

**WESTERN UNIVERSITY**  
**FACULTY OF ENGINEERING**  
**DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING**

2016-2017

CEE 9692 DRINKING WATER QUALITY AND TREATMENT

**CALENDAR SUMMARY**

The course develops graduate level concepts for the examination of drinking water quality and discussion of state of the art technologies for treating drinking water. The motivation for the course is the recent recognition that infrastructure and facilities for delivering safe, clean, and adequate supplies of drinking water to citizens are either inadequate or susceptible to failure. This course will involve MANDATORY visit and experimental work at the Walkerton Clean Water Centre's Demonstration Facility (Pilot Plant) on August 10 and 11, 2017.

33 lecture hours, 3 tutorial hours and 8 Pilot Plant/Laboratory Hours over 3 weeks. Half course; summer.

**LECTURE TOPICS:**

1. Meeting New Regulations
2. Recent Outbreaks
3. Requirements for Disinfection
4. Conventional Water Treatments Systems
  - a) Screening, Coagulation, Flocculation, and Clarification
  - b) Activated Carbon Adsorption
  - c) Demineralization
  - d) Ion Exchange
  - e) Fluoridation
  - f) Chlorination
5. Advanced Water Treatment Systems
  - a) Ozone
  - b) Membranes
  - c) Ultra-Violet (UV)
6. Sand Filtration Process
7. Particle Counting and Other Methods of Water Quality Characterization

There will be 33 hours of lectures held over 3 weeks at Western University and 8 hours of **Mandatory** Pilot Plant Training and Laboratory Measurements at the Walkerton Clean Water Centre (WCWC), Walkerton.

**EVALUATION:**

Assignments and Presentations: 40%

Final Examination: 60%

**INSTRUCTORS:** Prof. E.K. Yanful

**COURSE CONTACT:** Ms. Kristen Edwards (E-mail: khunt29@uwo.ca)

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**CEE 9692 Drinking Water Quality and Treatment**

**Summer 2017 Schedule**

**Instructor: Prof. Ernest K. Yanful**

<b>Date</b>	<b>Time</b>	<b>Activity</b>	<b>Instructor/Person Responsible</b>
August 2,3, 4,7, 8, and 9	1 – 4 pm	Lectures (SEB 1059)	Prof. Ernest Yanful
August 10 and 11	6:30 am-6:30 pm	Hands-On Training at Walkerton Clean Water Centre	CEE Grad Coordinator (Kristen Edwards) and Prof. Yanful Trainers: WCWC Staff
August 14, 15, 16, 17, and 18	1 – 4 pm	Lectures (SEB 1059)	Prof. Ernest Yanful
August 21, 22 and 23	1 – 4 pm	Lectures (SEB 1059)	Prof. Yanful/Guest Lecturer
August 24	No formal lecture; Revision		
August 25	1 – 4 pm	FINAL EXAM (Room TBA)	Prof. Ernest Yanful