

## 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

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### 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 Competency
- Information Literacy Competency
- Written Communication Competency

### 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

