

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

**Course Prefix and Number:** CIV 299

**Credits:** 3

**Course Title:** Supervised Study in Civil Engineering: CAD for Hydraulics and Drainage Design

**Course Description:**

Assigns problems for independent study incorporating previous instruction and supervised by the instructor. Develops expertise in the use of computer-aided-design specifically in relation to the design of drainage and hydraulic systems as addressed in civil engineering projects.

Prerequisite(s): MTH 116. Lecture 2 hours per week. Laboratory 3 hours per week. Total 5 hours per week.

**General Course Purpose:**

This course will serve as an alternative to CIV 241, Applied Hydraulics and Drainage I, to meet a requirement for the Architectural and Civil Engineering Technology AAS, Civil Engineering Technology Specialization. This is a CAD-based course that will enable students to execute projects designed to develop their knowledge of principles and practices involving drainage and flow design in civil engineering.

**Course Objectives:**

Upon completing the course, the student will be able to:

1. Utilize CAD technology in civil engineering hydraulic/drainage design.
2. Modify site characteristics to accommodate drainage flow.
3. Perform quantity takeoff and volume calculations.
4. Create plan profile sheets.

**Major Topics to be Included:**

1. Analysis of topology and site contour
2. Surface 3D development
3. Pipe networks – configuration and layout
4. Pond grading
5. Determination of mass haul and material volumes

**Effective Date of Course Content Summary: February 15, 2012**