

**J. Sargeant Reynolds Community College  
Course Content Summary**

**Course Prefix and Number:** CIV 280

**Credits:** 3

**Course Title:** Introduction to Environmental Engineering

**Course Description:** Introduces the engineering elements of water and wastewater treatment, water distribution and wastewater collection systems, solid and hazardous waste, erosion control, and storm water management. Lecture 3 hours per week.

**General Course Purpose:** As a requirement for the Architectural and Engineering Technology AAS, Geospatial and Environmental Engineering Technologies Specialization, this course is designed to indoctrinate the student to the concepts and properties of environmental engineering. Topics include public health, hydrology, water quality, water and wastewater treatment, water distribution and wastewater collection systems, erosion control, and storm water management. In addition, this course will introduce the student to the main regulations pertaining to environmental engineering and site design. Basic environmental engineering problems, such as mass balances (with and without reactions), BOD determinations, and hydraulic and contaminant case studies will also be addressed.

**Course Prerequisites and Co-requisites:**

None

**Course Objectives:**

Upon completing the course, the student will be able to

- a. Identify and define the concepts and properties of environmental engineering, including public health, hydrology, water quality, water and wastewater treatment, water distribution and wastewater collection systems, erosion control, and storm water management;
- b. Describe the main regulations pertaining to environmental engineering;
- c. Solve basic environmental engineering problems, such as mass balances with and without reactions, BOD determinations, hydraulic and contaminant mass loadings, detention time and required treatment, unit size, and life of a landfill; and
- d. Describe contemporary environmental engineering issues.

**Major Topics to Be Included:**

1. Basic concepts
2. Hydrology
3. Water quality
4. Water pollution
5. Drinking water purification
6. Water distribution systems
7. Sanitary sewer systems
8. Wastewater treatment and disposal
9. Storm water management

**Effective Date of Course Content Summary:** August 13, 2013