Implementation Date
Fall 2008

PROGRAM CONCENTRATION: **Healthcare Science**
CAREER PATHWAY: **Therapeutic Services – Emergency Services**
COURSE TITLE: **Concepts of Emergency Medicine**

PREREQUISITES: Introduction to Healthcare Science, Emergency and Disaster Preparedness

Concepts of Emergency Medicine is an intermediate course for the Emergency Services Peach State Pathway and is designed to offer the student a comprehensive view of the science of pre-hospital/emergency care. Students are involved in Emergency Medical Services operations mock scenarios involving triage/mass casualty, extrication of victims in complex access situations, and additional basic skills most commonly associated with the entry level career title of First Responder. The students are required to meet both national and intrastate professional guidelines as designated by applicable regulatory agencies such as the Occupational Health and Safety Administration (OSHA), National Registry of Emergency Medical Technicians (NREMT), and the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Competencies for the student organization Health Occupations Students of America (HOSA) are integral components of both the core employability skills standards and the technical skills standards. HOSA activities should be incorporated throughout instructional strategies developed for the course. Students may receive recognition and career portfolio enhancement for participation in local, state, and national competitive events and leadership development opportunities provided through Health Occupations Students of America (HOSA).

This course meets the curriculum content as specified by the United States Department of Transportation National Highway Traffic Safety Administration's First Responder's National Standard Curriculum Guide. Students meeting all academic, attendance, and age requirements may elect to sit for the National Registry's Final Practical Skills Examination upon successful completion of the course. Students who meet all National Registry examination requirements have their names and pertinent demographic data entered into the First Responder National Registry.

ACADEMIC FOUNDATIONS

HS-CEM-1. Students will demonstrate knowledge and understanding of the academic subject matter required for proficiency within their area. Academic standards are integrated throughout the standard statements within their applicable discipline areas and documented immediately following the standard statement.

INTRODUCTION TO EMERGENCY MEDICAL CARE

HS-CEM-2. Students will demonstrate an understanding of the overview of the Emergency Medical Services system including personnel training, certification, and responsibilities.

a. Discuss the history of Emergency Medical Services System.
b. Differentiate between the levels of training and certification requirements of First Responder, Emergency Medical Technician-Basic, Emergency Medical Technician-Intermediate and Emergency Medical Technician- Paramedic.
c. Differentiate between the roles and responsibilities of the First Responder, Emergency Medical Technician-Basic, Emergency Medical Technician-Intermediate, Emergency Medical Technician-Paramedic, and other public safety agencies such as law enforcement personnel and utility company employees.
d. Evaluate the essential components of an Emergency Medical System.

WELL-BEING OF THE EMERGENCY MEDICAL SERVICES PROVIDER

HS-CEM-3. Students will evaluate the necessity of scene safety, emotional well-being, and stress management of the Emergency Medical Services provider.

a. Define, demonstrate, and use standard precautions as described in the rules and regulations set forth by the Occupational Safety and Health Administration (OSHA).
b. Analyze the need to determine scene safety prior to attempting to provide any emergency medical care.
c. Evaluate the utilization of personal protective equipment (PPE) necessary for each of the following situations: hazardous materials; rescue operations; violent scenes; crime scenes; electricity, water, and ice; exposure to blood borne pathogens; and exposure to airborne pathogens.
d. Discuss the emotional aspects of emergency medical care and methods of reducing/alleviating stress.
e. Demonstrate the correct handling and disposal of all sharps.
f. Discuss medical oversight and differentiate between indirect (off-line) medical control and direct (online) medical control.

MEDICAL, LEGAL, AND ETHICAL ISSUES

HS-CEM-4. Students will analyze the legal and ethical issues of Emergency Medical Services providers including First Responders and all levels of Emergency Medical Technicians.

a. Discuss the various levels of scope of care for Emergency Medical Providers, including but not limited to: First Responder, Emergency

Medical Technician-Basic, Emergency Medical Technician-Intermediate, and Emergency Medical Technician- Paramedic.
b. Differentiate between “paid” First Responder’s services and “volunteer” services.
c. Analyze the legal impact of abandonment, negligence, battery, advanced directives, consent, refusals, and confidentiality.
d. Verbalize the conditions that require an Emergency Medical Service Provider to notify local law enforcement officials.
e. Define and discuss Medical Directive and Control.

ANATOMY AND PHYSIOLOGY

HS-CEM-5. Students will demonstrate knowledge of the different systems of the body and how they relate to patient care.

a. Summarize the importance of the Emergency Medical Services Provider’s knowledge of the body’s anatomy and physiology in relation to providing competent care and accurate communication to other health care providers.
b. Demonstrate knowledge of the body’s anatomy and physiology to provide competent patient care and accurate communication to other health care providers.

LIFTING AND MOVING

HS-CEM-6. Students will use necessary EMS equipment and will demonstrate the proper implementation of lifting and moving patients.

a. Demonstrate proper safety applications with correct body mechanics when transferring or packaging patients or objects, utilizing various emergency medical transfer devices.
b. Differentiate and demonstrate emergency moves and non-emergency moves that may be utilized by the Emergency Medical Services Provider.
c. Summarize the First Responder’s role in packaging and carrying patients as identified by local jurisdiction and how it differs from the Emergency Medical Technician’s.

ACADEMIC STANDARDS:

MM3P4. Students will make connections among mathematical ideas and to other disciplines.

MM3P5. Students will represent mathematics in multiple ways.

AIRWAY MANAGEMENT

HS-CEM-7. Students will demonstrate the ability to manage an airway.

a. Explain the rationale for basic life-support, artificial ventilation, and airway protective skills taking priority over most other basic life-support skills.
b. Differentiate between the signs of adequate breathing and of inadequate breathing.
c. Relate the mechanism of injury to opening the airway.
d. Demonstrate opening and maintaining a patent airway for adult, child, and infant victims.

SCENE SIZE-UP / PATIENT ASSESSMENT

HS-CEM-8. Students will accurately assess a patient's need for treatment.

a. Analyze the components of scene size-up.
b. Describe common hazards found at the scene of a trauma and a scene involving a medical patient.
c. Explain the rationale for identifying the need for additional help or assistance.
d. Determine priorities of patient care and skills required to continue that assessment and management of the ill or injured patient.
e. Describe and demonstrate the components of the physical exam, ongoing assessment, and assessment for external bleeding.
f. Summarize the components of the SAMPLE history and demonstrate questioning a patient to obtain a SAMPLE history.
g. Describe and demonstrate the First Responder "hand-off" report.
h. Demonstrate the skills that should be used to obtain information from the patient, family, or bystanders at the scene.
i. Demonstrate the ability to accurately assess, record, and report vital signs.
j. Discuss the rationale for performing a focused history and a physical exam.
k. Differentiate between the detailed physical exam of the trauma patient and that of the medical patient and demonstrate each.
l. Demonstrate the rapid trauma assessment that should be used to assess a patient, based on mechanism of injury.

PUBLIC SAFETY COMMUNICATIONS

HS-CEM-9. Students will demonstrate the ability to communicate effectively through the various avenues within the EMS system.

a. Demonstrate the appropriate use of public safety communications systems and equipment (fire pagers, two-way radios, scanners, etc.).
b. Discuss confidentiality issues regarding the use of public safety communications equipment.
c. Identify the essential components of the verbal report given to incoming public safety personnel and provide a brief, organized report that would be given to advance life-support providers arriving at the incident.
d. Provide accurate, written documentation in the form of a field report or incident report in an accurate and timely manner.

ACADEMIC STANDARDS:

ELA11LSV1. The student participates in student-to-teacher, student-to-student, and group verbal interactions.

CARDIOVASCULAR EMERGENCIES

HS-CEM-10. Students will demonstrate the steps of Basic Life Support (BLS).

a. Differentiate between biological death and clinical death.
b. Demonstrate cardiopulmonary resuscitation on an infant, a child, and an adult (simulate using manikins), utilizing personal protective devices and the use of standard precautions for disease prevention.
c. Identify when cardiopulmonary resuscitation may be discontinued once it has been initiated.
d. State the indications and contraindications for automated external defibrillation.
e. Demonstrate the application, operation, and maintenance of an automated external defibrillator trainer.

MEDICAL, ENVIRONMENTAL, AND BEHAVIORAL EMERGENCIES

HS-CEM-11. Students will accurately assess and treat emergencies of a medical, environmental, and behavioral nature.

a. Integrate the knowledge and skills necessary to assure the provision of necessary assessment of medical, respiratory, diabetic, environmental, and behavioral emergency patients, including but not limited to: seizures; upper airway obstruction and lower airway diseases; administration of oral glucose and assessment of blood glucose; heat/cold exposure; water-related emergencies; altered mental status; stroke; and psychological crisis.

b. Demonstrate the skills necessary to provide emergency care of the patient suffering from (including but not limited to) seizures; upper airway obstruction and lower airway diseases; hypoglycemia and hyperglycemia; heat/cold exposure; water-related emergencies; altered mental status; stroke; and psychological crisis.
c. Discuss the First Responder's role in the provision of emergency care and relief during weather disasters including tornado relief and shelters and hurricane/flood evacuations.

TRAUMA

HS-CEM-12. Students will accurately assess and treat patients with bleeding, soft-tissue, and musculoskeletal injuries.

a. Integrate the knowledge and skills necessary to assure the provision of necessary assessment of internal and external soft-tissue injuries (including but not limited to): arterial, venous, and capillary bleeds; external bleeding; shock; burns; blunt and penetrating trauma; chest wounds; abdominal injuries; and amputations.
b. Demonstrate the skills applicable to the management of internal and external soft-tissue injuries utilizing personal protective equipment and standard precautions (including but not limited to): arterial, venous, and capillary bleeds; external bleeding; shock; burns; blunt and penetrating trauma; chest wounds; abdominal injuries; and amputations.
c. Integrate the knowledge and skills necessary to assure the provision of necessary assessment of musculoskeletal injuries (including but not limited to): open, closed, painful, swollen, deformed extremity; fractures and dislocations; head and spinal cord injuries.
d. Demonstrate the skills applicable to the management of internal and musculoskeletal injuries; utilizing personal protective equipment and standard precautions (including but not limited to): open, closed, painful, swollen, deformed extremity; fractures and dislocations; head and spinal cord injuries.
e. Relate the mechanism of injury to potential injuries of the head and spine.

OBSTETRICS/GYNECOLOGY

HS-CEM-13. Students will recognize, assess, and treat obstetric and gynecological emergencies.

a. Discuss the multiple services the Emergency Medical Services Provider must provide in caring for a pregnant patient—provide care for injuries, provide emotional support, provide for patient

dignity and protect her from embarrassment from onlookers— and explain the implications of caring for two patients in maternal/newborn care.
b. Demonstrate how to time a contraction correctly.
c. Recognize and manage imminent delivery utilizing the obstetric kit and demonstrate post delivery care of the mother and newborn to include neonatal resuscitation procedures (simulation).
d. Discuss emergency care of the patient with the following gynecological emergencies: vaginal bleeding, breech birth, prolapsed cord, limb presentation, multiple births, premature births, and meconium staining of the amniotic fluid.
e. Discuss special considerations given to the pregnant victim of sexual assault.

INFANTS AND CHILDREN

HS-CEM-14. Students will identify, assess, and treat infants and children with medical, traumatic, and environmental emergencies.

a. Summarize the developmental considerations affecting the provision of emergency care for each of the following age groups: infants, toddlers, preschool, school age, and adolescent.
b. Discuss the differences in the response of an ill or injured pediatric patient to that of an ill or injured adult patient.
c. Demonstrate the assessment and emergency medical care procedures for the pediatric trauma/medical patient(s) to include: respiratory distress/failure, cardiac arrest, shock, and seizures.
d. Summarize the indicators of child abuse/neglect and describe the Emergency Medical Services Provider's legal responsibilities in suspected cases of abuse/neglect.
e. Analyze the provider's own emotional response to caring for infants or children and recognize the need for debriefing following a difficult call involving an infant or child.
f. Demonstrate a caring attitude and empathy when providing emergency medical care for pediatric patients and in communicating with their parents/guardians.
g. Place the interests of the infant and child with an illness or injury as the foremost consideration when making any and all patient care decisions.

EMS OPERATIONS – GAINING ACCESS / EXTRICATION / TRIAGE / HAZARDOUS MATERIALS

HS-CEM-15. Students will demonstrate the ability to effectively manage a scene, using components of access, extrication, triage, and hazardous materials.

a. Discuss the phases of out-of-hospital rescues and evaluate various methods of gaining access to victims, distinguishing between simple and complex access.
b. Define the fundamental components of extrication and discuss the role of the Emergency Medical Services Provider.
c. Identify what equipment is required for personal safety during extrication and analyze the proper use of medical/non-medical equipment needed to respond to an extrication call.
d. State the steps that should be taken to protect the patient during extrication.
e. Discuss the criteria for a multiple casualty situation and the role of the First Responder in assisting with management of the incident.
f. Summarize the components of basic triage (modified START plan) and demonstrate in a given scenario of mass-casualty incidence.
g. Discuss the circumstances that usually require a helicopter/medevac unit transport and demonstrate how to set up the landing zone for a helicopter/medevac unit.
h. State the information the First Responder must be prepared to provide the medevac unit.
i. Demonstrate the steps for approaching and managing a hazardous scene while providing for personal, team, and bystanders' safety (simulation).

PHARMACOLOGY/OXYGEN THERAPY

HS-CEM-16. Students will understand the rules of pharmacology: giving and assisting with medications and routes of medications, including proper techniques for use of oxygen therapy.

a. Define pharmacology, over-the-counter drugs, prescription drugs, indications, and contraindications.
b. Summarize the rules for giving or assisting the patient with any medication.
c. Evaluate the different routes for giving a medication.
d. Discuss why oxygen is considered a medication and the impact of local protocols and medical oversight governing the administration of oxygen by the First Responder.
e. Analyze the disadvantages or hazards of oxygen therapy.

f. Identify the components of oxygen delivery systems and compare types of oxygen cylinders including the regulators, flowmeters, and humidifiers.
g. Demonstrate the use of all safety guidelines when working with oxygen cylinders.
h. Calculate the duration of flow for both D and E cylinders individually and discuss the general guidelines for oxygen dosages for patients involved in trauma, childbirth, medical, and environmental emergencies.
i. Identify oxygen delivery devices for breathing patients including nasal cannula, venturi mask, and non-rebreather masks.
j. Demonstrate the preparation and correct operation of an oxygen delivery system to provide oxygen to an adult, an infant, and a child (simulations).
k. Demonstrate the steps in discontinuing oxygen.

ACADEMIC STANDARDS: The following academic standards are integrated throughout the HS-CEM Standards.

SAP. Students will analyze anatomical structures in relationship to their physiological functions.

SAP2. Students will analyze the interdependence of the integumentary, skeletal, and muscular systems as these relate to the protection, support and movement of the human body.

SAP3. Students will assess the integration and coordination of body functions and their dependence on the endocrine and nervous systems to regulate physiological activities.

SAP4. Students will analyze the physical, chemical, and biological properties of process systems as these relate to transportation, absorption and excretion, including the cardiovascular, respiratory, digestive, excretory and immune systems.

SAP5. Students will analyze the role of the reproductive system as it pertains to the growth and development of humans.

ELA11C1. The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats.

CTAE Foundation Skills

The Foundation Skills for Career, Technical and Agricultural Education (CTAE) are critical competencies that students pursuing any career pathway should

exhibit to be successful. As core standards for all career pathways in all program concentrations, these skills link career, technical and agricultural education to the state's academic performance standards.

The CTAE Foundation Skills are aligned to the foundation of the U. S. Department of Education's 16 Career Clusters. Endorsed by the National Career Technical Education Foundation (NCTEF) and the National Association of State Directors of Career Technical Education Consortium (NASDCTEc), the foundation skills were developed from an analysis of all pathways in the sixteen occupational areas. These standards were identified and validated by a national advisory group of employers, secondary and postsecondary educators, labor associations, and other stakeholders. The Knowledge and Skills provide learners a broad foundation for managing lifelong learning and career transitions in a rapidly changing economy.

CTAE-FS-1 Technical Skills: Learners achieve technical content skills necessary to pursue the full range of careers for all pathways in the program concentration.

CTAE-FS-2 Academic Foundations: Learners achieve state academic standards at or above grade level.

CTAE-FS-3 Communications: Learners use various communication skills in expressing and interpreting information.

CTAE-FS-4 Problem Solving and Critical Thinking: Learners define and solve problems, and use problem-solving and improvement methods and tools.

CTAE-FS-5 Information Technology Applications: Learners use multiple information technology devices to access, organize, process, transmit, and communicate information.

CTAE-FS-6 Systems: Learners understand a variety of organizational structures and functions.

CTAE-FS-7 Safety, Health and Environment: Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.

CTAE-FS-8 Leadership and Teamwork: Learners apply leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.

CTAE-FS-9 Ethics and Legal Responsibilities: Learners commit to

work ethics, behavior, and legal responsibilities in the workplace.

CTAE-FS-10 Career Development: Learners plan and manage academic-career plans and employment relations.

CTAE-FS-11 Entrepreneurship: Learners demonstrate understanding of concepts, processes, and behaviors associated with successful entrepreneurial performance.