

Master Syllabus

EGV 1551 - Water Treatment Analysis

Division: Science, Mathematics and Engineering

Department: Engineering Technology Design

Credit Hour Total: 3.0

Lecture Hrs: 2.0 **Lab Hrs:** 3.0

Prerequisite(s): DEV 0035AND MET 1131AND CHE 1111OR CHE 1211OR CHE 1311AND MAT 0300OR MAT 1280

Date Revised: April 2017

Course Description:

Examination of the basic concepts of water distribution and treatment from the hydrologic cycle, hydrogeology, aquifers and surface waters through treatment and distribution practices. Two classroom, three lab hours per week.

General Education Outcomes:

- Critical Thinking/Problem Solving
- Information Literacy
- Written Communication

Course Outcomes:

Federal, state and local environmental regulations

Review the Clean Water Act and Safe Drinking Water Act and identify respective state standards and regulations through local ordinances.

Assessment Method: Locally developed exams

Performance Criteria: 70% or better on exams

Ethical issues

Distinguish and explain the ethical issues involved in operation and distribution of potable water resources.

Assessment Method: Locally developed exams

Performance Criteria: 70% or better on exams

Distribution analysis and design

Identify flow in pipes and relate it to water distribution systems and wastewater collection systems.

Assessment Method: Locally developed exams

Performance Criteria: 70% or better on exams

Assessment Method: Portfolios

Performance Criteria: Score at least 70% of available points

Water sources and contamination

Determine ground water flow patterns, velocity and quantity as well as surface water collection strategies and identify the resulting sources of contamination requiring treatment before distribution for human consumption.

Assessment Method: Locally developed exams

Performance Criteria: 70% or better on exams

Collection strategies

Develop surface water, groundwater and well head protection plans.

Assessment Method: Locally developed exams

Performance Criteria: 70% or better on exams

Assessment Method: Portfolios

Performance Criteria: Recieve at least 70% of available points on developed plans

Treatment practices

Survey and assess treatment practices associated with water distribution and wastewater treatment.

Assessment Method: Locally developed exams

Performance Criteria: 70% or better on exams

Assessment Method: Portfolios

Performance Criteria: Score at least 70% of available points

Outline:

Introduction to the hydrologic cycle
Hydrogeology of ground water and aquifers
Federal, state and local water quality parameters
Sources of water pollution
Situation of water collection systems
Water treatment and distribution
Waste water collection and treatment
Mechanical systems, pumps and piping system analysis and selection

