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PROGRAM
CONCENTRATION: **Healthcare Science**

CAREER PATHWAY(S):   **Therapeutic Services-Nursing**
                        Therapeutic Services-Medical Services
                        Therapeutic Services-Emergency Services
                        Health Informatics
                        Biotechnology Research & Development
                        Diagnostic Services
                        Therapeutic Services-Physical Medicine

COURSE TITLE: **Introduction to Healthcare Science**

Introduction to Healthcare Science is a foundations course for the Healthcare Science Career Pathways. It is appropriate for students wishing to pursue a career in the Healthcare Industry. The course will enable students to receive initial exposure to Healthcare Science skills and attitudes applicable to the healthcare industry. The concepts of health, wellness, and preventative care are evaluated, as well as, ethical and legal responsibilities of today's healthcare provider. Fundamental healthcares skills development is initiated including medical terminology, microbiology, and basic life support. 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) and Center for Disease Control (CDC). Mastery of these standards through project based learning, technical skills practice, and leadership development activities of the career and technical student organization -Health Occupations Students of America (HOSA) will provide students with a competitive edge for either entry into the healthcare global marketplace and/or the post-secondary institution of their choice to continue their education and training. This course is considered broad-based with high impact and is a prerequisite for all Healthcare Science Education courses.

Academic Foundations
HS-IHS-1: Student 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.

Safety Applications in the Healthcare Classroom/Laboratory/Clinics
HS-IHS-2: Students will maintain a safe work environment and prevent accidents

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by using safety precautions and/or practices including adherence to hazardous labeling requirements and compliance with safety signs, symbols, and labels.

   a. Analyze the role and the responsibilities of the healthcare provider (student) in the classroom, laboratory, and various workplace settings in an emergency situation.
   b. Demonstrate disaster preparedness procedures for each emergency situation – fire prevention and the emergency evacuation plan, inclement weather, sniper attack, student (patient) out-of –control, bioterrorism, and bomb threat.
   c. Compare and contrast common emergency codes used in workplace settings to notify staff of impending emergency procedures (Code 99, Dr. Twister, etc.) and acknowledge that these codes may vary in each setting.
   d. Demonstrate and incorporate proper use of ergonomics and correct body mechanics in the classroom, laboratory, and workplace.

Academic standards:
SCSh2 – Students will use standard safety practices for all classroom laboratory and workplace investigations.

SAP1 – Students will analyze anatomical structures in relationship to their physiological functions

Healthcare Delivery Systems
HS-IHS-3: The student will analyze healthcare delivery system models and the role of health professionals within each given model.

   a. Explain systems theory.
   b. Research the history of healthcare delivery systems development including evaluating the impact of enhanced technology and other factors that may affect various healthcare delivery systems.
   c. Analyze current trends in delivery systems.
   d. Define, compare and contrast services performed in healthcare delivery systems to ensure the delivery of quality healthcare.
   e. Construct a healthcare delivery system model with a simulated organizational chart diagramming the interdependence of healthcare professions within the system.
   f. Analyze the economic impact of healthcare delivery and calculation of health insurance plans to include deductibles, co-pays, PPOs and HMOs.
   g. Analyze each of the following healthcare pathways: therapeutic, diagnostic, health informatics, environmental support, and biotechnology research and development.
   h. Identify the credentialing processes necessary for health care careers to include licensure, certification, and registration.

Academic standards:

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ELA11W3 – The student uses research and technology to support writing.

SSEF4 - The student will compare and contrast different economic systems, and explain how they answer the three basic economic questions of what to produce, how to produce and for whom to produce.

MM2P1-Students will solve problems (using appropriate technology)

MM2P4- Students will make connections among mathematical ideas and to other disciplines.

SSEF2- The student will give examples of how rational decision making entails comparing the marginal benefits and the marginal costs of an action)

SSEPF5- The student will describe how insurance and other risk-management strategies protect against financial loss.

Teamwork and Leadership
HS-IHS-4: The student will describe the attributes of effective teamwork and leadership.
    a. Define leadership and state the qualities of a leader.
    b. Describe Career and Technical Student Organizations, their importance in leadership development and identify benefits of belonging to Health Occupations Students of America (HOSA).
    c. Analyze different types of teams, identify team members and discuss their roles and responsibilities.

Introduction to Healthcare Communications
HS-IHS-5: The student will communicate effectively orally and in writing applying academic knowledge in healthcare science communications.
    a. Differentiate between verbal and non-verbal communication and evaluate the components and barriers to effective communication.
    b. Organizes and develops ideas into accurate verbal reports and record appropriate data.
    c. Calculate health related math problems.
    d. Adapt communication to the needs of the individual in a responsive rather than reactive manner.
    e. Demonstrate and differentiate between appropriate and inappropriate use of telecommunications technology (cell phone, e-mail, and other forms of internal organization communications).

Academic standards:
ELA9RC2- The student participates in discussions related to curricular learning in all subject areas.

ELA9LSV1 – The student participates in student-to-teacher, student-to-student, and group verbal interactions.

MM2P1 – Students will solve problems (using appropriate technology).

MM2P3d –Use the language of mathematics to express mathematical ideas precisely.

MM2P4 – Students will make connections among mathematical ideas and to other disciplines

SCSh6 – Students will communicate scientific investigations and information clearly.

Cultural Diversity
HS-IHS-6: Demonstrate knowledge and understanding of diverse social, religious, ethnic, and cultural communities.
    a.   Identify and demonstrate respect for cultural, socioeconomic, and ethnic diversity.
    b.   Evaluate cultural difference (i.e. culturally acceptable gestures, terms, and common folk medicine practices indigenous to certain regions) and their impact on healthcare delivery.

Introduction to Life Changes – The Process of Change
HS-IHS-7: The student will compare and contrast the life changes from conception throughout the lifespan as it relates to all growth and developmental needs.
    a. Investigate the interdependence of the various body systems to each other and to the body as a whole.
    b. Explain the role of homeostasis and its mechanisms as these relate to the body as a whole and predict the consequences of the failure to maintain homeostasis.
    c. Describe how structure and function are related in terms of cell and tissue types.
    d. Describe the stages of growth and development from conception throughout the lifespan including correlations to Maslow's Hierarchy of Needs.
    e. Examine various conditions that change normal body functions – i.e. tissue rejection, allergies, injury, diseases and disorders - and how the body responds.
    f. Describe effects of aging on all body systems.

Academic standards:

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SAP5e – Describe effects of aging on all body systems.

SAP4e- Examine various conditions that change normal body functions (e.g. tissue rejection, allergies, injury, diseases and disorders) and how the body responds.

SAP5d – Describe the stages of development from birth to adulthood –i.e. neonatal period, infancy, childhood, adolescence and puberty, and maturity.

Ethical Responsibilities

HS-IHS-8: **The student will demonstrate integration of accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare classroom and all clinical environments utilized.**

    a. Differentiate between moral, ethical, and legal issues impacting healthcare and the relationship of each to healthcare outcomes.

    b. Contrast personal, professional, and organizational ethics.

    c. Differentiate between federal and state regulations/laws of healthcare and discuss Professional Standards of Care.

Legal Responsibilities

HS-IHS-9: **The student will explain the legal responsibilities, limitations, and implications of their actions within the healthcare delivery setting. They will perform their duties according to regulations, policies, laws and legislated rights of clients.**

    a. Analyze the basic legal responsibilities of healthcare workers in regards to torts, malpractice, negligence, invasion of privacy, privileged communication, patient/client confidentiality, doctrine of informed consent including identification of HIPAA regulations and the impact on healthcare communications.

    b. Discuss legal contracts and how they affect healthcare delivery including but not limited to: advance directives, living wills, durable power of attorney, and other legal directives regarding medical treatment.

    c. Examine the American Hospital Association's "Patients Bill of Rights;" the Omnibus Budget Reconciliation Act (OBRA); the Patient Self – Determination Act, National Patient Safety Goals, and Joint Commission on Accreditation of Health Organizations (JCAHO).

    d. Define and differentiate between policies and procedures; comply with the institutional policies and procedures.

    e. Define and determine a reportable variance (incident) and follow established Risk Management protocol.

    f. Describe standards for accessing, reporting and documenting client health information (PHI).

Health Maintenance Practices

HS-IHS-10: **The student will practice preventive health behaviors personally and professional with clients.**

a. Distinguish between health and wellness and behaviors that promote each.
b. Explain the fundamentals of wellness and the prevention of disease processes.
c. Define OSHA, CDC, Clinical Laboratory Improvements Amendments (CLIA) and explain each agency's role in healthcare practice.
d. Compare and contrast the different types of immunity.

Concepts of Microbiology
HS-IHS-11: The student will utilize the principles of infection control.
a. Evaluate the need for asepsis in the health environment.
b. Differentiate between cleaning, disinfecting, and sterilizing.
c. Analyze ways microorganisms are spread using the chain of infection model and analyze methods to destroy or control the spread of pathogenic microorganisms.
d. Identify risk factors associated with nosocominal infections and evaluate their impact on client and employee health.
e. Define, demonstrate, and use standard precautions as described in the rules and regulations set forth by the Occupational Safety and Health Administration (OSHA).
f. Demonstrate medical aseptic technique included but not limited to: medical aseptic handwash, cleaning, disinfecting, (non-sterile) gloving and de-gloving.

Academic standard:
SCSh2 -Students will use standard safety practices for all classroom, laboratory, and field investigations.

Introduction to Medical and Technology Terminology and Abbreviations
HS-IHS-12: The student will utilize the elements of medical terminology to communicate information, data and observations.
a. Interpret basic medical abbreviations selected from JCAHO's recommended abbreviations list.
b. Analyze and define medical terms utilizing common medical prefixes, suffixes, and word roots.
c. Utilize medical terminology within a scope of practice in order to interpret, transcribe, and communicate information, data and observations.

Academic standard:
ELA9RL5 – The student understands and acquires new vocabulary and uses it correctly in reading and writing.

Introduction to Community Safety

HS-IHS-13: **The student will demonstrate basic life support techniques on an adult victim while utilizing personal protective equipment devices and adhering to all standard precautions within OSHA guidelines. This may be simulated for demonstration purposes as necessary.**

    a. Analyze the role of the respiratory and circulatory systems as it pertains to basic life support.

    b. Perform the following: location of pulse sites, clearing and opening of obstructed airway (conscious and unconscious), rescue breathing, cardiopulmonary resuscitation, and recovery position.

    c. Successfully complete American Red Cross (ARC) and/or American Heart Association's (AHA) Adult basic life Support for Healthcare Providers Training.

    d. Apply AED and follow directions based on the scenario for an adult victim.

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

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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.