SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title; WATER MEASUREMENT AND PROCESS CONTROL

Code No.: WTR 202-5

Program: WATER RESOURCES ENGINEERING TECHNOLOGY

Semester: FIVE

Date: SEPTEMBER - DECEMBER - 1983

Author: JOHN K. THEIL

New: Revision;

APPROVED; 

Chairperson Date

CALENDAR DESCRIPTION

Water Measurement & Process Control	WTR 202-5
Course Name	Course Number

PHILOSOPHY/GOALS:

The course is designed to provide theoretical and practical knowledge with respect to the fundamentals of flow, pressure and level measurements, instrumentation, and control with particular emphasis on water supply and wastewater treatment projects. The specific objectives are given on the attached.

METHOD OF ASSESSMENT (GRADING METHOD)

Assignments/Experiments	35%
Midterm examination	25%
Final examination	40%

GRADING

A	80-100%
B	70- 79%
C	60- 69%
D	50- 59%

A passing grade will be based on a mimimum composite grading of 60%. Students obtaining a composite grading of 55 to 59% may be allowed to complete a supplementary examination.

TEXTBOOK(S):

Instrumentation and Control in Mater Supply and Wastewater Disposal
by Russell H. Babcock, P.E.

Water and Wastes Engineering Publication

OBJECTIVES:

The student will be able to:

1. determine the flow pattern in a closed conduit and solve problems to find velocities and pressures in a fluid using Bernoulli's Law.
2. select and use common weirs and appropriate formulae to calculate open channel flow, and identify special measuring devices used in connection with weirs and flumes.
3. understand the theory of operation of a variable area flow meter and recognize areas of application.
4. explain the principle of flow measurement by a Pitot tube, and list and explain limitations and applications of Pitot tubes to flow measurements.
5. select and apply a variety of level measuring devices.
6. calculate liquid pressures.
7. measure level by direct hydr^a^atic methods and use equipment to measure level hydrostatically.
8. conduct differential pressure measurements of a flowing fluid.
9. prepare measuring instruments for calibration.
10. describe the aim and explain the purpose of process control.
11. recognize the functions of the components of a control loop.
12. recognize and explain the difference between an open loop and a closed loop control system.
13. describe applications of control projects.
14. identify the functions of instrumentation and control.
15. identify applications of analytic measurements in process control.