 2-2h)	I. Daruľa
Transient Phenomena in Power System	(2nd sem., 2-2h)	D. Reváková
Diagnostics and Expert Systems	(2nd sem., 2-2h)	P. Šandrik
Applied Electrical Power Engineering	(2nd sem., 2-2h)	F. Janiček
Electrical Lines	(2nd sem., 2-2h)	D. Gašparovský
Luminaires	(2nd sem., 2-2h)	P. Horňák
Measurement of Light and Colours	(2nd sem., 2-2h)	P. Horňák
Power System Control	(3rd sem., 2-2h)	A. Beláň
Electrical Energy Utilization	(3rd sem., 2-2h)	A. Smola, L. Hüttner
Nonconventional Energy Sources	(3rd sem., 2-2h)	I. Daruľa
Protections and Automatics	(3rd sem., 2-2h)	F. Janiček
Lighting Systems	(3rd sem., 2-2h)	A. Smola
Engineering Ecology	(3rd sem., 2-2h)	I. Daruľa
Artificial Lighting	(4th sem., 2-1h)	A. Smola

**III.3 Undergraduate Study (Bc. Distance Education Method)**

Introduction to Study and Internet	(1st sem.)	I.Daruľa, E.Polonec
Transmission and Distribution of Electrical Energy	(7th sem.)	D.Reváková
High Voltage Technology	(7th sem.)	P.Šandrik
Short Circuits and Power System Stability	(8th sem.)	D.Reváková
Energetic Software	(8th sem.)	A.Beláň, B.Hučko
Power Stations 1	(8th sem.)	B.Hučko, I.Daruľa
Power Stations 2	(9th sem.)	I.Daruľa
Substations and Protection Relays	(9th sem.)	F.Janiček
Installations and Lines	(9th sem.)	D.Gašparovský

**III.4 Graduate Study (Ing. Distance Education Method)**

Steady State in Power System	(1st sem.)	D.Reváková
Electrical Networks	(1st sem.)	D.Reváková

**IV. RESEARCH PROJECTS**

- Theoretical fundamentals of the power systems in the interconnected European system. VEGA 3092, F. Janiček
- Research of psychologic and physiologic glare. VEGA 3114, A. Smola
- The solution of energy supply system through available renewable energy sources. AV 4/0120/06, F. Janiček
- Energy interference in power system. APVT-20-002004, A. Beláň
- The effect of market environment up on transfer and conversion of electric energy. R&D State Program 2004 SP 26 06K0C02, J. Murgaš, D. Reváková

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

- Nuclear Power Plants Research Institute (VÚJE, a. s.) Trnava
- Slovak Power Company (SE, a. s.) Bratislava
- Hydro Power Plants (SE-VET) Trenčín
- Nuclear Power Plant (SE-EBO) Jaslovské Bohunice
- Nuclear Power Plant (SE-EMO) Mochovce
- Nuclear Regulatory Authority of the Slovak Republic, Bratislava
- Western Slovak Distribution Company (ZSE, a. s.) Bratislava
- Central Slovak Distribution Company (SSE, a. s.) Žilina
- Eastern Slovak Distribution Company (VSE, a. s.) Košice
- Siemens, plc. Bratislava
- ABB Slovakia, plc. Bratislava
- LIV Elektra, jsc. Bratislava

- Philips Slovakia, plc. Bratislava
- Osram Slovakia, jsc. Nové Zámky
- Slovak Telecommunications, jsc. Bratislava
- Slovnaft, jsc. Bratislava
- Faculty of Electrical Engineering and Information Technology TU Košice
- Faculty of Electrical Engineering ŽU Žilina
- TU Trenčín
- SKTC 101 Nová Dubnica
- Orgeco, plc. Nové Zámky
- AMI, plc. Nové Zámky
- SLOS, plc. Banská Bystrica
- Bellux, plc. Bratislava
- OMS, plc. Senica
- Bellatrix, plc. Košice

## V.2 International Cooperation

- TU Ilmenau, Germany
- Osram, GmbH, München, Germany
- ABB, plc. Brno, CzR
- Czech University of Technology Prague, CzR
- West Bohemian University Pilsen, CzR
- University of Technology Brno, CzR
- University of Technology Ostrava, CzR
- GE Lighting Tungsram, Budapest, Hungary
- Tungsram Schröder, Budapest, Hungary
- KOLARZ-LEUCHTEN, Breitenfurt, Austria
- Sylvania Lighting International, Erlangen, Germany
- TRILUX-LENZE, Arnsberg, Germany
- Electrical Testing Facility, Prague, CzR
- Svetoservis, Moscow, Russia
- ROSTEST, Moscow, Russia
- MEI Moscow, Russia
- AUTOPAL, Nový Jičín, CzR
- Helvar, Frankfurt, BRD
- Tridonic, Dornbirn, Austria
- Thorn Lighting CS, Prague, CzR
- Politechnika Opolska, Opole, Poland
- Silesian University of Technology, Gliwice, Poland

## V.3 Membership in Slovak Organizations and Societies

- F. Janiček: Member of Slovak nuclear forum
- D. Reváková, P. Šandrik: Members of Technical standardization committee No. 43 (Electrical power engineering) at Slovak institute for standardization
- P. Horňák, A. Smola: Members of Technical standardization committee No. 20 (Light sources, lighting devices and their equipment) at Slovak institute for standardization
- A. Smola: Chairman of Technical standardization committee No. 108 (Light and lighting) at Slovak institute for standardization
- P. Horňák: Member of Technical standardization committee No. 108 (Light and lighting) at Slovak institute for standardization
- D. Gašparovský: Member of Technical standardization committee No. 84 (Electrical Installations and Protection against Electric Shock) at Slovak institute for standardization

- I. Daruľa, F. Janiček, D. Reváková, A. Smola: Members of Test Commission of Slovak regulation committee
- F. Janiček: Member of Slovak Academy of Engineering Sciences
- F. Janiček: Chairman of Academic board of FEI STU Bratislava
- F. Janiček: Member of Academic board of STU Bratislava
- F. Janiček: Member of Academic board of Faculty of Mechatronics Trenčín University
- F. Janiček: Member of Minister of economy collegium
- F. Janiček: Chairman of Council for state programs of Ministry of Education SR and Ministry of Economy SR
- F. Janiček: Chairman of Expert committee for electrical engineering, information technology, automation and control of Science and technology assistance agency
- F. Janiček: Member of workgroup for restructuring of the power sector
- F. Janiček: Member of commission for selection of advisor for privatization of the Slovak Electric Co. (National Property Fund of the Slovak Republic)
- A. Smola: Chairman of Slovak society of lighting technology
- D. Gašparovský, F. Krasňan, M. Pípa: Members of the Slovak society of lighting technology
- F. Janiček: Chairman of Common departmental committee of scientific department 26-34-9 Electrical power engineering
- P. Horňák, D. Reváková, A. Smola, P. Šandrik: Members of Common departmental committee of scientific department 26-34-9 Electrical power engineering
- I. Daruľa: Members of Common departmental committee of scientific department 35-25-9 Nuclear power engineering

#### V.4 Membership in International Organizations and Societies

- I. Daruľa: CIGRE – International Council on Large Electric Systems, Paris
- D. Reváková: CIRED – International Conference on Electricity Distribution, London
- P. Šandrik: IEC TC – International Electric Committee No. 42 – High Voltage Technology
- M. Mucha: WG2 and Management Committee – member of COST 727 Measuring and forecasting atmospheric icing on structures, Brussel
- D. Gašparovský, A. Smola, F. Krasňan, M. Pípa: CIE – International Commission on Illumination, Vienna
- A. Beláň: IEEE - Institute of Electrical and Electronics Engineers, New Jersey

#### V.5 Contracts

- V. Ondrejka, P. Šandrik, A. Kment, J. Zlatovský: Insulation systems - diagnostics and evaluation. Contract with Hydro Power Plant (SE-VET) Trenčín
- P. Šandrik, J. Zlatovský, V. Ondrejka, M. Smieško: Diagnostic measurements of stator insulation of HV electric engines and generators. Contract with Slovnaft, jsc. Bratislava
- P. Šandrik, A. Kment, V. Ondrejka: Evaluation of ecological protection of birdlife for distribution lines of the view safennes their operation. Contract with ZSE, jsc. Bratislava
- V. Ondrejka, A. Kment: Verification test of dielectric parameters of capacitor lead-through type: KKK 123/630 and KVK 123/630. Contract with Holcim Slovakia, jsc.
- A. Smola, D. Gašparovský: Stage E02: Ellaboration of normative requirements, conditions of calculation of the integral energy performance and energy certification of buildings. Lighting. Contract with NOVA, jsc. Bratislava
- F. Janiček, Ľ. Polonec, M. Smitková: Adjudication of remarks of power subjects to technical conditions of SEPS. Contract with SEPS, jsc. Bratislava
- F. Janiček, A. Beláň, Ž. Eleschová: Formulation of opponment on technical specification on demands for construction: Remote control of substation V. Kapušany from point of view of other remot controlled substations ussage. Contract with SEPS, jsc. Bratislava
- F. Janiček, P. Poljovka, J. Rehák, M. Paška: Evolvment of enterprise power standard for area of anti-noise steps of interior transformer emplacement. Contract with ZSE, jsc. Bratislava

- F. Janiček, P. Poljovka, J. Kubica, J. Ľudvík: Evolvement of enterprise power standard for area of anti-noise steps of exterior HV and UHV power station device. Contract with ZSE, jsc. Bratislava
- F. Janiček, A. Beláň, Ž. Eleschová, M. Mucha, M. Jedinák: Documentation of 400 kV, 220 kV, 110 kV and 10,5 kV surge arresters replacement in transmission system of SR. Contract with SEPS, jsc. Bratislava
- F. Janiček, P. Poljovka, J. Kubica, J. Ľudvík: Evolvement of enterprise power standard for area of anti-noise steps of exterior devices of HV and UHV substations. Contract with SEPS, jsc. Bratislava
- F. Janiček, P. Poljovka, J. Rehák, M. Paška: Evolvement of enterprise power standard for area of anti-noise steps of interior transformers emplacement. Contract with SEPS, jsc. Bratislava
- F. Janiček, P. Poljovka, J. Rehák, M. Paška: Evolvement of enterprise power standard for area of anti-noise steps of interior transformers emplacement. Contract with LIV Elektra, jsc. Bratislava
- F. Janiček, I. Daruľa, M. Mucha, M. Jedinák, I. Šulc, J. Šedivý, M. Kalina, M. Valko: Treatise: Analysis of technical and organizational state of substations remote control in power companies. Contract with SEPS, jsc. Bratislava
- F. Janiček, P. Poljovka, J. Kubica, J. Ľudvík: Evolvement of enterprise power standard for area of anti-noise steps of exterior HV and UHV substation devices. Contract with VSE, jsc. Košice
- F. Janiček, I. Daruľa: Evolvement of PKV, KV programs for ÚM E05,07. Solution of technologic PO automation in project of modernization and safety improvements in Nuclear power plant V2. Contract with Nuclear Power Plants Research Institute (VÚJE, jsc.) Trnava
- F. Janiček, P. Poljovka, J. Rehák, M. Paška: Evolvement of enterprise power standard for area of anti-noise steps of interior transformers emplacement. Contract with VSE, jsc. Košice
- F. Janiček, A. Beláň, Ž. Eleschová, M. Jedinák, I. Šulc, J. Šedivý, M. Kalina, M. Valko: Evolvement of treatise „Analysis of power quality problems in distribution system“. Contract with ZSE, jsc. Bratislava
- F. Janiček, I. Daruľa, M. Mucha: Evolvement of treatise „Monitoring of icing accretion in ZSE region“. Contract with ZSE, jsc. Bratislava
- F. Janiček, P. Poljovka, J. Rehák, M. Paška: Evolvement of enterprise power standard for area of anti-noise steps of interior transformers emplacement. Contract with Elektrovod Holding, jsc. Bratislava
- F. Janiček, I. Daruľa, M. Mucha: Evolvement of treatise „Monitoring of icing accretion in transmission system of SR“. Contract with SEPS, jsc. Bratislava
- F. Janiček, A. Beláň, Ž. Eleschová: Evolvement of treatise „Analysis of power quality in transmission system“. Contract with SEPS, jsc. Bratislava
- F. Janiček, I. Daruľa, F. Krasňan: Power check of object Hospital Podunajské Biskupice. Contract with Hospital Bratislava - Podunajské Biskupice
- F. Janiček, P. Poljovka, J. Kubica, J. Ľudvík: Evolvement of enterprise power standard for area of anti-noise steps of exterior HV and UHV power station devices. Contract with Elektrovod Holding, jsc. Bratislava
- F. Janiček, M. Mucha: Evolvement of treatise „Calculation of short circuit currents, surge arresters parameters and its placement in 400 kV substation Križovany and calculation of surge arresters parameters for tertiary circuit of transformer T403.“ Contract with SEPS, jsc. Bratislava
- F. Janiček, P. Poljovka, J. Rehák, M. Paška: Evolvement of enterprise power standard for area of anti-noise steps of interior transformer emplacement. Contract with SSE, jsc. Žilina
- F. Janiček, P. Poljovka, J. Kubica, J. Ľudvík: Evolvement of enterprise power standard for area of anti-noise steps of exterior HV and UHV power station devices. Contract with SSE, jsc. Žilina
- F. Janiček, I. Daruľa, F. Krasňan: Evolvement of power check of fireroom in National

- oncological institute. Contract with National oncological institute Bratislava
- F. Janíček, A. Beláň, Ž. Eleschová, G. Farkas: Expert opinion of supply network for information technology of SLSP Rovinka computer center. Contract with Hewlett-Packard Slovakia, plc. Bratislava
- F. Janíček et al.: Evolvement of expert opinion for determination of primary cause of generator TG22-2 fault in Nuclear power plant V1. Contract with JAVYS, jsc. Jaslovské Bohunice

## **VI. THESES**

### **VI.1 Masters Theses**

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

- [1] J. Babjak: Designing of Public Lighting (D. Gašparovský)
- [2] M. Buchtová: Illumination of Sacral Places (B. Polomová, F. Krasňan)
- [3] M. Frivaldský: Output Power from Nuclear Power Plant Mochovce 3, 4 (P. Baumeister, I. Daruľa)
- [4] J. Gall: Control and Dimming of Public Light in Town Považská Bystrica (F. Krasňan)
- [5] J. Grepiniak: Stability and Security of Power System (Ž. Eleschová)
- [6] V. Horváthová: Lighting of the Bedding Department (A. Smola)
- [7] S. Ivan: Optimization of Power Take-Off (M. Boháč)
- [8] P. Janiga: Program for Solving Short-Circuit Proportions in Energetics System (Ž. Eleschová)
- [9] M. Krahulec: Modern Trends of Automotive Lighting (F. Krasňan)
- [10] P. Kubánka: Stage Lighting Devices and Techniques Used in Television Shows (A. Smola)
- [11] J. Kubica: Technological Model of Connection of Biogas Station and Fuel Cell (F. Janíček)
- [12] J. Ľudvík: Economic Model of Biogas Station (F. Janíček)
- [13] J. Mazánik: The Quality of Electrical Energy in Medium and Low Voltage Distributions (A. Beláň)
- [14] M. Németh: Proposition of Low-Voltage Switchgear and Controlgear Assembly (D. Gašparovský)
- [15] O. Trnovský: The Glare in the Road Transport (F. Krasňan)

### **VI.2 Doctoral These**

- [1] M. Roch: Distributed control of power semiconducting systems (F. Janíček)

### **VI.3 Habilitation Theses**

- [1] A. Beláň: Protection of Synchronous Generators
- [2] D. Gašparovský: Modelling of Optical Parts of Luminaires

## **VII. OTHER ACTIVITIES**

- F. Janíček: Member of International Program Committee of the 7th International Conference "Virtual University 2006", Bratislava, December 2006
- F. Janíček: Participation in 4th Energy Congress of the Slovak Republic with international participation "SLOVENERGY '06", Bratislava, October 2006

- A. Smola: Member of Editorial Board of journal TZB Haustechnik (Technical Buildings Installations), Bratislava
- A. Smola: Member of Editorial board of the journal Světlo (Light), Prague (Czech Republic)
- A. Smola: Head of the Institute of Experts at the Faculty of Electrical Engineering and Information Technology
- D. Reváková, A. Smola: Members of Program Board of the Conference Electrical Engineering and Information Technology "ELO SYS 2006", Trenčín, October 2006
- F. Janíček: Expert Guarantee of the Conference Electrical Engineering and Information Technology "ELO SYS 2006", Trenčín, October 2006
- F. Janíček, Š. Fecko: Members of honorary chairmanship of the 5th National Conference Power Engineering – Ecology – Economy, Bratislava, June 2006
- A. Smola: Member of Programme Board of the 1st Conference "LUMEN V4", Balatonfured, Hungary, September 2006
- D. Reváková: Member of Editorial Board of the journal EE-Elektrotechnika a energetika (Journal of Electrical and Power Engineering), Bratislava
- D. Reváková: Member of Examining committee for the conferment of certificate for business activities in electrical power engineering at the Ministry of Economy of the Slovak Republic
- P. Horňák: Member of Editorial board of the journal Jemná mechanika a optika (Fine mechanics and optics), Přerov (Czech Republic)
- P. Horňák: Member of Editorial board of the journal Electrical engineering in practice, Ostrava (Czech Republic)
- F. Janíček: Member of Editorial Board of the Journal of Electrical Engineering, Bratislava
- F. Janíček: Member of Scientific Committee of the International Scientific and Technical Conference "GRE 2006", Forum of Power Engineers, Opole (Poland), June 2006
- F. Janíček: Member of International Scientific Committee of the 7<sup>th</sup> International Scientific Conference Electric Power Engineering "EPE 2006", Brno (CzR), May 2006
- F. Janíček: Representative of FEI STU in Excellence Centre of Slovak Academy of Sciences

## **VIII. PUBLICATIONS**