Miami Dade College

Course Description

FFP1301 | Fire Service Hydraulics | 3.00 credits

This course covers the relationship between flow, pressure, and mathematical hydraulic formulas. The course includes pump theory, pump rating, and pressure and vacuum gauges.

Course Competencies

Competency 1: The student will explore the theories and fundamentals of how and why fires start, spread, and how they are controlled by:

1. Summarizing the characteristics of water as a fire supervision agent

Competency 2: The student will understand the principles of the use of water in fire protection and how to apply hydraulic principles to analyze and to solve water supply problems by:

1. Applying mathematics and physics to the movement of water for fire suppression activities
2. Explaining the design principles of fire service pumping apparatus
3. Describing the basic elements of a public water supply system including sources, distribution networks, piping, hydrants and the community fire flow demand criteria
4. Describing the principles of forces that affect water at rest and in motion

Competency 3: The student will describe the features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, and water supply for fire protection and portable fire extinguishers by:

1. Analyzing the elements of a public water supply system
2. Explaining why water is a widely used extinguishing agent and how water extinguishes fires
3. Identifying the different types and components of sprinkler, standpipe and foam systems

Competency 4: The student will discuss fire protection; career opportunities in fire protection and related fields; philosophy and history of fire protection/service; fire loss analysis; organization, management, and function of public and private fire protection services; fire departments as part of local government; laws and regulations affecting the fire service; fire service nomenclature; specific fire protection functions; and introduction to fire strategy and tactics by:

1. Describing the common types of fire and emergency services facilities, equipment, and apparatus

Competency 5: The student will discuss the federal, state, and local laws that regulate emergency services, national standards influencing emergency services, standard of care, tort, liability, and a review of court cases by:

1. Describing federal, state, and local laws, which regulate or influence emergency services

Competency 6: The student will identify the fundamentals and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the fire setter, and types of fire causes by:

1. Identifying the responsibilities of a firefighter when responding to the scene of a fire

Learning Outcomes:

- Communicate effectively using listening, speaking, reading, and writing skills
- Solve problems using critical and creative thinking and scientific reasoning
- Create strategies that can be used to fulfill personal, civic, and social responsibilities
- Demonstrate knowledge of ethical thinking and its application to issues in society