NEW YORK CITY COLLEGE OF TECHNOLOGY
of the City University of New York

The Department of Construction Management and
Civil Engineering Technology

CMCE 2454 Applied Hydraulics

Course Description:
This course builds on the knowledge and skills developed in the CMCE 2351 Fluids course. The principles learned are applied to the solution of practical design problems encountered in pipe and open channel flow systems, water supply and wastewater treatment. Topics include valves, pumps, storm water, sewer design and reservoir systems. Emphasis is given to New York City's water supply and wastewater treatment procedures and facilities. This course is a Hybrid course and will be taught partially online.

Prerequisites: CMCE 2351 and CMCE2351L

2 Class hours, 2 credits

Textbook(s): Water Supply and Wastewater Treatment, Hammer, Sr. and Hammer Jr.,7th edition, Pearson 2012.
Practical Hydraulics for the Public Works Engineer (supplied by the Instructor)

Program Outcomes
Upon graduation, each student is expected to demonstrate the following:

1. an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities; (Criterion 3.a.)
2. an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies; (Criterion 3.b)
3. an ability to identify, analyze, and solve broadly-defined engineering technology problems. (Criterion 3.f)
4. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature. (Criterion 3.g)

Grading

Homework:	5 homework x 2 points = 10 points	10%
Projects:	3 projects x 10 points = 30 points	30%
Exams:	3 exams x 20 points = 60 points	60%
		Final Grade = 100%

Academic Integrity Policy
Students an all other who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity.

Accordingly, **academic dishonestly is prohibited** in The City University of New York and at New York City

College of Technology and is punishable by penalties, including failing grades, suspension, or expulsion.

Coordinator: Gerarda M. Shields, PE, Associate Professor (Last Updated: January 30, 2016)

Course Outline:

Week	Class Schedule	Topic	Reading Assignment	Assignments & Projects
1	Lecture 1	Pipe Flow Problems	Head Losses	
2	Lecture 2		Pumping Systems	
3	Lecture 3		Valves	
4	Lecture 4		Flow Measurement	
5	Lecture 5	Open Channel Flow	Flow Measurement	
6	Lecture 6		Storm Water	
7	Lecture 7		Sewer Design	
8	Lecture 8	Water Supply Principles	Surface (Reservoir) Systems	
9	Lecture 9		Aquifier (Well) Systems	
10	Lecture 10		NYC's Water Supply System	
11	Lecture 11	Wastewater Treatment	Primary/Secondary Treatment	
12	Lecture 12		NYC Wastewater Treatment System	
13	Lecture 13		Small Treatment Systems	
14	Review			
15	Final Exam			