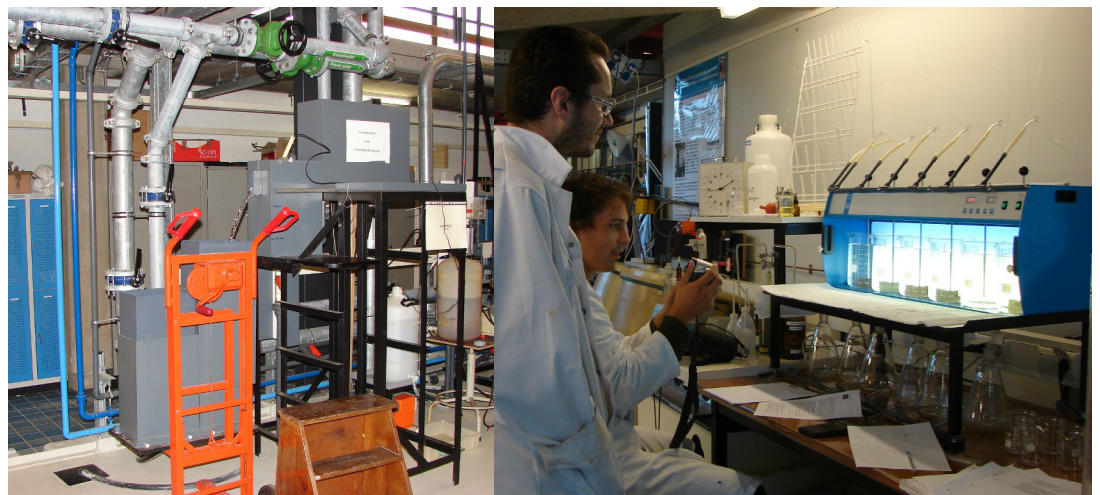


General information



Framework

This module explains the general information of the lab work.

Contents

This module has the following contents:

1. Location
2. Time
3. Documents
4. Assistance
5. Safety
6. The use of chemicals
7. The use of equipment
8. Cost
9. Report
10. Judgement

Guidelines for writing reports

1. Location

All experiments will be performed in the WATER LAB (Laboratory of Sanitary Engineering, Stevin III building, first floor, 1.15.3) at the Faculty of Civil Engineering. You can enter the WATER LAB (lab building Stevin III) at the first floor of the Civil Engineering education building, taking the corridor next to lecture room 1.96.

2. Time

The Laboratory of Sanitary Engineering is opened on working days from 8.00 to 18.00 h.

The morning experiments start at 8.30 h.

The afternoon experiments start at 13.30 h.

The full day experiments starts at 8.30 h.

You are kindly requested to be present in time! Absence (illness) has to be reported as soon as possible to the course leader (J.Q.J.C. Verberk, by mail). If an experiment cannot be done it is possible to shift to a later date or to join another group (exception!).

3. Documents

Every participant has its own copy of the manuals and data forms that are made available on Blackboard and has to bring these to the lab when performing the experiments.

4. Assistance

It is assumed that every participant has studied the manual and the relating theory before doing an experiment. Insufficient preparation might lead to being sent home by the assistant.

The laboratory employees and staff members are present for assistance and questions:

J.Q.J.C. (Jasper) Verberk

S.G.J. (Bas) Heijman

A.D. (Tonny) Schuit

R.P. (Patrick) Andeweg.

For general questions not directly related to one of the experiments turn to the course leader (J.Q.J.C. Verberk).

5. Safety

Safety and environmental awareness are of great importance.

During the experiments every participant is obliged to wear a lab coat and safety glasses. Lab coat and safety glasses are made available at the Laboratory of Sanitary Engineering during the course.

Additional safety rules and guidelines:

- wearing contact lenses is risky and is therefore discouraged
- eating and drinking is not allowed in the laboratory
- work neatly and immediately clean spilled chemicals and water
- chemical waste must be collected in the appropriate waste containers
- wear proper footwear (no sandals) and long trousers.

Additional personal protective equipment is available in the lab (ask Tonny Schuit):

- protecting gloves, variable sizes
- dust masks, dust glasses
- safety shoes
- facial protection masks
- safety glasses (for visitors).

Other safety means are:

- emergency eyewash stations (in the laboratory rooms on the drinking water taps)
- emergency showers (near the exits of the laboratory rooms)
- small fire-fighting equipment (in the laboratory rooms and in the hall).

First aid personnel in the lab building (Stevin III):

A.D. Schuit (tel. 2784946, room 2.01)

J.A. van Duin (tel. 2784608, room 2.04).

6. The use of chemicals

Guidelines for the use of chemicals:

- always follow the safety instructions on the jar or flask. These instructions can also be found in the book called 'Chemiekaarten'
- keep the jar or flask closed as much as possible
- scoop or pour chemicals **never** back into the original flask, but discharge them as chemical waste
- put the jar or flask back on its proper place in the cabinet directly after use
- use a clean and dry spatula for scooping solid chemicals out of a jar
- pour liquid chemicals first in a clean and dry beaker or cylinder. From there the necessary quantity can be measured or pipetted.

7. The use of equipment

When using apparatus the relevant manual has to be followed. The manual gives instructions concerning operation, maintenance, calibration and safety.

8. Cost

In case of serious carelessness through which equipment is destroyed or chemicals are squandered the participant has to pay the costs. This person might be removed from the course until the costs are paid.

9. Reports

Each group has to make one brief data-report for every experiment. Guidelines for writing reports are given at Blackboard. All reports have to be submitted within one week after the experiment at the course leader. Bear in mind that completeness of the reports is more important than the speed of submission.

The staff will check the reports as soon as possible. In case of an insufficient report the group gets the opportunity to make corrections. After these corrections the report is submitted again. The final mark is the average of both judgments.

Look for more details in the document 'Guidelines for writing reports'.

All corrected reports have to be handed in at the course leader at the latest three weeks after the end of the lab course. If this is not satisfied the lab course is considered unfinished and no mark is given.

10. Judgement

The final mark for the experimental part of CT4471 is based on the marks of the 6 data reports. Your working attitude is also taken into account.

The final mark of the course CT4471 consists of: 4/7 written exam and 3/7 experimental work.

Guidelines for writing reports

General remarks:

- each experiment should be reported separately
- handwritten reports are not accepted
- write brief and concisely
- submit each report at the very latest one week after the experiment
- make references to the literature where applicable (see point 5)
- give each table and figure a numbered caption.
- graphs: give units and dimensions of X- and Y-axis, choose good scales and explain every line. Remove grey background, make all lines clearly visible in a black-and-white copy.
- tables: give the units of all parameters, explain details and exceptions in footnotes.
- formulas: explain all symbols + corresponding units. When referencing formulas they have to be numbered at the right margin.

The report should comprise the following parts:

1. Introduction

A very short introduction (< ½ page).

Explain the relation of the experiment with practice. Describe the process in broad outlines. Which designs are known of this particular treatment? What knowledge is needed to make a design and, based on this, what will be the objective of the experiment?

2. Results

Present all measuring data in tables and/or graphs (without the elaboration, see next point). The data forms of the experiments can be used as part of the report. Do the results correspond with the expectations? Are there erroneous data?

3. Discussion

Elaborate, discuss and answer the questions:

- elaboration of the data according to the guidelines in the manual
- answer the questions (except the eventual design)
- it is not forbidden to reveal your own ideas
- give comments on the results, e.g. comparison with common values in literature
- explain clearly which numbers are used in which formulas.

4. Conclusions

Give brief and concise conclusions.

5. Literature references

A literature reference looks as follows:

Periodical articles: author(s), (year), title, name periodical, volume, pagenumbers.

E.g.: Kneteman, G. (2002): How to win the Tour the France, J. Bicycle Res. 12, p.7-12.

Books: author(s), (year), book title, publisher, location of publisher.

E.g.: Zoetemelk, J. (1990): Keep fit through cycling, Elsevier Publishers, Paris.

Additional for full design reports (if applicable)

6. Design

For the design (if applicable to the experiment) often the results found in the experiment have to be used. When these values are erroneous, as may have been noticed in the elaboration and conclusions, common values from the literature may be used.

7. Literature review

Give a brief overview of the current state of the technology and its latest applications.

8. Evaluation of the experiment

Give a critical review of the experiment based on the literature review and your design. This should answer the following questions (at least):

- what is the accuracy of results, robustness of models (statistical analyses on the results)?
- is the experiment representative for the full scale practice? What problems can be expected with upscaling.
- comments and suggestions for improvement of the experiment (manual, set-up, procedures and elaboration).