SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

SAULT
COLLEGE

COURSE OUTLINE

COURSE TITLE: Water Treatment Level I & II

CODE NO. : OEL861 **SEMESTER:**

AUTHOR: *Subhash Verma, P.Eng*

DATE: Sept 2013 **PREVIOUS OUTLINE DATED:** New

APPROVED:

Ted Newbery **Aug 2013**
Chair **DATE**

TOTAL CREDITS: 4

COURSE HOURS: 60

I. PHILOSOPHY/GOALS:

To present basic knowledge and practices, theories and applications relevant to sources of water supply, treatment processes, quality parameters and plant operations. Related concepts in chemistry, hydraulics, equipment, safety and legislation are reinforced.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course the student will demonstrate the following:

1. Describe the water quality parameter and identify various types of water treatment processes.
    - Understand the importance of safe drinking water
    - Name main water treatment process

2. Understand the principle of coagulation and flocculation and factors affecting these processes.
    - Name commonly used coagulants and coagulant aids
    - Compare slow mixing and rapid or flash mixing

3. Describe the sedimentation units and solid contact units.
    - Describe four zones of sedimentation
    - Show the main application of solid contact units
    - Calculate detention time, overflow rate and mean flow velocity

4. Understand the importance of filtration and basic components
    - Compare slow and rapid sand filtration
    - List main components of a gravity filter system
    - Introduction to filter operation and trouble shooting

5. Describe various methods of disinfecting water.
    - Name chlorine compounds commonly used for water supplies
    - Understand the break point chlorination curve and do dosage calculations
    - Perform chlorine dosage calculations

III. TOPICS:

1.0 Introduction
2.0 Coagulation and Flocculation
3.0 Sedimentation
4.0 Filtration
5.0 Disinfection

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Water and Wastewater Technology by Mark J. Hammer and Hammer Junior, Prentice Hall, 7th edition. ISBN: 0135114047

Course Manual –Online

OIT Course Manual - Online

V. EVALUATION PROCESS/GRADING SYSTEM:

Final mark in the course will be based on:

Term Test I	20%
Term Test II	20%
Term Test III	20%
Final Test	40%

Note:

- Term test I is based on the topics of basic sciences, equipment, math, safety and legislation as applicable to water treatment.
- These topics are discussed briefly in the course as students are required to have **previous knowledge** from the work place and prior certification and training courses
- The final test will be written online in a proctored environment, preferably at your registering college or a college near your home.
- Your registering college will convert the percentage grade to the letter grad
- To be eligible to write tests, you must be posting your findings and comments related to activities suggested at the end of each lesson using discussion link **Participation.**

VI. SPECIAL NOTES:

If you are a student with a disability please identify your needs to the tutor and/or the Centre for Students with Disabilities at your registering college.

Students, it is your responsibility to retain course outlines for possible future use to support applications for transfer of credit to other educational institutions.

Course outline amendments: The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.