

NorthWest Arkansas Community College
Allied Health / Fire Science Course

Fire 1023 Fire Service Hydraulics and Water Supply

Catalog Description

This course deals with the principles and formulas for fire ground hydraulics and pump operations of water systems, private, public, standpipes and sprinklers; nozzle pressures, friction losses, and effective fire streams and water supply problems. Included will also be the maintenance and operation of emergency vehicles and solutions of problems involving fire streams. *Prerequisite: College Algebra or Survey of College Math.*

Credit Hours/ Contact Hours/ Load Hours

3/3/3

Required Methods of Instruction

Majority of course instruction time will involve classroom lecture, and calculating fire stream and water flow problems. The course will conduct some outside field trips to observe fire apparatus operations, and municipal water supply systems.

Target Audience and Transfer

Designed especially for students who plan to enter, or are currently in, the fire service. This course serves as a foundation for practical applications of fire flow hydraulics and evolutions.

Essential Course Outcomes

Students completing this course will be able to:

Knowledge:

1. Identify the various types of fire streams and appliances.
2. Recall formulas that pertain to fire calculations.

Abilities:

3. Calculate variables that affect fire flow, and determine actual fire streams flow.

Understanding:

4. After completion of this course, recognize the importance of managing water supply effectively on the fire scene.

Required Text

International Fire Service Training Association, Pumping Apparatus Driver/Operator Handbook, 1st edition.

Stillwater, OK.: Fire Protection Publications, Oklahoma State University, 1999

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Topics:

- A. Basic study of Fire and Water
- B. Water Fire Streams
 - 1. Water Supply
 - 2. Fire Apparatus and Equipment
 - 3. Types of Fire Streams
 - 4. Fire Stream Appliances
- C. Foam Fire Streams
- D. Developing Fire Streams
 - 1. Determining Friction Loss
 - 2. Determining Water Flow in Gallons Per Minute
 - 3. Fire Hose Layout
 - 4. Pumping from Various Water Sources
 - 5. Fire Application of Water Flow
 - 6. Supplying Private Fire Protection Systems
- E. Fire Stream Strategies and Tactics

Resources

<u>Item</u>	<u>Description</u>	<u>Location</u>
Instructor Manuals	IFSTA Fire Protection Publications Pumping Apparatus Driver/Operator Curriculum	NWACC
Overhead Transparencies	IFSTA Fire Protection Publications Pumping Apparatus Driver/Operator Curriculum	NWACC
Video Tapes	IFSTA Fire Protection Publications Pumping Apparatus Driver/Operator Curriculum	NWACC