

**Course Outline**

**COURSE:** JFT 7B                      **DIVISION:** 50                      **ALSO LISTED AS:**

**TERM EFFECTIVE:** Fall 2016                      **CURRICULUM APPROVAL DATE:** 02/22/2016

**SHORT TITLE:** DRIVER/ OPERATOR 1B

**LONG TITLE:** Fire Apparatus Driver, Operator 1B

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours</u>
1	18	Lecture:	.8	14.4
		Lab:	1.48	26.64
		Other:	0	0
		Total:	2.28	41.04

**COURSE DESCRIPTION:**

This course provides information on pumping apparatus preventive maintenance and operations. Topics include routine tests, inspections, and servicing functions; producing hand, master, and foam streams, relay pump operations; and supplying water to fire sprinkler and stand pump systems. This course is based on the 2014 edition of NFPA 1002 Standard for Fire Apparatus Driver/ Operator Professional Qualifications. **ADVISORY:** Eligible for English 250 and English 420 **PREREQUISITE:** Firefighter Academy 1 certificate or equivalent, Fire Apparatus Driver/Operator 1A California State Marshal certified Fire Apparatus Driver/ Operator 1A or equivalent as determined by the Dean of Academy Instruction. Note: Approval of equivalent training is not a guarantee state regulatory or licensing agencies will also grant equivalency. Prior to beginning this course students must be familiar with, and be able to demonstrate all of the skills listed below. These will not be taught in the course, rather they will be the starting point for advanced fire fighter training that builds upon them. These minimum knowledge and skill levels are regarding: 1. Firefighter safety 2. Knowledge of SCBA use and emergency procedures 3. Safe mounting and dismounting of apparatus 4. Knowledge of all firefighting personal protective equipment, including hand and eye protection 5. Familiarity of all firefighting tools and equipment, ladders, and hoses including appropriate selection, carry, and use for each type across all types of emergencies. 6. Fuel types, precautions and suppression method(s) 7. Appropriate use of class A, B, and C fire extinguishers 8. Effective verbal communication used in fire fighting 9. Salvage and overhaul 10. First responder CPR and aid

**PREREQUISITES:**

Completion of JFT 7A, as UG, with a grade of C or better.

**COREQUISITES:**

**CREDIT STATUS:** D - Credit - Degree Applicable

**GRADING MODES**

L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

**SCHEDULE TYPES:**

02 - Lecture and/or discussion

03 - Lecture/Laboratory

04 - Laboratory/Studio/Activity

**STUDENT LEARNING OUTCOMES:**

1. Demonstrate the ability to perform and document routine tests, inspections, and servicing functions on the systems and components unique to a pumping apparatus to verify their operational status.

Measure: Skill demonstration, class written assignments, role play

PLO:

ILO: 2, 3, 7

GE-LO:

Year assessed or anticipated year of assessment: 2015

2. Demonstrate methods for performing effective hand, master, and foam fire streams.

Measure: Student application of expected skills, practical exercises

PLO:

ILO: 2, 7

GE-LO:

Year assessed or anticipated year of assessment: 2015

**CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS**

Curriculum Approval Date: 02/22/2016

I. Introduction (1 hour)

A. Orientation and Administration

1. Facility requirements

2. Classroom requirements

3. Course syllabus

B. Fire Apparatus Driver/Operator-Pumping Apparatus Certification Process

1. Courses required for certification

2. Other requirements

3. Certification task book process

4. Certification testing process

SPO: Identify courses required for Fire Apparatus Driver/Operator- Pumping Apparatus certification.

Assignment: Review course syllabus including course objectives, events, requirements, assignments, activities, resources, evaluation methods and participation requirements.

II. Preventive Maintenance (4 hours)

A. Perform and Document Routine Tests, Inspections, and Servicing Functions Unique to Pumping Apparatus

1. Manufacturer specifications and requirements

2. Policies and procedures of the jurisdiction

a. Documentation requirements

3. Pumping systems and components

a. Types

b. Transfer of power

c. Priming systems

- d. Pumping systems
- e. Foam systems
- f. Pressure control devices
- g. Gauges
- h. Valve and plumbing
- i. Water tanks and other extinguishing agent levels

- 4. Use tools and equipment
- 5. Inspect fire pump and components
- 6. Recognize system problems
- 7. Correcting deficiencies

SPO: Identify the pumping systems and their components and perform an inspection to ensure the systems are working properly.

Assignment: Draw a diagram of a pump and its related plumbing.

### III. Operations (34 hours)

#### A. Produce an Effective Hand or Master Stream

- 1. Hydraulic calculations for friction loss and flow
    - a. Written formulas
    - b. Estimation methods
  - 2. Pump discharge pressure calculations
  - 3. Proper positioning of a pumping apparatus
    - a. Hydrant
    - b. Standpipes
  - 4. Drafting
  - 4. Safe operation of the pump
    - a. Introduction of water
    - b. Cavitation
    - c. Water hammer
    - d. Overheating
    - e. Discharge gates
    - f. Pressure control devices
  - 5. Problems related to small-diameter or dead-end mains
  - 6. Low pressure and private water supply systems
  - 7. Hydrant coding systems
  - 8. Principles of drafting
  - 9. Reliability of static sources
  - 10. Positioning a pumping apparatus to operate
    - a. Fire hydrant
    - b. Static water source
  - 11. Power transfer from apparatus engine to pump
  - 12. Draft
  - 13. Operating pumper pressure control systems
  - 14. Operating the volume/pressure transfer valve (multistage pumps only)
  - 15. Operating auxiliary cooling systems
  - 16. Transitioning between internal and external water sources
  - 17. Assembling hose lines, nozzles, valves, and appliances
  - 18. Applying hydraulic calculations to produce an effective stream
- #### B. Relay Pump Operation
- 1. Relay pumping operations

2. Hydraulic calculations for friction loss and flow
  - a. Written formulas
  - b. Estimation methods
3. Pump discharge pressure calculations
4. Positioning a pumping apparatus to operate
  - a. Fire hydrant
  - b. Static water source
5. Power transfer from pumping apparatus engine to pump
6. Draft
7. Operating pumper pressure control systems
8. Operating the volume/pressure transfer valve (multistage pumps only)
9. Operating auxiliary cooling systems
10. Transitioning between internal and external water sources
11. Assembling hose lines, nozzles, valves, and appliances
12. Applying hydraulic calculations to a relay operation
- C. Produce a Foam Fire Stream
  1. Proportioning rates and concentrations
  2. Equipment and assembly procedures
  3. Foam system limitations
  4. Manufacturer's specifications and requirements
  5. Operating foam proportioning equipment
  6. Connecting foam stream equipment
- D. Supply Water to Fire Sprinkler and Standpipe Systems
  1. Hydraulic calculations for friction loss and flow
    - a. Written formulas
    - b. Estimation methods
  2. Pump discharge pressure calculations
  3. Hose layouts
  4. Location of fire department connections
  5. Alternative supply procedures if fire department connection is not usable
  6. Operating principles of sprinkler systems as defined in
    - a. NFPA 13
    - b. NFPA 13D
    - c. NFPA 13R
  7. Fire department operations in sprinkled properties as defined in NFPA 13E
  8. Operating principles of standpipe systems as defined in NFPA 14
  9. Positioning a pumping apparatus to operate at a fire hydrant
  10. Power transfer from pumping apparatus engine to pump
  11. Operating pumper pressure control systems
  12. Operating the volume/pressure transfer valve (multistage pumps only)
  13. Operating auxiliary cooling systems
  14. Transitioning between internal and external water sources
  15. Assembling hose lines, nozzles, valves, and appliances
  16. Applying hydraulic calculations to a sprinkler and standpipe systems.

SPO: Demonstrate the ability to position a pumping apparatus to operate at a fire hydrant and at a static water source.

Assignment: Review mathematic skills needed for hydraulic calculations.

**METHODS OF INSTRUCTION:**

Lab  
Lecture  
Scenario Based Training  
Skills Demonstration

**METHODS OF EVALUATION:**

Category 1 - The types of writing assignments required:

Percent range of total grade: 15 % to 20 %

Lab Reports

If this is a degree applicable course, but substantial writing assignments are not appropriate, indicate reason:

Course primarily involves skill demonstration or problem solving

Category 2 -The problem-solving assignments required:

Percent range of total grade: 20 % to 35 %

Field Work

Category 3 -The types of skill demonstrations required:

Percent range of total grade: 65 % to 75 %

Category 4 - The types of objective examinations used in the course:

Percent range of total grade: 0 % to %

**REPRESENTATIVE TEXTBOOKS:**

Required:

Jones & Bartlett. Fire Apparatus Driver/Operator Second Edition. 2015. Or other appropriate college level text.

ISBN: 978-1-284-02691-7

Reading level of text, Grade: 12 Verified by: Doug Achterman

Other textbooks or materials to be purchased by the student:

Aerial Apparatus Driver/ Operator Handbook, Third Edition, IFSTA, ISBN-13: 9780134027234

**ARTICULATION and CERTIFICATE INFORMATION**

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Transferable CSU, effective 199870

UC TRANSFER:

Not Transferable

**SUPPLEMENTAL DATA:**

Basic Skills: N

Classification: Y

Noncredit Category: Y

Cooperative Education:

Program Status: 1 Program Applicable

Special Class Status: N

CAN:

CAN Sequence:  
CSU Crosswalk Course Department: JFT  
CSU Crosswalk Course Number: 7B  
Prior to College Level: Y  
Non Credit Enhanced Funding: N  
Funding Agency Code: Y  
In-Service: N  
Occupational Course: C  
Maximum Hours:  
Minimum Hours:  
Course Control Number: CCC000086435  
Sports/Physical Education Course: N  
Taxonomy of Program: 213300