

Drinking water - principles and practices

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Preface

Drinking water: the miracle from the tap

For many people drinking water is something we usually do not think about and don't know much about either. We open the tap and clean and fresh drinking water pours out. We take it for granted. We know the water quality is excellent and that it is actually not necessary to buy bottled water. Nevertheless, we sometimes read in the newspaper alarming articles about the pollution of our drinking water sources. How does that happen? How do the drinking water companies actually purify our drinking water, and will they continue in the future? Similarly, there are several other questions people sometimes ask about our drinking water:

- Why do we flush our toilet with clear and costly drinking water?
- Is our water "hard" and should we believe the commercials about water softeners?
- Which elements does water actually contain?
- Is drinking water healthy?
- Can you purify water with your own filters?
- Is it safe to drink rainwater?
- How is the quality of our drinking water being safeguarded?
- Is groundwater abstraction responsible for the deterioration of national parks?
- What is the function of a water tower?
- What do the drinking water companies do in restricted areas and in national parks?

Students who follow courses in drinking water at Delft University of Technology also have these questions.

For whom is this book meant?

This book contains the course material about drinking water for students in the Bachelor of Science program (BSc) of Civil Engineering at Delft University of Technology.

In these courses the students acquire a broad view of the drinking water service. Not just the theoretical principles, but also the practical operation of drinking water companies. Not just the techniques, but also the historical background, the judicial arrangements, the financial aspects, the global situation, etc.

The course material should give all Civil Engineering students a vast and sound base, which can be used in their future profession. For students who will specialize in the Master of Science program (MSc), the course material will provide a basis for specialist courses like "Drinking water production" and "Drinking water distribution."

The course material follows a modular structure and emphasizes independent learning. That makes this course material also very suitable for many others: from students seeking a higher professional education, to people who are involved in one way or another in the drinking water service, to the drinking water consumers who would like to know more about "the miracle from the tap."

How is the book structured?

The modern student is an independent learner, meaning that time and planning are much more determined by the student himself than by the course schedule. Modern course materials are adapted to this.

This book consists of ten independent modules. All modules follow a uniform design. First, there is a page of information about the module under the headings of "Framework," "Contents," and "Study goals." Next,

the actual learning material (contents) is presented. Following that is a list of recommended literature and websites. Because of the broad character of the course material, a list of references is not included. Finally, questions and answers are presented. The questions challenge the students' recall of the material read, the applications ask students to put their understanding to use.

Courses from this book

Because of the module structure, this book can be used as teaching and learning material for different courses in drinking water supply. Each module can be used independently, but also in courses dealing with specific focus points. Examples of such courses can be given as:

Module	Sanitary Engineering	Amsterdam water	Drinking water companies	Planning and design	Finances	Water consumption	Water quality	Groundwater	Surface water	Distribution
Course										
Basic short course	•	•	•							
Design			•	•	•					
Water treatment			•				•	•	•	
Water distribution			•			•				•

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