



Articulation Request and Agreement 2018-2019

Discipline:	Fire Science
High School:	Sierra Conservation Center
High School Course:	Fire 1
Columbia College Course:	FIRE 1 – Fire Protection Organization
Date Accepted:	2018-2019
Renewal:	2021-2022

This request and agreement is submitted for consideration of the following course as an articulated course at Columbia College. Students would receive course credit at Columbia College.

Directions:

- Complete a separate form for each course.
- Attach the course outline for the course.
- Attach the course final if course is to be considered for credit.
- Mail to: Dean of Career Technical Education, 11600 Columbia College Drive, Sonoma, CA 95370

Completed by High School Instructor:

High School/ROP:	Sierra Adult School
Instructor Name:	Matt Gilmore
Mailing Address:	5100 O.Byrnes Ferry Road, Jamestown, CA 95327
Email Address:	matt.gilmore@cdcc.ca.aov
Contact Number:	(209) 984-5291 Ext 5324

High School/ ROP/CTE Course Title:	Fire 1
HS/ROCP Credits:	None
HS/ROCP Prerequisite(s):	None
High School/ ROP/CTE Course Description:	Introduction to fire protection; career opportunities in fire protection and related fields; philosophy and history of fire protection; fire loss analysis; fire department as part of local government; laws and regulations affecting the fire service; fire service nomenclature; specific fire protection functions; basic fire chemistry and physics, introduction to fire protection systems; introduction to fire strategy and tactics.

College Course Title:	FIRE 1 - Fire Protection Organization
College Units:	3.0
College Prerequisite(s):	None
Advisories/Recommendations:	None
Course Content and Format:	<p>Lecture on the following topics:</p> <ul style="list-style-type: none"> • Careers in Fire Science • Historical and Scientific Background • Fire Protection Services • Fire Department Organization • Extinguishing Agents • Fire Fighting Tactics and Strategy • Private Fire Protection • Sprinkler Detection System • Municipal Fire Defense

- Fire Safety Control

Competencies and Skill Requirements (Use additional pages as necessary)

At the conclusion of this course, the student should be able to:

- Be familiar with the general requirements and benefits of a career in the fire science.
- Understand the historical background of the fire service in the United States and how the current fire service evolved.
- Be familiar with the basic concepts of combustion and fire.
- Display knowledge of the federal, state and local agencies that are either directly or indirectly involved with fire protection.
- Know the common extinguishing agents used by the fire service and their basic application.
- Know the basic tactical priorities at a fire incident.
- Understand the need and uses of private fire protection departments.
- Be familiar with the basic fire protection systems found in buildings.
- Show basic familiarity with the ISO Fire Department Grading Schedule.

Measurement Methods (include any industry certification or licensure):

In order to receive Columbia College FIRE 1 credit, students must pass the Columbia College final exam with a grade of "C" or better.

Note: Students that complete an articulated high school course and meet the specific articulation requirements for course will be awarded Columbia College credit. The transcript will be noted as CBE (Credit by Exam). In order to receive above credit, students must complete a Columbia College Application for Admission within six (6) months of completing the high school course.

Sample Textbooks or Other Support Materials (including Software):

Essentials of Firefighting, 6th Edition

Introduction to Fire Protection, 4th Edition Robert Klinoff

CC faculty Signature:

Date:

5-21-19

[Office use only.]

TOPs Code:

[Office use only.]

Internal Tracking Number:

Completed by Columbia College

Columbia College and Sierra Conservation Center faculty have met and agree on the terms of this articulation agreement.

Department Faculty Signature	x	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Not Approved	5/21/2019/19
CTE Dean Signature	x	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Not Approved	8/15/2018
CTE Transition Officer Signature	x	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Not Approved	8/15/2018
Admissions and Records Notified			8/15/2018
High School Notified			8/15/2018

Sierra Fire Department

Fire Protection Organization Fire

FIRE 1

COURSE DESCRIPTION:

Introduction to fire protection; career opportunities in fire protection and related fields; philosophy and history of fire protection; fire loss analysis; fire department as part of local government; laws and regulations affecting the fire service; fire service nomenclature; specific fire protection functions; basic fire chemistry and physics; introduction to fire protection systems; introduction to fire strategy and tactics.

STUDENT LEARNING OUTCOMES

Upon satisfactory completion of the course, students will be prepared to:

COURSE OBJECTIVES

The student shall be familiar with the general requirements and benefits of a career in the fire service.

1. Identify the common minimum educational, age, and residence requirements for a typical fire department.
2. List common work shifts and general working conditions found in the fire service.
3. List the typical fringe benefits associated with employment with the fire service.
4. Understand the usual promotional and educational opportunities with the fire service.

The student shall understand the historical background of the fire service in the United States and how the current fire service evolved.

1. Describe fire protection during the colonial days of the United States.
2. Describe fire protection during the early and late 19th century.
3. List the reasons that the fire service developed into a para-military organization.
4. Correlate early fire equipment development with the development of fire equipment today.
5. Identify at least five major fires in the United States and their subsequent impact on current fire codes and ordinances.

The student shall be familiar with the basic concept of combustion and fire.

1. Compare and contrast the classic triangle concept of fire versus the tetrahedron concept of fire.
2. List and identify characteristics of the three components of the fire triangle.
3. List and identify characteristics of three categories of fuel.
4. Describe the basic principles of fire spread and the conditions necessary for conflagrations.

The student shall have a basic knowledge of the federal, state, and local agencies that are either directly or indirectly involved with fire protection.

1. List at least six United States government agencies and how they impact the fire service.
2. Identify typical state agencies that deal with fire protection, and list at least three in California.
3. Describe how non-government associations and corporations can be directly involved with fire protection, and give two examples of such agencies.

The student shall understand the basic organization of a typical fire department.

1. Flow chart the typical fire department make up from the company level through the chief, with emphasis on chain-of-command.
2. List the common functional divisions or sections of a typical fire department, with a description of the responsibilities of each.
3. Compare and contrast the typical organization of a small fire department with volunteer firefighters against a large, fully paid fire department.
4. Identify the needs for proper record-keeping, and list at least five different records that the fire department must maintain.

The student shall be familiar with common fire service apparatus and equipment.

1. List three general categories of pumper trucks and describe the uses of each.
2. List three general categories of ladder trucks and describe the advantages and disadvantages of each.
3. Identify at least five different types of miscellaneous support apparatus.
4. Identify and describe the common personal protective safety equipment required for a firefighter.

The student shall know the common extinguishing agents used by the fire service, and their basic application.

1. List the advantages and disadvantages of using water as an extinguishing agent.
2. Describe at least four other extinguishing agents besides water, how they would be applied, and when they would be used.

The student shall know the basic tactical priorities at a fire incident.

1. List fire suppression tactical priorities in order of performance.
2. Identify the basic concepts of each of the tactical operations required.

The student shall understand the need and uses of private fire protection departments.

1. Identify the need for certain private industries and institutions to have their own fire protection.
2. List the types of fire protection private industries and institutions might have.
3. Describe how private fire protection interacts with the regular fire department.

The student shall be familiar with the basic fire protection systems found in buildings.

1. Describe the basic types and components of a fire sprinkler systems.
2. List at least three different types of fire alarm systems and the characteristics of each.
3. Know the difference between a private water supply system and a public water supply system.
4. List at least three types of fire extinguishment systems other than water sprinklers.

Each student shall have a basic familiarization with the ISO Fire Department Grading Schedule.

1. Describe the purpose of the ISO Grading System.
 2. List the major categories that ISO evaluates when grading a fire department.
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COURSE CONTENT

I. CAREERS IN FIRE SCIENCE

A. Fire Service

1. Entrance requirements
 - a. Qualifications
 - b. Age limits
 - c. Educational requirements
 - d. Standardization of requirements
 - e. Residence requirements
 - f. Character
 - g. Pay
2. Hours of duty
3. Working conditions
4. Fringe benefits
 - a. Vacations and holidays
 - b. Sick Leave
 - c. Disability leaves and disability insurance
 - d. Retirement pension
 - e. Outside employment
 - f. Insurance
 - g. Other fringe benefits

B. Promotion

C. Education

1. Opportunities as a fire protection engineer

D. Opportunities in Federal Service

1. Forest and range control
2. Safety engineering
3. Other federal fire services

E. Opportunities in Private Industry

II. HISTORICAL AND SCIENTIFIC BACKGROUND

A. Early Fire Protection

B. Roots of Modern Organizations

C. Development of Modern Fire Protection

1. Evolution of fire equipment
2. The pace quickens
3. Changes in organization
4. Early steps toward formal education in the fire service

D. Fire, The Destroyer

1. Death and injury by fire
2. Property loss
3. Analysis of fire losses

E. Characteristics of fire

1. The classic triangle concept of fire
2. The tetrahedron concept of fire
3. Oxygen
4. Heat
 - a. Special cases of heat and ignition
5. Fuel
 - a. Solids

- i. Moisture content
 - ii. Flame spread
 - b. Liquids
 - i. Testing a liquid's flammability
 - c. Gases
 - i. Boyle's Law
 - ii. Charles' Law
 - iii. Avogadro's Law
- F. Causes of Fire
 - 1. Fire spread
- G. Conflagrations

III. FIRE PROTECTION SERVICES

- A. Public Organizations: Federal Government Agencies
 - 1. Department of Commerce
 - 2. Department of Transportation
 - 3. Department of the Interior
 - 4. Department of Defense
 - 5. General Services Administration
 - 6. Department of Housing and Urban Development
 - 7. Consumer Product Safety Commission
 - 8. Occupational Safety and Health Administration
 - 9. Department of Agriculture
 - a. Forest service fire protection operations
 - 10. Other National Organizations
 - 11. Principle Canadian Agencies
- B. State and County Fire Services in the United States
 - 1. The National Fire Protection Association
 - a. Administration
 - 2. Society of Fire Protection Engineers
 - 3. The American Insurance Association
 - 4. Insurance Services Office
 - 5. Underwriters Laboratories
 - 6. Associated Factory Mutual Insurance Companies
 - 7. American Gas Association
 - 8. Industrial Risk Insurers
 - 9. Underwriters Laboratories of Canada

IV. FIRE DEPARTMENT ORGANIZATION

- A. Semi-Military Organization
 - 1. Confusing terms
 - 2. Chain -of-Command
 - 3. Constant readiness
- B. Departmental Organization
 - 1. Company make-up
 - 2. Operational organization
 - a. Volunteer and small fire departments
 - b. Large fire departments
 - 3. Functional organization
 - a. Finance
 - b. Public relations

- c. Fire investigation
 - d. Planning
 - e. Personnel
 - f. Training
 - g. Fire Prevention Bureau
 - h. Communications
 - i. Water Bureau
 - j. Service and supply division
 - 4. Records
 - a. Company record book
 - b. Company diary
 - c. Fire report
 - d. Company run report
 - e. Other reports and records
- C. Fire Department Equipment
 - 1. Pumpers
 - a. Pumps
 - b. Grass or brush fire trucks
 - c. Airport crash trucks
 - d. Hose carriers
 - 2. Ladder Trucks
 - a. Ground ladders
 - b. Aerial equipment
 - c. Combinations
 - 3. Elevating Platform Apparatus
 - 4. Heavy Stream Devices
 - 5. Other Vehicles
 - a. Salvage trucks
 - b. Squad and rescue trucks
 - c. Power and light trucks
 - 6. Fireboats
 - 7. Fire Extinguishers
 - 8. Protective Equipment
 - a. Respiratory protective equipment
 - b. Importance of "Gas Masks"
 - c. SCBA's
 - d. Skin and body protective equipment
 - i. Impermeable clothing
 - ii. Acid suits
 - a. Personal Equipment

V. EXTINGUISHING AGENTS

- A. Water
 - 1. Heavy streams
 - 2. Hand lines streams
 - 3. Fog
- B. Foam
- C. Wetting Agents
- D. Dry Chemical
- E. Carbon Dioxide
- F. Halogenated Hydrocarbons

G. Dry Powders

VI. FIRE FIGHTING TACTICS AND STRATEGY

A. Pre-Planning

1. Geography and weather
2. Traffic conditions
3. Building location
4. Building construction
5. Type of occupancy

B. Size-up

C. Rescue

D. Exposures

E. Confinement

F. Extinguishment

1. Bulk flammable liquid fans

G. Ventilation

H. Overhaul

I. Salvage

VII. PRIVATE FIRE PROTECTION

A. Organization

1. Management
2. Private fire brigades
3. Employee participation
4. Guard service

B. First Aid Fire Protection

1. Simple aids
2. Portable fire extinguishers
3. Standpipe and hose system

C. Outside Protection

1. Water supplies
2. Pumps and tanks
3. Underground pipe
4. Hydrants

VIII. SPRINKLER DETECTION SYSTEM

A. Automatic Sprinkler Protection

1. Water supplies
2. System components
3. Location and spacing of sprinkler s
4. Type of sprinkler systems
5. Outside sprinkler s (water curtain)

B. Other Automatic Systems

1. Carbon dioxide extinguishing systems
2. Foam systems
3. Halogenated extinguishing systems
4. Fixed water spray systems

C. Protective Signaling Systems

1. Alarms
2. Classification of systems
3. Operating principals of fire detectors
 - a. Spacing of detectors
4. Other applications of fire detection principals

IX. MUNICIPAL FIRE DEFENSE

- A. Fire Defense Grading System
 - 1. How the point system works
- B. Fire Defense System Features
 - 1. Adequacy
 - 2. Reliability
- C. Fire Department
 - 1. Organization
 - 2. Company strength
 - 3. Number and distribution of fire captains
 - 4. Equipment
 - 5. Special equipment
 - 6. Operations
 - 7. Fire service communication
 - 8. Fire alarms systems, general
 - 9. Communication center
 - 10. Equipment in and circuits to fire stations
 - 11. Boxes
 - 12. Radio
 - 13. Fire department telephone service
- D. Fire Safety Control
 - 1. Hazardous materials
 - 2. Flammable and compressed gases
 - 3. Electricity
 - 4. Building department

METHODS OF INSTRUCTION:

Lecture and discussion

COURSE ASSIGNMENTS:

Read and summarize

METHODS OF EVALUATION:

Written exams

GRADING SCALE:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	59 or less %