

## CEE370 Water Supply and Treatment

Course Moderator: Nadim Reza Khandaker

### 1. What is this course about?

#### 1.1 Course description

Potable water source and their development and protection. Potable water needs and water quality regulatory requirements. Fundamentals of physical chemical water treatment process design and operation. Fundamentals of design and operation of municipal water distribution systems.

#### 1.2 Course content

• Water Treatment Systems, Characteristics of Potable water and source of potable water • Source water protection • Design of pumping stations • Settling characteristics and design of clarifiers • Coagulation Chemistry and coagulation process • Theory of filtration- Design and operation of slow and rapid sand filters • Theory of Disinfection-Design of disinfectant contact chambers • Introduction to Membrane processes • Treated water distribution system

### Student Assessment Criteria

Task-1 Mid-term Exam-1 (or 3 quizzes)	25%
Task-2 Mid-term Exam-2	25%
Task-3 Final Exam	30%
Class Participation (Design assignment and presentation)	20%

Teaching Module	What key concepts/content will I learn?	What activities will I engage in to learn the concepts/content?
<b>Directed Study Activities</b>		<b>Independent Study Activities</b>
1	Nature of this course: aims objectives and assessment, Characteristics of potable water and potable water sources. Source water protection Water Treatment Systems.	LECTURE Attend library and IT skills tutorial if necessary
2	Theory of settling, Colloidal chemistry, and design of clarifiers. Coagulation and flocculation.	LECTURE TUTORIAL Readings and resources detailed in Blackboard

3	Theory of filtration and design of filtration systems	LECTURE TUTORIAL	Readings and resources detailed in Blackboard
4	Theory of disinfection and contact chamber design	LECTURE TUTORIAL	Readings and resources detailed in Blackboard
5	Introduction to membrane systems	LECTURE TUTORIAL	Readings and resources detailed in Blackboard
6	Introduction to membrane system	LECTURE TUTORIAL	Readings and resources detailed in Blackboard
7	Field Visit-to active water treatment systems and WASA well		