

# NorthWest Arkansas Community College

## Standard Course Outline

### Course Number and Title

EMTP 1031, EMS Environment II

### Prerequisite

Admission into the paramedic program and enrolled as a student at NWACC

### Course Description

Recognition and management of a mass casualty scene will be taught/demonstrated. Each student will be expected to participate in a mock disaster drill as set forth by the county and to utilize knowledge gained from class and the drill in a final disaster scenario. Rescue operations, Crime scene awareness, Hazardous Materials, Ambulance Operations, and stress management in emergency services will also be covered.

### Target Audience & Transferability

This course is a paramedic course. Only students in the paramedic program will be allowed to take this course. Transfer to other institutions is on a case by case basis, and this course does not typically transfer.

### Credit Hours

1 credit hour

### Instructional Material

Paramedic Textbook” by *MOSBY* “Workbook to Paramedic Textbook” by *MOSBY*

### Course Objectives

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

1. Discuss the importance of completing an ambulance equipment/supply checklist
2. Discuss the factors to be considered when determining ambulance stationing within a community.
3. Describe the advantages and disadvantages of air medical transport
4. Identify the condition/situations in which air medical transport should be considered.
5. Describe the role of the paramedics and EMS systems in planning for MCIs and disasters
6. Describe the role of the following exercises in preparation for MCIs
7. Define the following types of incidents and how they affect medical management
8. Explain the need for the incident management system, incident command system in management emergency medical services incidents
9. Describe the functional components of the incident management

system in terms of the following: Command, finance, logistic, operations, planning.

10. Describe the methods and rationale for identifying specific functions and leaders for these functions in ICS
11. List and describe the essential equipment needed to provide logistical support to MCI operations to include airway, respiratory and hemorrhage control; burn management and patient packaging/immobilization
12. List and describe the functions of the following groups and leaders in ICS as it pertains to EMS incidents: Safety, logistics, rehabilitation, tagging, treatment, triage, transportation, extrication/rescue, disposition of deceased (morgue) communications.
13. Describe the role of the physician at multiple casualty incidents.
14. Describe the need for and techniques used in tracking patients during multiple casualty incidents
15. Describe techniques used to allocate patients to hospitals and track them.
16. Describe modifications of telecommunications procedures during multiple casualty incidents.
17. Define triage and describe the principles of triage
18. Define primary triage and secondary triage
19. Describe when primary and secondary triage techniques should be implemented.
20. Describe the START (simple triage and rapid treatment) method of initial triage.
21. Given a list of 20 patients with various multiple injuries, determine the appropriate triage priority with 90% accuracy.
22. Given color coded tags and numerical priorities, assign the following terms to each, Immediate, Delayed, Hold, Deceased.
23. List the physical and psychological signs of critical incident stress.
24. Describe the role of critical incident stress management sessions in MCIs.
25. Explain the medial and mechanical aspects of rescue situations.
26. Explain the role of the paramedic in delivering care at the site of the injury, continuing through the rescue process and to definitive care.
27. Describe the phases of a rescue operation.
28. List and describe the types of personal protective equipment needed to safely operate in the rescue environment needed to safely operate in the rescue environment to include head protection, eye protection, hand protection, personal flotation devices, and thermal protection layering systems, high visibility clothing, and specialized footwear.
29. Explain the differences in risk between moving water and flat water rescue.
30. Given a picture of moving water, identify and explain the features and hazards associated with hydraulics, strainers, and dams/hydroelectric site.
31. Identify the risks associated with low head dams, and the rescue

complexities they pose.

32. Explain the effects of immersion hypothermia on the ability to survive sudden immersion and self-rescue.
33. Explain the phenomenon of the cold protective response in cold water drowning situations.
34. Given a list of rescue scenarios, identify the victim survivability profile and which are rescue versus boy recovery situations.
35. Explain why water entry or go techniques are methods of last resort
36. Explain the rescue techniques associated with reach-throw-row-go.
37. Explain the self-rescue position if unexpectedly immersed in moving water.
38. Given a series of pictures, identify which would be considered "confined spaces" and potentially oxygen deficient.
39. Identify the hazards associated with confined spaces and risks posed to potential rescuers to include; oxygen deficiency, chemical/toxic exposure/explosion, engulfment, machinery, entrapment, electricity.
40. Identify components necessary to ensure site safety before confined-space rescue attempts.
41. Identify the poisonous gases commonly found in confined spaces: hydrogen sulfide, carbon dioxide, carbon monoxide, low/high oxygen concentrations, methane, ammonia, nitrogen dioxide.
42. Explain the pathophysiology of "crush trauma" syndrome.
43. Explain the hazard of cave-in during trench rescue operations.
44. Describe the effects of traffic flow on the highway rescue incident, including limited access superhighways and regular access highway.
45. List and describe the following techniques to reduce scene risk at highway incidents; apparatus placement, headlight and emergency vehicle lighting, cones, flares, reflective and high visibility clothing.
46. List and describe the hazards associated with the following auto/truck components: energy absorbing bumpers, air bag/supplemental restraint systems, catalytic converters and conventional fuel systems, stored energy alternate fuel systems.
47. Describe methods for emergency stabilization's using rope, cribbing, jacks, spare tire, wheels, side, rod, or on inclines.
48. Describe the electrical hazards commonly found at highway incidents (above and below ground)
49. Develop specific skill in emergency stabilization of vehicles and access procedures and an awareness of specific extrication strategies.
50. Given a diagram of a passenger auto, identify the following structures: A,B,C,D posts, fire wall, unibody versus frame designs.
51. Explain the differences between tempered and safety glass, identify its locations on a vehicle and tell how to break it safely.
52. Explain typical door anatomy and methods to access though stuck doors.
53. Explain SRS or "airbag" systems and methods of neutralizing them.

54. Define the following terms: low angle, high angle, belay, rappel, scrambling, hasty rope slide
55. Describe the procedure for Stokes litter packaging for low-angle evacuations.
56. Develop proficiency in patient packaging and evacuation techniques that pertain to hazardous or rescue environments.
57. Explain the different types of “Stokes” or basket stretchers and the advantages and disadvantages associated with each.
58. Explain the procedures for low-angle litter evacuation to include anchoring, litter/rope attachment, lowering and raising procedures
59. Explain techniques to be used in nontechnical litter carries over rough terrain
60. Explain nontechnical high-angle rescue procedures using aerial apparatus.

### **Topics**

1. Explain assessment procedures and modifications necessary when caring for entrapped patients.
2. List equipment necessary for an “off road” medical pack
3. Develop an understanding of the medical issues involved in providing care for a patient in a rescue environment.
4. Explain the need for and techniques of thermal control for entrapped patients.
5. Explain specific methods of improvisation for assessment, spinal immobilization and extremity splinting.
6. Explain the indications, contraindications and methods of pain control for entrapped patients.
7. Identify resources for substance identification, decontamination, and treatment information including the following: Poison control center, medical control, material safety data sheets (MSDS), reference textbooks, computer databases (CAMEO), CHEMTREC, technical specialists, agency for toxic substances, and disease registry.
8. Given a simulated hazardous substance, use reference material to determine the appropriate actions.
9. Explain the use and limitations of personal protective equipment in hazardous material situations.
10. List and describe the following routes of exposure: topical, respiratory, gastrointestinal, and parental.
11. Explain the following toxicological principles: acute and delayed toxicity, route of exposure, local versus systemic effects, dose response, and synergistic effects.
12. Determine the hazards that are present to the patient and paramedic, given an incident involving hazardous materials.
13. Determine the factors that determine where and when to treat a patient, including substance toxicity, patient condition, and availability of decontamination.
14. List and explain the common signs, symptoms, and treatment for the

following substances: corrosives, pulmonary irritants, pesticides, chemical asphyxiants, hydrocarbon solvents.

15. Explain the role of the paramedic or EMS responder in terms of the following: incident size-up, assessment of toxicological risk, appropriate decontamination methods, treatment of semi-decontaminated patients, and transportation of semi-decontaminated patients.
16. Define the following and explain their importance to the risk assessment process: boiling point, flammable/explosive limits, flash point, ignition temperature, specific gravity vapor density, vapor pressure, water solubility, alpha radiation, beta radiation, gamma radiation.
17. Define these toxicological terms and their use in the risk assessment process: threshold limit value, lethal concentration and doses, parts per million/billion, immediately dangerous to life and health, permissible exposure limit, short term exposure limit, ceiling level.
18. Size-up a Hazmat incident, and determine the following: Potential risk of primary contamination to patients; potential risk of secondary contamination to rescuers.
19. Explain the following terms/concept: primary contamination risk and secondary contamination risk.
20. Given a specific hazardous material, be able to research the appropriate information about its physical and chemical characteristics and hazards, suggest the appropriate medical response, and determine the risk of secondary contamination.
21. Integrate the principles and practices of hazardous materials response in an effective manner to prevent and limit contamination, morbidity, and mortality.
22. Explain factors that influence the heat stress of hazardous material team personnel, including hydration, physical fitness, ambient temperature, activity, level or PPE, and duration of activity.
23. Explain the medical monitoring procedures of hazardous material team members to be used before and after entry, including vital signs, body weight, general health, neurological status, and ECG.
24. Explain the documentation that is necessary for Hazmat medical monitoring and rehabilitation operations-the substance, toxicity and danger of secondary contamination, appropriate PPE and suit breakthrough time, appropriate level of decontamination, appropriate antidote and medical treatment, and transportation method.
25. Explain how the substance and route of contamination alters triage and decontamination methods.
26. Explain decontamination procedures when functioning in the following modes: Critical patients, rapid two-step decontamination process. Noncritical patient, eight-step decontamination process.
27. Explain the potential risk associated with invasive procedures performed on contaminated patients
28. Explain specific decontamination procedures.
29. Explain the limitations of field decontamination procedures.
30. Given a contaminated patient, determine the level of decontamination that

- is necessary and the level of rescuer PPR, decontamination methods, treatment, transportation, and patient isolation techniques.
31. Explain how EMS providers are often mistaken for the police
  32. Explain specific techniques for risk reduction when approaching the following types of routine EMS scenes: highway encounters, violent street incidents, residences and “dark houses”
  33. Describe warning signs of potentially violent situations.
  34. Explain EMS considerations for the following types of violent or potentially violent situations: gangs and gang violence, hostage/sniper situations, clandestine drug laboratories, domestic violence, emotionally disturbed people.
  35. Explain the following techniques field contact and cover procedures during assessment and care, evasive tactics, concealment techniques.
  36. Explain emergency evasive techniques for potentially violent situations, including threats of physical violence, firearms encounters, edged weapon encounters.
  37. Describe police evidence considerations and techniques to assist in evidence preservation.