

DEPARTMENT OF SANITARY ENGINEERING

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I. STAFF

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II. EQUIPMENT

II.1 Teaching and Research Laboratories

- Water chemistry laboratory
- Hydrobiology laboratory
- Analytic chemistry laboratory
- Waste water treatment laboratory
- Computer room

II.2 Special Measuring Instruments

Basic instruments for determining organic pollution in water (BOD, COD), capillary gas chromatography, UV spectrometry (UV-VIS), TOC-Total Organic Carbon, capillary isotachopheresis and apparatus for electrochemical methods, viscometers, ISCO ultrasonic flow meters and automatic samplers, FLOWMATE velocity probe, special equipment and apparatus for LCST measurements (filtration element, separator for microextraction of water), HACH - total nitrite and phosphorus, HYDROLAB - water quality probe, POLAROGRAPH - heavy metal measurements, ISCO - automatic water level probe, ISCO - automatic sampler, TOPCON theodolite with full automatic electronic measurement of lengths and angles, Portable Flowmeter System Controlotron 1010 for flow measurements in pressurised pipes.

III. TEACHING ACTIVITIES

The Department of Sanitary Engineering provides for the education and training of undergraduates for positions as sanitary and environmental engineers. The study program of the Department offers a wide range of both compulsory and optional subjects concerning the chemistry of water and hydrobiology, water supply, water distribution, urban drainage and waste-water collection, water pollution control, water and waste-water treatment, sludge treatment and solid waste disposal. In addition to lectures, design exercises, and laboratory courses, a great deal of attention at the Department is devoted to fieldwork. Students apply their theoretical knowledge of subjects during practical training periods. Before they submit and defend their theses at the end of their studies, students have to specialise in one of several main optional modules (see table below).

III.1 Graduate Study

Subject	Semester	Hours Per Week		Lecturer
		Lectures	Seminars	
Environmental Engineering	2	2	1	Oskár Čermák
Water Chemistry and Hydrobiology	4	3	2	Ján Ilavský
Water Management Structures	5	2	2	Dušan Rusnák
Water Pollution Control	6	3	2	Marek Sokáč
Water Mains and Water Treatment Plants	7	3	2	Jozef Martoň
Engineering Networks	7	2	2	M. Čermáková
Sewerage and Waste Water Treatment	8	3	3	Dušan Rusnák
Field Practice	8	2 weeks		Marek Sokáč
Engineering and Water Management Structures	8	2	2	M. Čermáková
Solid Waste Disposal	8	3	2	Oskár Čermák

Urban Hygiene	9	2 - 2	Oskár Čermák
Special Topics in Water Treatment and Distribution	9	3 - 2	Jozef Martoň
Special Topics in Sewerage and Waste Water Treatment	9	3 - 2	Dušan Rusnák
Balneotechnics	9	3 - 2	Jozef Kriš
Special Seminar in Sanitary Engineering	10	0 - 6	Jozef Martoň
Construction of Sanitary Engineering Structures	10	3 - 2	Július Hétharši
Legal Aspects of Water Management	10	2 - 2	Július Hétharši

Optional Subjects

Subject	Semester	Hours Per Week		Lecturer
		Lectures	Seminars	
Engineering Networks	7	2 - 2		M. Čermáková
Waste Water and Water Treatment Plants	7	2 - 1		Oskár Čermák
Engineering Networks	8	2 - 2		Jozef Kriš
Pumping Stations	9	2 - 2		Oskár Čermák
Industrial and Agricultural Water Pollution Control	9	2 - 2		Július Hétharši
Solid Waste Disposal	9	2 - 2		Oskár Čermák
Land Planning	10	2 - 2		Július Hétharši
Rehabilitation of Waste Disposal Sites	10	2 - 2		Oskár Čermák
Urban Hydrology	10	2 - 2		Daniel Sztruhár
Sanitary Engineering Structures	10	2 - 1		Jozef Kriš

III. 2. Postgraduate Study

Postgraduate courses and seminars are also organised on a regular basis by the Department.

IV. RESEARCH ACTIVITIES

The Department provides scientific research and services in the following fields:

- human-induced pollution of water resources (contact: Prof. Martoň),
- disinfection of water in water supply mains (contact: Dr. Kriš),
- corrosion of water distribution pipes (contact: Prof. Martoň),
- urban hydrology and sewer system modelling (contact: Dr. Sokáč, Dr. Sztruhár),
- waste water treatment plant modelling (contact: Dr. Námer, Dr. Holienčin),
- thickening, dewatering and hygienisation of biosolids (contact: Dr. Námer),
- determination of organic substances in water (contact: Dr. Ilavský),
- upgrading the efficiency of water and waste-water treatment plants and assessment and inspection of their performance (contact: Dr. Rusnák),
- degradation of organic materials at solid waste disposal sites (contact: Dr. Čermák),
- hydraulic analysis of water distribution networks (contact: Dr. Tóthová).

V. RESEARCH PROJECTS

1. Monitoring waste disposal sites as potential sources of environmental pollution (2000-2002, O. Čermák)
2. Reduction of nutrients in secondary settling tanks of municipal waste water treatment plants (2000-2002, A. Holienčín)
3. Effect of pipe materials and chemicals on the quality of transported drinking water (2000-2002, J. Kriš)
4. Urban storm runoff management (2002-2004, M. Sokáč)

VI. COOPERATION

VI.1 Cooperation in Slovakia

1. Slovak Technical University - Faculty of Civil Engineering, Bratislava
2. Slovak Technical University - Faculty of Chemical Technology, Bratislava
3. Technical University of Košice - Faculty of Electrotechnical Engineering, Košice
4. West Slovakia Water Board - Trenčín Water Board, Trenčín
5. Ministry of Land Management of the Slovak Republic, Bratislava
6. Ministry of the Environment of the Slovak Republic, Bratislava
7. Water Research Institute, Bratislava
8. Slovak Institute of Civil Engineers, Bratislava
9. Slovak Inspectorate of the Environment
10. Slovak Committee of the International Association on Water Quality, Bratislava
11. Slovak National Committee of the International Water Supply Association, Bratislava
12. West Slovakia Water Board - Bratislava Directorate
13. North Slovakia Water Board - Žilina Directorate
14. Central Slovakia Water Board - Banská Bystrica Directorate
15. East Slovakia Water Board - Košice Directorate
16. Bratislava Water Board
17. Danube River Basin Authority, Bratislava
18. Váh River Basin Authority, Piešťany
19. Hron River Basin Authority, Banská Bystrica
20. Bodrog and Hornád River Basin Authority, Košice

VI.2 International Cooperation

1. Technical University, Prague, Czech Republic
2. Technical University, Brno, Czech Republic
3. Technical University, Vienna, Austria
4. Danish Hydraulic Institute, Hørsholm, Denmark, and Prague, Czech Republic
5. National Water Research Institute, Burlington, Canada

VII. THESES

VII. 1 Graduate Theses

No.	Student	Title	Supervisor
1.	Beseda, M.	Design of a Water Supply Network for Závod	Kriš, J.
2.	Boháčová, D.	Hydraulic Assessment of Municipal Water Distribution Networks	Tóthová, K.
3.	Brtko, P.	Connection of the Local Network of Veľké Držkovce to the Regional Water Distribution Network	Čermáková, M.
4.	Cifrič, S.	Dynamic Simulation of the Activated Sludge Process	Holienčin, A.
5.	Drongová, A.	Reconstruction of the Waste Water Treatment Plant in Rabča	Holienčin, A.
6.	Flimel, J.	Design of Municipal Sewerage Systems	Rusnák, D.
7.	Gibala, T.	Combined Sewer Overflow Assessment	Rusnák, D.
8.	Guliš, M.	Design of Alternative Sewer Systems	Stanko, Š.
9.	Halgoš, P.	Assessment of Changes in Groundwater Quality	Martoň, J.
10.	Hluzák, R.	Design of Waste Water Collection Systems for Čadca	Rusnák, D.
11.	Hruška, M.	Water Management at the Thermal Springs of Stará Lesná	Božíková, J.
12.	Jancek, M.	Design of Sewerage Systems for the Liptov Region	Sztruhár, D.
13.	Martvoň, M.	Design of Sewerage Systems for Hruštín	Sokáč, M.
14.	Medveď, M.	Design of a Waste Disposal Site for Banská Bystrica	Horanová, Ľ.
15.	Pavlíková, L.	Design of Sewerage Systems for the Žitný ostrov Region	Sztruhár, D.
16.	Prusák, J.	Design of Sewerage Systems for the Nové Zámky District	Hétharši, J.
17.	Styk, Ľ.	Design of Engineering Networks for Popudinské Močidlany	Čermáková, M.
18.	Szetei, M.	Design of an Indoor Pool at Dolné Vestenice	Kriš, J.
19.	Vanko, M.	Waste Collection in Towns	Čermák, O.
20.	Vaško, M.	Design of a Waste Disposal Site	Škultétyová, I.
21.	Zajac, P.	Waste Disposal Sites	Čermák, O.
22.	Zima, K.	Water Supply Network Design for Jahodná	Martoň, J.
23.	Žolková, A.	Municipal Water Distribution Systems in Malé Leváre	Božíková, J.

VIII. OTHER ACTIVITIES

VIII. 1 Commercial Activities

The Department provides consulting and project services in the following fields:

- chemical and physical analysis of drinking water, groundwater, waste water and sludge,
- design projects of water and waste water treatment plants, water distribution networks and sewer systems, solid waste disposal sites,
- on-site monitoring and hydraulic assessment of existing water and waste water treatment plants, water mains and sewer systems,
- expert studies of water and waste water treatment plants, water mains and sewer systems, solid waste disposal sites,

- monitoring groundwater quality,
- developing sanitary engineering software.

IX. PUBLICATIONS

IX.1 Journals

Scientific Articles in Slovak Journals

- [1] BOŽÍKOVÁ, J.: Modern Trends in Mineral Water Abstraction. In: Projekt a stavba, No. 9, 2002, 27-31
- [2] ČERMÁK, O.: Solid Waste Disposal Sites. In: Stavba, Vol. 5, No. 2, 2002, 51-53
- [3] FRANKOVÁ, E., ŠIMONOVICHOVÁ, A., GÓDYOVÁ, M.: Rare and Scarce Soil Microscopic Fungi in the Environment. In: Phytopedon (suppl.), No. 1, 2002, 292-294
- [4] KRIŠ, J., ČERMÁKOVÁ, M.: Expected Trends in the Development of Specific Water Consumption in Slovakia, In: XXI storočie, Vol. 5, No. 2, 2002, 58 – 59
- [5] KRIŠ, J.: History of Water Supply and Sewerage in Slovakia. In: Slovak Journal of Civil Engineering, Vol. 10, No. 1, 2002, 51-58
- [6] KRIŠ, J.: Pools. In: Stavba, Vol. 5., Nos. 7-8, 2002, 58-62
- [7] KRIŠ, J.: Geothermal Energy Resources in Slovakia. In: Projekt a stavba, Vol. 4, No. 6, 2002, 30-33
- [8] MAHRÍKOVÁ, I., PÉNZEŠ, L.: Small Waste Water Treatment Plants. In: Projekty rodinných domov, No. 1, 2002, 89-90
- [9] URCIKÁN, P., RUSNÁK, D.: Design of Stormwater Detention and Retention Tanks. In: SOVAK, No. 11, 2002, 4-7

Journals, Articles Abroad

- [1] KRIŠ, J., ČERMÁK, O., ČERMÁKOVÁ, M.: Water Management in Slovakia. In: Journal of GWF, Wasser – Abwasser, Vol. 143, No. 6, 2002, 509-515, ISSN 0016-3651
- [2] SZTRUHÁR, D., SOKÁČ, M., HOLIENČIN, A., MARKOVIČ, A.: Comprehensive Assessment of Combined Sewer Overflows in Slovakia, In: Urban Water, Vol. 4, 2002, 237-243

IX.2 Books and Textbooks

- [1] ČERMÁK, O., BARLOKOVÁ, D., BORIŠOVÁ, E., HÉTHARŠI, J., HORANOVÁ, L., ILAVSKÝ, I., JANKOVIČOVÁ, K., ŠKULTÉTYOVÁ, I.: Environmental Engineering, STU Bratislava
- [2] MARTOŇ, J., ŠKULTÉTYOVÁ, I., KRIŠ, J. : Water Supply and Water Treatment, STU Bratislava

IX. 3 Conferences

Domestic Conferences

- [1] BARLOKOVÁ, D., ILAVSKÝ, J.: UV Radiation in Water Treatment. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 21 – 27
- [2] BOŽÍKOVÁ, J.: Utilisation of Suitable Materials in Mineral Water Abstraction. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 202-207
- [3] ČERMÁK, O.: Solidification of Solid Waste – Testing Requirements. In: Proceedings of TOP 2002 International Conference, Žilina, May 2002, 23-28
- [4] ČERMÁKOVÁ, M.: Transport of Waste Gas. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 195-201
- [5] DUBOVÁ, V., KRIŠ, J., ILAVSKÝ, J.: Corrosion of Steel Pressure Main Used for Water Transport. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 39-44
- [6] FRANKOVÁ, E., TÓTHOVÁ, L.: Pathogenic Micromycetes in Water and Interiors. In: Proceedings of Drinking Water International Conference, Trenčianske Teplice, October 2002, 93-97
- [7] HÉTHARŠI, J., BORIŠOVÁ, E.: Revitalisation of the Váh Riverbed Downstream of Dolné Kočovce. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 218 – 219
- [8] HOLIENČIN, A.: Optimisation of Aeration Systems Using Dynamic Modelling. In: Proceedings of the 2d Waste Water International Conference, Tatranské Zruby, April 2002, 74-81
- [9] HORANOVÁ, E., ČERMÁK, O.: Consolidation of Solid Waste Disposal Sites, In: Proceedings of Waste 2002 International Conference, Spišská Nová Ves, November 2002, 85-92
- [10] ILAVSKÝ, J.: Removal of Humic Substances from Water by UV Radiation. In: Proceedings of Drinking Water 2002 International Conference, Trenčianske Teplice, October 2002, 57 – 63
- [11] JANKOVIČOVÁ, K.: Modelling the Water Balance in a Closed Solid Waste Disposal Site In: Proceedings of Waste 2002 International Conference, Spišská Nová Ves, November 2002, 101-108
- [12] KRIŠ, J., DUBOVÁ, V.: Economic Use of Water. In: Proceedings of the 7th International Conference on Environmental Engineering, Košice, May 2002, 70-73
- [13] KRIŠ, J.: Bathing Water Quality. In: Proceedings of International Conference on Urban, Architectonic and Technical Aspects of Upgrading Rural Areas, Bratislava 2002, 34-40
- [14] MAHRÍKOVÁ, I.: Small-Scale Waste Water Management. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 160 – 166
- [15] NÁMER, J., SZTRUHÁR, D., SOKÁČ, M.: Intensification of Secondary Settlement Tanks. In: Proceedings of International Workshop on Current Problems in Urban Water

Management, Kočovce, September 2002, 178-183

- [16] RUSNÁK, D.: „State of the Art“ in Waste Water Collection in Urban Settlements in Slovakia. In: Proceedings of Workshop on Water Protection – Sustainable Development Factors, Bratislava, Jun 2002, 13 – 21
- [17] RUSNÁK, D.: The Role of Hydraulic Roughness in Sewer Design Avoiding Sedimentation. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 78 – 85
- [18] SOKÁČ, M.: Mathematical Simulation of Water Quality in the Hron River. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 149-154
- [19] STANKO, Š.: Vacuum Sewerage vs. Gravity Sewerage - Economic Comparison. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 142 – 149
- [20] SZTRUHÁR, D., HOLIENČIN, A.: Technical Design of Infiltration Management Structures. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 107-112
- [21] ŠKULTÉTYOVÁ, I.: The Stupava Waste Disposal Site. In: Proceedings of International Workshop on Current Problems in Urban Water Management, Kočovce, September 2002, 189 – 194
- [22] TÓTHOVÁ, K.: Modelling Water Quality in Water Distribution Networks. In: Proceedings of International Conference Drinking Water 2002, Trenčianske Teplice, October 2002, 165-168

Conferences Abroad

- [1] ČERMÁK, O., ČERMÁKOVÁ, M.: Technical Requirements For the Closure of Waste Disposal Sites. In: Proceedings of International Conference on Sludges and Waste 2002, Brno, Czech Republic, October 2002, 39-43
- [2] DUBOVÁ, V., KRIŠ, J., ILAVSKÝ, J.: Corrosion of Water Mains. In: Proceedings of the 6th Water Zlín International Conference, Zlín, Czech Republic, March 2002, 49-54
- [3] HÉTHARŠI, J., BORIŠOVÁ, E.: Revitalisation of the Váh Riverbed Downstream of the Dolné Kočkovce Dam. In: Proceedings of International Conference on Water Protection of the Labe River, Ústí nad Labem, Czech Republic, 38-43
- [4] HORANOVÁ, E.: Problems With Landfill Consolidations. In: Proceedings of Sludges and Waste 2002 International Conference, Brno, Czech Republic, October 2002, 33-38
- [5] ILAVSKÝ, J., HRIVŇÁK, J., BARLOKOVÁ, D.: Determination of Phthalate Acid Esters. In: Proceedings of the 25th International Symposium on Capillary Gas Chromatography, Riva del Garda, Italy, May 2002, 356-364
- [6] KRIŠ, J.: Surface Water Quality and Its Protection in the Slovak Republic. In: Proceedings of the 17th International Scientific and Technical Conference on Water Supply and Water Quality, Poznań – Gnańsk, Poland, June 2002, 61-68
- [7] KRIŠ, J., TÓTHOVÁ, K.: Possibilities of Modelling Water Leakage in Municipal Water Supply Systems. In: Proceedings of International Conference on Leakage Management - A Practical Approach, Lemesos, Cyprus, July 2002, 107-111

- [8] MAHRÍKOVÁ, I.: Sludge Tanks in Small Waste Water Treatment Plants. In: Proceedings of Sludges and Waste 2002 International Conference, Brno, Czech Republic, October 2002, 107-113
- [9] RUSNÁK, D., SAMARJAY, Z.: Sedimentation in Sewers. In. Proceedings of International Conference on Optimisation of Design and Operation of Sewer Systems and Waste Water Treatment Plants 2002, Břeclav, Czech Republic, October 2002, 15 – 19
- [10] SOKÁČ, M., SZTRUHÁR, D.: New Legislation in Waste Water Management. In: Proceedings of International Conference Optimisation of Design and Operation of Sewer Systems and Waste Water Treatment Plants 2002, Břeclav, Czech Republic, October 2002, 231-236
- [11] TÓTHOVÁ, L., FRANKOVÁ, E.: Comparison of Microorganisms Occuring in Interiors and Drinking Water. In: Proceedings of the 18th International Conference on Actual Problems of Hydrobiology, Prague, Czech Republic, February 2002, 106- 112
- [12] URCIKÁN, P., RUSNÁK, D.: Combined Sewer Overflows and Receiving Water. In: Proceedings of International Conference on New Methods of Operating Waste Water Treatment Plants VII, Moravská Třebová, April 2002, 24 – 36