

SURV 241

Minor Engineering III – Storm Drain Design

3 Credits (2 Lecture hours and 2 Laboratory hours per week)

Community College of Baltimore County
Common Course Outline

Description

SURV 241 – Minor Engineering III – Storm Drain Design: introduces the principles and requirements of storm drain design in preparation for the Maryland State Surveyors Licensing Examination; covers basic hydraulic theory; the design of storm drain systems to handle rainfall, runoff, erosion, and erosion controls; ditches, culverts, sediment and detention basins.

Pre-requisites: SURV 236 or equivalent experience or permission of the Department Coordinator

Overall Course Objectives

Upon completion of this course, students will be able to:

1. Calculate the volume of rainfall runoff using the rational method;
2. Calculate the size of a ditch and/or pipe to convey water;
3. Analyze a storm drain system consisting of ditches, inlets, and pipes;
4. Calculate a storm drain system consisting of ditches, inlets, and pipes;
5. Analyze culverts, inlet, and outlet control;
6. Calculate and design culverts;
7. Compute open channel flow using Manning's Equation;
8. Analyze Storm Sewer System; and
9. Calculate and design Storm Sewer System.

Major Topics

- I. The Rational Method
 - a. Drainage Area
 - b. Runoff Coefficients
 - c. Drainage Area Delineations
 - d. Time of Concentration
 - e. Rainfall Intensity
- II. Open Channel Flow Calculations using Manning's Equation
 - a. Gutter Flow Elements
 - b. Composite Channel Computation
 - c. Inlets Analysis
 - d. Inlets Computations
- III. Critical Flow
- IV. Storm Drain System
- V. Storm Sewer Design and Analysis

The Common Course Outline (CCO) determines the essential nature of each course.
For more information, see your professor's syllabus.

- VI. Culvert Design and Analysis
- VII. SCS Methodology

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- Quizzes, tests, exams: Individual instructors will notify students of procedures, but as a minimum, three tests will be required
- Comprehensive Final Exam: The course will require a comprehensive final exam

Written assignments and research projects: Students are required to use appropriate academic resources in their research and cite sources according to the style selected by their professor.

Other Course Information

This course is a core course in Surveying Degree and Certificate Programs.

This course is taught in a classroom environment

Date Revised: 6/6/2000