

CAVIT FIRE SCIENCE COURSE OUTLINE YEAR ONE

Quarter 1	Quarter 2	Quarter 3	Quarter 4
<p>PROGRAM INTRODUCTION:</p> <p>CAREER SURVEY OF FIRE SCIENCE</p> <ol style="list-style-type: none"> 1. Examine trends in fire science occupations. 2. Recognize factors that influence career choices. 3. Examine personal aptitudes and interests for a fire science career. 4. Apply interests, skills, and aptitudes to career exploration. 5. Examine the role of education in fire science career preparation. <p>DEMONSTRATION OF JOB SEARCH SKILLS TO FIND EMPLOYMENT IN FIRE SERVICE.</p> <ol style="list-style-type: none"> 1. Explain the steps in a job search. 2. Research employment opportunities in fire science. 3. Use technology in a job search. 4. Critique a job application. <p>DEMONSTRATE EMPLOYABILITY SKILLS FOR JOB SUCCESS IN FIRE SCIENCE.</p> <ol style="list-style-type: none"> 1. Develop a plan to achieve employment goals in fire science. 2. Evaluate factors that contribute to successful performance at work in fire science. 3. Discuss how social skills are helpful in obtaining and 	<p>DEVELOP AN INDIVIDUAL CAREER PLAN FOR THE FIRE SCIENCE PROFESSION</p> <ol style="list-style-type: none"> 1. Investigate fire service career options. 2. Develop career goals based on interests, aptitudes, and research. 3. Review and revise plans on an annual basis. 4. Manage personal and career goals. 5. Describe factors that contribute to career satisfaction and success. <p>PREPARE FOR EMPLOYMENT IN THE FIRE SCIENCE FIELD</p> <ol style="list-style-type: none"> 1. Research job qualifications, job descriptions and required aptitudes. 2. Develop a resume. 3. Complete job application process. 4. Demonstrate interviewing skills, including pre-interview preparation and post-interview follow-up. 5. Research a fire science organization as a potential employee. <p>PARTICIPATE IN WORK-BASED LEARNING EXPERIENCES IN THE FIRE SCIENCE FIELD</p> <ol style="list-style-type: none"> 1. Use technology as appropriate for the job. 2. Demonstrate positive work behaviors. 	<p>EXPLAIN FIRE BEHAVIOR</p> <ol style="list-style-type: none"> 1. Outline the characteristics, classifications and phases of fire. 2. List the elements of combustion and methods of heat transfer. 3. Describe the causes and origins of fire. 4. Identify the principles of wildland and structural fire control. 5. Describe the fire behavior within and around structures. 6. Explain how wild land fire behavior is different from structural fire behavior. <p>IMPLEMENT FIRE SAFETY PROCEDURES</p> <ol style="list-style-type: none"> 1. Identify frequent unplanned events, injuries, and health hazards to firefighters. 2. Describe safety procedures at the fire facility and the incident site including identifying and handling of hazardous materials. 3. Identify, assemble and don personal protective equipment and clothing by firefighters. 4. Describe the indicators for, usage of and safety considerations for each type of air supply system. 5. Demonstrate proper 	<p>DEMONSTRATE WILD LAND FIRE SCIENCE TECHNIQUES</p> <ol style="list-style-type: none"> 1. Demonstrate ability to read topographical maps. 2. Define weather conditions related to wild land fire science. 3. Define specialized tools used in wild land fires. 4. Outline safety techniques unique to fighting wild land fires. 5. Diagram wild land fire incident command structure and infrastructure. <p>DEMONSTRATE PROPER USE AND MAINTENANCE OF FIRE SCIENCE TOOLS AND EQUIPMENT</p> <ol style="list-style-type: none"> 1. Demonstrate the selection and use of hoses, nozzles, and appliances. 2. Demonstrate the selection and use of ladders. 3. Demonstrate the selection and use of ropes and knots. 4. Identify and demonstrate the use of portable extinguishers specific to various fires. 5. Demonstrate the use of hand held tools. 6. Perform hose rolls, lays, carries, and evolutions. 7. Operate the various power tools used in fire fighting. <p>DEMONSTRATE EFFECTIVE ORAL COMMUNICATION FOR THE FIRE SCIENCE FIELD</p> <ol style="list-style-type: none"> 1. Conduct formal/informal research to collect appropriate topical

<p>maintaining a job in fire science.</p> <ol style="list-style-type: none"> 4. Discuss elements of professionalism in fire science. 5. Use math and language skills in an occupational context. 6. Use fire science vocabulary in context. 7. Plan, organize and implement fire science related activities. 8. Demonstrate accountability for materials, equipment and facilities in fire science. 9. Complete tasks on time and accurately. 	<ol style="list-style-type: none"> 3. Demonstrate positive personal behaviors. 4. Demonstrate safe and healthy work behaviors. 5. Demonstrate ability to adapt to changes in the workplace. 6. Participate in a variety of work-based experiences, paid or non-paid. 	<p>donning, usage and doffing of each type of air supply system.</p>	<p>information.</p>
<p>EXPLORE LEGAL AND ETHICAL ISSUES IN FIRE SCIENCE.</p>	<p>ANALYZE FIRE SERVICE RESPONSE TO MEDICAL AND TRAUMA EMERGENCIES</p>	<p>IDENTIFY AND DESCRIBE EMERGENCY VEHICLES AND THEIR OPERATION</p>	<ol style="list-style-type: none"> 2. Use questioning and interview techniques to obtain needed information.
<ol style="list-style-type: none"> 1. Explain employer expectations on ethical workplace behavior, and how they are expressed in organizational policies and culture in fire science. 2. Define ethics in the fire science environment. 3. Identify workers' rights regarding the workplace issues including safety, drug testing, harassment, discrimination, privacy etc. 4. Develop strategies to address harassment issues in fire science. 5. Examine legal issues in the fire science workplace. 	<ol style="list-style-type: none"> 1. List the duties of the emergency medical technician. 2. Identify medical and trauma emergencies. 3. Identify the techniques and procedures used in caring for "special needs" victims. 4. Explain the medical/legal consideration of emergency medical care. 5. List the additional resource agencies and support services available in a community 	<ol style="list-style-type: none"> 1. Identify purpose, safe use and maintenance of emergency vehicles, their equipment and supplies. 2. Describe emergency response operations. 3. Explain legal obligations of emergency vehicle operators. 4. List and describe the purpose of equipment assigned to an ambulance. 5. List and describe the purpose of equipment assigned to a rescue vehicle. 	<ol style="list-style-type: none"> 3. Demonstrate active listening during communications. 4. Demonstrate appropriate technologies for a formal presentation. 5. Prepare and deliver presentations. 6. Communicate using equitable and culturally sensitive language. 7. Demonstrate effective telephone technique. 8. Discuss procedures for reporting, receiving, and processing fire alarms and other emergency communications. 9. Demonstrate ability to communicate under stressful conditions.
<p>DEMONSTRATE TECHNOLOGICAL LITERACY FOR THE FIRE SCIENCE WORKPLACE</p>	<p>PERFORM PATIENT ASSESSMENT AND PROVIDE IMMEDIATE CARE</p>	<p>DEMONSTRATE RESCUE, EXTRICATION, AND INITIAL FORCIBLE ENTRY PROCEDURES</p>	
	<ol style="list-style-type: none"> 1. Apply techniques of assessment, care and evaluation of responsive and unresponsive patients. 2. Identify and apply emergency medical scene management skills to include Emergency Medical Services (EMS) standard operating procedures and/or the Incident Command System 	<ol style="list-style-type: none"> 1. Demonstrate search and rescue techniques in a structure to remove a victim. 2. Describe concepts of forcible entry procedures. 3. Discuss legal implications of forcible entry. 4. Describe ventilation procedures. 5. Describe salvage procedures. 6. Describe overhaul procedures. 7. Demonstrate patient care, immobilization, and stabilization skills according to the U.S. DOT (Department of Transportation) EMT 	

<ol style="list-style-type: none"> 1. Demonstrate knowledge and understanding of basic Input/Output devices such as keyboards, video monitors, scanners, printers and peripherals. 2. Apply fundamental principles of digital communication devices used in fire science. 3. Use industry-accepted software, such as applications for word processing, database, spreadsheet, presentation and publication. 4. Access information using manuals and reference materials. 5. Apply presentation and multimedia software to prepare a fire science presentation. <p>APPLY PROBLEM SOLVING AND DECISION MAKING PROCESSES TO FIRE SCIENCE RELATED SITUATIONS</p> <ol style="list-style-type: none"> 1. Identify and apply problem-solving processes. 2. Describe methods of determining priorities in fire science. 3. Prepare a plan of work, schedule fire science tasks, and identify needed resources. 4. Generate new and creative ideas using critical thinking skills in solving fire science related problems. 5. Evaluate facts, use logic and reason in decision making. 	<ol style="list-style-type: none"> (ICS) to selected victim scenarios. 3. Describe the medical-legal aspects of patient care to include consents. 4. Identify resuscitation techniques to include defibrillation. 5. Explain and describe the role of the Department of Health Services and the Bureau of Emergency Medical Services rules and regulations. 6. Submit a written report of the incident to the appropriate facility and the fire service agency. <p>EVALUATE THE ROLE OF FIRE SCIENCE IN THE ECONOMY</p> <ol style="list-style-type: none"> 1. Evaluate the impact of the fire service on the local economy. 2. Evaluate the difference between urban and rural municipal and fire district structures. 3. List the factors, including personal traits, which contribute to the success of a fire service organization. 4. Analyze the relationship of customer service and customer satisfaction on the success of an organization. 5. Research how public relations and marketing effects the success of an organization. <p>EVALUATE THE LEADERSHIP STYLES APPROPRIATE FOR THE</p>	<p>curricula, regional and local EMT protocols.</p>	
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<p>6. Troubleshoot a problem in fire science.</p> <p>7. Access information using manuals and reference materials in order to solve a fire science related problem.</p> <p>8. Discuss Root Cause Analysis techniques in fire science.</p> <p>APPLY MATHEMATICAL PROCESSES TO PROBLEMS IN FIRE SCIENCE</p> <ol style="list-style-type: none"> Express problems in fire science using numeric, symbolic and/or graphic representations. Perform mathematical calculations in the context of fire science problems. Recognize and use metric and English units of length, weight, volume and/or temperature. Use technology in the solution of math-related problems. <p>APPLY COMMUNICATION SKILLS FOR FIRE SCIENCE</p> <ol style="list-style-type: none"> Identify barriers to effective communication in fire science. Apply effective communication skills to family, work, and community situations. Practice skills used to communicate with coworkers, the public, and clients. Recognize the difference between objective and subjective information when 	<p>FIRE SCIENCE WORK PLACE</p> <ol style="list-style-type: none"> Determine personal characteristics of effective leaders. Compare/contrast leadership and management styles. Describe how cultural/ethnic differences affect leadership styles and communication within a group. Determine characteristics of ethical behavior. <p>PARTICIPATE IN LEADERSHIP ACTIVITIES SUCH AS THOSE SUPPORTED BY CAREER AND TECHNICAL STUDENT ORGANIZATION SkillsUSA</p> <ol style="list-style-type: none"> Determine the roles and responsibilities that leaders and members bring to an organization. Evaluate characteristics of effective teams. Evaluate characteristics of an effective team player. Practice techniques to involve each member of the team. Demonstrate team work. Practice effective meeting management. Demonstrate business etiquette. Practice decision-making processes. <p>ANALYZE THE ROLE AND ORGANIZATION OF THE FIRE SERVICE INDUSTRY</p> <ol style="list-style-type: none"> Explain the organization, services provided, and dispatch policies of fire 		
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<p>communicating.</p> <ol style="list-style-type: none"> 5. Organize, write, and compile technical information and summaries. 6. Use fire science terminology in order to interpret, transcribe and communicate data, information and observations. 7. Use listening skills to determine the reasons for misunderstanding and conflict in fire science. <p>ANALYZE SELF ACCEPTANCE AND RESPECT FOR OTHERS</p> <ol style="list-style-type: none"> 1. Explore self concept. 2. Recognize methods to build self esteem. 3. Develop caring behaviors for fire science. 4. Evaluate personal trustworthiness. 5. Explore fairness in relationships. 6. Define the attributes of honesty. <p>ANALYZE FACTORS THAT INFLUENCE HUMAN BEHAVIOR</p> <ol style="list-style-type: none"> 1. Describe how personal values influence choices and goals. 2. Examine the interaction of heredity and environment in development. 3. Explain how culture influences behavior. 4. Develop social awareness related to diversity. 5. Explore the effects of challenges on behavior. 6. Examine causes and coping 	<p>protection organizations.</p> <ol style="list-style-type: none"> 2. Summarize the organization plan for a fire department. 3. Describe fundamental operating procedures of a fire department. 4. Explain interaction with other responding fire agencies. 5. Define “mutual aid” and “auto aid” concepts. 6. Assess the fire agency’s interaction with the community. 7. Diagram components of fire districts. <p>EXHIBIT PHYSICAL FITNESS</p> <ol style="list-style-type: none"> 1. Develop a personal plan for health and wellness. 2. Perform cardiovascular endurance exercises. 3. Perform warm up and flexibility flexion exercises. 4. Perform functional training exercises related to firefighting and rescue activities (i.e. grip, grasp, lift, and drag strength). 5. Perform basic core strengthening techniques (i.e. abdominal exercises). 6. Identify health and wellness factors related to maintaining strength and endurance requires for the profession. 7. Identify the need for support structure with family, friends, peers and resources. 8. Describe the effects of heat stress and the need for responder rehabilitation. 		
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<p>strategies for dysfunctional behavior.</p> <ol style="list-style-type: none">7. Practice techniques for modifying behavior.8. Discuss Maslow's hierarchy of needs.9. Recognize the positive and negative symptoms of peer pressure. <p>PARTICIPATE IN LEADERSHIP ACTIVITIES SUCH AS THOSE SUPPORTED BY THE CAREER AND TECHNICAL STUDENT ORGANIZATION SkillsUSA</p> <ol style="list-style-type: none">1. Distinguish between various leadership styles in fire science.2. Define roles and responsibilities of group leaders and group members.3. Identify qualities of an effective team member.4. Demonstrate teamwork for fire science.5. Practice effective meeting management.6. Examine the differences between consensus building and majority decision making.7. Explore team problem solving techniques applicable to the family, workplace and community8. Determine the roles and responsibilities that leaders and members bring to an organization.9. Evaluate characteristics of effective teams.10. Practice techniques to involve each member of the			
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team.

11. Demonstrate business etiquette.
12. Research and analyze the decision-making process.

EXAMINE RESPONSIBILITY FOR PERSONAL WELLNESS

1. Analyze sources of stress and stress management techniques for fire science.
2. Describe the relationship of rest to wellness.
3. Develop skills for dealing with crisis in fire science.
4. Evaluate risk-taking behaviors in fire science.
5. Describe symptoms of chemical abuse.
6. Recognize factors leading to suicide.
7. Apply nutrition principles to wellness.
8. Describe weight management techniques.
9. Development a plan for personal fitness.

DESCRIBE BASIS HUMAN ANATOMY AND PHYSIOLOGY

1. Describe basic chemistry in relationship to the human body.
2. Describe the organization of the human body.
3. Describe structure and function of cells and tissues.
4. Describe the muscular system.
5. Describe the skeletal system.
6. Describe the nervous system.
7. Describe the cardiovascular system.

8. Describe the respiratory system.
9. Describe the digestive system.
10. Describe the urinary system.
11. Describe the reproductive system.

PRACTICE SAFE WORKING PROCEDURES IN FIRE SCIENCE

1. Discuss factors contributing to a safe and healthy environment in fire science.
2. Safely use the tools, materials, and equipment commonly employed in fire science.
3. Explain appropriate safety precautions around common job-site hazards in fire science.
4. Wear/use protective clothing/gear to ensure personal safety in fire science.
5. Practice ergonomically sound working procedure for fire science.
6. Analyze the impact of safety compliance to employees and the public in fire science.
7. Describe emergency procedures and protocols.
8. Explain the importance of OSHA (Occupational Safety and Health Administration).

CAVIT FIRE SCIENCE COURSE OUTLINE YEAR TWO

Quarter 5	Quarter 6	Quarter 7	Quarter 8
<p>COMMUNICATE AND DEMONSTRATE FIRE CONTROL METHODS</p> <ol style="list-style-type: none"> 1. Classify extinguishing agents. 2. Demonstrate fire streams. 3. Define the components of various public and private water supply systems. 4. Demonstrate the method for operating a fire hydrant. 5. Demonstrate the indications and methods for using foam. 6. Diagram the components and function of automatic fire protection systems. 7. Define strategies for fire control. 8. Extinguish various types of fires. 9. Explain and demonstrate overall strategic consideration applied to a structural fire. 10. Explain the basic tactical priorities of a fire ground incident. 	<p>DEMONSTRATE BUSINESS AND FINANCIAL MANAGEMENT PRACTICES NEEDED FOR A FIRE DEPARTMENT</p> <ol style="list-style-type: none"> 1. Research and identify costs associated with managing a fire department. 2. Interpret financial information for decision making and planning. 3. Analyze insurance, benefits, and health and wellness programs. 4. Describe the impact of quality business communications on the success of a fire department. 5. Develop a list of observes successful customer service procedures and describe how to build customer service satisfaction. <p>Model characteristics of good customer relations management.</p>	<p>DEMONSTRATE WRITTEN COMMUNICATION SKILLS FOR THE FIRE SCIENCE FIELD</p> <ol style="list-style-type: none"> 1. Conduct formal/informal research to collect appropriate topical information. 2. Organize information and develop and outline. 3. Write business communication using appropriate format for the situation. 4. Utilize web based research techniques. 5. Prepare draft document using established rules for grammar, spelling and sentence construction. 6. Utilize multiple technologies for written and presentation communication. <p>ASSESS BUILDING CONSTRUCTION AND FIRE GROUND APPROACH</p> <ol style="list-style-type: none"> 1. Describe the principles of building construction, types of construction, and how building construction relates to firefighting operations. 2. Identify floor and ceiling components, design deficiencies and potential for fire spread and structural collapse. 3. Explain the fire ground effects on construction to include roof and wall collapse. 	<p>EXPLAIN FIRE SCIENCE HYDRAULICS</p> <ol style="list-style-type: none"> 1. Summarize the properties of water under pressure. 2. Identify common features of fire pumpers/engines. 3. Apply equations for compressed air foam systems and Class B foam systems. 4. Compare and contrast urban, rural, municipal and private water sources and alternative water supply systems. 5. Perform mathematical equations to correctly determine proper pump discharge pressures for hose lines, Master Stream, relay pumping and supporting sprinkler systems.