# Fire Science II Course No. 44101 Credit: 1.0

|  |  |  |  |
| --- | --- | --- | --- |
| **Student name:** |  | **Graduation Date:** |  |

Pathways and CIP Codes:Emergency & Fire Management Services (43.0299)

Course Description: An **application level** course that builds on the concepts and skills presented in Fire Science I. Students will have the opportunity to expand their understanding of fire ground operations and prevention activities reinforced by realistic exercises. Hazardous materials awareness and operations as well as basic principles and techniques of emergency medical care are included in the course. The students receive a solid foundation of classroom and hands-on training to prepare them for the Firefighter I certification through the Kansas Fire and Rescue Training Institute. [Course may require specialized teacher certification and/or offer professional certification.] (Prerequisite: Fire Science I.)

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Building Construction [NFPA® 1001]

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Describe common building materials and compare as they relate to fire suppression. |  |
| 1.2 | Discuss construction classifications and types. |  |
| 1.3 | Describe construction types and the effect fire has on the structural integrity of the construction type. |  |
| 1.4 | Discuss firefighter hazards related to building construction. |  |
| 1.5 | Identify the primary strengths and weaknesses of construction. |  |
| 1.6 | Describe dangerous building conditions created by fire or by actions taken attempting to extinguish a fire. |  |
| 1.7 | Recognize and explain indicators of building collapse. |  |
| 1.8 | Explore actions to take when imminent building collapse is suspected. |  |
| 1.9 | Describe hazards associated with lightweight and truss construction. |  |

## Benchmark 2: Fire Detection, Alarm, and Suppression Systems [NFPA® 1001]

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Explore various types of alarm systems in structures. |  |
| 2.2 | Compare function of fire detection, alarm, and suppression systems. |  |
| 2.3 | Discuss general automatic sprinkler protection and types of coverage. |  |
| 2.4 | Describe major applications of sprinkler systems. |  |
| 2.5 | Discuss operations at fires in protected properties. |  |

## Benchmark 3: Fire Department Communications [NFPA® 1001]

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Explain emergency communication as it pertains to fire and emergency medical services. |  |
| 3.2 | Describe what internal and external communications systems are and potential limitations. |  |
| 3.3 | Compare management of emergent and non-emergent calls from the public. |  |
| 3.4 | Describe the information required to dispatch emergency services. |  |
| 3.5 | Demonstrate proper emergency communications to initiate a response. |  |
| 3.6 | Explain the purpose of tactical channels. |  |
| 3.7 | Discuss evacuation signals and personnel accountability reports. |  |
| 3.8 | Demonstrate proper radio communication in the fire service (e.g. internal communication, routine and emergency traffic, etc.). |  |
| 3.9 | Demonstrate completing a fire incident report. |  |

## Benchmark 4: Protecting Fire Scene Evidence [NFPA® 1001]

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Describe signs and indications of an incendiary fire. |  |
| 4.2 | Summarize important observations to be made in route, after arriving at the scene, and during firefighting operations. |  |
| 4.3 | Explain firefighting responsibilities after the fire. |  |
| 4.4 | Explain how to protect and preserve crime scene evidence. |  |
| 4.5 | Demonstrate how to recognize and protect evidence at a fire scene. |  |

## Benchmark 5: Fire Prevention and Public Education [NFPA® 1001]

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Perform a private dwelling fire and safety survey. |  |
| 5.2 | Prepare a pre-incident survey. |  |
| 5.3 | Discuss the fire prevention activities. |  |
| 5.4 | Develop a fire prevention presentation. |  |

## Benchmark 6: HazMat Incidents [NFPA® 472 and 1001, IFSTA Hazardous Materials 5th ed.]

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Discuss the distinguishing elements of hazardous materials incidents. |  |
| 6.2 | Describe methods of hazardous materials identification. |  |
| 6.3 | Distinguish between Awareness level and Operations level provider actions at a hazardous materials incident. |  |
| 6.4 | Define the chemical properties and hazardous materials behavior. |  |
| 6.5 | Understand the difference in complexity when hazardous materials incidents involve criminal activity or terrorism. |  |
| 6.6 | Identify the different levels of PPE for hazardous materials responders. |  |
| 6.7 | Understand the various decontamination techniques used by hazardous materials responders. |  |
| 6.8 | Describe product control techniques. |  |
| 6.9 | Identify the different types of air monitoring and product sampling techniques. |  |

## Benchmark 7: NIMS [NFPA® 1001]

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Describe incident priorities. |  |
| 7.2 | Discuss the NIMS/ICS system and its benefits to emergency response agencies. |  |
| 7.3 | Discuss the various levels and titles in the NIMS/ICS system (e.g. command staff, general staff, levels, etc.). |  |
| 7.4 | Discuss key concepts within the NIMS/ICS (unity of command, span of control, unity of command etc.). |  |
| 7.5 | Define the Incident Action Plan (IAP) and how it is developed. |  |

## Benchmark 8: Basic Pre-hospital Emergency Medical Care for Firefighters [NFPA® 1001]

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Describe the roles the fire service may take in providing emergency medical care (e.g. tiered response). |  |
| 8.2 | Explain the importance of body substance isolations (BSI). |  |
| 8.3 | Distinguish among commonly encountered communicable diseases. |  |
| 8.4 | Describe scene safety considerations (e.g. hazardous materials incidents, rescue operations, vehicle accidents, and violence incidents). |  |
| 8.5 | Explain the proper sequence of cardiopulmonary resuscitation (CPR). |  |
| 8.6 | Explain when to administer and when to discontinue CPR. |  |
| 8.7 | Describe external and internal bleeding signs, symptoms, and methods of control. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

[pathwayshelpdesk@ksde.org](mailto:pathwayshelpdesk@ksde.org)



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

The Kansas State Department of Education does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities and provides equal access to any group officially affiliated with the Boy Scouts of America and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: KSDE General Counsel, Office of General Counsel, KSDE, Landon State Office Building, 900 S.W. Jackson, Suite 102, Topeka, KS 66612, (785) 296-3201.