



Approved Innovative Course

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Course: *Emergency Medical Technician Basic*

PEIMS Code: *N1303015*

Abbreviation: *EMTB*

Grade Level(s): *11-12*

Number of Credits: *2.0*

Course description:

Emergency Medical Technician (EMT)—Basic instructs students to meet and exceed standard knowledge needed to be a valid Emergency Medical Technician. The curriculum includes skills necessary for a student to provide entry level emergency medical care, life support, and ambulance service. The EMT—Basic course is an introductory course to concepts, knowledge, and skills needed by EMTs in the areas of communications, transportation, and recordkeeping. Students interested in working in public safety, including fire, police, and ambulance operators will be capable of performing the job expectations of an EMT safely and effectively after the completion of this course.

This course ties into the Law, Public Safety, Corrections, and Security Career Cluster.

Essential knowledge and skills:

- (a) General requirements. This course is recommended for students in Grades 11-12. Required prerequisite: Biology. Recommended prerequisite: Principles of Law, Public Safety, Corrections, and Security; and Anatomy and Physiology. Students shall be awarded two credits for successful completion of this course.
- (b) Introduction.
 - (1) Career and technical education (CTE) instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current professions.
 - (2) The Law, Public Safety, Corrections, and Security Career Cluster focuses on planning, managing, and providing legal services, public safety, protective services, and homeland security, including professional and technical services.



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- (3) Emergency Medical Technician—Basic is a preparation course for certification as an EMT—Basic. The course includes all the skills necessary to provide emergency medical care at a basic life support level with either an emergency service or other specialized service.
- (4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations, fire department student groups, and other leadership or extracurricular organizations.
- (5) Statements that contain the word “including” reference content that must be mastered, while those containing the phrase “such as” are intended as possible illustrative examples.

(c) Knowledge and Skills.

- (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to achieve employability skills standards such as attendance, on-time arrival, meeting deadlines, working toward personal/team goals every day, and ethical use of technology.
- (2) The student explores emergency care components such as life support and ambulance care. The student is expected to:
 - (A) recognize and define the Emergency Medical Services (EMS) systems available to patients;
 - (B) differentiate the roles, scope of practice, and responsibilities of the EMT—Basic from other pre-hospital care providers such as fireman and law enforcement;
 - (C) describe the roles and responsibilities related to personal safety and the safety of the crew, the patient, and bystanders;
 - (D) identify the specific Texas statutes and regulations regarding the EMS system;
 - (E) research the various methods used to access the EMS system in the local community;
- (3) The student explores medical, legal, and ethical issues. The student is expected to:
 - (A) describe do not resuscitate (DNR) directives and the local and state laws regarding EMS application of DNR directives;
 - (B) define consent, including differentiating between expressed and implied consent;
 - (C) summarize methods of obtaining consent;



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- (D) determine the conditions necessary for an EMT—Basic to have a duty to act;
- (E) investigate the importance, necessity, and legality of patient confidentiality;
- (F) explain the actions that an EMT—Basic should take to preserve a crime scene; and
- (G) indicate the conditions that require an EMT—Basic to notify local law enforcement officials.
- (4) The student gains an understanding of the human body. The student is expected to:
- (A) define terms associated with human anatomy such as medial, lateral, proximal, distal, superior, inferior, anterior, posterior, midline, right and left, mid-clavicular, bilateral, and mid-axillary; and
- (B) describe the anatomy and function of the major body systems including respiratory, circulatory, musculoskeletal, nervous, and endocrine.
- (5) The student recognizes the importance of basic life support and the priority of artificial ventilation and airway protective skills. The student is expected to:
- (A) compare the signs of adequate and inadequate breathing;
- (B) describe the importance of having a suction unit ready and demonstrate the techniques of suctioning;
- (C) demonstrate proper techniques for securing air flow for patients including mouth to mouth, bag-valve-mask, Sellick maneuver, and pocket mask artificial ventilation; and
- (D) demonstrate the skills of advanced airway techniques, such as nasogastric tube insertion for decompression of the stomach of an infant or child patient, choosing appropriate size endotracheal tube, and recognizing accidental esophageal intubation and orotracheal intubation of adults, infants, and children.
- (6) The student recognizes that patient assessment serves as the foundation for all treatment decisions. The student is expected to:
- (A) evaluate a scene for potential hazards;
- (B) determine the number of patients;
- (C) determine if additional help is necessary;
- (D) evaluate mechanism of injury or nature of illness;



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- (E) practice initial patient assessment by forming a general impression, determining responsiveness, assessing the airway, breathing, and circulation,
 - (F) demonstrate the ability to prioritize patients;
 - (G) describe and demonstrate methods of assessing patients' traumatic injuries, including the rapid trauma assessment;
 - (H) simulate in-take procedures on patients with medical complaints or signs and symptoms of medical need, including documenting medical history;
 - (I) recognize the patients initial health condition, recording changes in the patient's condition, and reassessing of interventions to assure appropriate on-going assessment and care;
 - (J) explain the components of communication systems, such as radio communications, interpersonal communication, and patient reporting; and
 - (K) explain the components of the pre-hospital care written report including aspects such as special considerations regarding patient refusal, the legal implications of the report, and the state reporting requirements.
- (7) The student explores aspects of medical emergencies. The student is expected to:
- (A) describe the signs and symptoms of heat and cold exposure;
 - (B) describe the medical care of bites and stings;
 - (C) demonstrate knowledge of pharmacology in order to recognize and list the medications carried and given by the EMT—Basic and identify the steps for assisting a patient with self-administration;
 - (D) identify various respiratory emergencies and describe treatment regimens for respiratory difficulty and emergency medical care, including the administration of inhalers;
 - (E) identify cardiovascular emergencies and describe signs and symptoms of cardiovascular disease;
 - (F) simulate the administration of a patient's prescribed nitroglycerin and the use of automated external defibrillators;
 - (G) identify a patient taking diabetic medications with altered mental status and list the steps in the emergency medical care, including the administration of oral glucose;



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- (H) recognize the signs and symptoms of an allergic reaction; check patient airway and describe the steps in emergency care, including administering a prescribed epinephrine auto-injector;
- (I) identify the signs and symptoms of poisoning or overdose and list the ways that poisons enter the body;
- (J) explain the emergency medical care for patients with suspected poisoning, including the administration of activated charcoal;
- (K) identify, assess, and record the components of patient vital signs;
- (L) demonstrate proper techniques for lifting and moving patients;
- (M) list the signs and symptoms of water-related emergencies, including the complications and medical care of near-drowning victims;
- (N) define behavioral emergencies;
- (O) list the medical and legal considerations involved and reasons for psychological crises,
- (P) describe the care of a patient in distress including techniques to safely restrain a patient exhibiting violent behavior;
- (Q) identify the uterus, vagina, fetus, placenta, umbilical cord, amniotic sac, and perineum and describe anatomical and physiological changes that occur during pregnancy; and
- (R) summarizing signs and symptoms of common gynecological and obstetrical emergencies and differentiate the emergency medical care for a patient with pre-delivery emergencies from medical care for a normal delivery.
- (8) The student explores aspects of trauma. The student is expected to:
- (A) indicate how shock (hypo perfusion) affects the human body systems and demonstrate the care of patients exhibiting signs and symptoms of shock;
- (B) describe the care of patients with internal and external bleeding by:
- (i) demonstrating methods of emergency care for external bleeding, including pressure points, direct pressure, and tourniquets;
 - (ii) differentiating between mechanism of injury and internal bleeding; and
 - (iii) listing the signs and emergency medical care of internal bleeding;
- (C) investigate types of soft tissue injuries and recognize and describe treatment of closed soft tissue injury;



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- (D) practice dressing, bandaging, and applying splints and tourniquets;
- (E) identify the bones of the musculoskeletal system and their functions;
- (F) identify the difference between open fractures and closed fractures as they relate to the implementation of proper musculoskeletal care;
- (G) practice immobilization of the painful, swollen, deformed extremity including splinting; and
- (H) analyze the relationship between the skeletal system and the nervous system, evaluate mechanism of injury, and demonstrate techniques for stabilization of the cervical spine.
- (9) The student analyzes the medical emergency response of the ill or injured infant or child. The student is expected to:
- (A) differentiate between the emergency response care of infant or child versus that of an adult patient based on anatomy and physiology;
- (B) demonstrate the techniques of foreign body airway obstruction removal in the child and infant;
- (C) practice medical assessment, bag-valve-mask ventilations, and oxygen delivery for the infant and child; and
- (D) describe the care management of seizures, respiratory emergencies, hypo perfusion, organ perfusion, and cardiac arrest in infants and children.
- (10) The student explores aspects of ambulance operations. The student is expected to:
- (A) describe state laws relating to the operation of the ambulance;
- (B) define cleaning, disinfection, high-level disinfection, and sterilization and describe how to clean or disinfect equipment following patient care to prepare the unit for next response;
- (C) identify the equipment required by the EMT—Basic for personal safety;
- (D) explain various methods of gaining access to patients by describing the purpose of extrication, defining the fundamental components of extrication, and distinguishing between simple and complex access;
- (E) explain the role, describe the actions, and break down the steps of an EMT—Basic during a call involving hazardous materials;
- (F) describe the criteria for a multiple-casualty situation; and



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(G) describe the criteria for a disaster operation and simulate performing triage given a scenario of a mass casualty incident.

Description of specific student needs this course is designed to meet:

Gulf Coast Workforce estimates that the region will need 4,830 EMTs by 2020. Similar workforce needs exist in other regions of the state. The purpose of this course is to provide opportunities for students to develop the skills necessary to become a medically competent EMT—Basic who can respond to emergency calls to provide efficient and immediate care to the critically ill and injured, as well as transport the patient to a medical facility. Students will be prepared for a career in emergency services, in addition to the opportunity to earn state EMT certification. Through a challenging curriculum encompassing leadership training, fire science education, and emergency medical training students will gain the knowledge and skills necessary to become competent decision makers and effective leaders and be prepared to pursue a pathway to a future career in fire service and emergency services.

Major resources and materials:

Emergency medical technician, basic: National standard curriculum. (1994). Washington, D.C. U.S. Dept. of Transportation, National Highway Traffic Safety Administration.

Suggested course materials:

- CPR Manikin, infant
- CPR Manikin, child
- CPR Manikin, adult
- Medical oxygen cylinder (full) with pin indexed yoke
- Assorted oxygen delivery devices (masks, cannulas, etc.)
- Oropharyngeal airways (infant, child and adult sizes)
- Bag-valve mask unit (infant, child and adult sizes)
- Suction device (O₂, battery or hand powered)
- Suction catheters (both rigid and flexible in assorted sizes)
- Backboard (at least 6' in length)
- Cervical immobilization devices (short board, KED)
- Protective gloves
- Protective eyewear
- Extrication collars (small, medium and large)
- Webbed straps (for backboard, 3/10 students)
- Splinting devices



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Traction splint assembly (half-ring or ratchet-action adjustable splint)
Triangular bandages (1 doz./10 students)
Soft roller bandage (1doz./10 students)
Gauze pads (4" X 4" 100/10 students)
Sphygmomanometer
Stethoscope (teaching, dual earpiece)
Pillow
Blanket
Head immobilization device
Stethoscopes (nursing, 3/10 students)
Sterile dressings
Pocket masks with one-way valve (3/10 students)
Occlusive dressing (1 doz./10 students)
Automatic External Defibrillator or AED Trainer
Alcohol Preps
Bronchodilator
Drug Box with metered dose inhaler, spacer and sample or simulation of Bronchodilator packaged for use in a nebulizer
Epinephrine Auto-Injector (trainer)
Injection Pad
Nebulizer Administration Device (small volume)
Pneumatic Anti-Shock Garment
Sharps Container

Recommended course activities:

Simulate pre-hospital care of life-threatening injuries
Using appropriate equipment, simulate disaster operations
Interact with patients in a clinical setting
Ride along in the field with experienced preceptors
On-site visits to industry locations
Research
Simulations industry
Industry guest speakers



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Interviews with industry personnel

Multi-media videos

Clinical or field rotation experience - this course requires that the students have patient interactions in a clinical setting. The student should interview and assess a minimum of five patients.

Suggested methods for evaluating student outcomes:

Student outcomes may be evaluated through classroom/homework assignments, independent and group projects, and teacher-made tests and simulation/performance-based assessments. Additionally, students will create and maintain portfolios of their work. Containing written papers, online learning portfolios, quizzes, written and practical examinations

Teacher qualifications:

An assignment for Emergency Medical Technician-Basic, Grades 9-12, requires the instructor to have 3 years non-teaching work experience in the field and must be certified or registered as a paramedic.

An assignment for Emergency Medical Technician-Basic, Grades 9-12, is allowed with the addition of one of the following certificates:

- (1) Trade and Industrial Education: Grades 6-12. This assignment requires appropriate work approval.
- (2) Trade and Industrial Education: Grades 8-12. This assignment requires appropriate work approval.
- (3) Vocational Trades and Industry. This assignment requires appropriate work approval.
- (4) Health Science: Grades 6-12 only if qualifying work experience included employment as an Emergency Medical Technician.
- (5) Health Science: Grades 8-12 only if qualifying work experience included employment as an Emergency Medical Technician.
- (6) Vocational Health Science Occupations only if qualifying work experience included employment as an Emergency Medical Technician.

Vocational Health Science Technology only if qualifying work experience included employment as an Emergency Medical Technician.



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Additional information: