

# CONTENTS

<b>Brno University of Technology</b> .....	5
Bachelor's study programmes .....	11
Follow-up master's study programmes .....	12
Doctoral study programmes .....	12
Professor Ing. Jiří Kunšátský, DrSc. ....	13
<b>THE HYDRAULIC LABORATORY OF THE BOHEMIAN TECHNICAL UNIVERSITY AT BRNO – DESCRIPTION OF LABORATORY</b> .....	14
Historical.....	14
General Arrangement .....	17
Water Supply and Circulation .....	18
Return-Water Channel, Siphon and Suction Well.....	19
Centrifugal Pumps, Suction and Discharge Pipes .....	20
Elevated Tank and Accessories .....	20
The Elevated Tank .....	20
Conduits to Experiment Flumes.....	21
Stilling Devices.....	22
Measuring Weirs.....	22
River Flume .....	23
Hydraulic Flume .....	24
Joint Use of the River Flume and Hydraulic Flume.....	25
Sand Trap (Settling Basin) .....	25
Cylinder Gates .....	25
The Travelling Crane.....	26
Interior and Scientific Equipment.....	26
Lighting, Heating, Painting, Flooring and Wiring .....	26
The Photographic Room .....	27
Side Rooms, Workshops, Drafting Rooms, Storerooms for Materials .....	27
<b>THE MOST IMPORTANT EXPERIMENTS PERFORMED TO DATE</b> .....	28
Comparative Experiments with Models of High earth Dams .....	28
Earth Dam across White Dese River in Bohemia .....	28
Rock Fill Dam across the Moldau River near Štěchovice above Prague .....	28
Comparative Experiments on the Action of the Overfalling Water on the Stream Bed Immediately below the Dams .....	32
Materials for Constructing the Models .....	33
Size of Models.....	33
Sand Composing Stream Bed.....	33
Experimental Procedure .....	33
Some of the Types of Weirs Investigated .....	34
Characteristics of Certain Types of Weir.....	39
Experiments on the Absorption of Energy at High Weirs or Dams .....	39
By Means of Tumble- Bays .....	39
By Means of Projecting Stones in the Downstream Face of the Weir .....	40

By means of Concrete Baffle Piers Projecting from the Stream Bed .....	41
By Means of Baffle Sills .....	44
By Means of Cascades .....	44
Experiments for Determining the Most Suitable from of Overfall Crest for Large Dams .....	45
Experiments on the Motion of Water in the Interior of Large Reservoirs ..	45
The Influence of Surface Tension on Measuring Weirs.....	46
Experiments on Flood-Discharge Structures on Dams (Siphon Spillways, Hinged Flashboards, Tunnels, Automatic Gates).....	46
Experiments for Testing the Law of Similitude .....	48
LABORATORY AT THE PRESENT TIME .....	50
LABORATORY OF WATER MANAGEMENT RESEARCH STAFF .....	51
OUR DOCTORAL STUDENTS .....	51
ORIENTATION OF SCIENTIFIC PROJECTS.....	52
SEVERAL EXAMPLES OF CURRENT LABORATORY WORK RESULTS.....	53
Fish ladders .....	53
Objects modelling .....	55
Sediment transport .....	56
Example of dike monitoring in laboratory conditions.....	59
Tube rubber dams .....	61
Younger part of laboratory .....	62
Measurement techniques .....	62
WATER-PUMPING STATION IN LWMR .....	65
INTERNATIONAL COOPERATION .....	66
Visitors in laboratory .....	66
Presentation in the world .....	68
EDUCATION.....	70
Laboratory education .....	70
Laboratory education of foreign students .....	71
Thematic field excursions.....	73
OUR OTHER ACTIVITIES .....	76
We organize conferences, meetings, sessions and workshops (international and native), lifelong learning courses, lectures for University of Third Age .....	76
EUREKA PROGRAMME.....	77
Organisational Structure of the EUREKA Programme.....	77
Involvement of the Czech Republic .....	78
Focus of Projects.....	78
Criteria of the EUREKA Programme .....	79
Applicant .....	79
Method of Project Funding.....	80
Preparation and Coordination of Project Solution.....	80
Obligations of the Researcher during Project Solution .....	81
THE PROJECT E!3838 AND E!4981 .....	82

Electrical Impedance Spectrometry (EIS) method .....	83
EXAMPLES OF ACHIEVEMENTS.....	85
Monitoring of dike status changes using Electrical Impedance Spectrometry Method, Water Structure Kobeřice, CZ .....	85
Monitoring of bottom morphology by EIS Method, CZ .....	88
Business, marketing and EIS information centre in areal of company GEOTest Inc., CZ .....	89
Monitoring of moisture of grass subsoil in the area of golf course in Svatka, CZ .....	90
Monitoring in the municipality of Tetčice, CZ .....	92
Preliminary tests at two sites in Basel, Switzerland .....	111
Monitoring of moisture changes of soil by EIS Method in Velké Ripňany, Slovak Republic .....	94
Monitoring in Milhostov, Slovak Republic .....	113
Preliminary tests in Senné, Slovak Republic .....	95
New member of research team is KHBO University College (Associated with K.U.Leuven), Department of Industrial Engineering Sciences & Technology, Construction Unit, B.....	114
First test with new apparatus was done also in IRSA-CNR, Bari Italy ....	115
PROJECT E!4981 MEMBERS .....	117
Main Participant.....	117
Other Participants .....	119
THE PROGRAM CLUSTER CREA.....	102
CLUSTER CREA – Czech Renewable Energy Alliance.....	102
Members of CREA.....	125
Sphere of activities .....	104
Contact.....	127
GEOTest .....	129
About GEOTest.....	129
Fields of Activities.....	107
Contact.....	107
REFERENCES.....	134
Literature .....	134
Electronic Resources .....	135