DEPARTMENT OF HYDRAULIC ENGINEERING

Head of the Department:
Assoc. Prof. Peter Dušička, Ph.D.

Tel.: ++ 421 7-59274 565
Fax: ++ 421 7-59274 619
E-mail: dusicka@svf.stuba.sk

I. STAFF

Professors	
Kamenský Jozef, PhD.	kamensky@svf.stuba.sk
Associate Professors	
Dušička Peter, PhD.	dusicka@svf.stuba.sk
Možiešik Ľudovít, PhD.	moziesik@svf.stuba.sk
Šoltész Andrej, PhD.	soltesza@svf.stuba.sk
Senior Lecturers	
Baroková Dana, PhD.	barokova@svf.stuba.sk
Gramblička Miroslav, PhD.	gramblic@svf.stuba.sk
Hulík František	hulik@svf.stuba.sk
Šulek Peter, PhD.	sulek@svf.stuba.sk
Doctoral Students	
Balážová Antónia	balazova@svf.stuba.sk
Čepcová Zuzana	cepcova@svf.stuba.sk
Fialíková Barbora	fialik@svf.stuba.sk
Hašková Lea	haskova@svf.stuba.sk
Macková Michaela	mackova@svf.stuba.sk
Rumann Ján	rumann@svf.stuba.sk
Slabá Vladimíra	slaba@svf.stuba.sk
Research Fellows	
Cabadaj Roman	cabadaj@svf.stuba.sk
Technical Staff	
Užáková Marta (secretary)	uzakova@svf.stuba.sk
Hrubík Ján	
Striško Miroslav	
Tóth Ondrej	

II. EQUIPMENT

II.1 Teaching and Research Laboratories

Hydraulic laboratory

II.2 Special Measuring Instruments and Computers

Hydraulic laboratory:

Instruments and equipment:
- Closed water circuit with built-in fixed and inclinable flumes
- Direct discharge measurement equipment
- Sets of hydraulic wings for measuring velocity
- Echolot - equipment for measuring reservoir depths
- Flowmate - for measuring flow velocity in rivers
- Equipment for :a) measuring pressure
  b) measuring water levels
  c) measuring dissolved oxygen content

Computer laboratory:

- IBM PC Pentium Computers
- HP DXL Plotter
- Printers

III. TEACHING

III.1 Graduate Study

Subject	Semester	Hours Per Week		Lecturers
		Lectures	Seminars	
Hydraulics I.	4	2	3	J. Kamenský
Hydraulics II.	5	3	2	J. Kamenský
Water Management Structures	6	2	2	Ľ. Možiešik
Weirs	7	2	2	M. Gramblička
Groundwater Hydraulics	5	2	2	A. Šoltész
Inland Waterways	8	2	2	Ľ. Možiešik
Computer Exploitation in Engineering	9	0	4	Ľ. Možiešik
Special Issues of Weirs	9	2	3	M. Gramblička
Special Issues of Waterways	9	2	2	Ľ. Možiešik
Operation and Reconstruction of Hydraulic Structures	9	2	0	M. Gramblička
Small Water Power Plants	9	2	1	P. Dušička
Stability and Static Solutions of Hydraulic Structures	10	2	2	M. Gramblička
Water Power Utilization	8	2	2	P. Dušička
Field Measurements	8	2 weeks		L. Možiešik
Hydroenergetics	9	2	3	P. Dušička P. Šulek
Construction of Metallic Hydraulic Structures	10	2	1	M. Gramblička
Hydraulic Research	10	0	3	J. Kamenský
Ecological Problems of Hydraulic Structures	9	2	1	J. Kamenský

Engineering Networks and Water Structures	8	2 - 1	A. Šoltész
Automation of Engineering Problems	10	0 – 3	A. Šoltész L. Možiešik F. Hulík
Special Issues of Hydraulic Engineering	10	2 – 1	M. Gramblička P. Dušička L. Možiešik
Numerical Modelling of Hydraulic Processes	9	0-2	A. Šoltész R. Květon
Water and Road Constructions	4	2 – 1	A. Šoltész

IV. RESEARCH TARGETS

- hydraulics of locks and weir structures,
- study of free-surface water flow in open channels,
- investigation of non-stationary flow in hydraulic systems,
- solution of construction problems of small hydro-power plants,
- hydro-power solutions of cascades of hydro-power plants and pump-fed power plants,
- hydrodynamics of subsurface water,
- interaction of surface and subsurface water in the environment,
- evaluation of the effects of hydraulic structures on the environment (EIA),
- numerical simulation of surface and subsurface flow and their interaction,
- mathematical simulation of hydraulic and hydrological processes in catchments,
- field measurements of water level and discharge regimes in rivers and open channels,
- hydraulic aspects of flood protection against external and internal water
- hydro-environmental problems of floodplains in the vicinity of water structures

V. RESEARCH PROJECTS

1. DUŠIČKA, P.: Research Grant No. 1/0328/03 Verification of the Marginal Possibilities of the Regulatory Operation of Hydropower Plants with Respect to Reservoir Silting and Navigation Parameters.
2. DUŠIČKA, P.: Regulatory Operational Research on Canal Hydropower Plants – Hydrodynamic Model. APVT-20-046302
3. MOŽIEŠIK, Ľ.: Research Grant No. 1/1134/04: Optimum Disposal Solution for Navigation-Energetic Hydraulic Structures and Their Operational Features with Respect to Navigation Safety Using Numerical Methods.
4. ŠOLTÉSZ, A.: Effect of Drought on the Water Regime and Biodiversity of Valleys in Slovakia and Proposed Countermeasures. APVT-51-044802
5. ŠOLTÉSZ, A.: Research Grant No. 1/1139/04: Time Evolution of the Effect of a Hydraulic Structure on a Groundwater Level Regime, Proposed Technical Solutions for Solving Negative Aspects of Groundwater Along with Their Efficiency and Durability.
6. ŠOLTÉSZ, A.: The Increasing Efficiency and Energetic Severity and Decreasing Costs by the Regulation of Water in a Hydromelioration Framework. APVT-26-015002
7. ŠOLTÉSZ, A.: Optimalization of Inland Water Abstracting on VSN. VTP Project No. AV/1119/2004

8. ŠULEK, P.: Examination of Possibilities of Half-Peak Operation for Regulating a Canal Hydropower Plant. APVT-20-046602

VI. COOPERATION

VI.1 Cooperation in Slovakia

1. Water Power Plants, Trenčín
2. Water Management Construction, Bratislava
3. Slovak Academy of Sciences - Institute of Hydrology, Bratislava
4. Slovak Hydrometeorological Institute, Bratislava
5. Water Resources Research Institute, Bratislava
6. The Research Institute of Irrigation, Bratislava
7. Hydroconsult, project organization, Bratislava
8. Hydrostav, Bratislava
9. Váhostav, Žilina
10. Ministry of Land Use, Bratislava
11. Ministry of the Environment, Bratislava
12. Ministry of Transport, Post and Telecommunications
13. Danube River Basin Authority, Bratislava
14. Váh River Basin Authority, Piestany
15. Hron River Basin Authority, Banska Bystrica
16. Bodrog and Hornad Rivers Basin Authority, Kosice
17. ETIRS Ltd., Bratislava
18. REBUS Ltd., Bratislava
19. Geoland, Bratislava
20. Hydroenergia, Bratislava
21. Vodotika, Bratislava
22. VOEST Alpine, Bratislava
23. FÄH, Bratislava
24. Slovak Navigation Board, Bratislava
25. INTECH, Ltd., Bratislava

VI.2 International cooperation

Name of cooperating firms and institutions abroad, country:

1. Czech Technical University, Prague, Faculty of Civil Engineering, Department of Hydraulics Engineering, Czech Republic
2. Technical University of Brno, Faculty of Civil Engineering, Institute of Water Structures, Czech Republic
3. Institut für Wasserbau und Technische Hydromechanik, Technische Universität, Dresden, Germany
4. Fachhochschule Köln, Fachbereich Bauingenieurwesen, Germany
5. Institute of Geotechnic and Hydraulic Engineering, Wroclaw, Poland
6. Water Resources Research Centre (VITUKI), Institute for Water Pollution Control, Budapest, Hungary
7. Delft Hydraulics, Rivers, Navigation and Structures Division, Delft, The Netherlands

8. ILRI Wageningen, The Netherlands
9. MAVEL, Ltd. Benešov, Czech Republic
10. University of Sts. Cyril and Method, Skopje, Macedonia
11. BOKU Vienna, Austria
12. TU Zagreb, Croatia
13. TU Gdaňsk, Poland
14. ETH Zürich, Switzerland
15. University of Kaiserslautern, Germany
16. University of Hannover, Germany
17. Bauhaus-University of Weimar, Germany
18. University of Poitiers, France
19. University of Sts. Cyril and Method, Skopje, Macedonia

VI.2.1 Visitors to the Department

1. Prof. František Čihák – ČVUT Prague
2. Assoc. Prof. Ladislav Satrapa – ČVUT Prague
3. Assoc. Prof. Vlastimil Stara - VUT Brno
4. Assoc. Prof. Jaromír Říha – VUT Brno
5. Assoc. Prof. Miloslav Šlezingr – VUT Brno
6. Dr. Hana Uhmanová – VUT Brno

VI.2.2 Visits of Staff Members and Postgraduate Students to Foreign Institutions

1. Dušička, P.: Fachhochschule Köln, Germany, 4 days
2. Dušička, P.: VUT Brno, Czech Republic, 2 days
3. Možiešik, Ľ.: VUT Brno, Czech Republic, 2 days
4. Šoltész, A.: Fachhochschule Köln, Germany, 4 days
5. Šoltész, A.: VUT Brno, Czech Republic, 2 days
6. Kamenský, J.: VUT Brno, Czech Republic, 2 days

VII. THESES

VII.1 Graduate Theses (Diploma Work)

No.	Student´s name	Title	Supervisor:
1.	R. Blažo	Proposed Small Hydropower Plant on the Poprad at Stará Ľubovňa	P. Dušička
2.	J. Bobák	Proposed Flood Storage Basin at Lehota pod Vtáčnikom	J. Kamenský
3.	M. Kiripolský	Regulatory Operational Possibilities at Žilina Hydropower Plant Coupled with Surrounding Hydraulic Structures on Váh	P. Dušička
4.	M. Kukľa	Hydraulic Solution of Functional Structure of Garajky Water Basin	J. Kamenský
5.	E. Littrichová	Proposed Small Hydropower Plant on Hron at Šášovské Podhradie	P. Dušička

6.	M. Macková	Technical-Economic Evaluation of Small Hydropower Plants in the SVP Report	P. Dušička
7.	T. Oršula	Assessment of Capacity of Flaps and Segments of the Nosice Hydraulic Structure	F. Hulík
8.	J. Sahuľ	Proposed Small Hydropower Plant at Švošov	P. Dušička
9.	V. Slabá	Weir on Váh at Švošov	M. Gramblička
10.	M. Ščury	Proposed Small Hydropower Plant on Hron in the Area of Bzenica	P. Dušička
11.	K. Takácsová	Proposed Small Hydropower Plant at Kraľovany	P. Dušička
12.	J. Vacho	Weir on Váh at Kraľovany	M. Gramblička
13.	I. Veleg	Modelling Groundwater Flow (area of Bratislava-Zone Pribinova)	D. Baroková
14.	I. Zálesňák	Possibilities of Flood Abstracting Outside the Main Flume of the Danube in Bratislava	M. Gramblička

VIII. OTHER ACTIVITIES

VIII.1 Commercial Activities for Firms and Institutions

1. DUŠIČKA, P., et al.: Model of the Regulatory Operation of the Žilina Hydropower Plant from the Viewpoint of Hydraulic Coupling. FCE SUT Bratislava 2004
2. DUŠIČKA, P., et al.: Water Management Models of the Žilina Hydropower Plant. FCE SUT Bratislava 2004
3. ŠULEK, P., et al.: Examination of the Possibility of Half-Peak Operations for Regulating a Canal Hydropower Plant. Addition to the Financing of the APVT-20-046602 Project. FCE SUT Bratislava 2004
4. MOŽIEŠIK, Ľ., et al.: Project Documentation of the "Sereď - VD Kráľová Bike Route" on the Issue of the Area Statement and Building License. FCE SUT Bratislava 2004
5. MOŽIEŠIK, Ľ., et al.: Project Documentation of "Harbour Šoporňa" on the Issue of the Area Statement and Building License. FCE SUT Bratislava 2004
6. KAMENSKÝ, J., et al.: Analysis of Possibilities of the Design and Measurement Methodology of Armature Leakages of Oil Ducts, Including Their Approval by Actual Measurements in Situ. FCE SUT Bratislava 2004
7. DUŠIČKA, P., et al.: Technical Study of Small Hydropower Plant in 5 Localities on the Hron. FCE SUT Bratislava 2004
8. DUŠIČKA, P., et al.: Garajky Water Basin on the Ipoltica – Energy Utilisation Study. FCE SUT Bratislava 2004
9. DUŠIČKA, P., et al.: Hričov Hydraulic Structure – Increasing the Water Level– Technical Study. FCE SUT Bratislava 2004
10. HULÍK, F.: Estimation of the Spillway Capacity at the Liptovská Mara and Bešeňová Hydraulic Structures and Data Processing of Tables, Charts. FCE SUT Bratislava 2004
11. HULÍK, F.: Water Level Developments on the Váh in the Area of Liptovská Porúbka. FCE SUT Bratislava 2004

VIII.2 Membership on International Commissions

1. Šoltész, A.: National correspondent for groundwater resources – International Association of Hydrological Sciences
2. Šoltész, A.: Vice-President of the Slovak Executive Committee of the International Commission on Irrigation and Drainage
3. Kamenský, J.: Member of the International Hydraulic Research Association
4. Šoltész, A.: 6. EU (for research, technical development – independent expert) Ministry of Education SR

VIII.3 Membership in nationwide technical, professional and scientific organizations

1. Kamenský, J.: Member, TNK Hydrotechnics
2. Kamenský, J.: Staff member, Water Management Journal
3. Kamenský, J.: Member, Confederation of FCE SUT
4. Kamenský, J.: Member, Confederation of Water Research Institute in Bratislava
5. Kamenský, J.: Head, SOK Hydrotechnics
6. Možiešik, Ľ.: Executive Secretary, Commission of Slovak Navigation Congress
7. Šoltész, A.: Member, TNK Hydrotechnics
8. Šoltész, A.: Member, Confederation of RILWR in Bratislava
9. Šoltész, A.: Member, SOK Hydrotechnics
10. Šoltész, A.: Member, SOK Irrigation and Drainage
11. Šoltész, A.: Staff member, Slovak Journal of Civil Engineering
12. Šoltész, A.: Member of the VEGA Scientific Commission for Civil Engineering, Architecture, Mining and Geotechnics
13. Šoltész, A.: Agricultural Academy of Sciences – Vice-President of Water Management Section
14. Šoltész, A.: SVTS Member, Hydrotechnics Section
15. Dušička, P.: SVHS Member, Water Power Plant Section

IX. PUBLICATIONS

IX.2 Conferences

[1] KVĚTON, R.-DUŠIČKA, P.: Mathematical Model of the Drahovce - Madunice Water Works. In: Proceedings of international colloquium at the 4th Water Management Conference, Brno, 2004, pp. 12-17

[2] DUŠIČKA, P.-ŠULEK, P.: Primary Potential of Hydroenergy and Problems for Its Utilization in Slovakia. In: Proceedings of international colloquium at the 4th Water Management Conference, Brno, 2004, pp. 32-37

[3] HULÍK, F.: Physical and Mathematical Modeling, Comparison of Velocity Fields. In: Proceedings of international colloquium at the 4th Water Management Conference, Brno, 2004, pp. 26-29

[4] ČEPCOVÁ, Z.-DUŠIČKA, P.: Navigation Effect of Energy Operations of Hydraulic Structures on the Váh. In: Proceedings of international colloquium at the 4th Water Management Conference, Brno, 2004, pp. 4-8

[5] RUMANN, J.-ŠULEK, P.: Functional Outline of Pumping Storage Hydropower Plants in Slovakia. In: Proceedings of international colloquium at the 4th Water Management Conference, Brno, 2004, pp. 22-25

[6] FIALÍKOVÁ, B.-BAROKOVÁ, D.: Flood Storage Reservoirs. In: Proceedings of international colloquium at the 4th Water Management Conference, Brno, 2004, pp. 18-19

[7] MOŽIEŠIK, Ľ.: New Impulses of the Váh Waterway. In: Proceedings of international colloquium at the 4th Water Management Conference, Brno, 2004, pp. 60-67

[8] HODÁK, T.-DUŠIČKA, P.: Problems in Using Potential Primary Hydroenergy in Slovakia. In: Proceedings of HYDROTURBO 2004 international conference, Brno, 2004, pp. 273-280

[9] DUŠIČKA, P.-ŠULEK, P.-ČEPCOVÁ, Z.: Interaction between Regulated Energy and Prepared Navigational Operations in the Conditions of the Central Váh Cascade. In: Proceedings of HYDROTURBO 2004 international conference, Brno, 2004, pp. 293-304

[10] DUŠIČKA, P.-ŠULEK, P.: Measuring the Water Level Regime at the Madunice Hydropower Plant. In: Proceedings of HYDROTURBO 2004 international conference, Brno, 2004, pp. 367-374

[11] KAMENSKÝ, J.: Increasing the Transformational Ability of Flood Storage Basins. In: Proceedings of Symposium of Departments of Hydraulic Engineering, Hydraulics and Hydrology, Prague, 2004, pp. 39-46

[12] DUŠIČKA, P.-ŠULEK, P.: Effect of Navigation Operations on the Lower Váh on the Energy Functions of the Kráľová Hydropower Plant. In: Proceedings of Symposium of Departments of Hydraulic Engineering, Hydraulics and Hydrology, Prague, 2004, pp. 76-85

[13] MOŽIEŠIK, Ľ.: The Lower Váh as a Waterway and Its Effect on the Economic, Environmental and Structural Revitalization of the Lower Považie Region. In: Proceedings of Symposium of Departments of Hydraulic Engineering, Hydraulics and Hydrology, Prague, 2004, pp. 50-58

[14] GRAMBLIČKA, M.: Oreské Flood Storage Basin and Its Functional Structure. In: Proceedings of Symposium of Departments of Hydraulic Engineering, Hydraulics and Hydrology, Prague, 2004, pp. 86-92

[15] ŠOLTÉSZ, A.-BAROKOVÁ, D.-KAMENSKÝ, J.: Solution to Problem of a Negative Groundwater State in the Village of Mojš. In: 29th Dam Days 2004, České Budejovice, 2004, Vol. 2, pp. 129-134

[16] ŠOLTÉSZ, A.-BAROKOVÁ, D.: Analysis and Possibilities of Affecting Surface - Groundwater Interaction by Means of Mathematical Modeling. In: Proceedings of International Conference on Finite Element Models, MODFLOW and More: Solving Groundwater Problems, Karlovy Vary, 2004, pp. 407-41