

# College of San Mateo

## Course Outline

- New Course  
 Update/No change  
 Course Revision (Minor)  
 Course Revision (Major)

Date: 11/18/08

Department: FIRE Number: 793  
Course Title: Firefighter I Academy Units: 12.0  
Total Semester Hours: Lecture: 144 Lab: 153 Homework: 288 By Arrangement: 0.0

### Length of Course

- Semester-long  
 Short course (Number of weeks \_\_\_)  
 Open entry/Open exit

### Grading

- Letter  
 Pass/No Pass  
 Grade Option (letter or Pass/No Pass)

#### 1. Prerequisite (Attach Enrollment Limitation Validation Form.)

FIRE 715 or equivalent, plus three (3) additional units of Fire Technology coursework (excluding EMT), with a grade of "C" or better, or equivalent fire service experience.

#### 2. Corequisite (Attach Enrollment Limitation Validation Form.)

None

#### 3. Recommended Preparation (Attach Enrollment Validation Form.)

None

#### 4. Catalog Description (Include prerequisites/corequisites/recommended preparation.)

FIRE 793 Firefighter I Academy (12.0)

Minimum of 144 lecture and 153 lab hours per term. Prerequisite: FIRE 715 or equivalent, plus three (3) additional units of Fire Technology coursework (excluding EMT), with a grade of "C" or better, or equivalent fire service experience. Pre-service instruction in basic fire fighting knowledge and skills. Lecture and manipulative instruction in all areas of responsibility for a firefighter. (Certificate of course completion issued by the Fire Technology Department with proof of EMT certification.)

#### 5. Class Schedule Description (Include prerequisites/corequisites/recommended preparation.)

FIRE 793 Firefighter I Academy

Minimum of 144 lecture and 153 lab hours per term. Prerequisite: FIRE 715 or equivalent, plus three (3) additional units of Fire Technology coursework (excluding EMT), with a grade of "C" or better, or equivalent fire service experience. Pre-service instruction in basic fire fighting knowledge and skills. Lecture and manipulative instruction in all areas of responsibility for a firefighter. (Certificate of course completion issued by the Fire Technology Department with proof of EMT certification.)

6. **Student Learning Outcomes** (Identify 1-6 expected learner outcomes using active verbs.)

Upon successful completion of the course, the student will be able to:

1. Demonstrate the ability to make correct decision during critical situations
2. Employ effective human relations techniques
3. Discuss and demonstrate specific knowledge regarding fire protection
4. Identify, compare and contrast the various aspects of communication
5. Apply and evaluate appropriate problem solving techniques
6. Discuss and demonstrate necessary physical skills appropriate to fire service needs

7. **Course Objectives** (Identify specific teaching objectives detailing course content and activities. *For some courses, the course objectives will be the same as the student learning outcomes. If this is the case, please simply indicate this in this section).*

Apply the knowledge and skills necessary to perform the duties expected of a firefighter.

8. **Course Content** (Brief but complete topical outline of the course that includes major subject areas [1-2 pages]. Should reflect all course objectives listed above. In addition, you may attach a sample course syllabus with a timeline.)

See attached Topical Outline

9. **Representative Instructional Methods** (Describe instructor-initiated teaching strategies that will assist students in meeting course objectives. Include examples of out-of-class assignments, required reading and writing assignments, and methods for teaching critical thinking skills.) **If hours by arrangement are required by this course, indicate the additional instructional activity which will be provided during this time.**

Reading assignments  
Lecture  
Learning Activities and Role Play  
Small group discussions and activities  
Required Skills Demonstrations  
Written Examinations

10. **Representative Methods of Evaluation** (Describe measurement of student progress toward course objectives. Courses with required writing component and/or problem-solving emphasis must reflect critical thinking component. If skills class, then applied skills.)

See attached Methods of Evaluation

11. **Representative Text Materials** (With few exceptions, texts need to be current. Include publication dates.)

IFSTA Essential of Firefighting, IFSTA (5th Ed.) - 2008

Prepared by:

\_\_\_\_\_  
(Signature)

Email address:

marshallk@smccd.edu

Submission Date:

\_\_\_\_\_

- I. Introduction and Orientation
  - A. Structure and objectives
    - 1. Student Guidelines
    - 2. Course Content
  - B. Facilities and equipment
    - 1. College of San Mateo
    - 2. Specialized Training Facilities
  
- II. Fire Service Organization and Responsibility
  - A. Personnel and Functions
    - 1. Fire Department Functions
    - 2. Duties and Personnel
    - 3. Personnel Development Programs
    - 4. Necessity for Obedience and Obligation to Duty
    - 5. Promote Esprit De Corps
  - B. Laws and Regulations
    - 1. Government Organizations
    - 2. Personnel Regulations
    - 3. Retirement Systems and Workman's Compensation Laws
    - 4. Fire Service Agency Rules and Regulations
  - C. Professional Organizations
    - 1. National Fire Service Organizations
    - 2. State Fire Service Organizations
    - 3. Local Fire Service Organizations
  
- III. Hoses, Nozzles and Fittings
  - A. Hose Construction, Care and Couplings
  - B. Coupling and Uncoupling Hoses
  - C. Hose Rolls
    - 1. Donut
    - 2. Twin Donut
    - 3. In Service
    - 4. Self-Locking Rolls
  - D. Drain and Carry and Working Line Drag
  - E. Spanners and Wrenches
  - F. Nozzles, Fittings, Valves and other Hose Devices
  - G. Load Hose on Apparatus
    - 1. Flat
    - 2. Accordion
    - 3. Horse Shoe
  - H. Fire Hydrant Operations
  
- IV. Fire Hose and Appliances
  - A. Hose Appliances
    - 1. Reducers
    - 2. Adapters
    - 3. Hose Jackets
    - 4. Hose Clamps
    - 5. Flow Control Devices
    - 6. Hydrant Valves
    - 7. Hose Ramps and Bridges
  - B. Hose Lines
    - 1. One Firefighter Method
    - 2. Two Firefighter Method
  - C. Booster Lines
  - D. Small, Medium and Large Hose Lines

- E. Replacing a Section of Burst Hose
  - F. Retrieving a Loose Hose Line
- V. Combustion and Extinguishment Theory/Behavior of Fire
- A. Classes of Fire
  - B. Theory and Fundamentals of Combustion
  - C. Theory and Fundamentals of Heat Transfer
  - D. Theory and Fundamentals of Ordinary Combustible Solids
  - E. Theory and Fundamentals of Extinguishment
  - F. Fire Characteristics of Flammable and Combustible Liquids and Gases
  - G. Products of Combustion
  - H. Hazardous and Explosive Materials
  - I. Effects of Extinguishing Agent Application
- VI. Hose Evolutions
- A. Handling Hose Lines
    - 1. Pre-connected
    - 2. Non Pre-connected
  - B. Extending and Reducing Hose Lines
  - C. Taking Hose Lines Aloft
    - 1. Dry
    - 2. Charged
  - D. Hose Lays
    - 1. Forward (Lay In)
    - 2. Reverse (Lay Out)
  - E. Wye Operation
  - F. Siamese Operation
  - G. Making Hydrant Connections
- VII. Overhaul and Property Conservation (Salvage)
- A. Purpose of Overhaul Procedures
  - B. Methods to Restore Premises
  - C. Detecting Hidden Fires
  - D. Salvage Cover Operations
  - E. Salvage Covers
    - 1. Fold, Throw and Carry
    - 2. Spread and Hang
    - 3. Sweeping and Drying
    - 4. Tools and Water Removing Devices
  - F. Improvising
  - G. Removing Debris
  - H. Testing and Maintenance of Salvage Covers
- VIII. Ground Ladders
- A. Ladder Terminology
  - B. Fire Service Ladders
  - C. Ladder Construction, Maintenance, Design and Testing
  - D. Proper Lifting, Lowering and Ladder Placement
  - E. Ladder Carries, Raises and Pivoting
  - F. Climbing, Locking In, Footing and Securing Ladders
  - G. Ladder Safety Practices
  - H. Ladder Commands
- IX. Fire Extinguishers
- A. Identify Fire Extinguishers
    - 1. Carbon Dioxide

- 2. Dry Chemical
  - 3. Dry Powder
  - 4. Pressurized Water
  - 5. Halon
  - 6. Vaporizing Liquids
  - B. Characteristics of Pressurized Extinguishers
    - 1. Classes of Fire
    - 2. Discharge Time and Stream Reach
    - 3. Requirements of Freezing Protection
    - 4. Construction
    - 5. Operation Principles and Methods
    - 6. Service Requirements
    - 7. Safety Precautions
- X. Building Construction
- A. Types of Construction
  - B. Basic Hazards
  - C. Effects of Fire on Common Building Materials
  - D. Firefighting Hazards Related to Building Construction
- XI. Ropes, Knots and Hitches
- A. Rope Safety and Care
  - B. Types of Knots, Construction and Characteristics
  - C. Knot Tying
  - D. Hoisting Tools and Equipment
  - E. Safe Working Load and Principles
- XII. Pre-Fire Plans, Mutual Aid and Disaster Planning
- A. Developing Pre-Fire Plans
  - B. Mutual Aid, Automatic Aid, Joint Response Agreements
  - C. Disaster Plans
- XIII. Communications and Incident Command Systems
- A. Communications Center Facilities and Equipment
  - B. Types of Fire Alarms Systems
  - C. How Alarms are Received and Dispatched by the Fire Service
  - D. Clear Radio Text Terms
  - E. Fire Department Radios
  - F. Basic Understanding of I.C.S Terminology and Implementation
- XIV. Fire Control
- A. Sizing -up an Emergency (Basic Considerations)
  - B. Tactical Priorities at an Emergency Scene
  - C. Exposure Tactics/Protecting Exposures
  - D. Ventilation Methods
  - E. Methods of Confining Fire
  - F. Extinguishing Methods
  - G. Salvage and Overhaul Methods
- XV. Self Contained Breathing Apparatus
- A. Self Contained Masks, Compressed Air Cylinder Type, Various Sizes
  - B. Inspection, Care and Testing
  - C. Operating Principles
  - D. Main Line Valve, By-Pass and Purge Valves, Reading Cylinder and Regulator Gauges
  - E. Safety and Emergency Procedures
  - F. Buddy Breathing and Emergency Breathing

- G. Changing and Filling Cylinders
  - H. Cylinder Markings
- XVI. Rescue Practices
- A. Search and Rescue Procedures in the Burning Building or Smoke-Filled Room
  - B. Rescue Carries and Drags
  - C. Life Net Operations
  - D. Elevator Emergencies
    - 1. Access
    - 2. Control
    - 3. Evacuation
  - E. Stokes Stretcher Rescues and Operations
  - F. Utilizing Webbing
  - G. Heavy Duty Rescue
    - 1. Situations
    - 2. Techniques
    - 3. Tools
- XVII. Oral Interviews and Resumes
- A. Oral Interviews
  - B. Resumes
- XVIII. Harassment in the Work Place/Affirmative Action Programs
- A. Harassment
  - B. Affirmative Action
- XIX. Ventilation
- A. Principles and Procedures
  - B. Ventilation Equipment
  - C. Smoke Blowers and Ejectors
  - D. Utilization of Natural Openings for Vertical Ventilation
  - E. Roof Types
  - F. Procedures for Opening Roofs (By Type)
  - G. Horizontal Ventilation
  - H. Positive Pressure Ventilation
  - I. Opening Windows
- XX. Cliff Rescue
- A. Basic Repelling
  - B. Use of Webbing
  - C. Raising and Lowering Systems
  - D. Scene Safety Practices
- XXI. Fire Streams/Water Supply/Sprinklers
- A. Extinguishing Properties of Water
  - B. Pressure
    - 1. Static
    - 2. Residual
    - 3. Flow
  - C. Water Streams
    - 1. Solid
      - a. Velocity
      - b. Volume
      - c. Reach
    - 2. Fog or Spray
      - a. Velocity

- b. Volume
      - c. Reach
    - 3. Broken
  - D. Water Supply
    - 1. Gravity
    - 2. Direct Pumping
    - 3. Drafting
  - E. Testing and Maintaining of Water Mains and Valves
  - F. Water Hammer and Friction Loss
  - G. Basic Fire Service Hydraulic
  - H. Fire Hydrants
- XXII. Wildland Firefighting Techniques
- A. Ground Cover Fire Behavior
  - B. Parts of Ground Cover Fire
  - C. Utilizing Water on Ground Cover Fires
  - D. Utilizing Hand Tools in Direct and Indirect Attack
  - E. Fire Apparatus
  - F. Fire Shelter Deployment
  - G. Safety Precautions
  - H. Basic I.C.S. for Wildland Firefighting
  - I. Progressive Hose Lays
- XXIII. Fire Prevention and Investigation/Fire Protection Systems
- A. Cause and Origin Determination
    - 1. During Fire
    - 2. After Fire
  - B. Collection and Preservation of Evidence
  - C. Incendiary Fires
    - 1. Methods
    - 2. Motives
  - D. Arson Materials and Equipment
  - E. Fire Prevention Bureau
  - F. Codes and Ordinances
  - G. Fire Protection Systems
  - H. Sprinkler Systems and Heads
  - I. Operating Principles of Heat and Smoke Devices
- XXIV. Forcible Entry
- A. Forcible Entry Tools and Equipment
  - B. Basic Building Construction
  - C. Emergency Lighting Equipment
- XXV. Vehicle Extrication
- A. Scene Safety
  - B. Equipment and Tools
  - C. Equipment Placement
  - D. Patient Care
- XXVI. Hazardous Materials/Flammable Liquids/Foam
- A. Flammable Liquids and Gases
  - B. Extinguishing Agent Application
  - C. Foams
    - 1. Chemical
    - 2. Protein
    - 3. Synthetic

- 4. AFFF
- 5. High Expansion
- D. Foam Application
  - 1. Proportioners
  - 2. Educators
  - 3. Generators
  - 4. Pre-Plumbed
- E. Hazardous Materials
- F. D.O.T. Emergency Response Guidebook

Methods of Evaluation

**Outcome 1:** Demonstrate the ability to make correct decision during critical situations

**Evaluation Method:** Learning Activities and Role Play; Small group discussions and activities; Required Skills Demonstrations; Written Examinations

**Outcome 2:** Employ effective human relation techniques

**Evaluation Method:** Learning Activities and Role Play; Small group discussions and activities

**Outcome 3:** Discuss and demonstrate specific knowledge regarding fire protection

**Evaluation Method:** Learning Activities and Role Play; Small group discussions and activities; Required Skills Demonstrations; Written Examinations

**Outcome 4:** Identify, compare and contrast the various aspects of communication

**Evaluation Method:** Learning Activities and Role Play; Small group discussions and activities;

**Outcome 5:** Apply and evaluate appropriate problem solving techniques

**Evaluation Method:** Learning Activities and Role Play; Small group discussions and activities; Required Skills Demonstrations; Written Examinations

**Outcome 6:** Discuss and demonstrate necessary physical skills appropriate to fire service needs

**Evaluation Method:** Learning Activities and Role Play; Required Skills Demonstrations