

Virginia Western Community College
EGR 282
Hydraulics for Civil and Environmental Engineering

Prerequisites

EGR 240

Corequisites

none

Course Description

Introduces the basic principles governing the statics and dynamics of fluids, especially incompressible fluids. Examines hydrostatic pressure; continuity, Bernoulli, and momentum equations; viscosity flow problems; measuring instruments; and applications to closed conduits and open channels.

Semester Credits: 3 Lecture Hours: 3 Lab/Clinical/Internship Hours: 0

Required Materials**Textbooks:***TBD***Other Required Materials:**

none

General Course Purpose

The course is intended for transfer students specializing in civil engineering. It provides an understanding of the basic principles governing the statics and dynamics of fluids, especially incompressible fluids.

See: <https://courses.vccs.edu/courses/EGR282-HydraulicsforCivilandEnvironmentalEngineering/detail>

Course Outcomes

At the completion of this course, the student should be able to utilize the following:

- Scientific Literacy
 - Explain properties of fluids
 - Differentiate subcritical and supercritical flow
- Critical Thinking
 - Analyze pressure distributions in a static fluid and calculate forces on a surface
 - Analyze flow and energy losses in circular pipes
 - Analyze steady open channel flow
- Quantitative Literacy
 - Differentiate laminar and turbulent flow, steady and unsteady flow
 - Apply governing equations including the continuity equation, momentum equations and energy equations
 - Calculate momentum and forces in fluid flow

Topical Description

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Notes to Instructors

- All instructors teaching this course in any given semester will use the same textbooks.
- One or two in-semester tests and a final exam are recommended to be included in the course.
- The content of this course will be updated every few years in collaboration with engineering faculty from across the VCCS.

[ADA Statement](#) (PDF)

[Title IX Statement](#) (PDF)