

FT R157: WILDLAND FIRE CONTROL

Originator

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College

Oxnard College

Discipline (CB01A)

FT - Fire Technology

Course Number (CB01B)

R157

Course Title (CB02)

Wildland Fire Control

Banner/Short Title

Wildland Fire Control

Credit Type

Credit

Start Term

Fall 2021

Catalog Course Description

This course is designed to provide the employed Firefighter or Fire Technology major with a fundamental knowledge of the factors affecting wildland fire behavior, fire prevention, and fire suppression techniques.

Taxonomy of Programs (TOP) Code (CB03)

2133.00 - *Fire Technology

Course Credit Status (CB04)

D (Credit - Degree Applicable)

Course Transfer Status (CB05) (select one only)

B (Transferable to CSU only)

Course Basic Skills Status (CB08)

N - The Course is Not a Basic Skills Course

SAM Priority Code (CB09)

C - Clearly Occupational

Course Cooperative Work Experience Education Status (CB10)

N - Is Not Part of a Cooperative Work Experience Education Program

Course Classification Status (CB11)

Y - Credit Course

Educational Assistance Class Instruction (Approved Special Class) (CB13)

N - The Course is Not an Approved Special Class

Course Prior to Transfer Level (CB21)

Y - Not Applicable

Course Noncredit Category (CB22)

Y - Credit Course

Funding Agency Category (CB23)

Y - Not Applicable (Funding Not Used)

Course Program Status (CB24)

1 - Program Applicable

General Education Status (CB25)

Y - Not Applicable

Support Course Status (CB26)

N - Course is not a support course

Field trips

May be required

Grading method

Letter Graded

Does this course require an instructional materials fee?

No

Repeatable for Credit

No

Is this course part of a family?

No

Units and Hours

Carnegie Unit Override

No

In-Class

Lecture

Minimum Contact/In-Class Lecture Hours

52.5

Maximum Contact/In-Class Lecture Hours

52.5

Activity

Laboratory

Total in-Class

Total in-Class

Total Minimum Contact/In-Class Hours

52.5

Total Maximum Contact/In-Class Hours

52.5

Outside-of-Class

Internship/Cooperative Work Experience

Paid

Unpaid

Total Outside-of-Class

Total Outside-of-Class

Minimum Outside-of-Class Hours

105

Maximum Outside-of-Class Hours

105

Total Student Learning

Total Student Learning

Total Minimum Student Learning Hours

157.5

Total Maximum Student Learning Hours

157.5

Minimum Units (CB07)

3

Maximum Units (CB06)

3

Prerequisites

FT R151 or Concurrent Enrollment

Entrance Skills

Entrance Skills

Students must possess a basic understanding of the basic components of fire and know the different types of common fire department fire fighting apparatus.

Prerequisite Course Objectives

FT R151-Describe the components and development of the fire and emergency services.

FT R151-Analyze the basic components of fire as a chemical chain reaction, the major phases of fire, and examine the main factors that influence fire spread and fire behavior.

FT R151-Differentiate between fire service training and education and explain the value of higher education to the professionalization of the fire service.

FT R151-Identify fire protection and emergency-service careers in both the public and private sector.

FT R151-Discuss and describe the scope, purpose, and organizational structure of fire and emergency services.

FT R151-Describe the common types of fire and emergency service facilities, equipment, and apparatus.

FT R151-Describe the importance of wellness and fitness as it relates to emergency services.

Requisite Justification

Requisite Type

Concurrent

Requisite

FT R151-Analyze the basic components of fire as a chemical reaction, the major phases of fire, and the main factors that influence fire spread and fire behavior.

FT R151-Explain the types of common fire department fire fighting apparatus, equipment, and personal safety equipment used for fire fighting.

Requisite Description

Course in a sequence

Level of Scrutiny/Justification

Content review

Student Learning Outcomes (CSLOs)**Upon satisfactory completion of the course, students will be able to:**

- | | |
|---|---|
| 1 | Students will demonstrate the ability to identify a situation that presents a life safety hazard or fire safety violation that could create a firefighter injury. |
| 2 | The student will evaluate and critique the mistakes made at a wildland fire burnover incident. |

Course Objectives**Upon satisfactory completion of the course, students will be able to:**

- | | |
|---|---|
| 1 | Describe various weather, botanic, and topographic factors that affect wildland fire prevention, behavior, and control in California and particularly in Southern California. |
| 2 | Appraise a set of given fire, weather and topographic conditions and develop a fire attack strategy. |
| 3 | List the elements of a wildland fire prevention program. |
| 4 | Demonstrate the creation of defensible space while conducting a fire prevention inspection. |
| 5 | Discuss the causes of firefighter injuries. |
| 6 | Identify the firefighting assets used to control wildland fires. |
| 7 | Recognize the weather factors that create extreme fire behavior |

Course Content**Lecture/Course Content**

1. Wildland Fire Behavior
 - a. Fire chemistry
 - b. Heat transfer
 - c. Composition of the wildland fire environment
 - d. Topography factors
 - e. Characteristics of fire behavior
 - f. Fuel characteristics
 - g. Large fires and their behavior
 - h. Large fire history
 - i. Factors affecting wildland fire starts and growth
2. Fireline Safety
 - a. Physical fitness, aerobics and muscular fatigue
 - b. Work and rest cycles
 - c. Heat and stress related injuries
 - d. Carbon monoxide hazards
 - e. Protective clothing mandates
 - f. Fire shelter deployment techniques
 - g. Standard Fire Orders
 - h. Major causes of firefighter injury and death
 - i. Firing operations
 - j. Fireline construction
 - k. Working around bulldozers
3. Fire Prevention
 - a. Annual wild fire histories
 - b. Elements of a wildland fire prevention program
 - c. "The Firesafe" building program
 - d. Key concepts in fire prevention
 - e. Defensible space
 - f. Conducting a fire prevention inspection

- g. Special hazards related to wildland fire prevention
- h. Fire cause investigation
- 4. Fire Control and Extinguishment
 - a. Fireline construction
 - i. Purpose
 - ii. Definitions and types
 - iii. Parts of a wildland fire
 - iv. Placement and width
 - v. Fuel, topography and weather consideration
 - vi. Guidelines for downhill construction
 - b. Use of water
 - i. Methods of application
 - ii. Class A foam application
 - iii. Compressed air foam system
 - iv. Wet line construction
 - v. Wetting agents for structure protection
 - c. Use of aircraft
 - i. Tactical support requirements
 - ii. Limitations
 - iii. Fixed wing air tankers
 - iv. Drop patterns
 - v. Drop zone safety alerts
 - vi. Helicopter and Helitack Crew uses
 - vii. Helicopter safety alerts
 - viii. Retardants and suppressants
 - ix. Helispots and engine company support
 - x. Air attack tactics
 - d. Use of handcrews and dozers
 - i. Types and effectiveness of handcrews
 - ii. Fireline construction
 - iii. Dozer performance
 - iv. Dozer classification
 - v. Safe management of dozer operations
 - e. Initial Attack Strategies
 - i. Developing and incident plan
 - ii. Fire attack methods
 - 1. Indirect attack
 - 2. Direct attack
 - iii. Hot spotting concerns
 - iv. Cold trailing
 - v. Mop up operations
 - vi. Major fire response procedures
 - f. Mobile attack
 - i. Mobile attack with engine companies
 - ii. Flanking attack
 - iii. Tandem attack
 - iv. Pincer attack
 - v. Envelopment attack
 - vi. Fire hose, fittings, nozzles and accessories
 - vii. Hydraulics and water flow
 - viii. Hoselays
 - ix. Water source
- 5. Wildland / Urban Strategy and Tactics
 - a. Special Considerations
 - b. Size-up
 - c. Initial action
 - d. Structure triage
 - e. Attack modes

- f. Structure protection
 - g. Action plans
 - h. Engine operations and hose evolutions
 - i. Tactical situations
6. Fire Communications
- a. Basic radio theory
 - b. Federal Communications Commission
 - c. Standard radio equipment
 - d. Radio equipment use
 - e. Radio nets
 - f. Use of clear text messages
 - i. Dispatch information
 - ii. Special hazard considerations
 - iii. Enroute procedures
 - g. Out of jurisdiction dispatches
7. Incident Command System
- a. Components
 - b. Resource management
 - c. Basic organizational functions
 - d. Use of the Incident Command System
 - e. Strike Teams and Task Forces
 - f. Incident Action Plans (IAP)
 - g. Multi-agency coordination
 - h. Wildland fire command checklist
8. Map Reading
- a. Types of maps
 - b. Public land surveys
 - c. Geographic coordinates
 - d. Legend information
 - i. Scale
 - ii. Map Symbols
 - iii. Elevation and relief
 - iv. Contour lines
 - v. Slope and grade
 - vi. Magnetic north
 - e. Global Positioning System , Latitude and Longitude
9. Fire Weather
- a. Factors that affect fire behavior
 - b. Sources of weather information
 - c. Characteristics of wind
 - i. Topography and wind conditions
 - ii. High and low pressure systems
 - iii. Foehn Winds
 - d. Cloud types and cloud formations
 - e. Indicators of stable and unstable air
 - f. Extreme fire behavior conditions
 - g. The weather belt kit
 - h. The influence of weather on fire attack determination

Laboratory or Activity Content

none

Methods of Evaluation

Which of these methods will students use to demonstrate proficiency in the subject matter of this course? (Check all that apply):

- Problem solving exercises
- Written expression

Methods of Evaluation may include, but are not limited to, the following typical classroom assessment techniques/required assignments (check as many as are deemed appropriate):

Computational homework
 Essay exams
 Essays
 Group projects
 Individual projects
 Objective exams
 Oral presentations
 Problem-Solving Assignments
 Quizzes
 Role playing
 Reports/papers
 Research papers
 Simulations

Instructional Methodology

Specify the methods of instruction that may be employed in this course

Computer-aided presentations
 Class activities
 Class discussions
 Case studies
 Distance Education
 Group discussions
 Instructor-guided interpretation and analysis
 Instructor-guided use of technology
 Internet research
 Lecture
 Role-playing
 Small group activities

Describe specific examples of the methods the instructor will use:

1. Instructor will direct interactive instructional activities asking students to research major wild land fires that have caused Firefighter death and injury.
2. Instructor will present information on the topographical features that have an impact on fire spread.
3. Instructor will present information on weather and it's impact on fire spread.
4. Instructor will present information on the development of strategies and tactics deployed at brush fires.
5. Instructor will develop small group exercises in which the students will identify identify hand tools used at brush fire incidents.
6. Instructor will lead guided and focused discussions on the history of significant fires and their impact on firefighter safety and the development of strategies and tactics.

Representative Course Assignments

Writing Assignments

1. Reports on firefighter safety during wildland fire operations
2. Term papers reference major wildland fires and safety operating procedures
3. Homework assignments require text review outlines on each chapter

Critical Thinking Assignments

1. Participate in small group discussions focusing on methods of structure protection at brush fires.
2. Participate in online discussions concerning the history of significant brush fires.
3. Participate in focus groups concerning the advent of proper brush clearance in the urban interface.
4. Participate in group activities and develop minimum qualifications for the wild land firefighter position.
5. Identify training programs for firefighters primarily involved with brush firefighting.

Reading Assignments

1. Readings in textbook are directly related to the topic of discussion for the week as described in the course syllabus.
2. Handouts include information that may be difficult for the student to otherwise acquire including statistical information about firefighter deaths and injuries, fire behavior studies, and new technical development in map reading and satellite GPS information

3. Professional Journals such as Firehouse, American Fire Journal, and Fire Engineering which provided up to date articles concerning firefighter training, firefighter safety, new developments in tactical approaches to wildland firefighting, and communications equipment and procedures.

Other assignments (if applicable)

None

Outside Assignments

Representative Outside Assignments

1. Students will read one chapter per week from assigned book.
2. Students will prepare and deliver presentations on significant brush fires.
3. Weekly short assignments related to class delivery and current brush fire activities.
4. Internet inquiry activities relating to erratic fire behavior and the weather.
5. Complete a term paper on a recent significant brush fire.
6. Perform an analysis of historical disaster fires including the Thomas Fire.

District General Education

- A. Natural Sciences**
- B. Social and Behavioral Sciences**
- C. Humanities**
- D. Language and Rationality**
- E. Health and Physical Education/Kinesiology**
- F. Ethnic Studies/Gender Studies**

CSU GE-Breadth

- Area A: English Language Communication and Critical Thinking**
- Area B: Scientific Inquiry and Quantitative Reasoning**
- Area C: Arts and Humanities**
- Area D: Social Sciences**
- Area E: Lifelong Learning and Self-Development**

CSU Graduation Requirement in U.S. History, Constitution and American Ideals:

IGETC

- Area 1: English Communication**
- Area 2A: Mathematical Concepts & Quantitative Reasoning**
- Area 3: Arts and Humanities**
- Area 4: Social and Behavioral Sciences**
- Area 5: Physical and Biological Sciences**
- Area 6: Languages Other than English (LOTE)**

Textbooks and Lab Manuals

Resource Type

Textbook

Description

William C. Teie (2006). *Firefighters' Handbook on Wildland Firefighting* (3rd). Deer Valley Press.

Resource Type

Textbook

Classic Textbook

Yes

Description

"Firefighters Handbook on Wildland Firefighting", 4th edition, 2018, Oklahoma State University, Fire Protection Publications, 978-08-7939-676-3

Distance Education Addendum

Definitions

Distance Education Modalities

Hybrid (51%–99% online)

Hybrid (1%–50% online)

100% online

Faculty Certifications

Faculty assigned to teach Hybrid or Fully Online sections of this course will receive training in how to satisfy the Federal and state regulations governing regular effective/substantive contact for distance education. The training will include common elements in the district-supported learning management system (LMS), online teaching methods, regular effective/substantive contact, and best practices.

Yes

Faculty assigned to teach Hybrid or Fully Online sections of this course will meet with the EAC Alternate Media Specialist to ensure that the course content meets the required Federal and state accessibility standards for access by students with disabilities. Common areas for discussion include accessibility of PDF files, images, captioning of videos, Power Point presentations, math and scientific notation, and ensuring the use of style mark-up in Word documents.

Yes

Regular Effective/Substantive Contact

Hybrid (1%–50% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Students will post a discussion board topic such as the Thomas Fire and they will respond to another classmate or two with the intent for dialogue.

Hybrid (51%–99% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Students will post a discussion board topic such as the Thomas Fire and they will respond to another classmate or two with the intent for dialogue.
Synchronous Dialog (e.g., online chat)	Students will share their thoughts of the online lecture in an online chat with their classmates.

100% online Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Students will post a discussion board topic such as the Thomas Fire and they will respond to another classmate or two with the intent for dialogue.
Synchronous Dialog (e.g., online chat)	Students will share their thoughts of the online lecture in an online chat with their classmates.
Other DE (e.g., recorded lectures)	Students will meet online with Instructor via Zoom and this will be recorded.

Examinations

Hybrid (1%–50% online) Modality

Online

On campus

Hybrid (51%–99% online) Modality

Online

On campus

Primary Minimum Qualification

FIRE TECHNOLOGY

Review and Approval Dates**Department Chair**

05/22/2020

Dean

05/22/2020

Technical Review

08/26/2020

Curriculum Committee

08/26/2020

Curriculum Committee

11/25/2020

CCCCO

MM/DD/YYYY

Control Number

CCC000247895

DOE/accreditation approval date

MM/DD/YYYY