**Course Description:**

Students will perform procedures to expose, process, and interpret dental radiographs. Students will apply knowledge of radiation physics, infection prevention and quality control standards that are appropriate to the clinical setting. Students will apply effective communication skills for interacting with diverse patient populations and proper procedure documentation according to business and industry standards.

**Strand 1. Business Operations/21st Century Skills**

Learners apply principles of economics, business management, marketing and employability in an entrepreneur, manager and employee role to the leadership, planning, developing and analyzing of business enterprises related to the career field.

**Outcome 1.2. Leadership and Communications**

Process, maintain, evaluate and disseminate information in a business. Develop leadership and team building to promote collaboration.

**Competencies**

1.2.1. Extract relevant, valid information from materials and cite sources of information (e.g., medical reports, fitness assessment, medical test results).

1.2.3. Identify and use verbal, nonverbal and active listening skills to communicate effectively.

1.2.5. Communicate information for an intended audience and purpose.

1.2.6. Use proper grammar and expression in all aspects of communication.

1.2.9. Identify advantages and disadvantages involving digital and/or electronic communications.

1.2.10. Use interpersonal skills to provide group leadership, promote collaboration and work in a team.

1.2.12. Use technical writing skills to complete forms and create reports.

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| **Pathways** | X | Health Information Management | x | Medical Bioscience | X | Allied Health and Nursing | X | Exercise Science and Sports Medicine |

**Outcome 1.3. Business Ethics and Law**

Analyze how professional, ethical and legal behavior contributes to continuous improvement in organizational performance and regulatory compliance.

**Competencies**

1.3.2. Follow protocols and practices necessary to maintain a clean, safe and healthy work environment.

1.3.3. Use ethical character traits consistent with workplace standards (e.g., honesty, personal integrity, compassion, justice).

1.3.5. Access and implement safety compliance measures (e.g., quality assurance information, safety data sheets [SDSs], product safety data sheets [PSDSs], United States Environmental Protection Agency [EPA], United States Occupational Safety and Health Administration [OSHA]) that contribute to the continuous improvement of the organization.

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**Outcome 1.4. Knowledge Management and Information Technology**

Demonstrate current and emerging strategies and technologies used to collect, analyze, record and share information in business operations.

**Competencies**

1.4.1. Use office equipment to communicate (e.g., phone, radio equipment, fax machine, scanner, public address systems).

1.4.2. Select and use software applications to locate record, analyze and present information (e.g., word processing, e‐mail, spreadsheet, databases, presentation, Internet search engines).

1.4.3. Verify compliance with security rules, regulations and codes (e.g., property, privacy, access, accuracy issues, client and patient record confidentiality) pertaining to technology specific to the industry pathway.

1.4.4. Use system hardware to support software applications.

1.4.8. Use electronic media to communicate and follow network etiquette guidelines.

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**Outcome 1.5. Global Environment**

Evaluate how beliefs, values, attitudes and behaviors influence organizational strategies and goals.

**Competencies**

1.5.1. Describe how cultural understanding, cultural intelligence skills and continual awareness are interdependent.

1.5.2. Describe how cultural intelligence skills influence the overall success and survival of an organization.

1.5.3. Use cultural intelligence to interact with individuals from diverse cultural settings.

1.5.4. Recognize barriers in cross‐cultural relationships and implement behavioral adjustments.

1.5.6. Analyze work tasks for understanding and interpretation from a different cultural perspective.

1.5.7. Use intercultural communication skills to exchange ideas and create meaning.

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**Outcome 1.6. Business Literacy**

Develop foundational skills and knowledge in entrepreneurship, financial literacy and business operations.

**Competencies**

1.6.5. Describe organizational structure, chain of command, the roles and responsibilities of the organizational departments and interdepartmental interactions (e.g., following physician’s orders).

1.6.6. Identify the target market served by the organization, the niche that the organization fills and an outlook of the industry.

1.6.9. Explain how the performance of an employee, a department and an organization is assessed.

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**Strand 2. Human Body System**

Learners will discuss the various forms, functions and pathophysiology associated with body systems and alterations related to the normal aging process, obtain a health history, perform an evaluation of body systems and document using medical terminology.

**Outcome 2.1. Human Body Form, Function and Pathophysiology**

Discuss the various human body systems, alterations related to the normal aging process and possible dysfunctions.

**Competencies**

2.1.6. Describe the musculoskeletal system, including skeletal, cardiac and smooth muscle, various

bone structures and the role of bone marrow and joints and injuries.

2.1.7. Describe the gastrointestinal system, including structures of chewing, swallowing, digestion

and elimination and the role of accessory organs including the liver, pancreas and gallbladder.

2.1.15. Explain the pathophysiology changes associated with or resulting from disease or injury.

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**Outcome 2.2. Evaluate Body Systems**

 Use interviewing techniques, observation, auscultation, palpation and percussion to perform a systematic head‐to‐toe evaluation of the body systems and document using medical terminology.

**Competencies**

2.2.1. Provide privacy and demonstrate cultural sensitivity.

2.2.2. Contact interpretive services for non‐English speaking and English as a Second Language (ESL)

individuals.

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**Outcome 2.3. Medical Terminology**

Decipher medical terms through word origin and structure with an emphasis on derivation, meaning, pronunciation and spelling.

**Competencies**

2.3.1. Build and decipher medical term meanings by identifying and using word elements (e.g., word roots, prefixes, suffixes, combining forms).

2.3.3. Use diagnostic, symptomatic and procedural terms to read and interpret various medical reports.

2.3.4. Use the appropriate abbreviations and symbols to identify anatomical, physiological and pathological classifications and the associated medical specialties and procedures.

2.3.5. Use proper spelling and pronunciation of medical terms when communicating medical instructions and preparing medical documentations.

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**Strand 3. Therapeutic Interventions**

Learners will administer or assist with environmental, health promotion, pharmacological, emergency, nutritional, exercise and rehabilitative and dental and surgical interventions and/or procedures to improve the individuals’ outcome and quality of life across the life span within their scope of practice, evaluate outcomes and ensure individual’s rights.

**Outcome 3.1. Environmental Interventions**

Create and maintain a safe, sterile, efficient, age‐appropriate care environment.

**Competencies**

3.1.1. Use standard precaution guidelines, recommended by the Centers for Disease Control and

Prevention, for reducing the risk of transmission of blood‐borne and other pathogens.

3.1.2. Maintain patients’ rights, respect individual’s choices and obtain informed consent.

3.1.3. Describe confidentiality guidelines in the Health Insurance Portability and Accountability Act

(HIPAA).

3.1.6. Identify and remove environmental and electrical hazards to decrease the risk of falls, injury,

or ingestion of dangerous materials (e.g., clutter, equipment, throw rugs, spills, plants,

hazardous chemicals).

3.1.13. Identify risk factors of exposure to hazardous materials (i.e., chemical, radiologic, microbial)

and provide safety precautions.

3.1.14. Apply principles of asepsis and sterile techniques and determine recommended use of

germicides (e.g., sterilant, disinfectant, antiseptic).

3.1.15. Follow Standard Operational Protocols (SOP's) for exposure and disposal of tissue cultures,

contaminated materials, body fluids and radioisotopes and place sharps in biohazard

containers.

3.1.18. Account for all instruments, supplies and equipment.

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**Outcome 3.7. Dental Interventions**

Assist in the application of dental and oral interventions and document with dental terminology and symbols.

**Competencies**

3.7.4. Identify instruments and supplies used in various dental procedures.

3.7.5. Identify dental emergencies.

3.7.7. Describe the science of radiation production, safety and protection.

3.7.8. Describe the composition, sizes, types, mounting and storage procedures of dental x‐ray.

3.7.9. Describe common x‐ray production and processing errors and their corrections.

3.7.10. Describe the paralleling and bisecting x‐ray techniques and needed equipment.

3.7.11. Take intraoral and extraoral photographs and radiographs.

3.7.18. Apply principles of radiation physics (i.e., the atom, alpha and beta particles, half-life, electromagnetic theory, quantum mechanics. *(Updated 25 AUG 2014)*

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**Strand 4. Assistive Care**

Learners will demonstrate the skills and knowledge to provide personal assistive care for the activities of daily living to a variety of individuals across the life span within their scope of practice.

**Outcome 4.1. Scope of Practice**

Demonstrate the roles and responsibilities of assistive personnel and identify the medical specialists who treat disorders of each body system.

**Competencies**

4.1.2. Inform the supervisor of any changes in the individual’s condition.

4.1.3. Provide input to and work within an age‐appropriate plan of care developed by the

interdisciplinary team for each individual.

4.1.5. Identify the medical specialists who treat disorders of each body system.

4.1.6. Identify body planes, directions, cavities, quadrants and regions.

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**Outcome 4.2. Therapeutic Communication and Interpersonal Skills**

Demonstrate communication techniques and behaviors when communicating with individuals and interacting with individuals with impairments and document.

**Competencies**

4.2.1. Describe non‐verbal communication, including gestures, posture, touch, facial expressions,

eye contact, body movements, avoidance and appearance.

4.2.2. Describe the importance of maintaining an individual’s personal space.

4.2.3. Describe the importance of empathy in interpersonal relationships and the need for kindness,

patience and listening.

4.2.4. Maintain aids that promote oral, auditory and visual health (e.g., eye glasses, hearing aids,

dentures).

4.2.8. Provide aids to facilitate communication for speech impaired individuals (e.g., picture cards, slates, notepads).

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**Outcome 4.3. Microorganisms, Infection Control and Infection**

Use basic principles of infection control to prevent the growth and spread of pathogenic microorganisms and infection.

**Competencies**

4.3.1. Describe the chain of infection (e.g., host, vectors, portal of entry).

4.3.2. Describe mechanisms for the spread of infection, including airborne, vector‐borne, common

vehicle, droplet and contact.

4.3.3. Describe methods of controlling or eliminating microorganisms and the importance of

practices that hinder the spread of infection (e.g., hand washing, disinfecting care areas).

4.3.4. Use personal protective equipment (PPE) when encountering body fluids, potential of

splashing, or respiratory droplets.

4.3.5. Demonstrate various decontamination techniques and procedures.

4.3.6. Demonstrate precaution guidelines.

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**Strand 6. Health Information Management**

Learners will demonstrate basic computer literacy, health information literacy and skills, confidentially and privacy of health records, information security and basic skills in the use of electronic health records.

**Outcome 6.1. Health Information Literacy**

Apply principles of systems operations used to capture, retrieve and maintain information from internal and external sources.

**Competencies**

6.1.7. Differentiate between the types and content of patient health records and the data collected

(e.g., paper‐based, electronic health records, personal health records).

6.1.8. Describe health record documentation requirements of external agencies and organizations

(e.g., those specified by accrediting bodies, regulatory bodies, professional review

organizations, licensure, reimbursement, discipline‐specific “good practice”).

6.1.9. Describe typical internal organizational health record documentation requirements, policies

and procedures.

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**Outcome 6.2. Confidentiality, Privacy and Security**

Apply the fundamentals of confidentiality, privacy and security to communicate health/medical information accurately and within legal/regulatory bounds across the organization and between organizations.

**Competencies**

6.2.2. Differentiate between types of evidence used in healthcare litigation, process of discovery and the permissible use of evidence in litigation, recognizing the elements of negligence and medical malpractice.

6.2.4. Identify what constitutes the authorized access, release and use of personal health data.

6.2.5. Distinguish between confidential and non‐confidential information within the healthcare

system and document, categorize and prioritize requests for personal health information

according to internal/external privacy and confidentiality guidelines (e.g. Health Insurance

Portability and Accountability Act [HIPAA]).

6.2.8. Describe the possible consequences of inappropriate use of health data in terms of

disciplinary action.

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