FIRE 90 Course Outline as of Fall 2020

CATALOG INFORMATION

Dept and Nbr: FIRE 90 Title: TACTICS AND STRATEGY
Full Title: Firefighting Tactics and Strategy
Last Reviewed: 2/22/2021

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00 Total Student Learning Hours: 157.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade Only
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:
An in-depth analysis of the principles of fire control through utilization of personnel, equipment, pre-planning fire problems, extinguishing agents and fire command and control procedures on the fire ground. Topics include a review of fire chemistry, methods of fire attack, rescue, exposure protection, confinement, overhaul, ventilation, property conservation, post fire analysis and command procedures.

Prerequisites/Corequisites:
Course Completion of FIRE 71

Recommended Preparation:
Eligibility for ENGL 100 or ESL 100 or appropriate placement based on AB705 mandates

Limits on Enrollment:

Schedule of Classes Information:
Description: An in-depth analysis of the principles of fire control through utilization of personnel,
equipment, pre-planning fire problems, extinguishing agents and fire command and control procedures on the fire ground. Topics include a review of fire chemistry, methods of fire

attack, rescue, exposure protection, confinement, overhaul, ventilation, property conservation, post fire analysis and command procedures. (Grade Only)
Prerequisites/Corequisites: Course Completion of FIRE 71
Recommended: Eligibility for ENGL 100 or ESL 100 or appropriate placement based on AB705 mandates
Limits on Enrollment:
Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**			Effective:	Inactive:
CSU GE:	**Transfer Area**			Effective:	Inactive:
IGETC:	**Transfer Area**			Effective:	Inactive:
CSU Transfer:	Transferable	Effective:	Fall 2020	Inactive:	
UC Transfer:		Effective:		Inactive:	

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Describe the considerations that must be addressed when developing an action plan for managing a fire and the resources necessary to control the incident.
2. Demonstrate the ability to develop and implement a plan of action to manage a variety of fires at an emergency incident.
3. Describe the steps taken at the termination of an incident used to analyze those actions taken and to restore personnel and equipment back to operational status

Objectives:
Upon completion of the course, students will be able to:
1. Outline the history of fire service strategy and tactics.
2. Describe the relationship between firefighter health and safety and strategy and tactics.
3. Describe the need for an incident management system.
4. Describe the components of effective fire-ground communication and control including; the purpose of size-up; three incident priorities; role of strategic goals, tactical objectives and methods in incident priorities; action planning; and decision making.
5. Identify and discuss the components of the different types of construction.
6. Compare and contrast the: fire triangle, fire tetrahedron, classes of fires, stages of fire growth, methods of heat transfer, smoke behavior, and the relationship between fire dynamics, strategies and tactics.
7. Distinguish and outline phases of pre-incident planning as well as various occupancy classifications and identification of building types.
8. Discuss the various fire-extinguishing agents, types of fire they are used to extinguish, fire-ground flow requirements and calculations, and the different types and uses of

nozzles for fire extinguishment.
9. Describe built-in fire protection systems including; water control valves, fire department connections, sprinklers, standpipes, and special extinguishing agents, and the need for fire department support of said systems.
10. Describe the responsibilities and functions of the engine and the ladder companies, the ways water can be delivered to an incident and considerations for apparatus placement.
11. Describe the types of building construction and hazards associated with one and two family dwellings as well as the strategic goals and tactical objectives for responding to a residential fire.
12. Describe the general strategic goals and tactical objectives for multiple-family dwellings as well as the firefighting considerations for specific types of multiple-family dwellings.
13. Describe the strategic goals and tactical objectives for fighting fires in commercial structures, as well as the firefighting considerations applicable to these structures.
14. Describe the general hazards, strategic and tactical firefighting objectives for assembly occupancies.
15. Describe the construction features, hazards, strategic goals, and tactical objectives applicable to fires in high-rise buildings.
16. Describe the strategic goals, tactical objectives and firefighting considerations applicable the various types of passenger, commercial, transportation and recreational vehicles, construction equipment and buses.
17. Describe the different types of wildland fires and their associated hazards, the impact of the wildland-urban interface (WUI) as well as strategic goals and tactical objectives specific to wildland fires.
18. Describe the strategic goals, tactical objectives and firefighting considerations for incidents involving hazardous materials, ships, railcars, aircraft, bulk storage facilities and historical buildings.
19. Describe the purpose of termination plans, formal and informal post-incident analysis, and the critical incident stress management (CISM) system.
20. Demonstrate through group activities fire-ground management concepts, strategic goals and tactical objectives to simulated fires in single and multiple-family dwellings and commercial buildings.

Topics and Scope:

I. History of Fire Service Strategies and Tactics
- A. Historical changes in fire service strategies and tactics
- B. The firefighter's role in contemporary strategy and tactics
- C. The importance of a firefighters understanding of strategy and tactics

II. Fire Fighter Safety
- A. Fire-ground injuries and deaths
- B. The relationship of fire fighter health, safety and strategy and tactics
- C. The sixteen Fire Fighter Life Safety Initiatives
- D. The impact of regulations and standards on fire-ground operations
- E. General fire-ground safety concepts

III. Incident Management Systems
- A. Early incident management systems
- B. Minimum requirements of an incident management system as set forth by the National Fire Protection Association (NFPA)
- C. The Incident Command System (ICS)
- D. Early incident management systems
- E. The role of the incident commander
- F. Common terminology used in ICS

G. Span of control
H. Components and purpose of an incident action plan
I. Coordination and integration of response agencies to an incident
J. Unified command
K. the purpose of standard operating guidelines

IV. Fire-ground communication and control
A. Components of effective fire-ground communication
B. The purpose of the size-up process
C. The three incident priorities
D. Strategic goals in incident priorities
E. Tactical objectives and methods in incident priorities
F. Action planning and its role at an incident
G. The three concepts behind decision making

V. Basic Building Construction
A. Type V construction
B. Type IV construction
C. Type III construction
D. Type II construction
E. Type I construction
F. Components of truss construction

VI. Fire Dynamics
A. The fire triangle and fire tetrahedron
B. Classes of fires
C. Stages of fire growth
D. The four methods of heat transfer
E. Flashover and backdraft
F. Smoke behavior
G. The relationship between fire dynamics and the application of strategies and tactics

VII. Pre-incident Planning
A. Concept of a pre-incident plan
B. Phases of pre-incident planning
C. Formats used for pre-incident plan
D. Occupancy classifications

VIII. Extinguishing Agents
A. Properties and uses of water as an extinguishing agent
B. Formulas used to determine fire-flow requirements
C. Types of nozzles and their advantages and disadvantages
D. Basic hydraulic calculations
E. Use of foam as an extinguishing agent
F. Use of dry chemicals as an extinguishing agent
G. Use of other extinguishing agents

IX. Built-in Fire Protection Systems
A. Benefits of built-in fire protection systems
B. Types of water control valves
D. Fire department connections (FDC)
E. Operation of standpipe system pressure-reducing valves
F. Types of commercial sprinkler systems and their operating principles
G. Differences between residential and commercial sprinkler systems
H. Types of standpipe systems
I. Types of special extinguishing agents and the hazards associated with each
J. Supporting built-in fire protection systems
K. Standard operating guidelines for the support of built-in fire protection systems

X. Company Operations
- A. Roles of the engine company
- B. Water delivery methods to the incident scene
  1. Booster tank
  2. Static sources
     a. Pools
     b. Rivers
     c. Lakes
  3. Water tender shuttles
- C. Roles and support functions a ladder company
- D. Apparatus placement considerations

XI. Tactics and Strategy at One and Two-Family Dwellings
- A. One and two-family dwelling construction types
- B. Hazards associated with firefighting in one and two-family dwellings
- C. Strategic goals and tactical objectives applicable to one and two-family dwellings
- D. Hazards, strategic goals and tactical objectives associated with fires in one and two -family dwellings
- E. Considerations when responding to a residential fire

XII. Multiple-Family Dwellings
- A. Strategic goals and tactical objectives applicable to multiple-family dwellings
- B. Firefighting considerations for specific types of multiple-family dwellings

XIII. Commercial Buildings
- A. Strategic goals and tactical objectives applicable to commercial structures
- B. Considerations when responding to commercial structure fires

XIV. Places of Assembly
- A. Hazards, strategic goals and tactical objectives associated with places of assembly
- B. Considerations when responding to fires in places of assembly
- C. Effect of on-site emergency personnel and emergency control systems

XV. High-Rise Office Buildings
- A. High-rise construction features
- B. Hazards, strategic goals and tactical objectives associated with fires in high-rise buildings

XVI. Vehicle Fires
- A. Strategic goals, tactical objectives, and firefighting considerations applicable to passenger cars, vans, and light-duty trucks
- B. Strategic goals, tactical objectives, and firefighting considerations applicable to large commercial trucks and semitrailers
- C. Strategic goals, tactical objectives, and firefighting considerations applicable to recreational vehicles
- D. Strategic goals, tactical objectives, and firefighting considerations applicable to heavy construction equipment
- E. Strategic goals, tactical objectives, and firefighting considerations applicable to transportation vehicles and buses

XVII. Wildland Fires
- A. Wildland-urban interface area.
- B. The types of wildland fires and their associated hazards
  1. Forest fires
  2. Brush fires
  3. Ground cover fires
- C. Fuels, Weather, Topography and their Influence on Wildland Fires
- D. Wildland Fire Behavior
- E. Wildland Fire Control Techniques
- F. Strategic goals and tactical objectives specific to wildland fires

XVIII. Special Fires
A. Strategic goals, tactical objectives, and firefighting considerations for hazardous materials incidents
B. Strategic goals, tactical objectives, and firefighting considerations for shipboard fires
C. Strategic goals, tactical objectives, and firefighting considerations for railroad fires
D. Strategic goals, tactical objectives, and firefighting considerations for aircraft fires
E. Strategic goals, tactical objectives, and firefighting considerations for fires involving bulk storage facilities
F. Strategic goals, tactical objectives, and firefighting considerations for historical structures
XIX. Post Incident Activities - Incident Termination Plan and its Three Stages
A. Demobilization of Resources
B. Formal and informal Post-Incident Analysis (PIA)
C. Critical incident stress management (CISM)
XX. Application of Strategy and Tactics to Emergency Incidents
A. Applying fire-ground management concepts, strategic goals, and tactical objectives to a simulated fire in a single-family dwelling
B. Applying fire-ground management concepts, strategic goals, and tactical objectives to a simulated fire in a multiple-family dwelling
C. Applying fire-ground management concepts, strategic goals, and tactical objectives to a simulated fire in a commercial building

Assignment:

1. Reading 30-50 pages from textbook per week.
2. Completion of up to 15 weekly assignment sheets
3. Quizzes (5 - 10), midterm and final exam
4. Written essays (1 - 2)
5. Term project, book report and/or internet research project
6. Incident simulations (2 - 4)
7. Field trip(s) (1 - 2)
8. Video lectures (7 - 10) (ungraded)

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Assignment sheets, written essays, term project	Writing 20 - 30%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Assignments sheets, term project	Problem solving 10 - 20%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Incident simulations	Skill Demonstrations 5 - 20%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes, midterm, final exam	Exams 50 - 65%

Other: Includes any assessment tools that do not logically fit into the above categories.

None	Other Category 0 - 0%

Representative Textbooks and Materials:
Firefighting Strategies and Tactics. 3rd ed. Angle, James and Gala, Michael and Harlow, David. Jones and Bartlett. 2016