



El Camino College
COURSE OUTLINE OF RECORD – Official

Course Acronym:	FTEC
Course Number:	9
Descriptive Title:	Fire Apparatus and Equipment
Division:	Health Sciences and Athletics
Department:	Fire and Emergency Technology
Course Disciplines:	Fire Technology
Catalog Description:	This course is a study of fire apparatus design and use, including mobile and fixed apparatus. It includes a review of construction specifications and performance capabilities, as well as effective deployment, utilization and performance of equipment under emergency conditions.
Prerequisite:	
Co-requisite:	
Recommended Preparation:	Fire and Emergency Technology 1 and eligibility for English 1A
Enrollment Limitation:	
Hours Lecture (per week):	3
Hours Laboratory (per week):	0
Outside Study Hours:	6
Total Course Hours:	54
Course Units:	3
Grading Method:	Letter Grade only
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	Prior to July 1992
Transfer UC:	No
Effective Date:	
General Education:	ECC
Term:	
Other:	
CSU GE:	
Term:	
Other:	

IGETC:	
Term:	
Other:	
Student Learning Outcomes:	<p>SLO #1 Types of Aerial Apparatus</p> <p>The student will be able to identify and describe various types of fire apparatus in terms of their operational characteristics.</p> <p>SLO #2 Tools & Equipment</p> <p>The student will be able to identify and describe the tools and equipment carried on fire apparatus.</p> <p>SLO #3 Fire Apparatus Starting, Stopping & Backing Up</p> <p>The student will be able to describe the safe procedures for starting, stopping and backing up fire apparatus.</p>
Course Objectives:	<ol style="list-style-type: none"> 1. Outline the development of fire apparatus. 2. Identify fire apparatus equipment. 3. Describe routine maintenance procedures. 4. Describe mechanical, electrical and hydraulic systems for fire apparatus and aerial apparatus. 5. Identify and describe the four major types of aerial apparatus in terms of their operational characteristics. 6. Compare and contrast the differences between a gasoline operated and a diesel operated engine. 7. Compare and contrast the differences between positive displacement and centrifugal type pumps. 8. Identify and describe centrifugal pump accessories. 9. Describe the major components of an annual pump test. 10. Describe how an apparatus may be utilized to its maximum capacity and effectiveness.
Major Topics:	<p>I. OVERVIEW OF FIRE PROTECTION ORGANIZATION (1 hour, lecture)</p> <ol style="list-style-type: none"> A. Course content B. Student activities C. Definition of terms <p>II. FIRE APPARATUS - GENERAL (10 hours, lecture)</p> <ol style="list-style-type: none"> A. Current apparatus types B. Apparatus development C. Apparatus specifications D. Power development and transmission E. Future trends <p>III. PUMPING APPARATUS (10 hours, lecture)</p> <ol style="list-style-type: none"> A. Pump designs B. Pump accessories

- C. Performance factors
- D. Pumping principles
- E. Hydrant operations
- F. Drafting operations
- G. Tank operations
- H. Water supply problems
- I. Pump tests
- J. Troubleshooting

IV. AERIAL LADDER TRUCKS (10 hours, lecture)

- A. Design
 - 1. History and development
 - 2. Design and construction
- B. Hydraulic systems
 - 1. Basic principles
 - 2. Components
 - 3. Circuits
 - 4. Mechanical components
- C. Operating principles
 - 1. Stability factors
 - 2. Loading factors
 - 3. Special operating problems
- D. Operating procedures
 - 1. Fully hydraulic aerial
 - 2. Hydro-mechanical aerial
 - 3. Manual: emergency operation
- E. Troubleshooting and testing
 - 1. Structural and performance

testing
 - 2. Operational troubleshooting

V. ELEVATING PLATFORM APPARATUS (10 hours, lecture)

- A. Design
 - 1. History and development
 - 2. Design and construction
- B. Hydraulic systems
 - 1. Circuits
 - 2. Auxiliary components
- C. Operating principles
 - 1. Stability factors
 - 2. Loading factors
 - 3. Special operating problems
- D. Operating procedures
 - 1. Operating the platform
 - 2. Manual: emergency operation
- E. Troubleshooting and testing
 - 1. Structural and performance

testing

	<p>2. Operational troubleshoot</p> <p>VI. OPERATING APPARATUS AT EMERGENCIES (8 hours, lecture)</p> <p>A. Hazards and techniques of emergency response</p> <p>B. Effective use of apparatus at emergencies</p> <p>C. Special operations with aerial ladder and elevating platform</p> <p>VII. SPECIALIZED EQUIPMENT (5 hours, lecture)</p> <p>A. Variations and combinations of pump and aerial apparatus</p> <p>B. Fire boats, airport and miscellaneous apparatus</p>
Total Lecture Hours:	54
Total Laboratory Hours:	0
Total Hours:	54
Primary Method of Evaluation:	1) Substantial writing assignments
Typical Assignment Using Primary Method of Evaluation:	Develop a three-page written report which compares and contrasts early hand tub fire pumpers to current fire pumping apparatus. Submit report to the instructor.
Critical Thinking Assignment 1:	Prepare a three-page report which compares and contrasts the differences between aerial and elevated platform apparatus. Submit report to the instructor.
Critical Thinking Assignment 2:	Conduct an inspection of a "triple-combination" engine and prepare a three-page report of your findings. Submit report to the instructor.
Other Evaluation Methods:	Completion, Homework Problems, Matching Items, Multiple Choice, Other Exams, Quizzes, Term or Other Papers, Written Homework
Instructional Methods:	Field trips, Group Activities, Lecture, Multimedia presentations
If other:	
Work Outside of Class:	Answer questions, Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting), Problem solving activity, Required reading, Skill practice, Study, Written work (such as essay/composition/report/analysis/research)
If Other:	
Up-To-Date Representative Textbooks:	Thomas Sturtevant. <u>INTRODUCTION TO PUMP OPERATIONS</u> . Thomson/Del Mar, 2012. (Discipline Standard)
Alternative Textbooks:	

Required Supplementary Readings:	National Fire Protection. NATIONAL FIRE PROTECTION ASSOCIATION HANDBOOK. National Fire Protection, 2008. (Discipline Standard) International Fire Service Training Association, Oklahoma State University. AERIAL APPARATUS. 3rd ed. International Fire Service Training Association, Oklahoma State University, 2015. (Discipline Standard) International Fire Service Training Association, Oklahoma State University. FIRE APPARATUS PUMPERS. 3rd ed. International Fire Service Training Association, Oklahoma State University, 2015. (Discipline Standard)
Other Required Materials:	
Requisite:	
Category:	
Requisite course(s): List both prerequisites and corequisites in this box.	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	Fire and Emergency Technology-1
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	Knowledge of different types of fire apparatus and equipment. FTEC 1 -Discuss the types of common fire department apparatus, equipment, and personal safety equipment used for firefighting.
Requisite Skill:	Eligibility for English 1A
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable	This course involves writing 3-page reports, and reading college-level textbooks. A student's success in this class will be enhanced if they have these skills. Summarize, analyze, evaluate, and synthesize college-level texts. Write a well-reasoned, well-supported expository essay that demonstrates application of the academic writing process.
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	

Course Created by:	Craig Neumann
Date:	02/01/1988
Original Board Approval Date:	
Last Reviewed and/or Revised by:	KEVIN HUBEN
Date:	02/20/2020
Last Board Approval Date:	12/19/2022