

كلية الهندسة
جامعة أسوان



Water Supply Engineering

Code: **CONE 323**

**Course Instructor:
Dr. Mohamed Fekry**



/Mashroo3na

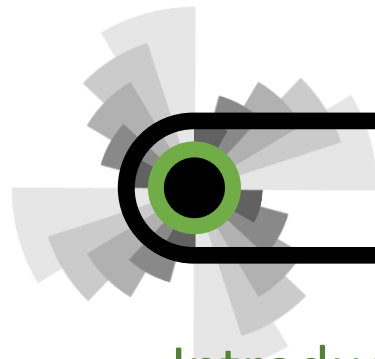
تعلّم فليس المرء يولد عالماً
وليس أخو علم كمن هو جاهلٌ
وإنّ كبير القوم لا علم عنده
صغيرٌ إذا التفت عليه الجحافل
وإنّ صغير القوم إن كان عالماً
كبيرٌ إذا ردت إليه المحافلُ
الإمام الشافعي



بالعقل نبرأ

لا تحسبنَّ العلمَ ينفَعُ وحدَه *** ما لم يتوَجَّ ربُّه بخلاقِ
والعلمُ إن لم تكتنفهُ شمائلُ *** تُعليه كان مطيةَ الإخفاقِ
كم عالمٌ مدَّ العلومَ حباناً *** لوقيةٍ وقطيةٍ وفراقِ
وفقيهٍ قومٍ ظل يرصدُ فقهُ *** لمكيدةٍ أو مُستحلِّ طلاقِ
وطبيبٍ قومٍ قد أحلَّ لطفه *** ما لا تحلُّ شريعةُ الخلاقِ
وأديبٍ قومٍ تستحقُّ يمينه *** قطعَ الأناملِ أو لظى الإحراقِ

* القائل حافظ إبراهيم

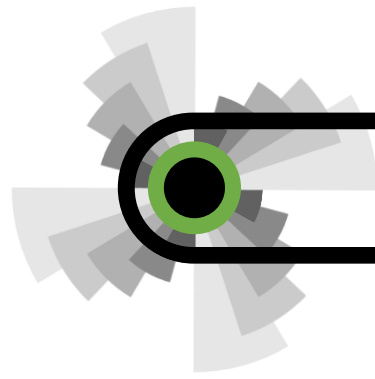


Course Description

Introduction – water consumption study – population study – water demand – water sources – drinking water specification - water supply works – water treatment – water distribution networks -

Course Description – Cont.

Topic	Hours	Lecture	Tutorial/Practical
Water consumption	4	2	2
Population study	4	2	2
Water needs	4	2	2
Water sources	4	2	2
Ground water	4	2	2
Water supply network	4	2	2
Water collection works	8	4	4
Purification works	8	4	4
Water distribution works	8	4	4
Total	48	24	24



Course Objectives

The main purpose of the Water supply Engineering course is to enable the student to:

1. Recognize the fundamental tasks of the sanitary engineer.
2. Explain the different types of water demand for catering the public, commercial, industrial and fire requirements.
3. Recognize the principle of Hardy Cross method.
4. Explain the principle of reservoir design.
5. Explain the concepts of advance water treatment processes for potable use.
6. Describe the concepts of Pumps and pumping stations in water distribution systems.

Schedule of Assessment Tasks for Students During the Semester

Mid-term exam	20	%
Final exam	70	%
Oral exam	0	%
Semester work	10	%
Other	0	%
<hr/>		
Total	100	%

Text Book



جمهورية مصر العربية
وزارة الإسكان والمرافق
مركز بحوث الإسكان والبناء

الكود المصرى
لائس تصميم وشروط تنفيذ
محطات تنقية مياه الشرب والصرف الصحى ومحطات الرفع

قرار وزارى رقم ١٦٩ لسنة ١٩٩٧

المجلد الثانى
أعمال المعالجة
(الصرف الصحى)

جمهورية مصر العربية
وزارة التعمير والمجتمعات الجديدة والإسكان والمرافق
مركز بحوث الإسكان والبناء والتخطيط العمرانى

الكود المصرى
لتصميم وتنفيذ خطوط المواسير لشبكات مياه الشرب
والصرف الصحى

اللجنة الدائمة
لإعداد أسس التصميم وشروط التنفيذ لخطوط المواسير لشبكات مياه الشرب
والصرف الصحى

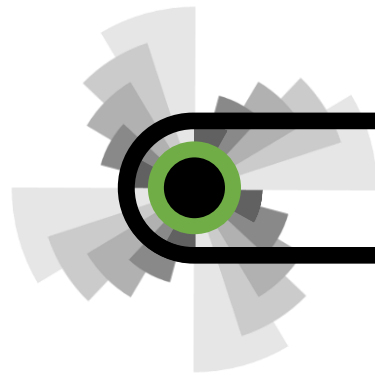


Who is the instructor?

- **Name: Mohamed Fekry Abdel_Mobdy Soliman**
- **Bachelor Science at Civil Engineering with a cumulate average grade „ Very good with honour's degree“, Faculty of Engineering - Assiut University - Assiut - Egypt , 1995**
- **M. Sc. at Environmental Eng. Dept. - University of Innsbruck - Innsbruck – Austria, 2000**
- **Ph.D. Student at Innsbruck University - Environmental Engineering Dept. – Innsbruck – Austria, 2003**
- **Assistant professor at Civil Engineering Department – Aswan Engineering Faculty - South Valley university – Egypt, 2003**
- **Assistant professor at Civil Engineering Department – Engineering Faculty – Sirt university – Libya, 2006-2011**
- **Assistant professor at Civil Engineering Department – Engineering Faculty – King Abdul Aziz university – Saudi Arabia, 2011-2016**
- **Assistant professor at Civil Engineering Department – Engineering Faculty – Awan university – Egypt, 2016-Present**

Before we start (Course contract)





Instructor Duties

Course Contract

Quiz 1

Quiz 2

Mid Term Exam

Average sheets for semester
weeks

Evaluation based on attendance,
bonuses, penalties.

Assignments
Evaluation

Student Duties

Attendance



2 classes per week = 30 class per term

Student Duties

Attendance

15 %

leads to warning

Student Duties

Attendance

25 %



leads to withdrawal



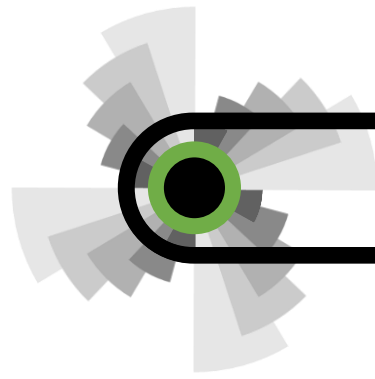
Cheating

Cheating in quiz or exam
leads to **ZERO** in evaluation

Cheating

Cheating in the FINAL EXAM

leads to ???????



Course Contract

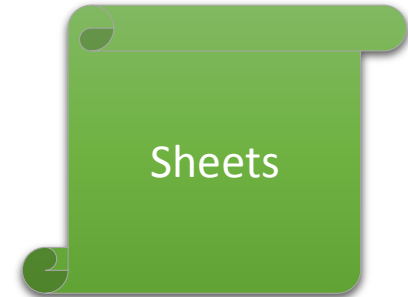
Student Duties

Solve your sheet by yourself and submit it on time

Submission date is one week after completing solving the sheet

Late submission is one week after submission date

Extra late submission is one week after late submission date



DRINKING WATER DISTRIBUTION NETWORKS

DESIGN

Design principles
Hydraulic design
Hydrostatic forces
Pipe bedding
Supplements

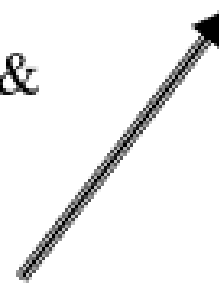
IMPLEMENTATION

Field study
Excavation &
bedding
Pipe joints

Filling works
Wash out &
disinfection works

EXAMINATION

Field tests



Water availability versus population

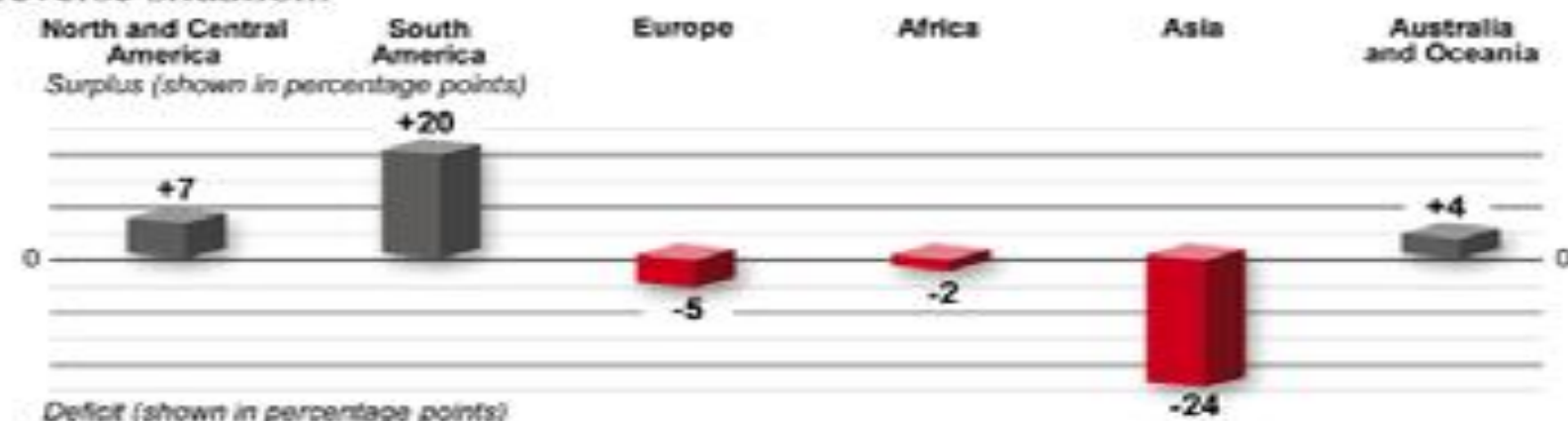
Although 60% of the world's population live in Asia, the continent has only 36% of the world's water resources. Here's how Asia compares to other regions.

Water/Population distribution



Water/Population balance

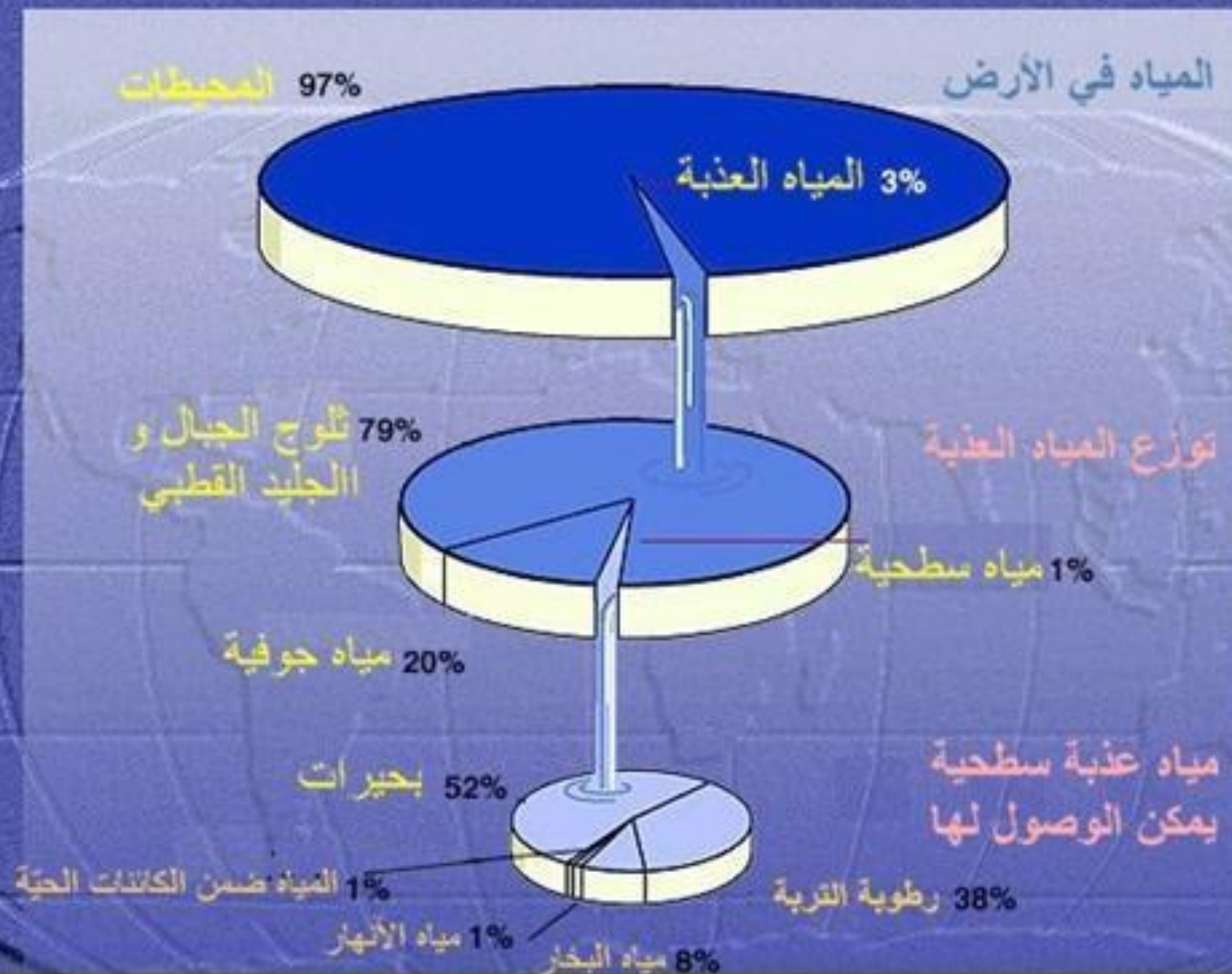
A region's water/population balance is determined by the difference between its proportion of the world's available water and its proportion of the world's population. A surplus indicates that its proportion of the world's available water is greater than its proportion of the world's population. A deficit indicates the reverse situation.

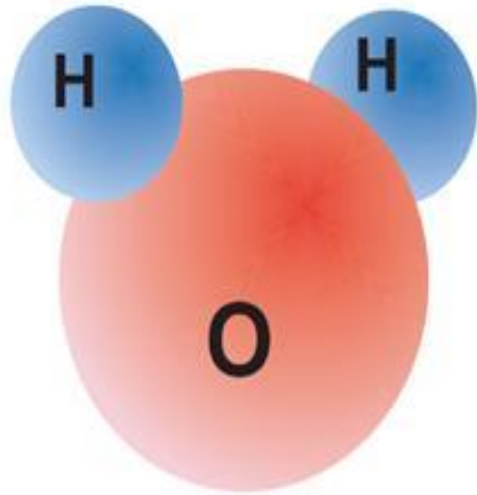


Hydrology cycle of water



توزيع المياه في العالم

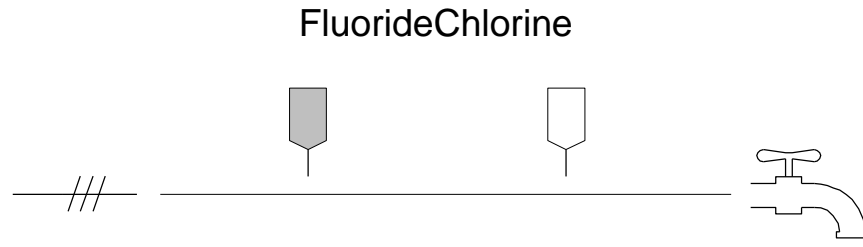




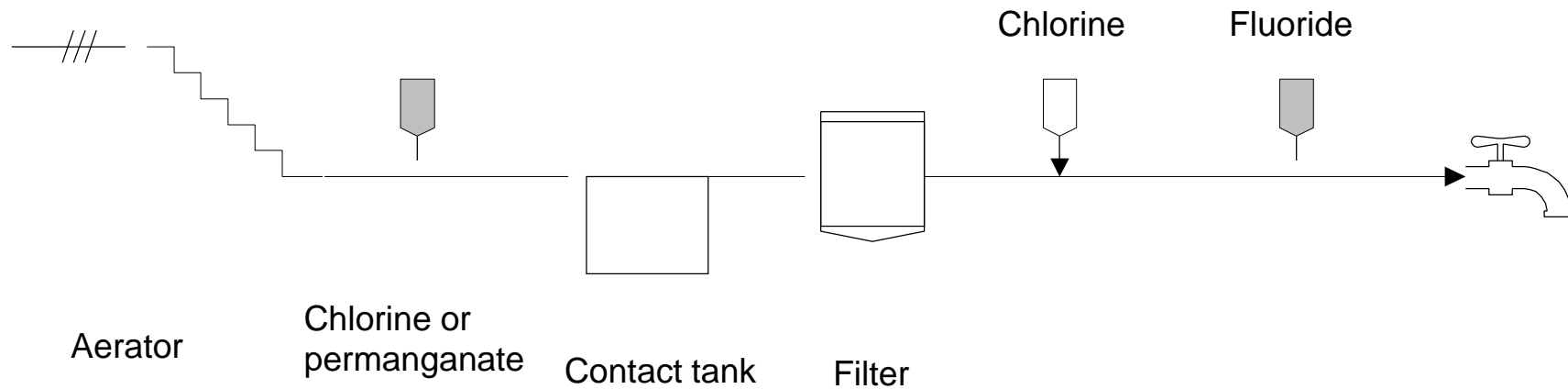
على الرغم من أن الهيدروجين غاز مشتعل،
والأكسجين غاز يساعد على الاشتعال،
إلا أنه عند اتحاد ذرتي هيدروجين مع ذرة أكسجين،
ينتج الماء الذي يطفى النار

Ground-water drinking water treatment plants

Disinfection and fluoridation



Iron and manganese removal



Ground-water drinking water treatment plants

Softening

