



DEPARTMENT OF FINANCIAL SERVICES

Division of State Fire Marshal
Bureau of Fire Standards and Training

Title: Syllabus for Aerial Apparatus Operations

Revision: October 2019

Section I - Course Information

Course Title: Aerial Apparatus Operations

Course Number(s): BFST/ATPC703

Class Days/Time: If being taught at the Florida State Fire College Campus 11655 NW Gainesville Road, Ocala, FL 34482 Bldg. C – Classrooms – Monday - Friday 8 a.m.- 5 p.m. Additional coursework outside the classroom totaling five (5) hours of work may be assigned.

Section II - Points of Contact

Training Supervisor:

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Section III – Course Description

Classroom lectures and practical exercises are conducted in the principles and uses of aerial apparatus, including the recognition of hazards which may be present during aerial operations. The curriculum also includes classroom lectures and exercises in the principles, uses and tactical and safe placement of platform apparatus. Students should have completed Apparatus Operations and Fire Service Hydraulics prior to registering for this class.

Section IV - Course Materials, Grading, and Attendance

Recommended Book: *Pumping and Aerial Apparatus Driver/Operator Handbook (3rd ed.)*; IFSTA Publishing (2015) ISBN: 978-087039571-1; Chapters 16, 17, 18, 19, and 20

Prerequisite(s): BFST/FFP/ATPC1301 Fire Service Hydraulics
BFST/FFP/ATCP1302 Apparatus Operations

Contact Hours: This class has 45 contact hours.

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Continuing Educations Units (CEU's): None

Pre-Course Assignment: None

Required Materials: Paper, pens, USB portable storage device (thumb drive). Apparatus and appliances for driving/pumping/ladder & platform operations; water sources; special systems; and safety equipment.

NOTE: Students must bring gloves, hardhat and proper attire for master stream operations and aerial exercises. Students will be required to ascend and descend aerial ladders and aerial platforms.

Grading: Students must achieve a minimum cumulative score of 70% to pass this course. Course grades are determined from assignments and activities including, homework, projects, quizzes, exams, and presentations. Below is the breakdown of the final accumulative grading:

- Individual Exercises 20 points
- Quizzes 20 points
- Final Group project 30 points
- Final Written Exam 30 points
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Attendance: Students are required to attend all sessions of the course.

- Excused absences - Students are permitted excused absences totaling no more than 10% of class (4.5 hours maximum); the instructor shall be the sole determining authority in the determination of an excused absence and may assign supplemental work to make up for missed class time.
- Unexcused absences - The instructor shall be the sole determining authority in the determination of an unexcused absence (i.e. "no call, no show"). The instructor has no obligation to offer the student an opportunity to make up assignments, including quizzes and/or exams, but may do so at his/her discretion.

Section V - Instructor Qualifications

As per Rule 69A-37.065, *Programs of Study and Vocational Courses*, instructors must meet the following qualifications to be authorized to teach this course:

Rule: 69A-37.065 Instructor Qualifications:

1. An Instructor I shall hold a state certificate of competency for Pump Operator and BFST/FFP/ATCP1302 Aerial Apparatus Operator.
2. An Instructor II or III may teach providing he or she has successfully completed BFST/FFP/ATCP1301 Fire Service Hydraulics, BFST/FFP/ATCP3012 Apparatus Operator and BFST/FFP/ATCP1302 Aerial Apparatus Operator.

Section VI – Job Performance Requirements

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Given information from discussion and reading materials, the student will satisfy the Job Performance Requirements (JPR) of the applicable National Fire Protection Association (NFPA) standards, as well as any applicable skill sheets.

NFPA 1002, Standard for Fire Apparatus Driver/Operator Professional Qualifications, 2014 Edition responsible for the safe and prudent operation of the vehicle under all conditions; the effects on vehicle

6.1.1 Perform the routine tests, inspections, and servicing functions specified in the following list in addition to those specified in 4.2.1, given a fire department aerial apparatus, and policies and procedures of the jurisdiction, so that the operational readiness of the aerial apparatus is verified:

- (1) Cable systems (if applicable)
- (2) Aerial device hydraulic systems
- (3) Slides and rollers
- (4) Stabilizing systems
- (5) Aerial device safety systems
- (6) Breathing air systems
- (7) Communication systems

(A) Requisite Knowledge. Manufacturer's specifications and requirements, and policies and procedures of the jurisdiction.

(B) Requisite Skills. The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.

6.2.1 Maneuver and position an aerial apparatus, given an aerial apparatus, an incident location, a situation description, and an assignment, so that the apparatus is positioned for correct aerial device deployment.

(A) Requisite Knowledge. Capabilities and limitations of aerial devices related to reach, tip load, angle of inclination, and angle from chassis axis; effects of topography, ground, and weather conditions on deployment; and use of the aerial device.

(B) Requisite Skills. The ability to determine a correct position for the apparatus, maneuver apparatus into that position, and avoid obstacles to operations.

6.2.2 Stabilize an aerial apparatus, given a positioned vehicle and the manufacturer's recommendations, so that power can be transferred to the aerial device hydraulic system and the device can be deployed.

(A) Requisite Knowledge. Aerial apparatus hydraulic systems, manufacturer's specifications for stabilization, stabilization requirements, and effects of topography and ground conditions on stabilization.

(B) Requisite Skills. The ability to transfer power from the vehicle's engine to the hydraulic system and operate vehicle stabilization devices.

6.2.3 Maneuver and position the aerial device from each control station, given an incident location, a situation description, and an assignment, so that the aerial device is positioned to accomplish the assignment.

(A) Requisite Knowledge. Aerial device hydraulic systems, hydraulic pressure relief systems, gauges and controls, cable systems, communications systems, electrical systems, emergency operating systems, locking systems, manual rotation and lowering systems, stabilizing systems, aerial device safety systems,

system overrides and the hazards of using overrides, safe operational limitations of the given aerial device, safety procedures specific to the device, and operations near electrical hazards and overhead obstructions.

(B) Requisite Skills. The ability to raise, rotate, extend, and position to a specified location, as well as lock, unlock, retract, lower, and bed the aerial device.

6.2.4 Lower an aerial device using the emergency operating system, given an aerial device, so that the aerial device is lowered to its bedded position.

(A) Requisite Knowledge. Aerial device hydraulic systems, hydraulic pressure relief systems, gauges and controls, cable systems, communications systems, electrical systems, emergency operating systems, locking systems, manual rotation and lowering systems, stabilizing systems, aerial device safety systems, system overrides and the hazards of using overrides, safe operational limitations of the given aerial device, safety procedures specific to the device, and operations near electrical hazards and overhead obstructions.

(B) Requisite Skills. The ability to rotate and position to center, unlock, retract, lower, and bed the aerial device using the emergency operating system.

6.2.5 Deploy and operate an elevated master stream, given an aerial device, a master stream device, and a desired flow so that the stream is effective and the aerial and master stream devices are operated correctly.

(A) Requisite Knowledge. Nozzle reaction, range of operation, and weight limitations.

(B) Requisite Skills. The ability to connect a water supply to a master stream device and control an elevated nozzle manually or remotely.

*If Applicable:

7.1* General. The requirements of Fire Fighter I as specified in NFPA 1001 and the job performance requirements defined in Chapter 6 and Section 7.2 shall be met prior to qualifying as a fire department driver/operator — tiller.

7.2 Operations.

7.2.1* Perform the practical driving exercises specified in 4.3.2 through 4.3.5 from the tiller position, given a qualified driver, a fire department aerial apparatus equipped with a tiller, and a spotter for backing up, so that each exercise is performed without striking the vehicle or obstructions.

(A) Requisite Knowledge. Capabilities and limitations of tiller aerial devices related to reach, tip load, angle of inclination, and angle from chassis axis; effects of topography, ground, and weather conditions on safe deployment; and use of a tiller aerial device.

(B) Requisite Skills. The ability to determine a correct position for the tiller, maneuver the tiller into that position, and avoid obstacles to operations.

7.2.2 Operate a fire department aerial apparatus equipped with a tiller from the tiller position over a predetermined route on a public way, using the maneuvers specified in 4.3.1, given a qualified driver, a fire department aerial apparatus equipped with a tiller, and a spotter for backing up, so that the vehicle is operated in compliance with all applicable state and local laws, departmental rules and regulations, and the requirements of NFPA 1500, Section 4.2.

(A) **Requisite Knowledge.** Principles of tiller operation, methods of communication with the driver, the effects on vehicle control of general steering reactions, night driving, negotiating intersections, and manufacturer operation limitations.

(B) **Requisite Skills.** The ability to operate the communication system between the tiller operator’s position and the driver’s compartment; operate passenger restraint devices; maintain control of the tiller while accelerating, decelerating, and turning; operate the vehicle during nonemergency conditions; and operate under adverse environmental or driving surface conditions.

7.2.3 Position a fire department aerial apparatus equipped with a tiller from the tiller position, given the apparatus operating instructions, an incident location, a situation description, and an assignment, so that the aerial device is positioned and stabilized to accomplish the assignment.

(A) **Requisite Knowledge.** Principles of positioning and stabilizing the aerial apparatus from the tiller position.

(B) **Requisite Skills.** The ability to determine a correct position for the tiller, maneuver the tiller into that position, and avoid obstacles to operations.

Section VII – Plan of Instruction

The following is the plan of instruction used during course offerings held at the Florida State Fire College. It also serves as the suggested instructional block format for other approved training providers who use the recommended text book. All class offerings **must** satisfy the JPRs listed in *Section VI – Job Performance Requirements* regardless of textbook used.

Day/Date	Chapters	Activities
Day 1	Class Introductions and Orientation Chapter 16 – Introduction to Aerial Fire Apparatus Chapter 17 – Positioning Aerial Apparatus Chapter 18 – Stabilizing the Apparatus Practical Evolutions (Apparatus Inspections/Apparatus Familiarization)	<ul style="list-style-type: none"> • Introductions • Practical skills
Day 2	Chapter 19 – Operating Aerial Operations Chapter 20 – Aerial Apparatus Strategies and Tactics Practical Evolutions (Driving Skills)	<ul style="list-style-type: none"> • Videos • Practical skills
Day 3	Practical Evolutions (Driving/Aerial Placement and Operation)	<ul style="list-style-type: none"> • Practical skills
Day 4	Practical Evolutions (Driving/Aerial Placement and Operation/Master Stream Operations)	<ul style="list-style-type: none"> • Practical skills
Day 5	Final Exam Practical Exam Course Completion	<ul style="list-style-type: none"> • Final written exam • Final practical exam

Section VIII – Final Practical and Grading Rubric

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Description of Assignment:

The Final Written Exam will consist of 100 questions.

The Final Practical Skills Check-off is designed for the student to demonstrate competency of the skills identified through the following JPR's in NFPA 1002.

- Students will be required to complete a Driving course designed for Emergency Apparatus that is to include the following activities:
 1. Given a vehicle and a route on a public way or closed course, operate a fire apparatus safely following all state and local laws and AHJ rules. (Skill Sheet #2-003)
 2. Given a restricted space, back a vehicle from a roadway into the restricted space from both the right and left sides.
 3. Given a fire apparatus and a spotter for backing, maneuver a vehicle safely around obstructions while going forward and in reverse.
 4. Given a course with restricted horizontal and vertical clearances, safely maneuver the apparatus through the restricted areas.
 5. Use defensive driving techniques while operating a fire apparatus.
 6. Turn a fire apparatus 180 degrees within a confined space, given a fire apparatus, a spotter for backing up, and an area in which the vehicle cannot perform a U-turn without stopping and backing up, so that the vehicle is turned 180 degrees without striking obstructions within the given space.

- Students will be required to complete practical skills to include the following skills identified by NFPA 1002:
 1. Perform routine tests, inspections and servicing functions on the systems and components of a fire department vehicle. (Skill Sheet # 2-001)
 2. Document routine tests, inspections and servicing functions. (Skill Sheet #2-002)
 3. Given various apparatus with systems and equipment, operate all fixed systems and equipment on the instructions and policies.
 4. Maneuver and position an aerial apparatus, given an aerial apparatus, an incident location, a situation description, and an assignment, so that the apparatus is positioned for correct aerial device deployment.
 5. Stabilize an aerial apparatus, given a positioned vehicle and the manufacturer's recommendations, so that power can be transferred to the aerial device hydraulic system and the device can be deployed.
 6. Maneuver and position the aerial device from each control station, given an incident location, a situation description, and an assignment, so that the aerial device is positioned to accomplish the assignment.
 7. Lower an aerial device using the emergency operating system, given an aerial device, so that the aerial device is lowered to its bedded position.
 8. Deploy and operate an elevated master stream, given an aerial device, a master stream device, and a desired flow so that the stream is effective and the aerial and master stream devices are operated correctly.

Format and Grading of Assignment:

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Students will be given a practical skills evaluation based on those acquired skills learned under NFPA 1002 JPRs. Points will be awarded per skill sheets to be applied to the final course grade.

Section IX – Review Date and Author

November 5, 2019	Frank Ennist
June 28, 2019	unknown