

VALLEY ROP COURSE OUTLINE

COURSE TITLE:	Fire Science (Wildland)	
VALLEY ROP #:	PS-5833-WFS	
CDE #:	2327	
CBEDS TITLE:	Firefighting Occupations	
CBEDS #:	5833	
CTE SECTOR:	Public Services	
CTE PATHWAY:	Protective Services	
JOB TITLES:	Municipal Firefighters	33-2011.01
	Forest Fire Inspectors & Prevention Specialists	33-2022.00

COURSE DESCRIPTION:

This course introduces students to the United States Forest Service and prepares those students with basic firefighting and conservation entry-level skills. Classroom instruction, demonstration, and hands-on field application will be given in basic firefighting, standards for survival, engine, and pump operations, backfiring methods and equipment use, chainsaw operations, map and compass use, air operations, basic hand tool sharpening and use, fireline construction, and forest conservation.

DATE APPROVED:	June 2003
REVISED DATE:	December 2008; May 2009; Nov 2009
HOURS:	180/year
CREDITS:	10/year
PREREQUISITES:	None
GRADE:	11-12
TEXT:	<i>Wildland Firefighting</i> by Thompson Lowe, Delmar Publishing (ISBN#0766801470)

Fundamentals of Wildland Firefighting, International Fire Service Training Association (IFSTA), Carl Goodson and Barbara Adams (editors), Oklahoma State University, Fire Protection Publications

S-190 Instructor's Guide (NFES 1859)
S-190 Student Workbook (NFES 1860)
S-190 Introduction to Fire Behavior videotape (NFES 1861)
Fire Weather videotape (NFES 2236)

RESOURCES:	<i>Introduction to Wildland Fire Behavior S-190, S-130, S-212, I-100</i> by National Wildfire Coordinating Group (NWCG) through National Interagency Fire Center (NIFC), Division of Training with
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coordination from Department of Agriculture, Department of the Interior, National Weather Service, and State Agencies.

National Wildland Fire Coordinating Group curricula—Programs S-190 (Fire Physics), S-130 (Basic Firefighting Types I & II), I-100 (Incident Command System), and S-212 (Chainsaw Training)

**REQUIRED
MATERIALS:**

Students must be equipped with 8" leather work boots, gloves, safety goggles, hard hats, ear protection, long-sleeved shirt, and long pants (without cuffs) during field exercises utilizing hand tools and power equipment.

COURSE COMPETENCIES:

Upon satisfactory completion of the course, the student will:

- A. Demonstrate the knowledge of all safety practices, including fire safety, and pass a safety test with 100 percent accuracy.
- B. Be knowledgeable about the related job market opportunities and the entry-level skills needed for employment.
- C. Exhibit knowledge of forest conservation theories, strategies, and practices.
- D. Demonstrate firebreak techniques by building a firebreak.
- E. Explain backfiring and demonstrate procedures and techniques for backfiring.
- F. Demonstrate the use of and sharpening techniques for hand tools.
- G. Demonstrate application of fire engines, fire pumps, and fire hose use.
- H. Explain and demonstrate the proper use of chainsaws and all chainsaw safety rules.
- I. Demonstrate basic fire fighting skills and techniques.
- J. Demonstrate survival skills.
- K. Demonstrate the principles and methods of fire line construction.
- L. Explain factors that affect fire behavior.
- M. Demonstrate mop-up tactics.
- N. Demonstrate safety factors and proper use of power saws.
- O. Demonstrate use of fire extinguishers.
- P. Understand structure and vehicle fires.
- Q. Demonstrate structure protection.
- R. Identify and interpret maps.
- S. Demonstrate use of a compass.
- T. Demonstrate principles of fire investigations
- U. Demonstrate Forest Service law environment practices.
- V. Explain range, fireline, and wildlife management principles.
- W. Complete physical fitness training.
- X. Complete a job search unit including applications and resumes.

INSTRUCTIONAL METHODS:

- 1. Teacher/guest lecturers
- 2. Performance proficiency task sheets
- 3. Demonstration of skills
- 4. Field trips
- 5. Videos
- 6. Shadowing at training sites
- 7. Group and individualized hands-on

EVALUATION METHODS:

Assessment opportunities, which allow continuous evaluation of students' progress, will be embedded throughout the course and should be a learning experience. All students will be expected to achieve mastery of all topics; often, demonstrations of mastery will occur in a public forum. The following strategies, which include both formal and informal assessment techniques will include, but are not limited to:

- 1. Performance tests
- 2. Written and Manipulative Comprehension Final Exam
- 3. Written Quizzes

COURSE OUTLINE:

A minimum score of 70 percent must be attained on the S-130, S-230, and I-100 unit exams. A minimum score of 80 percent must be attained on the S-190 unit exam. A certification that indicates scores for every unit and competencies will be provided to Reedley College in the form of a VROP Certificate of Completion.

Unit of Instruction	Estimated Hours
Introduction and Orientation	2.0
<ul style="list-style-type: none">• Overview of program• ROP/Course rules and regulations	
Basic Firefighter Training	76.0
<ul style="list-style-type: none">• Factors that affect fire behavior• Basic firefighting techniques• Standards for survival• Working with CA inmates• Safe and proper use of firefighting tools/equipment• Principle and methods of fire line construction• Basic air operations• Mop-up tactics• Safety procedures• L.C.E.S.• Basic Incident Command System I-100• Cardiopulmonary Resuscitation• First Aid• Introduction to radio use• Hazardous Materials First Responder Awareness• 8-hour field day in National Forest – use of hand tools• 8-hour field day in National Forest – fireline construction using power saws and hand tools	
Power Saws	28.0
<ul style="list-style-type: none">• Components of a power saw• Field maintenance of a power saw• Limbing/falling/bucking• Safety procedures• 8-hour field day in National Forest – power saw operation	
Firing Methods	4.0
<ul style="list-style-type: none">• Backfiring tools and equipment• Basic firing techniques• Safety procedures	
Fire Engine and Fire Pump Operations	42.0
<ul style="list-style-type: none">• Components of a fire engine• Fittings and hoses• Valves and hydraulics• Portable pumps	

- Hose lays used in fire suppression
- Safety procedures
- Fire extinguishers
- Vehicle fires
- Structure protection
- 8-hour field trip in National Forest – hose lays; pump and engines operation

Maps and Compass 6.0

- Identify and interpret maps
- Proper use of compass
- Pacing on flat to moderate slopes

Fire Prevention and Fire Investigation 2.0

- Introduction to wildland fire prevention
- Basic wildland fire investigation
- Forest service law enforcement practices

Physical Fitness 12.0

- Physical training based on USPS pre-employment step test

United States Forest Service Employment Preparation 8.0

- Job search
 - Resumes
- Job applications
- Other forest service jobs
 - Trails and Recreation
 - Range Management
 - Timber Management
 - Wildlife Management

Total **180 Total Hours**

STANDARDS:

(FS CW 1.3, 1.7, 2.5 a, b, c, d, W&OEL 2.3, CP&M 3.1, 3.2)
(PS 9.6)

(FS M 15.0, CR 2.3, CW 1.6, 1.7, 2.6 c, W&OEL 2.3, L&S 1.8 a, b, c, 2.4 b, c, CP&M 3.1, 3.2, T 4.1, 4.4, PS&CT 5.1, 5.3, H&S 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, R&F 7.1, 7.2, 7.3, 7.4, 7.5, E&LR 8.1, 8.2, 8.3, L&T 9.1,9.3, 9.5,)

(PS E 2.2, 4.1, 7.2, 7.3, 7.4, 7.5, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 11.1, 11.2, 13.1, 13.2)

(CW1.3, 1.6, 2.6 b, LS 1.8 b, e, 2.4 a, b, 6.1, 6.4, 6.6)
(PS E9.3, 9.4)

CAREER PREPARATION STANDARDS

PERSONAL SKILLS - Students will understand how personal skill development affects their employability. This skill includes positive attitudes, self-confidence, honesty, responsibility, initiative, self-discipline, personal hygiene, time management, and the capacity for lifelong learning.

1. Demonstrate an understanding of classroom policies and procedures.
2. Discuss importance of the following personal skills in the business environment:
 - a. positive attitude
 - b. self-confidence
 - c. honesty
 - d. perseverance
 - e. self-management/work ethic
 - f. pride in product/work
 - g. dependability
3. Have access to or possess acceptable work attire which includes long sleeve shirt, long pants (without cuffs), hard hats, gloves, safety goggles, ear protection, and 8" high leather work boots.
4. Establish goals for self-improvement and further education/training.
5. Prioritize tasks and meet deadlines.
6. Understand the importance of initiative and leadership.
7. Understand the importance of lifelong learning in a world of constantly changing technology.

- A. **INTERPERSONAL SKILLS** - Students will understand key concepts on group dynamics, conflict resolution, and negotiation. This skill includes the ability to work cooperatively, accept supervision, assume leadership roles, and show respect for others. This standard includes an understanding of sexual harassment laws and an appreciation of cultural diversity in the workplace.
1. Identify and discuss behaviors of an effective team.
 2. Explain the central importance of mutual respect in the workplace relations.
 3. Discuss and demonstrate strategies for conflict resolution and negotiation, and explain their importance within the business environment.
 4. Understand laws that apply to sexual harassment in the workplace, and identify tactics for handling harassment situations.
 5. Work cooperatively, share responsibilities, accept supervision and assume leadership roles.
 6. Demonstrate cooperative working relationships and proper etiquette across gender and cultural groups.

- B. **THINKING AND PROBLEM-SOLVING SKILLS** - Students will exhibit critical and creative thinking skills, logical reasoning, and problem solving. These skills include applying basic skills in order to calculate, estimate, measure; identify, locate, and organize information/data; interpret and follow directions from manuals, labels, and other sources; analyze and evaluate information and solutions.
1. Recognize the importance of good academic skills and implement a plan for self-improvement as needed.
 2. Read, write, and give directions.
 3. Exhibit critical and creative thinking skills and logical reasoning skills, and employ these skills for problem solving.
 - a. Work as a team member in solving problems.
 - b. Diagnose the problem, its urgency, and its causes.

- c. Identify alternatives and their consequences.
 - d. Explore possible solutions.
 - e. Compare/contrast the advantages and disadvantages of alternatives.
 - f. Determine appropriate action(s).
 - g. Implement action(s).
 - h. Evaluate results of action(s) taken.
- C. COMMUNICATION SKILLS - Students will understand principles of effective communication. This standard includes effective oral and written communication, listening skills, following and giving directions, requesting and giving information, asking questions.
1. Use communication concepts in application of skills, techniques, and operations.
 - a. Prepare written material.
 - b. Analyze written material.
 2. Understand and implement written instructions, from technical manuals, written communications, and reference books.
 3. Present a positive image through verbal and nonverbal communication, and understand the power of body language in communication.
 4. Demonstrate active listening through oral and written feedback.
 5. Give and receive feedback.
 6. Demonstrate assertive communications (both oral and written).
 7. Demonstrate proper etiquette in workplace communications, including an awareness of requisites for international communications (languages, customs, time zones, currency and exchange rates).
 8. Demonstrate writing/editing skills as follows:
 - a. Write, proofread, and edit work.
 - b. Use correct grammar, punctuation, capitalization, vocabulary, and spelling.
 - c. Select and use appropriate forms of technology for communication.
 9. Exhibit a proficiency in the use of reference books.
 10. Research, compose, and orally present information for a variety of business situations utilizing appropriate technology.
- D. OCCUPATIONAL SAFETY - Students will understand occupational safety issues, including the avoidance of physical hazards in the work environment. This includes the safe operation of equipment, proper handling of hazardous materials, appropriate attire and safety accessories, avoidance of physical injuries, interpretation of warning and hazard signs and terminology, and following and understanding safety-related directions.
1. Discuss and implement good safety practices, including the following (if applicable to course):
 - a. personal
 - b. lab
 - c. fire
 - d. electrical
 - e. equipment
 - f. tools
 - g. interpretation of Material Safety Data Sheets (MSDSs)
 - h. Environmental Protection Agency (EPA)
- E. EMPLOYMENT LITERACY - Students will understand career paths and strategies for obtaining employment within their chosen field. This includes traditional job preparation skills, such as resumes, application forms, cover letters, sources of employment information, and interviewing skills, but also includes an overview of the industry and an understanding of labor market trends.

1. Explore career opportunities and projected trends; investigate required education, training and experience; and develop an individual education plan.
 2. Identify steps for setting goals and writing personal goals and objectives.
 3. Examine aptitudes related to career options; relate personal characteristics and interests to educational and occupational opportunities.
 4. Develop a career portfolio, including the following documents:
 - a. job application
 - b. resume(s)
 - c. appropriate cover and follow-up correspondence
 5. Identify and demonstrate effective interviewing techniques.
- F. TECHNOLOGY LITERACY - Students will understand and adapt to changing technology by identifying, learning, and applying new skills to improve job performance. Students should understand the role of technology in their chosen field and should be able to use all appropriate technology. Students should also feel confident in their ability to learn new technology by generalizing from what they know, adapting skills to new situations, and identifying and using sources of information and of further learning.
1. Demonstrate the ability to use personal computers for loading and retrieving data, information gathering, measurements, and writing.
 2. Identify the characteristics and explain the importance of adapting to changes, being flexible, and evaluating goals when working in the industry.
 3. Understand the importance of lifelong learning in adapting to changing technology.
- G. IMPORTANCE OF ETHICS – Students will understand proper ethics in the workplace.
1. Discuss social and ethical responsibilities in the industry.
 2. Demonstrate ethical choices in workplace situations.