

STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

American Public University System

The Ultimate Advantage is an Educated Mind

**School of Public Service and Health
FSMT289
Fire Protection Hydraulics and Water Supply
3 Credit Hours
8-Weeks
Prerequisite(s): None**

Table of Contents

Instructor Information	Evaluation Procedures
Course Description	Grading Scale
Course Scope	Course Outline
Course Objectives	Policies
Course Delivery Method	Online Library
Course Resources	Selected Bibliography

Instructor Information

Instructor:

Email:

[Table of Contents](#)

Course Description (Catalog)

This course is a theoretical study to understand the principles of the use of water in fire protection and to apply hydraulic principles to analyze and solve water supply problems. The student can expect to apply the application of math and physics to the movement of water in fire suppression activities; comprehend the design principles of fire service pumping apparatus; analyze the community fire flow demand criteria; and demonstrate understanding of hydraulics, water characteristics, fluid pressure, hydrokinetics, Bernoulli's formula, nozzle reaction, friction loss in water conductors, nozzle pressure equation, water distribution systems, Hazen-Williams equation, fire flow tests, determination of required fire flow, fire service pump design and testing, friction loss calculations, engine and nozzle pressure, Underwriter's formula, parallel lines, wyed lines, aerial stream

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calculations, relay pumping, mobile water supply, fire streams, four hydraulic laws of friction loss, and fire fighting foams and foam systems.

[Table of Contents](#)

Course Scope

The scope of FSMT289 Fire Protection Hydraulics and Water Supply is to meet the levels of mastery established by the National Fire Academy. These standards are agreed upon by professionals across the fire service community as the foundational benchmarks that all individuals should know at the completion of this course. I encourage all of you to view the NFA link for this course in the bibliography. By the end of this course you will be able to discuss and have a thorough knowledge of the learning objectives listed in the next session.

[Table of Contents](#)

Course Objectives

After successfully completing this course, you will be able to:

- CO-1: Apply the application of mathematics and physics to the movement of water in fire suppression activities
- CO-2: Comprehend the design principles of fire service pumping apparatus
- CO-3: Analyze community fire flow demand criteria
- CO-4: Demonstrate, through problem solving, a thorough understanding of the principles of forces that affect water at rest and in motion

[Table of Contents](#)

Course Delivery Method

This course delivered via distance learning will enable students to complete academic work in a flexible manner, completely online. Course materials and access to an online learning management system will be made available to each student. Online assignments are due by Sunday evening of the week as noted and include Forum questions (accomplished in groups through a threaded forum), examination, and individual assignments submitted for review by the Faculty Member. Assigned faculty will support the students throughout this eight-week course.

[Table of Contents](#)

Course Resources

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Textbook: The text for FSMT289 will use an e-book as the primary delivery format. Overseas students will continue to receive a hard copy, but if they are still awaiting their text in the beginning of class they will likely find this option helpful as well.

Links to the e-book can be found in Sakai under "Resources."

Title: Hydraulics for Firefighting 2nd Edition
 Author: Crapo, W
 Publisher: Delmar Publishers
 ISBN# 1418064025

[Table of Contents](#)

Evaluation Procedures

Grade Instruments	% of Final Grade
Forums	30
Papers	30
Quizzes	30
Exams	10
Total	100%

[Table of Contents](#)

Grading Scale

Please see the [Student Handbook](#) to reference the University's [grading scale](#).

[Table of Contents](#)

Course Outline

<u>Week</u>	<u>Topic</u>	<u>Learning Objectives</u>	<u>Readings</u>	<u>Assignments</u>
1	Introduction to Hydraulics	CO-4	Chapter 1	Forum 1 Quiz 1
2	Force and Pressure Bernoulli's	CO-1 CO-2	Chapters 2 & 3	Forum 2 Quiz 2

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	Principle			
3	Velocity and Flow GPM	CO-1 CO-2	Chapters 4 & 5	Forum 3 Quiz 3
4	Friction Loss	CO-1 CO-2 CO-4	Chapter 6	Quiz 4 Week 4 Case Study
5	Pumps Drafting Pump Testing	CO-1 CO-2 CO-4	Chapters 7 & 8	Forum 5 Quiz 5
6	Fire Streams Calculating Engine Pressure	CO-1 CO-2 CO-4	Chapters 9 & 10	Forum 6 Quiz 6
7	Advanced Calculations Water Supply	CO-1 CO-2 CO-3	Chapters 11 & 12	Forum 7 Quiz 7
8	Standpipes & Sprinklers Fire-ground Formulas	CO-1 CO-2 CO-4	Chapter 13	Forum 8 Quiz 8 Week 8 Final Paper Final Exam

[Table of Contents](#)

Policies

Please see the [Student Handbook](#) to reference all University policies. Quick links to frequently asked question about policies are listed below.

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[Drop/Withdrawal Policy](#)

[Plagiarism Policy](#)

[Extension Process and Policy](#)

[Disability Accommodations](#)

Citation and Reference Style

Attention Please: Students will follow the APA 6 Handbook as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA 6 Handbook.

Late Assignments

Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. As adults, students, and working professionals, I understand you must manage competing demands on your time. Should you need additional time to complete an assignment, please contact me before the due date so we can discuss the situation and determine an acceptable resolution. Routine submission of late assignments is unacceptable and may result in points deducted from your final course grade.

Netiquette

Online universities promote the advancement of knowledge through positive and constructive debate – both inside and outside the classroom. Forums on the Internet, however, can occasionally degenerate into needless insults and “flaming.” Such activity and the loss of good manners are not acceptable in a university setting – basic academic rules of good behavior and proper “Netiquette” must persist. Remember that you are in a place for the rewards and excitement of learning which does not include descent to personal attacks or student attempts to stifle the Forum of others.

- **Technology Limitations:** While you should feel free to explore the full-range of creative composition in your formal papers, keep e-mail layouts simple. The Sakai classroom may not fully support MIME or HTML encoded messages, which means that bold face, italics, underlining, and a variety of color-coding or other visual effects will not translate in your e-mail messages.
- **Humor Note:** Despite the best of intentions, jokes and especially satire can easily get lost or taken seriously. If you feel the need for humor, you may wish to add “emoticons” to help alert your readers: ;-), :), ☺

Disclaimer Statement

Course content may vary from the outline to meet the needs of this particular group.

[Table of Contents](#)

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Online Library

The Online Library is available to enrolled students and faculty from inside the electronic campus. This is your starting point for access to online books, subscription periodicals, and Web resources that are designed to support your classes and generally not available through search engines on the open Web. In addition, the Online Library provides access to special learning resources, which the University has contracted to assist with your studies. Questions can be directed to librarian@apus.edu.

- **Charles Town Library and Inter Library Loan:** The University maintains a special library with a limited number of supporting volumes, collection of our professors' publication, and services to search and borrow research books and articles from other libraries.
- **Electronic Books:** You can use the online library to uncover and download over 50,000 titles, which have been scanned and made available in electronic format.
- **Electronic Journals:** The University provides access to over 12,000 journals, which are available in electronic form and only through limited subscription services.
- **Tutor.com:** AMU and APU Civilian & Coast Guard students are eligible for 10 free hours of tutoring provided by APUS. [Tutor.com](http://tutor.com) connects you with a professional tutor online 24/7 to provide help with assignments, studying, test prep, resume writing, and more. Tutor.com is tutoring the way it was meant to be. You get expert tutoring whenever you need help, and you work one-to-one with your tutor in your online classroom on your specific problem until it is done.

Request a Library Guide for your course
(<http://apus.libguides.com/index.php>)

The AMU/APU Library Guides provide access to collections of trusted sites on the Open Web and licensed resources on the Deep Web. The following are specially tailored for academic research at APUS:

- Program Portals contain topical and methodological resources to help launch general research in the degree program. To locate, search by department name, or navigate by school.
- Course Lib-Guides narrow the focus to relevant resources for the corresponding course. To locate, search by class code (e.g., SOCI111), or class name.

If a guide you need is not available yet, please email the APUS Library: librarian@apus.edu.

[Table of Contents](#)

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Turnitin.com

Turnitin.com is a web-based [plagiarism](#) prevention application licensed, for campus use, through the APUS Online Library. The quick submit option lets faculty upload and check suspicious papers, without requiring student to create their own Turnitin.com profiles.

Turnitin.com analyzes electronic submissions of student writing, compares them to the contents of a huge online database, and generates a customized Originality Report. The database used to produce this analysis contains a massive collection of documents available on the Internet from both free and commercial sources, as well as the full texts of all other papers that have been previously submitted to Turnitin.com.

Similarity index is based on the amount of matching text to a submitted paper:

Blue =	no matching text
Green =	one word to 24% matching
Yellow =	25 -49% matching text
Orange =	50-74% matching text
Red =	75-100% matching text

Selected Bibliography

Websites (for additional reading, research, and information):

Websites (for additional reading, research, and information):

Firefighting News

Main Site: <http://firefightingnews.com/united-states.cfm>

Firehouse Magazine: <http://www.firehouse.com>

National Fire Protection Association

Main Site: <http://www.nfpa.org>

National Fire Sprinkler Association

Main Site: <http://www.nfsa.org>

National Institute of Occupational Safety and Health (NIOSH)

Main Page: <http://www.cdc.gov/niosh/homepage>

Fire Specific: <http://www.cdc.gov/niosh/firehome.html>

National Institute of Standards and Technology

Main Site: <http://www.nist.gov>

Building and Fire Research Library: <http://www.brfl.nist.gov>

United States Fire Administration

Main Site: <http://www.usfa.dhs.gov/>

Publications: <http://www.usfa.dhs.gov/publications>

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Technical Reports: <http://www.usfa.dhs.gov/publications/techreps.cfm>

United States Forest Service

Main Site: <http://www.fs.fed.us>

**United States House of Representatives Office of the Law
Revision Counsel, United States Code**

Main Site: <http://uscode.house.gov/>

**United States National Records and Archives Administration,
Government Printing Office, Code of Federal Regulations**

Main Site: <http://www.gpoaccess.gov/cfr/index.html>

Women in the Fire Service

Main Site: <http://www.wfsi.org/>

[Table of Contents](#)