

### Basic Course Information

Semester:	<b>Fall 2019</b>	Instructor Name:	<b>Aaron Castro</b>
Course Title & #:	Fire 221	Email:	<b>Aaroncastro@imperial.edu</b>
CRN #:	15226	Webpage (optional):	
Classroom:	<b>380 East Aten Imperial, CA 92251. Room 3211</b>	Office #:	TBA
Class Dates:	<b>M, T, W, Thur, Fri.</b>	Office Hours:	n/a for part-time faculty
Class Days:	5 01/14-01/18	Office Phone #:	n/a for part-time faculty
Class Times:	08:30-17:10	Emergency Contact:	Tricia Jones 760 355-6346 Alfredo Estrada 760 222-0177
Units:	2.5		

### Course Description

Updated to reflect the 2009 NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications and requires a textbook and student supplement. This course provides the student with information on pump construction and theory of pump operations. Topics include methods for performing basic hydraulics and techniques on basic inspections, documentation, maintenance, and troubleshooting fire pumps. Each student also has the opportunity to increase his or her pumping skills during simulated pumping conditions.

### Student Learning Outcomes

1. Select proper engine pressure when pumping multiple liners and knowledge of the principles related to operation of pumps from a hydrant and drafting water. (ILO2)
2. Demonstrate knowledge in hydraulic calculations. (ILO2)
3. Demonstrate proficiency in pump operations. (ILO1)
4. Demonstrate proficiency in drafting and multiple hose line pump operations. (ILO4)

### Course Objectives

1. Demonstrate a working knowledge of basic hydraulic terms and water distribution systems with an overall exam score of 70% or higher.
2. Demonstrate a working knowledge of hydrants and hydrant capability based on residual pressure with an overall exam score of 70% or higher.
3. Demonstrate a working knowledge of water hammer causes, damaging effects and corrective measures with an overall exam score of 70% or higher.
4. Demonstrate a working knowledge of portable and auxiliary sources of water with an overall exam score of 70% or higher.
5. Demonstrate knowledge of how to determine available fire flow with an overall exam score of 70% or higher.
6. Demonstrate knowledge of fluid pressures and water flow with an overall exam score of 70% or higher.
7. Demonstrate knowledge of vehicles used as water carriers with an overall exam score of 70% or higher.

8. Demonstrate knowledge of pump panel gauges, how to operate the pump from a hydrant, and drafting water principles with an overall exam score of 70% or higher.
9. Demonstrate knowledge of how to spot the engine close to sources of water with an overall score of 70% or higher.
10. Demonstrate knowledge of how to use elevated or surface tanks as sources of water and how to take water from tanks with an overall exam score of 70% or higher.
11. Demonstrate knowledge of ways to evaluate fire service pumps and how to transmit power to pumps with an overall exam score of 70% or higher.
12. Demonstrate knowledge of how to calculate engine pressure with an overall exam score of 70% or higher.
13. Demonstrate knowledge regarding factors affecting friction loss and how to calculate friction loss with an overall exam score of 70% or higher.
14. Demonstrate knowledge of pump operations with an overall exam score of 70% or higher.
15. Demonstrate knowledge of foam and foam appliances with an overall exam score of 70% or higher.
16. Demonstrate knowledge of augmenting water supply and connecting an engine to sprinkler systems with an overall exam score of 70%.
17. Demonstrate knowledge of the manipulative exam with an overall exam score of 70% or higher.
18. Perform analysis and evaluation of classroom instruction, reading materials, and utilize this analysis in classroom discussion, writing assignments, and in performing other activities. Students must select and use appropriate methods and materials needed to complete laboratory assignments to standards. For example, students must be knowledgeable in the selection of proper engine pressure when pumping multiple liners.

## Textbooks & Other Resources or Links

Pumping Apparatus Driver/Operator Second Edition IFSTA

ISBN 0-87939-278-9

## Course Requirements and Instructional Methods

### Assignments

Students will complete the following assignment activities. When completing your written assignments in either Microsoft Word or rich text format (using Times New Roman size 12 font ONLY) – not Word Perfect, use APA CITED textbook concepts to analyze the disaster response issues. If you just complete the assignments in broad terms without applying text concepts using APA citations, your grade will be significantly lower. While older sources are fine, students must include the required number of citations from the textbook and more current sources.

**APA Citations:** APA citations are required for assignments. Please ensure you're familiar with the process for correctly citing sources in your course submissions.

I strongly recommend students review a grammar/writing guide prior to submitting assignments. My goal is assignments will be reviewed and grades posted within 24 hours of their submission. Assignments submitted late will have a 10 % penalty assessed for each week late. Cover, reference, appendix, and table pages DO NOT count towards the page length requirements. There is NO extra credit or makeup assignments offered in the course, so every assignment contributes to students' final course grades. Assignments MUST be posted to the BB site and do NOT get course messaged to me. I do not want a “backup” copy sent to me. Use Blackboard only – thanks!

### Course Grading Based on Course Objectives

Day 1 Quiz- 25 points  
Day 2 Quiz- 25 points  
Day 3 Quiz- 25 points  
Day 4 Quiz- 25 points  
Presentation – 100 points  
Exam- 100 points  
Total Points Possible- 300

### Attendance

*[Required Information: The below information is the IVC attendance policy. Use this information in addition to any specific attendance policies you have for your course.]*

- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as ‘excused’ absences.

### Classroom Etiquette

*[Required Information: Describe your policies regarding classroom conduct. The below is suggested language and may be modified for your course.]*

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the [General Catalog](#).
- Children in the classroom: Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

### Online Netiquette

Not Applicable

### Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another’s work and recognize the important of acknowledging and safeguarding intellectual property.

There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- **Plagiarism** is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to "cite a source" correctly, you must ask for help.
- **Cheating** is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the [General Catalog](#) for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

### **Additional Student Services**

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- **Blackboard Support Site.** The Blackboard Support Site provides a variety of support channels available to students 24 hours per day.
- **Learning Services.** There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your [Campus Map](#) for the [Math Lab](#); [Reading, Writing & Language Labs](#); and the [Study Skills Center](#).
- **Library Services.** There is more to our library than just books. You have access to tutors in the [Study Skills Center](#), study rooms for small groups, and online access to a wealth of resources.

### **Disabled Student Programs and Services (DSPS)**

Any student with a documented disability who may need educational accommodations should notify the instructor or the [Disabled Student Programs and Services](#) (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

### **Student Counseling and Health Services**

*[Required language.]*

Students have counseling and health services available, provided by the pre-paid Student Health Fee.

- **Student Health Center.** A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC [Student Health Center](#) at 760-355-6128 in Room 1536 for more information.
- **Mental Health Counseling Services.** Short-term individual, couples, family, and group therapy are provided to currently enrolled students. Contact the IVC [Mental Health Counseling Services](#) at 760-355-6196 in Room 2109 for more information.

### Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC [General Catalog](#).

### Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at <http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/>

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### Anticipated Class Schedule/Calendar

Day 1	Instructor	Topic
		CASTRO-Orientation and Administration (1-1)
		CASTRO-Fire apparatus Driver Operator Responsibilities (1-2)
		CASTRO-Types Of Fire Pumps (2-1)
		CASTRO-Pump Mounting and Drive Arrangements (2-2)
		CASTRO-Pump Piping and Valves (2-3)
		CASTRO-Automatic Pressure Control Devices (2-4)
		CASTRO-Priming Devices (2-5)
		CASTRO-Pump Panel Instrumentation (2-6)
		CASTRO-Auxiliary Cooling Devices (2-7)
		CASTRO-Basic Hydraulic Terminology and Symbols (3-1)
		CASTRO-Mathematics Review (3-2)
		CASTRO-Characteristics of Water and Principles of Pressure (3-3)
		CASTRO-Principle Features Of Water Systems (3-4)
		CASTRO-Nozzle Theory (3-5)
		CASTRO-Calculation Gallons Per Minute (3-6)
		CASTRO-Principles of Friction Loss (3-7)
		CASTRO-Calculating Friction Loss in Hose Lays (3-8)
		CASTRO-Pump Discharge Pressure (3-9)
		CASTRO-Fire Ground Hydraulic Calculations (3-10)

CASTRO-Inspecting The Pump Drive Systems	(4-1)
CASTRO-Inspecting The Priming Pump Systems	(4-2)
CASTRO-Inspecting the Pump Pressure Control Systems	(4-3)
CASTRO-Pump Service Testing	(4-4)
CASTRO-Maintenance of the Pump and Control Systems	(4-5)

Day 2	Instructor	Topic
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Marquez-Making The Pump Operational (From Tank)	(5-1)
Marquez-Transitioning to An External Water Supply	(5-2)
Marquez-Operating From A Hydrant	(5-3)
Marquez-Principles And Practices of Drafting Operations	(5-4)
Marquez-Principles Of Relay Pumping Operations	(5-5)
Marquez-Principles Of Tandem Pumping Operations	(5-7)
Marquez-Principles Of Dual Pumping Operations	(5-8)
Marquez-Principles And Practices of Foam Operations	(5-9)
Marquez-Sprinkler and Standpipe Support	(5-10)
Marquez-Introduction to the Pumping Exercises	(6-1)

Day 3	Instructor	Topic	Skills Sheet
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Marquez-Operating From A Draft Practice	(6-1-1)
CASTRO-Operating Using a Forward Lay Practice	(6-1-2)
CASTRO-Operating Using A Reverse Lay Practice	(6-1-3)

Day 4	Instructor	Topic
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Marquez-How to place apparatus in pump gear
Marquez-How to connect apparatus to hydrant
Marquez-How to connect apparatus to other apparatus (discharge to intake)
Marquez-How to pump from tank
CASTRO-How to pump from supplied source (2 <sup>nd</sup> Pumper)
CASTRO-How to operate the foam educator
CASTRO-How to operate the foam system
CASTRO-How to use auxiliary pump (optional)
CASTRO-Apparatus components and systems identification drill (optional)

Day 5	Instructor	Topic
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Marquez-Administer Final Exam
Marquez-Graded Exercises
CASTRO-Graded Exercises

**\*\*\*Tentative, subject to change without prior notice\*\*\***