

Course Outline

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

TERM EFFECTIVE: Fall 2021 **CURRICULUM APPROVAL DATE:** 10/12/2021

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:	.45	8.1
		Lab:	1.8	32.4
		Other:	0	0
		Total:	2.25	40.5
		Total Learning Hrs:	56.7	

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. **PREREQUISITE:** Fire Firefighter Academy 1 certificate or equivalent

PREREQUISITES:

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

OR

Completion of JFT 225, 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:

By the end of this course, a student should:

1. Perform and document routine tests, inspections, and servicing functions on the systems and components unique to a pumping apparatus to verify their operational status
2. Demonstrate methods for performing effective hand, master, and foam fire streams.

COURSE OBJECTIVES:

1. Student will identify skills used on pumping apparatus preventive maintenance and operations.

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

Curriculum Approval Date: 10/12/2021

LECTURE CONTENT:

I. Introduction (1 hour)

A. 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

II. Preventive Maintenance (7 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

LAB CONTENT:

III. Operations (32 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
 - c. 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
 7. Fire department operations in sprinkled properties
 8. Operating principles of standpipe systems
 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.

METHODS OF INSTRUCTION:

Lab Lecture Scenario Based Training Skills Demonstration

OUT OF CLASS ASSIGNMENTS:

Required Outside Hours 14

Assignment Description

Reading assignments

Required Outside Hours 2

Assignment Description

Maintain protective clothing

METHODS OF EVALUATION:

Problem-solving assignments

Evaluation Percent 25

Evaluation Description

Class exercise - Explain hydraulic calculations for friction loss and flow using both written formulas and estimation methods to be evaluated by a SFT Instructor for accuracy.

Skill demonstrations

Evaluation Percent 25

Evaluation Description

Operate pumper pressure control systems. Operate the volume/pressure transfer valve
Demonstrations will be evaluated by a SFT instructor for skills taught in class.

Objective examinations

Evaluation Percent 50

Evaluation Description

Written exam to be graded by SFT instructor for accuracy.

REPRESENTATIVE TEXTBOOKS:

Required:

Jones & Bartlett. Fire Apparatus Driver/Operator Second Edition. 2019.

ISBN: 978-1-284-02691

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:

CSU Crosswalk Course Number:

Prior to College Level: Y

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: Y

Occupational Course: C

Maximum Hours:

Minimum Hours:

Course Control Number: CCC000086435

Sports/Physical Education Course: N

Taxonomy of Program: 213300