



Western Technical College

10526158 Introduction to Radiography

Course Outcome Summary

Course Information

Description	Introduces students to the role of radiography in health care. Students apply healthcare communication techniques. Students are introduced to legal and ethical considerations, patient interactions and management, patient and provider safety, and pharmacology.
Career Cluster	Health Science
Instructional Level	A.A.S. - Associate in Applied Science
Total Credits	3

Textbooks

Introduction to Radiologic & Imaging Sciences & Patient Care – with Access. 8th Edition. Copyright 2023. Adler, Arlene M. Publisher: Elsevier Science. **ISBN-13:** 978-0-323-87220-1. Required. (Part of Western Bundle Package **ISBN-13:** 978-0-443-15028-9)

Success Abilities

1. Cultivate Passion: Increase Self-Awareness
2. Live Responsibly: Embrace Sustainability
3. Live Responsibly: Foster Accountability
4. Refine Professionalism: Improve Critical Thinking

High Impact Practices

1. Community Engagement - in this course, you will explore and reflect on opportunities presented by the college and the program to become more involved in the community (ex: Employer Spotlights, Volunteerism, Professional Associations, and Community Action Boards)

Program Outcomes

1. Practice radiation safety principles
2. Provide quality patient care
3. Model professional and ethical behavior consistent with the A.R.R.T. Code of Ethics

Course Competencies

1. Examine the role of the radiographer in the healthcare environment

Assessment Strategies

- 1.1. Oral, written, graphic or skill assessment

Criteria

- 1.1. you summarize health science professions including its various settings and their contributions to patient care
- 1.2. you compare the responsibility and relationship of services available in the radiology/imaging department
- 1.3. you compare the terms accreditation, credentialing, certification, licensure, regulations and the agencies involved in relation to radiologic technology
- 1.4. you explain the purpose of state and national professional societies
- 1.5. you explain the general responsibility and practice standards of the radiographer
- 1.6. you relate the general employment and career advancement opportunities for radiographers
- 1.7. you examine the benefits of continuing education as related to improved patient care and professional enhancement

Learning Objectives

- 1.a. Summarize health science professions including its various settings and their contributions to patient care
- 1.b. Compare the responsibility and relationship of services available in the radiology/imaging department
- 1.c. Compare the terms accreditation, credentialing, certification, licensure, regulations and the agencies involved in relation to radiologic technology
- 1.d. Explain the purpose of state and national professional societies
- 1.e. Identify the general responsibility and practice standards of the radiographer
- 1.f. Relate the general employment and career advancement opportunities for radiographers
- 1.g. Examine the benefits of continuing education as related to improved patient care and professional enhancement

2. Apply basic radiation safety and protection principles

Assessment Strategies

- 2.1. Oral, written, graphic or skill assessment

Criteria

- 2.1. you recognize safe radiation practices of the radiographer
- 2.2. you determine safe radiation protection practices on behalf of the patient
- 2.3. you distinguish between radiation units of measurement
- 2.4. you illustrate the effect of time on radiographer exposure
- 2.5. you illustrate the effect of distance on radiographer exposure
- 2.6. you illustrate the effect of shielding on radiographer and patient exposure
- 2.7. you summarize the ALARA principle
- 2.8. you summarize the risks vs. benefits concept of radiographic procedures

Learning Objectives

- 2.a. Describe sources and radiation types
- 2.b. Describe occupational dose equivalent values
- 2.c. Compare exposure technique values and their effect on biological damage
- 2.d. List the 3 cardinal rules of radiation protection
- 2.e. Solve Inverse Square Law problems
- 2.f. Apply patient exposure reduction devices in the clinical setting
- 2.g. Apply personnel exposure reduction devices in the clinical setting

2.h. Adhere to ALARA professional practices

3. Analyze legal and ethical issues in healthcare

Assessment Strategies

3.1. Oral, written, graphic and/or skill assessment

Criteria

- 3.1. you explore, social, and cultural basis of ethics
- 3.2. you apply concepts of personal honesty, integrity, accountability, competence, and compassion, as ethical imperatives in health care
- 3.3. you comply with Health Insurance Portability and Accountability Act (HIPAA)
- 3.4. you evaluate specific situations and conditions that give rise to ethical dilemmas in health care
- 3.5. you practice correct methods of electronic documentation with respect to legal and ethical implications
- 3.6. you interpret the implications of legal liability, malpractice, and negligence
- 3.7. you comply with the principles of patient rights including the doctrine of informed patient consent
- 3.8. you explore use and non-use of positioning aids
- 3.9. you explore the effects of manipulation of electronic data

Learning Objectives

- 3.a. Define Tort
- 3.b. Adhere to the A.R.R.T. Code of Ethics
- 3.c. Examine factors contributing to malpractice situations in Radiology

4. Recognize medical emergencies in radiology

Assessment Strategies

4.1. Oral, written, graphic and/or skill assessment

Criteria

- 4.1. you select the correct equipment and supplies
- 4.2. you describe all critical steps in a logical order
- 4.3. you wear personal protective equipment
- 4.4. you follow safety procedures
- 4.5. you verbalize an appropriate response
- 4.6. your explanation presents sound reasoning as you describe the decisions you make throughout the process

Learning Objectives

- 4.a. Identify normal values of vital signs
- 4.b. Recognize abnormal vital signs
- 4.c. Measure blood pressure, pulse and respiration
- 4.d. Identify actions to be taken in the cases of medical emergencies

5. Apply standard procedures for infection control

Assessment Strategies

5.1. Oral, written, graphic and/or skill assessment

Criteria

- 5.1. you perform all critical steps in a logical order
- 5.2. you wear personal protective equipment
- 5.3. you follow safety procedures
- 5.4. you verbalize an appropriate response
- 5.5. you describe the proper handling and disposal of toxic and hazardous materials

Learning Objectives

- 5.a. Identify vectors
- 5.b. Perform proper handwashing
- 5.c. Implement proper techniques for infection control

6. Explain the purpose, precautions, and care of tubes, lines, catheters, and collection devices

Assessment Strategies

6.1. Oral, written, graphic and/or skill assessment

Criteria

- 6.1. you properly handle equipment and supplies
- 6.2. you describe all critical steps in a logical order
- 6.3. you wear personal protective equipment
- 6.4. you follow safety procedures
- 6.5. you verbalize the process as you perform it
- 6.6. you outline the operation of oxygen equipment and the monitoring of an IV

Learning Objectives

- 6.a. Identify tubes, catheters, lines and collection devices
- 6.b. Define the function of the above listed devices

7. Identify the considerations for end of life**Assessment Strategies**

- 7.1. Oral, written, graphic and/or skill assessment

Criteria

- 7.1. you identify the psychological considerations for end of life
- 7.2. you identify the physical considerations for end of life
- 7.3. you modify communication techniques
- 7.4. you respond appropriately to the patient's stage of grief

Learning Objectives

- 7.a. List the five steps of dealing with death and dying
- 7.b. Be sensitive to the needs of the patient and family during the process of dying

8. Demonstrate proper body mechanics**Assessment Strategies**

- 8.1. Oral, written, graphic and/or skill assessment

Criteria

- 8.1. you select the correct equipment and supplies
- 8.2. you perform all critical steps in a logical order
- 8.3. you position yourself correctly
- 8.4. you follow established procedures for body mechanics
- 8.5. you wear personal protective equipment
- 8.6. you follow safety procedures for self and patient
- 8.7. you verbalize the process as you perform it

Learning Objectives

- 8.a. Describe proper body mechanics
- 8.b. Apply proper body mechanics
- 8.c. Perform safe patient transfers from wheelchairs and carts

9. Record patient vital signs**Assessment Strategies**

- 9.1. Oral, written, graphic and/or skill assessment

Criteria

- 9.1. you perform blood pressure, pulse, respirations, temperature, and pulse oximetry
- 9.2. you accurately record findings
- 9.3. you state the normal range of blood pressure, pulse, respirations, temperature, and pulse oximetry
- 9.4. you note variants in range across the lifespan
- 9.5. you identify possible implications of abnormal vital signs

Learning Objectives

- 9.a. Identify normal vital sign values
- 9.b. Identify abnormal vital sign values
- 9.c. Perform the measurement of vital signs

10. Follow surgical and medical asepsis procedures

Assessment Strategies

- 10.1. Oral, written, graphic and/or skill assessment

Criteria

- 10.1. you select the correct equipment and supplies
- 10.2. you describe all critical steps in a logical order
- 10.3. you position yourself correctly within a sterile environment
- 10.4. you wear personal protective equipment
- 10.5. you follow safety procedures
- 10.6. you verbalize the process as you perform it

Learning Objectives

- 10.a. List exams where aseptic technique is employed
- 10.b. List the steps of of surgical asepsis
- 10.c. List the steps of medical asepsis

11. Explain pharmacology principles

Assessment Strategies

- 11.1. Oral, written, graphic and/or skill assessment

Criteria

- 11.1. you differentiate between drug actions and drug effects
- 11.2. you identify drug nomenclature
- 11.3. you classify and categorize drugs
- 11.4. you explain pharmacokinetics, pharmacodynamics, and other basic drug principles
- 11.5. you outline the six rights of drug safety
- 11.6. you differentiate between systemic and local effects
- 11.7. you describe various undesirable drug effects
- 11.8. you classify contrast agents type, use, administration
- 11.9. you identify contrast complications/reactions, emergency responses and radiographer response

Learning Objectives

- 11.a. Identify drug sources.
- 11.b. Define absorption.
- 11.c. Define distribution.
- 11.d. Define metabolism.
- 11.e. Define excretion.
- 11.f. List variables that can affect drug actions.
- 11.g. Differentiate between drug actions and drug effects.
- 11.h. Differentiate between systemic effects and local effects.
- 11.i. Differentiate between loading dose and maintenance dose.
- 11.j. Differentiate between toxic dose and lethal dose.
- 11.k. Describe various undesirable drug effects.

12. Differentiate among the methods of drug administration

Assessment Strategies

- 12.1. Oral, written, graphic and/or skill assessment

Criteria

- 12.1. classification includes all of the significant items to classify
- 12.2. classification is categorized using significant characteristics
- 12.3. classification is correctly sorted into the categories

Learning Objectives

- 12.a. List the various routes of drug administration
- 12.b. Compare the advantages and disadvantages of the different routes of administration

13. Apply the word-building process

Assessment Strategies

- 13.1. Oral, written, graphic and/or skill assessment

Criteria

- 13.1. you distinguish between prefix, suffix and word roots
- 13.2. you organize word parts appropriately
- 13.3. you use a combining vowel when necessary
- 13.4. you define word accurately
- 13.5. you pronounce word correctly

Learning Objectives

- 13.a. Distinguish between prefix, suffix and word roots
- 13.b. Define suffixes
- 13.c. Define prefixes
- 13.d. Define word roots

14. Demonstrate various modes of communication in healthcare

Assessment Strategies

- 14.1. Oral, written, graphic and/or skill assessment

Criteria

- 14.1. you identify challenging communication situations including language barriers, cultural and social factors, disabilities,
- 14.2. you communicate appropriate patient education
- 14.3. you identify modes of communication within interdisciplinary healthcare setting
- 14.4. you accurately record a patient history
- 14.5. you provide accurate pre and post procedure instructions
- 14.6. you employ strategies of interpersonal communication
- 14.7. you interpret medical orders and correlate with patient history

Learning Objectives

- 14.a. Demonstrate effective oral communication
- 14.b. Demonstrate effective written communication
- 14.c. Demonstrate effective nonverbal communication
- 14.d. Interpret radiographic exam requests