DEPARTMENT OF HYDRAULIC ENGINEERING

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I. STAFF

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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 Lectures Seminars	Lecturer´s name
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	Ľ. 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 Ľ. Možiešik F. Hulík
Special Issues of Hydraulic Engineering	10	2 – 1	M. Gramblička P. Dušička Ľ. 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. 1/3316/06 Research of flood diversion through the hydropower plants of the Váh cascade.
2. DUŠIČKA, P.: Regulatory Operational Research on Canal Hydropower Plants – Hydrodynamic Model. APVV-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 a Water Regime and Biodiversity of Valleys in Slovakia and Proposed Countermeasures. APVV-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.: Optimization of Abstracting Inland Water on VSN. VTP Project No. AV/1119/2004
7. ŠULEK, P.: Examination of the Possibilities of Half-Peak Operation for Regulating a Canal Hydropower Plant. APVT-20-046602

8. DUŠIČKA, P.: Possibilities of Increasing the Primary Hydroenergy Potential on the Vah Cascade's Hydraulic Structures by the Assurance of Hydropower Plants' Regulatory Functions. VTP Project Nr. 4/0014/05
9. MOŽIEŠIK, Ľ.: Modelling and Research on the Effect of the Operation of Hydraulic Structures on the Safety and Capacity of Water Transport. APVV-20-006704
10. HAŠKOVÁ, L.: Research of Design Parameters and Functions of Biocorridors in Water Structures. APVV-20-003705

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. Slovak Navigation Board, Bratislava
24. 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 Hydraulic 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. Ss.Cyril and Methodius University, 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

VI.2.1 Visitors to the Department

1. Veljan Petkov – UACEG Sofia, Bulgary
2. Assoc. Prof. Viktor Tašev – UACEG Sofia, Bulgary
3. Assoc. Prof. Meri Cvetkovska– Sts. Cyril and Methodius University, Skopje, Macedonia
4. Ing. Marijana Eftoska – Sts. Cyril and Methodius University, Skopje, Macedonia
5. Ing. Violeta Cvetkovskai – Sts. Cyril and Methodius University, Skopje, Macedonia
6. PhD. Milos Knezevic – University of Montenegro, Montenegro
7. Ing. Mladen Gogič – University of Montenegro, Montenegro
8. Thomas Kohl – TV Freiburg, Germany
9. Suzanne Landis – ETH Zürich, Switzerland
10. Assoc. Prof. Vlastimil Stara – VUT Brno, Czech Republic
11. Dr. Hana Uhmanová – VUT Brno, Czech Republic

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

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

VII. THESES

VII.1 Graduate Theses (Diploma Work)

No.	Student´s name	Title of the diploma work	Supervisor:
1.	Bc. Matúš Beták	Combined Filling of Lock Chambers	Ľ. Možiešik
2.	Bc. Pavol	Design of Operating Plan of Ružbašská Miľava Small	P. Dušička

	Breza	Hydropower Plant	
3.	Bc. Dana Dekanová	Hydrologic and Hydraulic Analysis of Internal Water Drain in Kamenná Moľva Drainage System	A. Šoltész
4.	Bc. Ľubomír Drugda	Study of Weir Design on Váh River in a Kolárovo Profile	M. Gramblička
5.	Bc. Andrea Bilická	Change in Groundwater Level Regime after Weir Construction on Latorica River	D. Baroková
6.	Bc. Juraj Frűhvald	Flow Restoration of Tica River – Possibilities of Filling System	J. Kamenský
7.	Bc. Ľubomír Gmitro	Hydraulic Analysis of WATER-WATER Thermal Pump Type in Hydro-Geological Conditions of Slovakia	A. Šoltész
8.	Bc. Roman Hučík	Design of Small Hydropower Plant at Liptovský Ján	P. Dušička
9.	Bc. Zoltán Krecsmer	Study of Weir Design on Little Danube River	M. Gramblička
10.	Bc. František Medvecký	Small Hydropower Plant Design near Trenčianske Biskupice Weir	P. Dušička
11.	Bc. Daniel Polák	Variant Solution of Navigation Lock at Kolárovo Water Structure	Ľ. Možiešik
12.	Bc. Juraj Rummel	Effect of Filling the Tica River Side Channels on the Groundwater Level Regime in the Medzibodrožie Region	D. Baroková
13.	Bc. Vladimír Ružička	Digital Model of a Navigation Route	P. Šulek
14.	Bc. Martin Trello	Design of Optimized Operating Model of Hričov-Mikšová-P. Bystrica Hydropower Plants Group	P. Šulek

VIII. OTHER ACTIVITIES

VIII.1 Commercial Activities for Firms and Institutions

1. KAMENSKÝ, J., et al.: Project for Renewing the Road Connection Through the Ipeľ River Between the Peťov and Postyénpuszta Municipalities and Following Structures –Hydraulic Analysis Part. FCE SUT Bratislava, 2005-6
2. 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 STU Bratislava, 2006
3. DUŠIČKA, P., et al.: Prepared Models of the Operation of the Váh Cascade Hydropower Plants, the Ružín Pumping Hydropower Plant, the Dobšiná Pumping Hydropower Plant, the Čierny Váh Pumping Hydropower Plant and Gabčíkovo Hydropower Plant. FCE STU Bratislava, 2005
4. DUŠIČKA, P., et al.: Hričov Hydraulic Structure – Increasing the Water Level– Technical Study. FCE SUT Bratislava 2006

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 Association of Hydraulic Research
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, 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, 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. HAŠKOVÁ, L.: Flow Modelling of a Boulder Element Area in a River Bed Using a Two-Dimensional Model, In: Proceedings of International Water Management Colloquy, Brno, 2006, pp. 4-8
2. DUŠIČKA, P.-KVĚTON, R.-RUMANN, J.-ČEPCOVÁ, Z.: Terrain Measurements and Calibration of Hydrodynamic Model of Ladce-Ilava-Dubnica-Trenčín and Kostolná-Nové Mesto-Horná Streda Hydropower Plant Groups, In: Proceedings of International Water Management Colloquy, Brno, 2006, pp. 9-12
3. BAROKOVÁ, D.-ŠOLTÉSZ, A.: Numerical Simulation of Transient Groundwater Flow to Planned Lakes / Gravel Pits, In: Proceedings of International Water Management Colloquy, Brno, 2006, pp. 18-25
4. MOŽIEŠIK, Ľ.-ŠULEK, P.-VALENTA, P.-SLABÁ, V.: Simulation of the Navigation Conditions in the Area of the Water Structures, In: Proceedings of International Water Management Colloquy, Brno, 2006, pp. 26-30

5. MOŽIEŠIK, Ľ.-HANDLOVIČOVÁ, A.-CABADAJ, R.: Combined Filling of Lock Chambers, In: Proceedings of International Water Management Colloquy, Brno, 2006, pp. 35-42

6. ČEPCOVÁ, Z.: Effect of Navigation on Power Functions of a Canal Hydropower Plant, In: Proceedings of International Water Management Colloquy, Brno, 2006, pp. 43-48

7. HULÍK, F.: Capacity Curves of the Váh Hydro Power Plant Structures and Their Effect on Operations, In: Proceedings of International Water Management Colloquy, Brno, 2006, pp. 49-51

8. ŠULEK, P.-DUŠIČKA, P.: Prepared Model of Operation of Váh Cascade HPP In: Proceedings of International Water Management Colloquy, Brno, 2006, pp. 52-56

9. GRAMBLIČKA, M.: Study of Weir Structure on the Little Danube River, In: Proceedings of International Water Management Colloquy, Brno, 2006, pp. 57-65

10. HAŠKOVÁ, L.: Biocorridors- Hydraulic Design of Single Stones Situated in a Riverbed, In: Proceedings of JUNIORSTAV 2006, Brno 2006, Part 5, pp. 55-61

11. HAŠKOVÁ, L.: Verification of Single Stones Design in a Biocorridor Riverbed Using One - and Two-Dimensional Models, In: Collection of abstracts of Science of Youth 2006, Brno, 2006, pp. 23-24

12. HAŠKOVÁ, L.: Verification of the Single Stones Design in a Biocorridor River Bed by Means of One- and Two-Dimensional Models, In: Proceedings of Second International PhD Symposium in Engineering, Pécs, Hungary 2006, p. 25

13. ŠOLTÉSZ, A.-BAROKOVÁ, D.: Groundwater Modelling of an Artificial Water Supply for Eco-Hydrological Purposes in the Floodplain of the Danube in Slovakia. HydroEco´ 2006, In: International conference on Hydrology and Ecology: The Groundwater/Ecology Connection, Karlovy Vary 2006

14. BAROKOVÁ, D.-ŠOLTÉSZ, A.: Effect of Alternative Pumping from Snow-Covered Lakes in a Mountain Region on a Groundwater Level Regime, In: SIMONA 06, Liberec 2006. ISBN 80-7372-152-X

15. ŠOLTÉSZ, A.-BAROKOVÁ, D.: Groundwater Level Control Based on Numerical Modelling in the Vicinity of a Constructed Hydraulic Structure, In: SIMONA 06, Liberec 2006. ISBN 80-7372-152-X

16. HAŠKOVÁ, L.: Hydraulic Design of Single Stones in a Biocorridor, In: Proceedings of the Junior Scientist Conference 2006, Vienna 2006,Vienna University of Technology, pp. 231-232

17. DUŠIČKA, P.-HODÁK, T.-ŠULEK, P.-DUŠIČKA, M.: Ipeľ Pumped Storage Power Plant - Technical Solutions of the Preparation Period, In: Proceedings of International Conference on Hydropower: HYDROTURBO 2006, Vyhne, 2006, CD

18. ŠULEK, P.-DUŠIČKA, P.-RUMANN, J.: Operation Possibilities of Channel Semi-Peak Hydropower Plant. In: Proceedings of International Conference on Hydropower: HYDROTURBO 2006, Vyhne, 2006, CD

19. ŠULEK, P.-DUŠIČKA, P.: Operation Management of Hydropower Plants in the Slovak Electric Power System, In: Proceedings of International Conference on Hydropower: HYDROTURBO 2006, Vyhne, 2006, CD

20. KVĚTON, R.-DUŠIČKA, P.-RUMANN, J.-ČEPCOVÁ, Z.: Terrain Measurements and Calibration of a Hydrodynamic Model of the Ladce - Ilava - Dubnica - Trenčín and Kostolná - Nové Mesto - Horná Streda Hydropower Plant Groups, In: Proceedings of Conference on 70 Years of HPP Ladce and 50 Years of HPP Trenčín, Nimnica, 2006, pp. 37-38

21. MOŽIEŠIK, Ľ.-CABADAJ, R.-JENČÍK, G.: INTERREG IIIa - Zemplin Waterway, In: Proceedings of 6th International Scientific Conference on the Effect of Anthropogenic Activities on the Water Regime of Lowland Territories and 16th Slovak-Czech-Polish Seminar on Water Physics in Soil, Vinianske jazero, 2006, CD

22. HAŠKOVÁ, L.: Fish Passes as a Means of Restoring Migratory Continuity Disturbed By Human Activity, In: Proceedings of 6th International Scientific Conference on the Effect of Anthropogenic Activities on the Water Regime of Lowland Territories and 16th Slovak-Czech-Polish Seminar on Water Physics in Soil, Vinianske jazero, 2006, CD

23. CABAN, M.-KAMENSKÝ, J.: Hydraulic and Hydrologic Assessment of Increase in the Flow Capacity of Dead River Channels of the Tice River. In: Proceedings of 6th International Scientific Conference on the Effect of Anthropogenic Activities on the Water Regime of Lowland Territories and 16th Slovak-Czech-Polish Seminar on Water Physics in Soil, Vinianske jazero, 2006, CD

24. KAMENSKÝ, J.-MIŠÍK, M.-HAŠKOVÁ, L.: Flood Mapping of the Torysa River from Its Confluence with the Sekčov. In: Proceedings of International Conference on Flood Protection, Podbanské, 2006, pp.129-133