

	Northeastern Illinois Public Safety Training Academy Course Syllabus	103
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Title: Fire Apparatus Engineer Type: Campus Training Program (CTP)	Program Duration: 40 Hours Coordinator: K. Carlson
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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 through 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 accomidations 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 Appratus 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 Appratus 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 followng Mods:

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
Mod: Foam & Proportioning
Mod: Foam Line Calculation
Mod: Water Supply Sources
Mod: Water Source Transfer
Mod: Calculating Available Water
Mod: Multiple Line Calculations
Mod: Split Line Calculation
Mod: Combined Line Calculation
Mod: Apparatus Inspection/Orientation
Mod: Pump Control Orientation
Mod: Water Supply Connections
Mod: Attack Line Calculations

Mod: Water Supply Connections
Mod: Fire Sprinkler Operations
Mod: Standpipe Operations
Mod: Master Stream Operations
Mod: Relay Pumping Operations
Mod: Foam Eductors & Proportioners
Mod: Foam Line Operations
Mod: Multiple Line Operations
Mod: Combined Line Operations
Mod: Split Line Operations
Mod: Advanced FAE Operations
Mod: Limited Water Supply Ops
Mod: Performance Testing
Mod: Problems & Troubleshooting
Mod: Unequal Line Calculation
Mod: Drafting Operations
Mod: Water Shuttle Operations
Mod: "Quick Water" Operations
Mod: Large Attack Line Calculations
Mod: Elevated Master Streams Ops
Mod: Street Monitor Operations
Mod: Aerial Truck Operations
Mod: Requisite Knowledge Testing
Mod: Requisite Skill Testing
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