EVT-245: Operation of Water Treatment Plants

Course Description: A course on efficient operation of water treatment plants that helps students prepare for certification exams. Topics include: drinking water regulations, water sources and storage, iron / manganese coagulation and flocculation, sedimentation, filtration, GAC adsorption, disinfection, fluoridation, and softening.

Prerequisites(s): EVT 165 **Corequisite(s):** No corequisite

Lecture Hours: 2	Lab Hours: 2	Credit Hours: 3
Lab Fee: 70	Supplemental Fee: 0	Purpose:
☐ Transfer Assurance Guide Course (TAG)	☐ Transfer Module Course (TM)	
Course Format: Lec/Lab	Grading: A/B/C/D/F/I	
Delivery Method: □ Web	□ Hybrid	x Classroom
Semesters Offered: x Fall	□ Spring	□ Summer

Course Primary Text:

Title: Water Treatment Plant Operation Volume I	Edition: Sixth Edition
Title: Water Treatment Plant Operation Volume II	Edition: Fifth Edition
Author(s): Kenneth D. Kerri	
Publisher: University Enterprises	

Supplemental Materials:

AWWA - Water Treatment Fourth Edition
AWWA – Water Quality Fourth Edition
AWWA – Water Sources Fourth Edition
AWWA Video Coagulation / Flocculation / Sedimentation
AWWA Video Filtration
AWWA Video Disinfection
AWWA Video Lab Safety / Safe Handling of Water Treatment Chemicals

Course Outcomes:

1	EVT Students will apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined environmental engineering problems.
2	EVT Students will design solutions for well-defined environmental engineering technology problems and assist with the engineering design of systems, components, or processes appropriate to the discipline.
3	EVT Students will apply written, oral and graphical communication in well-defined technical and non-technical environments, while identifying and using appropriate technical literature.
4	EVT Students will perform standard tests, measurements and experiments then analyze and interpret the results.
5	EVT Students will perform effectively as a member of a technical team.

Course Topics:

Week 1	Water Supply; Source Water Protection; Pretreatment
Week 2	Treatment Techniques, Coagulation/Flocculation/Sedimentation
Week 3	Filtration – Pressure; Gravity; Membrane
Week 4	Softening – Ion Exchange; Chemical
Week 5	Tour of Greater Cincinnati Water Works
Week 6	Disinfection – Chlorine; Ozone; UV
Week 7	Mid Term Exam
Week 8	Regulations – SDWA; SWTR; D/DBP Rule; Groundwater Rule; MOR
Week 9	Adsorption – PAC; GAC
Week 10	Process Water; Maintenance; Safety
Week 11	Instrumentation and Control System
Week 12	Basic Chemistry; Laboratory Analysis and Procedure
Week 13	Corrosion Control; Distribution System
Week 15	Review for Final
Week 16	Final Exam

Methods of Evaluation/Assessment

□ Formative: □ Summative

List assessment activities (e.g. quizzes, discussions, essays, research papers, debates, oral presentations, exams):

Workbook Assignments
Quizzes
Mid Term Exam
Final Exam

CENTER FOR INNOVATIVE TECHNOLOGIES
MASTER COURSE DOCUMENT

Course Keeper: Richard Pohlman — Date Completed: 8/26/18
Reviewed by Barb Browne & Ann Gunkel — 07/07/20