MIDDLESEX
COUNTY COLLEGE

COURSE SYLLABUS

Department: Engineering Technologies

Program: Civil Engineering Technology

Course Number: CIT 212

Title of Course: Water Resources Technology

Curriculum Coordinator: Daniel Grek

Designation: Required Course

Course Description:
A study of Hydrology and Hydraulics as they relate to storm water generation, collection and distribution. Lectures include: Hydrology and runoff, groundwater, pipeline hydraulics, open channel hydraulics, pump selection, drainage structures, water pollution and flood control. Laboratory exercises consist of design projects such as storm water collection, culvert, drainage channel, backwater curves and water distribution system. Computer software is available to aid in the design.

Prerequisites (s):
MAT 129B PreCalculus Part B
CIT 105 Statics for Technicians

Co-requisite (s):
None

Textbooks (s) and /or other required material:
Introduction to Hydraulics + Hydrology by Gribbin, Centage, 3rd Ed

Course Learning Outcomes and their relationships to Student Outcomes:
1. Calculate the specific weight, specific gravity and viscosity of various liquids. **(SO a)**
2. Calculate hydrostatic forces and center of pressure on submersible bodies.
3. Calculate flow parameters in a closed piping system using the Bernoulli and continuity equations.
4. Compute the slope, normal depth, cross-sectional area, wetted perimeter, and hydraulic radius of a channel using the channel design charts and Manning's Formula. **(SO m)**
5. Calculate peak runoff and time of concentraction by the Rational Method and NRCS Method. **(SO f)**
6. Analyze and design basic hydraulic structures such as weirs,culverts, rip rap, and storm basins. **(SO c)**
7. Prepare a paper dealing with a global issue pertaining to a water problem. This will be done orally as well as a written report.

Topics Covered:

- Fluid Properties
- Hydrostatics
- Hydrodynamics
- Orifice & Weir Flow
- Open Channel Flow
- Closed Pipe Flow
- Culverts
- Hydrology
- Runoff

Lab Topics Covered:

- Fluid Properties
- Pipeline Hydraulics
- Flume Hydraulics
- Flow Measurements
- Open-Channel Hydraulics
- Pumps
- Culverts

Class/laboratory schedule, i.e., number of sessions each week and duration of each session:
3 lecture hours per week for 14 weeks
2 laboratory hours per week for 14 weeks

Criterion 5 Contribution:
Technical Content

Prepared By:	Jay R. Edelson	**Date:**	March 20, 2008
Updated By:	Jay R. Edelson	**Date:**	February 2, 2009
Updated By:	Thom Sabol	**Date:**	5/15/09
Rev 3:	Edelson Update mapping of course outcomes to new ABET 2014-2015 student outcomes	**Date:**	4/7/14
Rev 4:	General Update	**Date:**	3/15/21