

	Northeastern Illinois Public Safety Training Academy	
	Course Syllabus	103

Title: Fire Apparatus Engineer	Program Duration: 40 Hours
Type: Campus Training Program (CTP)	Coordinator: K. Carlson

Course Description

NIPSTA's Fire Apparatus Engineer "FAE" program is designed to exceed the requirements outlined by the Illinois Office of the State Fire Marshal "OSFM", and provides students with the basic knowledge and skills needed to perform as a professional fire apparatus engineer as outlined in NFPA 1002.

Prerequisites

The purpose of pre-requisite course work is to ensure students have sufficient backgrounds to understand the terminology, tactics and practical applications presented in NIPSTA programs. At a minimum, NIPSTA requires successful completion of the following:

- Member of a recognized fire department or brigade
- Basic Operations Firefighter
- Fire Service Vehicle Operator

Attendance

In order to receive a certificate of completion for courses, NIPSTA requires students to be present for all lectures, demonstrations and evolutions.

Safety

NIPSTA Instructors will ensure hazards have been identified and addressed prior to the start of each program. All course safety guidelines are discussed prior to operations and at a minimum, a one (1) to six (6) instructor to student ratio will be maintained at all times. Unsafe actions or behaviors will not be tolerated and will be grounds for dismissal.

Academic Integrity

NIPSTA aspires to the highest possible standards of academic honesty and integrity in all programs as key tenants of the NIPSTA experience. NIPSTA Instructors set forth clear ethical expectations, promote consistency of standards, and encourage reporting of dishonest and unsafe behaviors. While education though participation is the central goal for every NIPSTA program, it is only possible when honesty and integrity are part of the overall mission.

Performance Testing & Evaluation

NIPSTA employs multiple methods of measuring competency subject matter, including cognitive and performance skill testing. Cognitive skills will be measured by utilizing a comprehensive written exam at the conclusion of the course. Students must achieve a minimum 70% score to successfully pass the written exam. Performance skill tests measure an individual's ability to perform specific tasks or applications based on given or known job performance requirements (JPRs). Unless otherwise specified, performance skill tests will be measured on a pass or fail basis.

ADA Compliance

Students with a documented disabilities, as that term is used in the American with Disabilities Act (ADA), may qualify for reasonable accommodations as defined in section 504 of the Rehabilitation Act of 1973.

Textbook

The following Textbook is required for NIPSTA's Fire Apparatus Engineer program:

- Title: "Fire Apparatus Driver/Operator – Pump, Aerial, Tiller and Mobile Water Supply"
3rd Edition
- ISBN: 9781284147612

Pre-course Assignments

The purpose of pre-course assignments is to ensure candidates are prepared to succeed on day one of the program. The pre-course assignments for NIPSTA's Fire Apparatus Engineer course are as follows:

- **Read:** Fire Apparatus Driver/Operator, Chapters 1 - 3

48 Hour Course Content

Course content is broken into subject area modules or "Mods". NIPSTA's Fire Apparatus Engineer program is comprised of the following Mods:

Mod: Introduction & Orientation	Mod: Water Supply Connections
Mod: Driver Training & Selection	Mod: Fire Sprinkler Operations
Mod: Response & Safety Procedures	Mod: Standpipe Operations
Mod: Managing/Protecting Work Areas	Mod: Master Stream Operations
Mod: Fire Apparatus Types	Mod: Relay Pumping Operations
Mod: Apparatus Inspection	Mod: Foam Eductors & Proportioners
Mod: Water & Hydraulic	Mod: Foam Line Operations
Mod: Mobile Fire Pumps	Mod: Multiple Line Operations
Mod: Fire Pump Controls	Mod: Combined Line Operations
Mod: Preventative Maintenance	Mod: Split Line Operations
Mod: Hydraulic Friction Loss	Mod: Advanced FAE Operations
Mod: Driver/Operator Mathematics	Mod: Limited Water Supply Ops
Mod: Basic Attack Line Calculations	Mod: Performance Testing
Mod: Foam & Proportioning	Mod: Problems & Troubleshooting
Mod: Foam Line Calculation	Mod: Unequal Line Calculation
Mod: Water Supply Sources	Mod: Drafting Operations
Mod: Water Source Transfer	Mod: Water Shuttle Operations
Mod: Calculating Available Water	Mod: "Quick Water" Operations
Mod: Multiple Line Calculations	Mod: Large Attack Line Calculations
Mod: Split Line Calculation	Mod: Elevated Master Streams Ops
Mod: Combined Line Calculation	Mod: Street Monitor Operations
Mod: Apparatus Inspection/Orientation	Mod: Aerial Truck Operations
Mod: Pump Control Orientation	Mod: Requisite Knowledge Testing
Mod: Water Supply Connections	Mod: Requisite Skill Testing
Mod: Attack Line Calculations	Mod: Inspection & Maintenance

48 Hour Course Schedule

Day 1

Morning & Afternoon

Mod: Introduction & Orientation
Mod: Driver Training & Selection
Mod: Response & Safety Procedures
Mod: Managing & Protecting Work Areas
Mod: Fire Apparatus Types
Mod: Apparatus Inspection
Mod: Water & Hydraulic
Mod: Mobile Fire Pumps
Mod: Fire Pump Controls
Mod: Preventative Maintenance
Mod: Hydraulic Friction Loss
Mod: Driver/Operator Mathematics
Mod: Basic Attack Line Calculations

Day 2

Morning

Mod: Foam & Proportioning
Mod: Foam Line Calculation
Mod: Water Supply Sources
Mod: Water Source Transfer
Mod: Multiple Line Calculations
Mod: Split Line Calculation (wyes)
Mod: Combined Line Calculation (siamese)

Afternoon

Mod: Apparatus Inspection & Orientation
Mod: Pump Control Orientation
Mod: Water Supply Connections
Mod: Attack Line Calculations
Mod: Water Supply Connections
Mod: Water Source Transfer

Day 3

Morning

Mod: Calculating Available Water
Mod: Fire Sprinkler Operations
Mod: Standpipe Operations
Mod: Master Stream Operations
Mod: Relay Pumping Operations

Afternoon

Mod: Foam Eductors & Proportioners
Mod: Foam Line Operations
Mod: Multiple Line Operations
Mod: Combined Line Operations
Mod: Split Line Operations
Mod: Supply Operations
Mod: Calculating Available Water

Day 4

Morning

Mod: Performance Testing
Mod: Problems & Troubleshooting
Mod: Unequal Line Calculation
Mod: Drafting Operations
Mod: Water Shuttle Operations
Mod: Advanced FAE Operations
Mod: Limitative Water Supply Operations
Mod: Aerial Truck Operations

Afternoon

Mod: “Quick Water” Operations
Mod: Large Attack Line Calculations
Mod: Elevated Master Streams Operations
Mod: Street Monitor Operations
Mod: Advanced FAE Operations
Mod: Limitative Water Supply Operations

Day 5

Morning

Mod: Requisite Knowledge Testing
Mod: Requisite Skill Testing
Mod: Inspection, Maintenance & Inventory

Afternoon

Mod: Inspection, Maintenance & Inventory
Program Review & Course Evaluation Questionnaire

Reference List

NFPA 1002, Standard for Fire Apparatus Driver/Operator Professional Qualifications. (2017). Quincy, MA: National Fire Protection Association.

Fire Apparatus Driver/Operator: pump, aerial, tiller, and mobile water supply. (2019). Burlington, MA: Jones & Bartlett Learning. 3rd Edition