COURSE OUTLINE
Hazardous Materials Technician

Course Description
FS 211. Hazardous Materials Technician. 8 hours credit. Prerequisite: Valid documentation of successfully completing certification requirements for the National Fire Protection Associations 472 standard on competencies for a Hazardous Materials First Responder at the Operations Level. This course will enable the student to meet the minimum competencies of the National Fire Protection Associations 472 standard on professional competencies for hazardous material responders at the Technician level. The student will learn how to respond to hazardous materials/weapons of mass destruction (Hazmat/WMD) incidents using a risk based response process by which the student analyzes a problem involving hazmat/WMD, selects applicable decontamination procedures, and controls a release using specialized protective clothing and control equipment.

Required Materials
For complete material(s) information, refer to https://bookstore.butlercc.edu

Butler-assessed Outcomes
The intention is for the student to be able to:
1. Analyze a hazmat/WMD incident to determine the complexity of the problem and potential outcomes.
2. Plan a response within the capabilities of available personnel, personal protective equipment and control equipment.
3. Implement the plan to favorably change the outcomes consistent with the standard operating procedures and site safety and control plan.
4. Evaluate the progress of the planned response.
5. Demonstrate the proper methods in terminating an incident.

Learning PACT Skills that will be developed and documented in this course
Through involvement in this course, the student will develop ability in the following PACT skill area(s):

Analytical Thinking Skills
- Critical Thinking - Through use of an appropriate analytical process, the student will be able to analyze a hazmat/WMD incident to determine the complexity of the problem and potential outcomes.
- Problem Solving - Through the use of effective problem solving, the student will plan a response within the capabilities of available personnel, personal protective equipment, and control equipment.

Technology Skills
- Discipline-specific technology - Through use of personal protective equipment and
control equipment, the student will demonstrate professional competency requirements.

Major Summative Assessment Task(s)
These learning outcome(s) and Learning PACT skill(s) will be demonstrated by:
1. Performing a series of cognitive (A skill) and practical (T skill) skill evolutions to demonstrate proficiency and prepare the student for national certification to the level of Hazardous Materials Technician.

Skills or Competencies
Actions that are essential to achieve the course outcomes:
1. Analyzing the incident
   A. Survey hazardous materials and WMD incidents
   B. Collect and interpret hazardous and response information
   C. Describe the condition of container involved in the incident
   D. Predict likely behavior of materials and their containers where multiple materials are involved
   E. Estimate the likely size of an endangered area
2. Planning the response
   A. Identify response objectives
   B. Identify the potential response options
   C. Select personal protective equipment
   D. Select decontamination procedures
   E. Develop a plan of action
3. Implementing the planned response
   A. Perform incident command duties
   B. Use protective clothing and respiratory protection
   C. Perform control functions identified in incident action plan
   D. Perform decontamination operations identified in incident action plan
4. Evaluating progress
   A. Evaluate the effectiveness of the control functions
   B. Evaluate the effectiveness of the decontamination process
5. Terminating the Incident
   A. Assist in the debriefing process
   B. Assist in the incident critique process
   C. Demonstrate the reporting and documentation procedures

Learning Units
I. Hazardous materials management system
   A. Laws, regulations, and standards
   B. Hazmat management system

II. Health and safety
   A. Toxicology
   B. Exposure to environmental conditions
   C. Health and safety management procedures
D. Site safety practices and procedures

III. Incident management system
   A. The players
   B. Command operations
   C. Hazmat branch operations
   D. Incident analysis

IV. Politics of hazmat incident management
   A. Political issues and concerns
   B. Media relations

V. Site management control
   A. Site management task
   B. Establishing command
   C. Approaching and positioning
   D. Staging areas
   E. Establishing isolation perimeter
   F. Hazard control zones
   G. Initiating public protective actions
   H. Protection in place
   I. Evacuation

VI. Identify the problem
   A. Basic principles
   B. Identification methods and procedures
   C. Shipping papers and facility documents

VII. Hazard risk evaluation
   A. Terms and definitions
   B. Sources of hazard data and information
   C. Compiling hazard information
   D. Evaluating risk
   E. Behavior of hazmats in soil and groundwater

VIII. Personal protective clothing
   A. Levels of protective clothing
   B. Information management and resource coordination
   C. Information management
   D. Resource coordination

IX. Implementing response objectives
   A. Strategic goals
   B. Tactical objectives
   C. Rescue and protective actions
   D. Spill control/ containment
E. Leak control/containment  
F. Fire control operations  
G. Special tactical problems  
H. Transfer and recovery operations  

X. Decontamination  
   A. Understanding the basic of decontamination  
   B. Decontamination methods  
   C. Site selection and management  
   D. Field decontamination procedures  
   E. Medical emergencies requiring decontamination  
   F. Decontamination and infection control  
   G. Special facilities and equipment  
   H. Clean-up  
   I. Post incident decontamination concern  

XI. Terminating the incident  
   A. Termination activities  

Learning Activities
Learning activities will be assigned to assist the student to achieve the intended learning outcomes through lecture, discussion, hands on exercises, and other activities at the discretion of the instructor.

Grade Determination
The student will be graded on completion of assessment tasks, learning activities, and written examination.