

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE, MARIEF ONTARIO


COURSE QUILINE

Course Title INDUSTRIAL EFFLUENT TREATMENT
Code No. 5 WTR 311--5
Program WATER RESOURCES ENGINEERING TECHNOLOGY
Semester J FIVE
Date 5 SEPTEMBER - DECEMBER 1904
Author { JOHN K. THEIL

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Revision J

APPROVED 5



Chairperson



Date

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INDUSTRIAL EFFLUENT TREATMENT

WTR 311-5

Course Name

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To present basic knowledge and Practicesn theories? arid aPPLIC3lions relevant to the treatment of industrial wastes* The course work will involvebiolo.^ical?physical3ndchemic3lprocesses?3nds1udsietrestm« 3rid disposal methods* The objectives of the course and the course di,itt are siven on the all3ched»

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Assignments	35%
Mid-1ermekamination	
Fin3lexaminstion	40%

Gr3dirisi

A	- 80-100%
B	- 70- 79%
C	- 60- 69%
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A passing 3 rade will be based on s m i n i m u n i c o m P O S i t e s i r 3 d i n s i of 60% * Students obtaining s composite grading of 55 to 59% m3VJ he allowed to completeasupplementarye>;amination*

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OBJECTIVES

The student will be able to *

- 1» identify the physical, chemical and biological characteristics of wastewater
- 2» classify treatment processes with respect to the method used for treatment and sludge handling
- 3» assess and apply the principles of aeration and mass transfer towards the development of design equations for different processes
- 4» determine kinetic reaction rate constants
- 5» apply mathematical modelling principles to biological reactions
- 6» identify and apply design parameters to biological processes
- 7» perform design calculations for physical treatment processes including sedimentation, thickening, flotation, centrifugation, adsorption and membrane separation
- 8» perform design calculations for chemical treatment processes including neutralization, coagulation, oxidation and disinfection
9. assess sludge characteristics, sludge treatment processes and their disposal requirements.

COURSE OUTLINE

Wastewater Characterization
Wastewater Treatment Processes
Aeration and Mass Transfer
Biological Mechanisms and Kinetics
Biological Waste Treatment Processes
Sedimentation, Thickening and Flotation
Filtration and Centrifugation
Adsorption
Membrane Separation Processes
Chemical Auxiliary Systems
Coagulation
Ion Exchange
Oxidation and Disinfection
Sludge Disposal