

Institute of Process and Fluid Engineering

Head of Institute:

Marián Peciar., PhD., Prof.

Phone: ++421 - 2 – 5296 2454

Fax: ++421 - 2 – 5296 2454

marian.peciar@stuba.sk

Deputy Head of Department

Branislav Knížat, PhD., Assoc. Prof.

Phone: ++421 - 2 – 5729 4260

Fax: ++421 - 2 – 5296 2454

branislav.knizat@stuba.sk

I. STAFF

Professors

Marián Peciar, PhD., Prof.

Professor in: Machines and Equipment for Chemical and Food Industries

Research topics: Mechanics of the particulate materials, homogenization, rheology of the paste materials.

Michal Varchola, PhD., Prof.

Professor in Hydraulic and Pneumatic Machines and Equipment

Research topics: Research of internal flow structure in hydrodynamic pumps, rotor - stator interaction in a hydrodynamic machine, flow process in self-priming hydrodynamic pump. Hydraulic design of the geometry of hydrodynamic and hydrostatic machines

Associate professors

Peter Brokeš, PhD., Assoc. Prof.

Associated Professor in: Environmental Chemistry and Technology

Research topics: Waste water recycling, membrane processes, environmental management.

Karol Jelemenský, PhD., Assoc. Prof.

Associated professor in: Machines and Equipment for Chemical and Food Industries

Research topics: Heat exchangers and evaporators, heat transfer at flow of non-Newtonian fluids and in helicoidal flow, heat exchangers with rotating heat exchange surface.

Branislav Knížat, PhD., Assoc. Prof.

Associate Professor in Hydraulic and Pneumatic Machines and Equipment

Research topics: Liquid flow in hydrodynamic pumps, numeric simulation of flow in hydraulic machines and devices, optimization of the pipeline networks operation, non-stationary non-isothermal flow in gas pipeline networks

Jozef Krchnár, PhD., Assoc. Prof.

Associate Professor in Hydraulic and Pneumatic Machines and Equipment

Research topics: Design and construction of hydrostatic systems, modeling and simulation of static and dynamic properties of hydrostatic mechanisms, technical diagnostic of hydrostatic systems.

Róbert Olšiak, PhD., Assoc. Prof.

Associate Professor in Hydraulic and Pneumatic Machines and Equipment

Research topics: Experimental research, development of new experimental methods and their application in research of hydraulic machinery, experimental research in fluid mechanics.

Karol Prikkel, PhD., Assoc. Prof.

Associate Professor in Hydraulic and Pneumatic Machines and Equipment

Research topics: Digital simulation of hydraulic systems, identification and optimisation of fluid power systems

Senior lecturers: 7

Foreign lecturers: 2

Research workers: 3

PhD students: 4

Technical staff: 3

II. EQUIPMENT

II.1 Teaching and Research Laboratories

- **Laboratory of mechanics of the particulate materials**

Content: Device for measurement of coefficient of internal friction of the particulate materials. Laboratory mixing equipment of the particulate materials enabling to measure the mixing power and to estimate the mixing effects. Laboratory packing granulator and cylindrical compactor for pressure granulation. Screw extruder with separated drives of the screw and rotor. Device for sieve analysis and device for measurement of pellets or granulates tightness. All the laboratory equipment is original or manufactured at the department or in collaboration.

Possibilities of use: Empirical verification of the granulation or the mixing of the particulate materials with guaranteed results and guaranteed designed technologies.

- **Laboratory of filtration**

Content: Photo-sedimentograph Scanning - Photo-sedimentograph Analysette 20 of Fritsch Co, range 0,5-500 μm . Sedimentation scales SARTORIUS 4600, particle diameter within 1-150 μm . The particle counter with analyzer MEDICOR PSL-1, Analyzer PSA-1. Diffraction Laser-Particle-Sizer "Analysette 22" within particle range 0,1 - 601 μm . Automatic plant for the cake filtration measurement. Automatic plant for study of dewatering by pressing. Plant for the membrane processes and membrane properties study, up to pressure 6 MPa.

Possibilities of utilization: Measurement of particle size and concentration. Measurement of characteristics of the cake filtration and pressing. Study of filtration processes of the suspensions and the liquid mixtures concentration by membrane processes. Obtaining of the membrane selectivity.

- **Laboratory of Laser - Doppler anemometry**

Content: Laser - Doppler anemometer for 2-D non-intrusive measurement of velocity fields Dantec 60X with processor FVA 58 N 40 and source Ar - Ion. Range of the velocity measurement 0,001 $\text{m}\cdot\text{s}^{-1}$ to 75 $\text{m}\cdot\text{s}^{-1}$. Laser - Doppler anemometer Polytec - Siemens PL 2500 with He - Ne source and back scatter system of the measured signal processing.

Possibilities of utilization: Determination of the velocity fields in liquid and gas flows in 2-D systems.

- **Laboratory of bioreactors**

Content: Mixing equipment with central circulating tube in pilot plant size equipped with various mixer types. There is possible to model mixing of the various solutions in two and three - phase mixtures, to measure the energy consumption and homogenization quality. Loop bioreactors: airlift, jet loop, propeller loop and compact loop in pilot plant size.

Measurement of oxygen transfer by WTW electrode EO 96 and microprocessor oximeter OXI 527, measurement of circulation velocity of continuum. Measurement of the oxygen concentration in outlet gas by oximeter DO 58.

Possibilities of utilization: Modeling and testing of the fermentation processes and $K_L a$ measurement during the fermentation. Optimization of the size and shape of the mixing vessel.

- **Laboratory of water turbines**

Content: Maximum Maximum input power: 100 kW, Speed range: 500 – 5000 1/min, Flow rate range: 0,07 – 0,72 m³/s, Head range: 2 – 12 m., Power: sensor HBM, Pressure difference: differential manometers ROSEMOUNT, Flow rate: Venturi's tube with manometer ROSEMOUNT, Speed: Optical sensor, Automatized data collection and evaluation of measurements, Measuring computer (Pentium class), DAQ card ADVANTECH PCL 812 PG, Measuring and evaluation with software EXP

Possibilities of utilization: measuring of universal characteristics of water turbines, measuring of cavitation characteristics of water turbines, research of water turbines

- **Laboratory of pumps**

Content: Maximum input: 28 kW at speed 3000 1/min, Stand has 5 circuits. Pipe diameters of them are: 50 mm, 65 mm, 80 mm, 100 mm, 150 mm., Pressure: deformation manometers, Flow rate: orifices according to ISO 5167, Ultrasound flowmeter CONTROLTRON DP 1010, Torque: sensor HBM, Speed: Optical sensor, Radial thrust on the impeller: tensometric sensors OMEGA, ZPA, BMC.

Possibilities of utilization: Measuring of power characteristics of hydrodynamic pumps

Measuring of cavitation characteristics of hydrodynamic pumps, Measuring of of selfpriming hydrodynamic pumps, Measuring of axial and radial thrust on the impeller, Research and development of hydrodynamic pumps

- **Laboratory of fluid power**

Content: Maximum input power (electrical): 147 kW, Maximum speed: 3000 1/min, Dynamometer: up to power 180 kW, Power: sensor HBM, Pressure: sensors up to 60 MPa Flow rate: flowmeters HYDAC, UNIMES, PARKER, Speed: optically measured, Automatized data collection and evaluation of measurements, Measuring computer (Pentium class), DAQ card ADVANTECH PCL 812 L, Measuring and evaluation with software LABTECH.

Possibilities of utilization: Measuring of static and dynamic characteristics of fluid power elements, Measurements on closed and open fluid power circuits, Research and development

- **Laboratory of pneumatic elements**

Content: Compressor PKS 1 (input power 0,165 kW a flow rate 1,35 m³/hod), Test stand Processing station Festo Didactic, Test stand Hoerbiger, Pneumatic elements - cylinders, valves, Control system EIPC HC-16V, Software FST4

Possibilities of utilization: Measurements of static characteristics of pneumatic elements, Design and testing of pneumatic control circuits

- **Laboratory of liquid ring vacuum pumps**

Content: Maximum input power: 22 kW, Flow rate: up to 500 m³/hod, Pressure: sensor with range 0-2,5 MPa (absolute pressure). Flow rate: Flow meter AHLBORN.

Automatized data collection and evaluation of measurements, Measuring computer (Pentium class), DAQ card National Instruments (software LabView), Stroboscope MONARCH, Videocamera Oskar, Digitalization by system IMPOR.

Possibilities of utilization: Measurements of characteristics of liquid ring vacuum pumps, Measurements of vacuum systems properties, Research and development

II.2 Special Measuring Instruments and Systems

Laser - Doppler anemometer for non-intrusive measuring of velocity fields 2-D Dantec 60X with processor FVA 58 N 40 source Ar - iron. Measuring range velocity from 0,001 m.s⁻¹ to 75 m.s⁻¹.

Laser – Doppler anemometer Polytec - Siemens PL 2500 with source He - Ne and with back treatment of the signal measured .

Laser-Particle-Sizer “Analysette 22” within particle range 0,1 - 601µm.

Central Measuring Office MC-32, BMC

Central Measuring Office THERM 2281, Ahlborn

Thermoanemometric Apparatus Series D and M

Ultrasound Diagnostic Instruments D300 and D400

HandyScope HS3

III.3 Special Computer Hardware and Software

Programmable Measuring System MGC

Programmable Measuring System MCP 16

III. TEACHING

III.1 Bachelor Study

Study Branch *Process Engineering*

Name of Subject	semester	hours per week		reader's name
		lectures	seminars	
Technical Chemistry	1	2	0	P. Brokeš
Processing Machinery	5	3	2	R. Fekete
Solid Waste Processing and Recycling	5	2	2	A. Štofíla
Air Protection	5	3	2	K. Jelemenský
Semestral Project	5	0	3	M. Peciar
Projection and Investment	6	2	2	A. Štofíla
Construction of Process Equipment	6	2	2	M. Peciar
Laboratory Practice	6	0	3	P. Brokeš

Study Branch *all*

Name of Subject	semester	hours per week		reader's name
		lectures	seminars	
Fluid mechanics	4	2	2	M. Varchola B. Knížat J. Krchnár

Study Branch *Power Engineering*

Name of Subject	semester	hours per week		reader's name
		lectures	seminars	
Hydraulic machines and devices	6	2	2	K. Prikkel
Operation of hydraulic machines	6	2	2	R. Olšiak

III.2 Graduate Study

Study branch: *Machines and Equipment for Chemical and Food Industries*

Name of Subject	semester	hours per week		reader's name
		lectures	seminars	
Construction of Production Equipment	1	2	2	M. Peciar
Transport Phenomena	1	3	2	K. Jelemenský
Mechanical Processes	1	2	2	M. Peciar
Applied Physical Chemistry	1	3	2	M. Juriga
Laboratory Practice on Chemistry	1	0	4	P. Brokeš
Hydraulic Processes	2	3	2	A. Čerňanský
Thermal Processes	2	3	2	K. Jelemenský
Construction of Apparatus	2	2	2	M. Peciar
Semestral Project	2	0	3	M. Peciar
Laboratory Practice on Material Properties	2	0	3	R. Fekete
Process Calculations	2	2	2	Š. Gužela
Diffusion Processes	3	3	2	Š. Gužela
Projection and Construction	3	3	2	A. Štofíla
Safety and Reliability of Production Equipment	3	2	2	M. Peciar
Semestral Project II	3	0	3	M. Peciar
Environmental Management	3	2	1	P. Brokeš
Bioreactors	3	2	2	R. Fekete
Experimental Works	4	0	4	K. Jelemenský
Ecology	4	4	2	A. Fargašová
Production Lines of the Food Industry	4	3	2	M. Peciar
Production Lines of the Chemical Industry	4	3	2	M. Peciar
Machines for Paper Production	4	3	2	R. Fekete

Study branch: *Hydraulic and pneumatic machines and devices*

Name of Subject	semester	hours per week		reader's name
		lectures	seminars	
Applied fluid mechanics (for Mechatronics)	1	2	2	B. Knížat
Theoretical fluid mechanics	1	2	2	B. Knížat
Numerical modeling in hydraulics	1	2	2	K. Prikkel
Hydrostatic and pneumatic elements	1	3	0	J. Krchnár
Pumps	1	3	0	M. Varchola
Hydroenergetics	1	3	0	M. Varchola, R. Sikhart
Hydraulic machine calculation	1	0	4	M. Varchola
Fluid engineering	2	2	2	B. Knížat

Dynamics of hydraulic systems	2	2 - 2	K. Prikkel
Design of hydrostatic systems	2	3 - 0	J. Krchnár
Design of pump systems and water power plants	2	3 - 0	B. Knížat, R. Sikhart
Management of water power plants	2	3 - 0	R. Sikhart
Design of hydraulic machine	2	0 - 4	M. Varchola
Modeling and control of hydrostatic systems	3	2 - 2	K. Prikkel
Driving systems (for SÚS)	2	2 - 2	J. Krchnár
Pneumatic drives and their control (for Mechatronics)	3	2 - 2	J. Krchnár
Special hydraulic machines and devices	3	3 - 0	M. Varchola
Experimental methods	3	3 - 0	R. Olšiak
Design of hydraulic system	3	2 - 4	B. Knížat
Laboratory practice	3	0 - 3	R. Olšiak
Technical diagnostics	4	3 - 0	R. Olšiak
Accessories and operation of water power plants	4	3 - 0	R. Sikhart
Hydraulics of pipeline systems	4	3 - 0	B. Knížat
Pumps in energy industry	4	3 - 0	M. Varchola
Diploma work	4	3 - 0	

III.3 Distant Study

III.4 PhD. Study

Study branch: *Heat and Hydraulic Machines and Equipment*

Name of Subject	semester	hours per week lectures-seminars	reader's name
Selected parts from pumps	1	2 - 2	M. Varchola

IV. RESEARCH TOPICS

Mechanics of Particulate Materials

- Study of Mixing, Granulation, Compaction
- Extrusion of Pastes
- Material Properties of Powder

Hydraulic and Pneumatic Processes

- Calculation of Separation Efficiency and Energy Consumption of Cyclone Apparatus
- Computer Simulation of an Expansion of the Pressure and Velocity Waves
- Pneumactical Classifiers for Powder Materials

Filtration and Membrane Processes

- Measurement of Permeability Characteristics in Clogged Fiber Layers

- Separation of Crude Oil by Membrane Filtration

Thermal Processes

- Heat Transfer in Non-Newtonian Substances
- Heat Transfer in Helicoidal Fluid Flow
- Heat Exchangers with Rotating Heat Exchanger Area

Bioreactors

- Hydromechanical Properties of Loop Bioreactors

Hydro Power Systems

- Theoretical and Experimental research of the flow process in Hydro Turbines
- Research and development of turbines for Small Hydro Power Plants i.e. simpler design and lower weight

Pumping Systems

- Basic theoretical and experimental research of the flow process in hydrodynamic pumps
- Research and development of pumps with new design concept
- Research and development of non-conventional hydro equipment
- Theoretical and experimental formulation of mathematical simulation models and their solutions of unsteady and non-isothermal systems of liquid transport
- Pumping systems safety in Nuclear Power Plants

Hydro-Mechanical Gears

- Technical diagnostic of hydro-mechanical elements and systems
- Theoretical and experimental research of characteristics of hydrostatic elements and systems
- Optimization of hydrostatic systems
- Proposals of static and dynamic characteristics of hydraulic elements and systems and their experimental verification

V. RESEARCH PROJECTS

Grant project VEGA 1/4090/07 Mechanics and technology of particulate materials.

Project Manager: M. Peciar

Grant project VEGA 1/4590/07 New approaches to risk reduction in the field of products safety and customer protection.

Project Participant: P. Brokeš

VEGA 1/0191/08 Hydrostatic drive's optimalization of mobile working machinery out of aspect of their minimal weight and the minimal power consumptions of transmission performance by fulfilment of kinematic and force requirements.

Project Manager: J. Krchnár

VEGA 1/0113/08 Development of actual methods and technologies for efficient energy consumption in pump devices.

Project Manager: M. Varchola

VEGA 1/4105/07 Causality of acoustic emissions and technical state degression of mechanical components in hydraulic systems

Project Manager: R. Olšiak

KEGA 3/4800/08. Estimation of characteristic curves of an emission quantification and air quality indicators in terms of European legislation.

Project Manager: M. Peciar

Project 3837849.0 2005-2008 Support and introduction of new forms of education at the Faculty of enterprise management of EU in Michalovce
Project Participant: P. Brokeš

Project ŠPVV 2003SP200280301 Portable research equipment for LC material modification in form of separated sheets with real performance for significant increase of production capacity of modified archived papers treatment. (Government project: "Saving, stabilization and conservation of the traditional information carriers in the Slovak Republic")
Project Coordinator: Faculty of Chemical and Food Technology, SUT in Bratislava
Project Participant: R. Fekete

ZoD 27/2007 - Methodology and quantity of natural gas emission calculation in case of damage low-pressure pipeline (SPP –distribution ,a.s. Bratislava)
Project Manager: K. Jelemenský

ZoD 72/2007 – The new ways of monitoring the natural gas odourisation level (SPP – distribution a.s., Bratislava)
Project Manager: K. Jelemenský

ZoD 5/2008 - The expert opinion and the design of the exhaust outlet equipment for the thermal disposal of the gas.
(NCHZ Global Services a.s., Nováky)
Project Manager: M. Juriga

ZoD 13/2008 – The design of the gas pipe repairing method
(Gastrading s.r.o., Levice)
Project Manager: M. Peciar

ZoD 15/2008 – The exploration of the waste glass processing possibilities
(I.E.System, Bratislava)
Project Manager: R. Fekete

ZoD 18/2008 – The expert opinion and calculation of the pressure vessel design
(TÜV SÜD Slovakia s.r.o., Bratislava)
Project Manager: M. Peciar

ZoD 19/2008 - The expert opinion on the logistics of the raw material input
(Bukacel a.s., Hencovce)
Project Manager: M. Peciar

ZoD 29/2008 – The testing of the ash material properties
(Kovohuty, a.s. Krompachy)
Project Manager: M. Peciar

ZoD 41/2008 - The design of the reactive screw
(Kovohuty, a.s. Krompachy)
Project Manager: Š. Gužela

ZoD 64/2005 – Examination of limiting factors and operation regimes of compressors in compressor stations DT (SPP a.s. Bratislava), Part 5 (2008)
Project Manager: B. Knížat

ZoD 13/2007 - Hydraulic balancing of cooling towers of the nuclear power station Mochovce.
(Slovenské elektrárne, a.s.)
Project Manager: M. Varchola

ZoD 22/2007 – Design and manufacturing of a water turbine for test stand. (STM Power, Dubnica n/Váhom, SR)
Project Manager: R. Sikhart

ZoD 61/2007 - Recirculating pump WHIRLPOOL (WHIRLPOOL Europe Schondorf)

Project Manager: M.Varchola

ZoD 6/2008 – Draining Pump of Washing machine

(WHIRLPOOL Europe Germany)

Project Manager: M. Varchola

ZoD 17/2008 – Modernization of downgate's hydrostatic power of lock chamber –

Waterwork Gabčíkovo (Vodohosp.výstavba)

Project Manager: K.Strachár

ZoD 42/2008 - Modernization of inflow object's hydrostatic power of lock

chamber- Waterwork (Vodohosp.výstavba)

Project Manager: K. Strachár

VI. COOPERATIONS

VI.1 Cooperation in Slovakia

SPP – distribution a.s., Bratislava

Methodology and quantity of natural gas emission calculation in case of damage low pressure pipeline, the new ways of monitoring the natural gas odourisation level, examination of limiting factors and operation regimes of compressors in compressor stations DT.

eustream a.s., Bratislava

Calculations of self-induced vibrations in natural gas compressor stations

NCHZ Global Services a.s., Nováky

The expert opinion and the design of the exhaust outlet equipment for the thermal disposal of the gas.

Gastrading s.r.o., Levice

The design of the gas pipe repairing method.

IE Systems, Bratislava

The exploration of the waste glass processing possibilities

TÜV SÜD Slovakia s.r.o., Bratislava

The expert opinion and calculation of the pressure vessel design

Kovohuty, a.s. Krompachy

The testing of the ash material properties and the design of the reactive screw

STM Power, Dubnica n/Váhom

Design and manufacturing of a water turbine for test stand.

Hydac Ltd., Martin

Project of inputs for SVD Gabčíkovo tail bay's hydrostatic powers

Vodohospodárska výstavba, š.p.

Reconstruction and modernization of SVD Gabčíkovo tail bay's hydrostatic systems

TMTV s.r.o., Martin

Cooperation on the design and manufacturing of the special machine for the conservation of old paper sheets

Slovenské elektrárne, a.s.

Hydraulic balancing of cooling towers of the nuclear power station Mochovce.

Bukacel a.s., Hencovce

The expert opinion on the logistics of the raw material input.

VI.2 International Cooperation**WHIRLPOOL Europe Schondorf**

Development of a washing machine pump

Sauer Danfoss

Measuring of displacement pump's flow and control degradation

VI.3 International Scientific Programs**VI.4 International Contracts****VI.5 Membership in Domestic Organisations and Societies**

P. Brokeš

- Member of Central Board for Environmental Training and Education at Slovak Ministry of Environment
- Member of Working group EA C5 WG3 focused on the EMS accreditation
- Member of Council do Ecolabeling (Ministry of the Environment of the Slovak Republic)
- Member of Examination Committee for Accreditation of EMAS verifiers (Ministry of the Environment of the Slovak Republic)

R. Fekete

- Member of FME SUT in Slovak Association for Industrial Biotechnology

K. Jelemenský

- Member of Directing gremium for international cooperation in science and education. „Action Austria - Slovakia“
- Chairman of Commission for PhD dissertations in the Scientific branch 23-21-9 Machines and Equipment for Chemical and Food Industries
- Chairman of Editorial Board of Mechanical Engineering Journal, Editor SAV and SUT in Bratislava
- Vice-chairman of the Committee of Slovak Society for Chemical Engineering
- Member of Scientific Board STU in Bratislava
- Member of Scientific Board SjF TU in Košice

J. Krchnár

- Member of the standardisation technical committee Hydraulic mechanisms, Slovak institute for technical standardisation

- Member of the committee of the Slovak society for Hydraulics and Pneumatics

R. Olšiak

- Member of the Slovak Society for Maintenance

M. Peciar

- Member of the Committee of Slovak Society for Chemical Engineering
- Member of Scientific Board in scientific branch 5.2.17 Chemical Engineering
- Member of Commission for State Examinations FCHPT STU, Specialization „Safety Engineering“, and Specialization „Chemical Engineering“
- Member of Scientific Board at FEVT TU in Zvolen
- Member of Scientific Board at SjF STU in Bratislava
- Member of the Committee for research and development in small enterprises. Agency APVV, MŠ SR
- Member of Committee for certification of TÜV Slovakia, Bratislava

K. Prikkel

- Vice-president of the Slovak Society for Hydraulics and Pneumatics
- Member of Academic senate, FME STU Bratislava

M. Varchola

- Member of the scientific council of FME, STU Bratislava
- Member of the scientific council of FSI, VUT Brno, Czech Republic
- Member of the scientific council of ÚMMS SAV Bratislava
- Member of the standardization committee TK 57 Pumps, Slovak institute for technical standardization
- Member of the Council of universities, Ministry for Education SR
- Member of the editorial board, Strojnícky časopis

A. Štofila

- Secretary of SASI, Bratislava

VI.6 Membership in International Organisations and Societies

P. Brokeš

- Representative of SNAS in the Forum of Accreditation Bodies at EU

K. Jelemenský

- Editorial Board Member of Journal of Chemical Engineering and Processing, Editor Elsevier Science Publisher Sequoia. ISSN 0255-2701, Lausanne, Switzerland
- Scientific Board Member at FS ČVUT in Prague

K. Prikkel

- Member of the COS committee for mechanical engineering society, Prague

M. Varchola

- Member of the scientific council of FSI, VUT Brno, Czech Republic
- Member of the scientific council of FSI, VŠB TU Ostrava, Czech Republic

VI.7 Foreign Visitors to Institute

Prof. František Rieger + 8 workers – ČVUT Praha, ČR, 2 days, SSCHI

dr hab.inż. Andrzej Korczak - Instytut Maszyn i Urządzeń Energetycznych, Politechnika Śląska, Poland, 2 days

VI.8 Visits of Staff Members and PhD. Students to Foreign Institutes

R. Fekete

- Incinerating plant Spittelau a Energetic House Wien, Austria, 1 day, excursion

K. Jelemenský

- Incinerating plant Spittelau a Energetic House Wien, Austria, 1 day, excursion

- Fy G.U.N.T. Geratäbau GmbH, Hamburg , Nemecko, 2 days

B. Knižat

- Przemysl, Poland, conference, 5 days

J.Krchnár

- Company Parker Hannifin, ČR, SRN, 2 days, excursion

R.Olšiak

- Company Parker Hannifin, ČR, SRN, 2 days, excursion

M. Peciar

- Incinerating plant Spittelau a Energetic House Wien, Austria, 1 day, excursion

I.Pósa

- Company Parker Hannifin, ČR, SRN, 2 days, excursion

- Krakov, Poland, conference 4 days

K.Stračár

- Company Parker Hannifin, ČR, SRN, 2 days, excursion

- Company HYDROMA, Eindhoven, Holandsko, 5 days

A.Štofila

- Incinerating plant Spittelau a Energetic House Wien, Austria, 1 day, excursion

M. Varchola

- Przemysl, Poland, conference, 5 days

- Moskva, Russian federation, conference 4 days

VII. THESIS

VII.1 PhD. Thesis

VII.2 Graduate Thesis (Diploma Works)

[1] Baláž, D.: Testing of a reactor for a paper deacidification

(R.Fekete)

[2] Čertík, Š.: Properties of particular materials

(Š.Gužela)

- [3] Javor, R.: Heat exchanger with rotating construction (K.Jelemenský)
- [4] Kopčok, M.: Design of a laboratory transporter of powder materials (R.Fekete)
- [5] Kurek, M.: Filtration of hydraulic oil (M.Peciar)
- [6] Mikuláš, R.: Fractional analysis of bulk materials (M.Juriga)
- [7] Nič, P.: Releasing of bulk materials (M.Juriga)
- [8] Šomek, P.: Shearing strength of wet powder materials (Š.Gužela)
- [9] Švolík, P.: Separation of grain materials in a fluid layer (F.Dzianik)
- [10] Zelenka, M.: Filtration of liquids with low particle concentration (F.Dzianik)

VII.3 Bachelor Thesis

- [1] Daru, B.: Energetic valuation of biomass (R.Fekete)
- [2] Horniaková, A.: Problems of power devices waste (I.Jaššo)
- [3] Kusá, D.: Design of an absorptive cooling device with working matter LiBr-H₂O. (M.Juriga)
- [4] Muchová, K.: Exploration of biotechnologies in the industry (R.Fekete)
- [5] Palsovics, Z.: Exploration of alternative power sources for pool heating (M.Peciar)
- [6] Pásztor, R.: Solving of problems of a waste management in the town Želiezovce (A.Štofila)
- [7] Piringer, K.: Water desalinization by a reverse osmosis (P.Brokeš)
- [8] Podlucká, K.: Processing of waste plastics (M.Juriga)
- [9] Reháč, T.: Exploration of alternative power sources for family house heating (Š.Gužela)
- [10] Roháč, M.: Holding and sorting of communal waste in the town Levice (A.Štofila)
- [11] Slušná, S.: Processing of waste PET plastics. (M.Peciar)
- [12] Smolinský, P.: Powder materials in pharmaceutical industry. (R.Fekete)
- [13] Sotulářová, B.: Waste water in food industry (F.Dzianik)
- [14] Sucharda, O.: Economic exploration of waste in small and middle companies. (A.Štofila)
- [15] Szabadoš, P.: Energetické spracovanie tuhých odpadov. Power processing of solid wastes. (A.Štofila)
- [16] Bielik T.: Hydraulic and construction design of an axial pump (M. Varchola)
- [17] Hlbočan P.: Pump for the extracorporeal blood circuit (M. Varchola)
- [18] Strapko M.: Design of an one-motor hydrostatic drive of a mobile engine (J. Krchnár)

VIII. OTHER ACTIVITIES

IX. PUBLICATIONS

Vedecké monografie vydané v domácich vydavateľstvách (Scientific monographs published by national publishers)

- [1] Varchola, Michal - Knížat, Branislav: Fluid Mechanics. Solved Problems: Part I. Fluid Properties. Hydrostatics. - 1. ed. - Bratislava : STU v Bratislave, 2008. - 159 s. - ISBN 978-80-227-2803-4

Vysokoškolské učebnice vydané v domácich vydavateľstvách (University textbooks published by national publishers)

- [1] Čerňanský, Alojz - Peciar, Marián: Separation processes I : Hydromechanical processes. - 1. ed. - Bratislava: STU v Bratislave, 2008. - 227 s. - ISBN 978-80-227-2800-3

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