

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ON

COURSE OUTLINE

COURSE TITLE: WATER SUPPLIES & TREATMENT
CODE NO.: WTR 201-5 SEMESTERS: IV & VI
PROGRAM: ENVIRONMENTAL/WATER RESOURCES/
PULP & PAPER ENGINEERING TECHNICIAN/TECHNOLOGY
AUTHOR: JOHN K. THEIL
DATE: MARCH 1992 PREVIOUS OUTLINE DATED: MAY 19 9t ⁱ

APPROVED; DEAN  DATE

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WATER SUPPLIES & TREATMENT

WTR 201-5

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TOTAL CREDIT HOURS: 50

PREREQUISITE(S): WTR330 - Hydraulics

I. PHYLOSOPHY/GOALS:

To present-basic knowledge and practices, theories and applications relevant to sources of water supplies, treatment processes, quality parameters and plant operations.

II STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will be able to:

1. Evaluate various bacterial and physiochemical characteristics of water as parameters of water quality.
2. Apply drinking water standards.
3. Identify and evaluate various unit operations (physical, chemical and biological) commonly used in the treatment of water.
4. Perform design computations and determine operational parameters used in process control.
5. Perform laboratory analyses for turbidity, colour, pH, alkalinity, coagulant effectiveness, chlorine and residual and hardness.
6. Conduct plant operation and performance evaluation, including preparation of chemical solutions, determination of dosage rates, selection of points of application, and backwashing.

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WTR 2 01-5

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III. TOPICS TO BE COVERED:

TOPIC	NO. OF WEEKS
Water-Quality and Standards	
1.1 Bacteriological characteristics	
1.2 Bacteriological testing procedures	
1.3 - Physical and Chemical characteristics	
1.4 Drinking water standards	
2. Water Processing	11
2.1 Introduction to water supply systems	
2.2 Sources of water supplies	
2.3 Unit operations of water treatment	
2.4 Surface water and ground water treatment systems	
2.5 Disposal of waste from water treatment processes	
2.6 Mixing and flocculation	
2.7 Chemical feeders	
2.8 Sedimentation, clarifiers	
2.9 Filtration	
2.10 Iron and manganese removal	
2.11 Hardness removal	
2.12 Chlorination	
2.13 Flouridation	
2.14 Turbidity and odour control	
2.15 Removal of dissolved salts	
2.16 Corrosion control and stabilization	
3. Operation of Water Treatment, Plant and Distribution	
3.1 Groundwater treatment plant	
3.2 River water treatment plant	
3.3 Water quality control	
3.4 Water distribution maintenance and surveillance	



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VII. SPECIAL NOTES:

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.