FIRE 56 Course Outline as of Fall 1981

CATALOG INFORMATION

Dept and Nbr: FIRE 56 Title: FIRE HYDRAULICS
Full Title: Fire Hydraulics
Last Reviewed: 12/12/2011

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00 Total Student Learning Hours: 157.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade Only
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:
Review of applied mathematics; hydraulics laws as applied to the fire service; application of formulas and mental calculation to hydraulics and water supply problems.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for English 100A or equivalent and Mathematics 110 or equiv., plus completion of FIRE 71.

Limits on Enrollment:

Schedule of Classes Information:
Description: Review of applied math; hydraulics laws, formulas & mental calculation to hydraulics & water supply problems. (Grade Only)
Prerequisites/Corequisites:
Recommended: Eligibility for English 100A or equivalent and Mathematics 110 or equiv., plus completion of FIRE 71.
Limits on Enrollment:

Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**			Effective:	Inactive:
CSU GE:	**Transfer Area**			Effective:	Inactive:
IGETC:	**Transfer Area**			Effective:	Inactive:
CSU Transfer:	Transferable	Effective:	Fall 1981	Inactive:	Fall 2018
UC Transfer:		Effective:		Inactive:	

CID:

Certificate/Major Applicable:
Certificate Applicable Course

COURSE CONTENT

Outcomes and Objectives:
COURSE GOALS: To enable the student:
1. to gain the knowledge required to apply the principles of hydraulics while pumping through various discharge devices and various hose configurations.
2. to develop an understanding of how to utilize various kinds of water supplies.
3. to recognize the various types and sizes of hose streams and their uses.

COURSE OBJECTIVES:
1. The student will solve problems using applied mathematics in elementary hydraulics.
2. Analyze various pumping situations and while considering velocity and rate of flow, friction loss, and nozzle pressures.
3. Identify strengths and weaknesses in various water supplies and systems, based on tests of the system and ISO grading criteria.
4. Compare fire streams and their ranges and be able to identify the best uses for each.

Topics and Scope:

1. Applied Mathematics
   a. Multiplication and division
   b. Square root
   c. Elementary algebra
2. Principles of Hydraulics
   a. Velocity, rate of flow, and friction loss
   b. Nozzle and engine pressures

c. Other hydraulics formulas
3. Water Sources
   a. Static and organic
   b. ISO specifications
4. Fire Streams
   a. Fog and spray
   b. Straight streams
5. Pumping
   a. Various hose layouts
   b. Sprinklers and standpipes

Assignment:

The student will:
1. Prepare, with a group, a written and oral analysis of an engine pressure requirement when pumping above or below the eye of the pump.
2. Prepare, describe, and identify the design and capabilities of a new purchase or current fire apparatus pumper.
3. Describe in writing current hydraulic technology from research of trade technical magazines and analyze the effects on the fire service.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Written homework, Term papers	Writing 0 - 10%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Field work, Quizzes, Exams	Problem solving 0 - 20%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Performance exams	Skill Demonstrations 0 - 10%

Exams: All forms of formal testing, other than skill performance exams.

Completion	Exams 0 - 60%

Other: Includes any assessment tools that do not logically fit into the above categories.

None	Other Category 0 - 0%

Representative Textbooks and Materials:
FIREFIGHTING HYDRAULICS by Robert Purrington.
FIRE HYDRAULICS by Glenncoe Press.