



Course number		Course title : Water Resources Management	
Number of weeks: 1	Contact hours:		Learning hours: 4h x 5days
Pre-requisites: basics of Water Treatment and Water Supply		Credits : 5	
Course coordinator prof. Ing. Jozef Kriš, PhD.		Lecturers : prof. Ing. Jozef Kriš, PhD..	
Course description : Acquirement of fundamental knowledge about demand and consumption of drinking and service water - its fluctuation, water supply systems, their design and hydraulic calculation. Basic knowledge about material of water pipes, joints, armatures and buildings on the water supply system. Acquirement of knowledge about accumulation of drinking water, design and construction of water reservoirs, knowledge about water sources, their captation and protection. Acquaintance with water treatment for drinking and service water and design of different technologies and design of facilities for water treatment plants. There will be presented various methods of water treatment, disinfection of water and basic criteria for maintainance and operation of water supply systems.			
Syllabus: • Water resources, Water collection and abstraction, Groundwater resources. Determining the capacity of a well using the pumping test at constant decrease in water level. Collector wells, Surface water resources, Rain water resources, Designation of protection zones. • Treatment of drinking and service water, Mechanical treatment, Mixing of chemicals with raw water, Separation through sludge blanket, Settling (sedimentation) tanks, Filtration, New methods of water treatment, Drinking water safety – disinfection, Special methods of water treatment carbon dioxide removal, Water softening, In-situ treatment of groundwater, Water odour and taste removal, Sludge management at water treatment plants.			
Learning outcomes: • The ability of decision making and objective evaluation of data needed for concept design of water resources protection zones and management. • overview of water treatment methods and technics. • The ability to design and evaluate projects in line with modern engineering techniques			
Assessment: Credit and Final Exam (A,B,C,D,E,F,FX)			
Recommended texts and other learning resources: <i>Frederick W. Pontius: Water Quality and Treatment, American Water Works Association, A handbool of Community Water Supplies, McGraw-Hill, Inc, Fourth Edition, 1990</i> <i>A.C.Twort, D.D. Ratnayaka and M.J. Brandt: Water Supply, fifth edition, Co-published by IWA Publishing, 2000</i> <i>Water Treatment Handbook, Degremont, Sixth edition, volume 1, 1991</i> <i>Water Treatment Handbook, Degremont, Sixth edition, volume 2, 1991</i> <i>J.M. Montgomery: Water Treatment Principles and Design, A Wiley-Interscience Publication, 1985</i> <i>Fletcher G. Driscoll: Groundwater and Wells. Publishing Johnson Division, St. Paul, Minnesota. 1987</i>			



If will be a time I can add the next topics :

WATER SUPPLY

Water supply engineering

1. Water supply in the development of human
2. Status and development for supplying drinking water Slovak Republic

Water demand

1. Water demand

Water Transportation and Distribution

1. Water Transportation and Distribution
2. Hydraulic calculations for water supply pipes
3. Water supply pipe materials
4. Service Structures of Water Supply Systems

Pumping stations and pumps

1. Pumping stations and pumps

Water Accumulation

1. Water Accumulation
2. Types and Design of Water Reservoirs
3. Underground water reservoirs

Design and Construction of Water Supply Systems

1. Design and Construction of Water Supply Systems
2. Construction of Water Supply Pipes

Operation and Maintenance

1. Operation and Maintenance
2. Water quality monitoring within abstraction, transportation, storage and distribution
3. Operating Instructions

Prof. Ing. Jozef Kriš, PhD.