

El Paso Community College

Syllabus

Official Course Description

SUBJECT AREA	<u>Medical Imaging Technology-Radiography</u>
COURSE RUBRIC AND NUMBER	<u>RADR 1262</u>
COURSE TITLE	<u>Clinical-Radiologic Technology/Science Radiographer I</u>
COURSE CREDIT HOURS	<u>2 0 :<!-- 8</u--></u>
	Credits Lec Lab

I. Catalog Description

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. A grade of "C" or better is required in this course to take the next course. **(0:8). Professional Practice Insurance required.**

II. Course Objectives

- A. Unit I. Introduction to Radiography
1. State who discovered x-rays in addition to when and how they were discovered.
 2. Identify key figures leading to the discovery of x-rays.
 3. Describe major advances in the field of radiography and medical imaging.
 4. Explain the early biological effects of radiation, including genetic and somatic effects.
 5. Describe measures to protect against radiation exposure.
- B. Unit II. Professional Issues
1. Define and list the criteria of a profession.
 2. List the members of the health care team with whom the radiographer may frequently interact and their roles.
 3. Discuss the purpose of professional organizations and explain why the radiographer should join the professional organizations in his field.
 4. Explain Practice Standards and professional growth in radiologic technology.
 5. Define ethics and discuss ethics as it applies to radiologic technology.
 6. Explain the legal obligations that the radiographer has toward patients, peers, and other members of the health care team.
 7. Define the terms *respondeat superior*, *res ipsa loquitur*.
 8. Define the Patient Care Partnership and a Patient's Bill of Rights.
 9. Explain the ethical and legal aspects of patients regarding confidentiality and informed consent.
 10. Describe the legal responsibilities of the radiographer regarding patient identification, immobilization, and manipulation of electronic data.
 11. Explain the need for professional malpractice insurance.
 12. Describe the patient's need for confidentiality and the legal implications for the radiographer.
 13. Explain the need for accurate documentation in health care and the radiographer's obligations in this aspect of health care.
- C. Unit III. Patient Assessment and Communication
1. Explain the basic physical and emotional needs of the person seeking health care and the effect of stress on health.

2. Define and explain critical thinking and describe its place in the profession of radiologic technology.
3. Explain the method used to make an accurate assessment of the patient's needs in the imaging department and explain the rationale for using this method.
4. List the expectations that the patient may have of the radiographer.
5. Describe the cultural beliefs of other ethnic groups that will possibly impact the radiographer's care toward patients of those cultures.
6. Define therapeutic communication and demonstrate its techniques.
7. Explain the problem-solving process in patient teaching.
8. List the special requirements when taking a patient history in the imaging department.
9. Describe the special needs of the terminally ill or grieving patient as they present in imaging.
10. Define advance directives for medical care and differentiate between the various types of advance care documents.

D. Unit IV. Patient Care and Safety

1. Explain the best methods for ensuring the care and safety of the patient's belongings while in the radiography department.
2. Describe how proper body mechanics will help prevent injury to the technologist.
3. List the safety measures that must be taken when transferring a patient from a hospital room to the imaging department via wheelchair or gurney.
4. Describe the steps that must be taken by the radiographer to protect the patient's integumentary system from injury.
5. Explain the criteria to be used when immobilization of a patient is necessary.
6. List the types of immobilizers available and demonstrate the correct method of applying each one.
7. Demonstrate the correct method of moving and positioning a patient to prevent injury to the patient or radiographer.
8. Assess correctly a patient's need for assistance to complete a radiographic procedure safely.
9. Discuss the legal ramifications for failing to safely move a patient from a gurney or a wheelchair to an x-ray table.
10. Give clear verbal instructions to an ambulatory patient concerning the correct manner of dressing and undressing for a radiographic procedure.
11. Demonstrate the correct method of assisting a disabled patient with dressing or undressing for a radiographic procedure.
12. List the precautions to be taken if a patient is in traction or wearing a cast.
13. Explain the responsibilities of a radiographer concerning radiation safety.

E. Unit V. Infection Control

1. Define the basic terminology used in the practice of infection control.
2. List and describe the known microorganisms that may cause infection.
3. Explain the rise in antibiotic-resistant diseases and the emergence of previously unknown or unrecognized disease.
4. Describe and demonstrate the methods of controlling infection in health care settings.
5. Discuss the modes of transmission of HIV, all forms of viral hepatitis, methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant *S. aureus*, vancomycin-resistant *Enterococcus*, multiple drug-resistant organisms, *Clostridium difficile*, extended-spectrum β -lactamase and tuberculosis, and the methods of preventing their spread in health care settings.
6. List the regulatory agencies that set and maintain the guidelines for safety in health care and the community at large.
7. Explain the actions the radiographer should take if exposed to blood or body substances or other potentially infectious material, or if a sharp injury occurs in the course of work.

- F. Unit VI. Vital Signs and Oxygen Administration
1. Define vital signs and explain when assessment should be done.
 2. List the rates of temperature, pulse, respiration, and blood pressure that are considered to be within normal limits for a child and an adult, male and female.
 3. Identify sites and methods available for measuring body temperature.
 4. Identify the most common types of oxygen administration equipment and explain any potential hazards.
 5. Describe the equipment that must be available and functional in all radiographic imaging departments to monitor blood pressure and to administer oxygen.
 6. List the precautions that must be taken when oxygen is being administered.
 7. Accurately monitor pulse rate, respiration, and blood pressure.
- G. Unit VII. Pediatric Imaging
1. Define the pediatric patient.
 2. Discuss professional, appropriate, age-specific, and effective communication strategies for pediatric patients, parents, and guardians during radiographic procedures.
 3. Discuss transporting infants and children.
 4. Demonstrate safe methods of immobilizing a pediatric patient with commercial devices and other positioning aids.
 5. Describe proper radiation protection and safety measures, techniques, and practices used in pediatric radiography (ALARA principle).
 6. Define Image Gently.
 7. Discuss a radiographer's role in a suspected child abuse procedure.
 8. Discuss administering medication to the pediatric patient in radiographic imaging procedures.
- H. Unit VIII. Geriatric Imaging
1. Discuss the special considerations while imaging geriatric patients and describe their special care needs.
 2. Discuss the normal changes associated with aging for the integumentary, cardiovascular, pulmonary, hepatic, gastrointestinal, genitourinary, and musculoskeletal systems.
 3. Explain the precautions to be taken for a patient who has had an arthroplasty.
 4. Discuss cultural considerations when caring for the geriatric patient.
 5. Discuss the radiographer's role in a suspected elder abuse procedure.
- I. Unit IX. Radiography of the Thoracic Viscera
1. Position the patient for any of the following examinations and projections:
 - a. Chest: Lungs and Heart
 1. PA/AP
 2. lateral
 3. PA/AP oblique
 - b. Pulmonary apices
 1. AP axial
 2. PA axial
 - c. Lungs and pleurae
 1. Right/left lateral decubitus
 2. Ventral/dorsal decubitus
 2. Explain the examination procedure to the patient, family member, or caregiver in age-appropriate terms.
 3. Formulate optimal exposure factors for each examination and projection based on the patient's age, body habitus, pathology, and physical condition.
 4. Manipulate stationary or portable x-ray equipment in a safe manner to achieve the projection(s) desired.
 5. Utilize accessory devices, as needed, to assist in the positioning and/or immobilization of the patient and placement of the image receptor.

6. Protect the patient, yourself, and other personnel from unnecessary radiation exposure and physical harm.
 7. Practice standard precautions in the care of all patients.
 8. Ensure the radiographic image is recorded with the patient's name and other identifying information.
 9. Place the correct letter marker to make it visible on the radiographic image.
 10. Evaluate the radiograph for optimal visualization of the area of interest and proper positioning.
 11. Identify and report obvious deviations from normal equipment performance to the appropriate clinical staff.
 12. Maintain the integrity of the patient's intravenous lines, catheters, oxygen, and tubing.
 13. Establish an examination setting that maintains the patient's comfort, privacy, and modesty.
 14. Safeguard the confidentiality of the patient's protected health information.
 15. Demonstrate a professional demeanor at all times in relations with instructors, peers, staff, patients, families, and physicians.
 16. Recognize and facilitate the physical and psychological needs of all patients, including the very young, the elderly, and the special needs patient before, during, and after the radiographic examination.
- J. Unit X. Radiography of the Abdomen
1. Position the patient for any of the following examinations and projections:
 - a. KUB – AP supine/upright
 - b. PA – upright
 - c. AP – left lateral decubitus
 - d. Lateral – right or left recumbent
 - e. Right or left lateral – dorsal decubitus
 2. Explain the examination procedure to the patient, family member, or caregiver in age-appropriate terms.
 3. Formulate optimal exposure factors for each examination and projection based on the patient's age, body habitus, pathology, and physical condition.
 4. Manipulate stationary or portable x-ray equipment in a safe manner to achieve the projection(s) desired.
 5. Utilize accessory devices, as needed, to assist in the positioning and/or immobilization of the patient and placement of the image receptor.
 6. Protect the patient, yourself, and other personnel from unnecessary radiation exposure and physical harm.
 7. Practice standard precautions in the care of all patients.
 8. Ensure the radiographic image is recorded with the patient's name and other identifying information.
 9. Place the correct letter marker to make it visible on the radiographic image.
 10. Evaluate the radiograph for optimal visualization of the area of interest and proper positioning.
 11. Identify and report obvious deviations from normal equipment performance to the appropriate clinical staff.
 12. Maintain the integrity of the patient's intravenous lines, catheters, oxygen, and tubing.
 13. Establish an examination setting that maintains the patient's comfort, privacy, and modesty.
 14. Safeguard the confidentiality of the patient's protected health information.
 15. Demonstrate a professional demeanor at all times in relations with instructors, peers, staff, patients, families, and physicians.
 16. Recognize and facilitate the physical and psychological needs of all patients, including the very young, the elderly, and the special needs patient before, during, and after the radiographic examination.
- K. Unit XI. Radiography of the Upper Limb
1. Position the patient for any of the following examinations and projections:
 - a. Digits (fingers) 2-5
 1. PA
 2. Lateral

3. PA oblique – lateral rotation, mediolateral
- b. First digit (thumb)
 1. AP
 2. Lateral
 3. PA oblique
- c. Hand
 1. PA
 2. PA oblique – lateral rotation
 3. Lateral – extension and fan lateral
- d. Wrist
 1. PA
 2. Lateral
 3. PA oblique – lateral rotation
 4. PA – ulnar deviation
 5. Scaphoid: PA axial (Stecher)
 6. Carpal canal: tangential (Gaynor-Hart)
- e. Forearm
 1. AP
 2. Lateral
- f. Elbow
 1. AP
 2. Lateral
 3. AP oblique – medial rotation
 4. AP oblique – lateral rotation
 5. Distal humerus: AP (partial flexion)
 6. Distal humerus: AP (acute flexion)
 7. Proximal forearm: AP (partial flexion)
 8. Proximal forearm: AP (acute flexion)
 9. Radial head, coronoid process: axiolateral, lateral (Coyle)
- g. Humerus
 1. AP (upright and recumbent)
 2. Lateral (upright and recumbent)
2. Explain the examination procedure to the patient, family member, or caregiver in age-appropriate terms.
3. Formulate optimal exposure factors for each examination and projection based on the patient's age, body habitus, pathology, and physical condition.
4. Manipulate stationary or portable x-ray equipment in a safe manner to achieve the projection(s) desired.
5. Utilize accessory devices, as needed, to assist in the positioning and/or immobilization of the patient and placement of the image receptor.
6. Protect the patient, yourself, and other personnel from unnecessary radiation exposure and physical harm.
7. Practice standard precautions in the care of all patients.
8. Ensure the radiographic image is recorded with the patient's name and other identifying information.
9. Place the correct letter marker to make it visible on the radiographic image.
10. Evaluate the radiograph for optimal visualization of the area of interest and proper positioning.
11. Identify and report obvious deviations from normal equipment performance to the appropriate clinical staff.
12. Maintain the integrity of the patient's intravenous lines, catheters, oxygen, and tubing.
13. Establish an examination setting that maintains the patient's comfort, privacy, and modesty.
14. Safeguard the confidentiality of the patient's protected health information.
15. Demonstrate a professional demeanor at all times in relations with instructors, peers, staff, patients, families, and physicians.

16. Recognize and facilitate the physical and psychological needs of all patients, including the very young, the elderly, and the special needs patient before, during, and after the radiographic examination.

L. Unit XII. Radiography of the Shoulder Girdle

1. Position the patient for any of the following examinations and projections:
 - a. Shoulder
 1. AP (external, neutral, internal rotation)
 2. Glenoid cavity: AP oblique (right or left posterior) – Grashey Method
 3. Transthoracic lateral: right or left – Lawrence Method
 4. Shoulder joint: inferosuperior axial – Lawrence Method
 5. Shoulder joint: scapular Y – PA oblique (right or left anterior oblique)
 - b. Acromioclavicular articulations: AP (bilateral) – Pearson Method
 - c. Clavicle
 1. AP
 2. AP axial - lordotic
 3. PA
 4. PA axial
 - d. Scapula
 1. AP
 2. Lateral – right or left anterior oblique
2. Explain the examination procedure to the patient, family member, or caregiver in age-appropriate terms.
3. Formulate optimal exposure factors for each examination and projection based on the patient's age, body habitus, pathology, and physical condition.
4. Manipulate stationary or portable x-ray equipment in a safe manner to achieve the projection(s) desired.
5. Utilize accessory devices, as needed, to assist in the positioning and/or immobilization of the patient and placement of the image receptor.
6. Protect the patient, yourself, and other personnel from unnecessary radiation exposure and physical harm.
7. Practice standard precautions in the care of all patients.
8. Ensure the radiographic image is recorded with the patient's name and other identifying information.
9. Place the correct letter marker to make it visible on the radiographic image.
10. Evaluate the radiograph for optimal visualization of the area of interest and proper positioning.
11. Identify and report obvious deviations from normal equipment performance to the appropriate clinical staff.
12. Maintain the integrity of the patient's intravenous lines, catheters, oxygen, and tubing.
13. Establish an examination setting that maintains the patient's comfort, privacy, and modesty.
14. Safeguard the confidentiality of the patient's protected health information.
15. Demonstrate a professional demeanor at all times in relations with instructors, peers, staff, patients, families, and physicians.
16. Recognize and facilitate the physical and psychological needs of all patients, including the very young, the elderly, and the special needs patient before, during, and after the radiographic examination.

M. Unit XIII. Radiography of the Lower Limb

1. Position the patient for any of the following examinations and projections:
 - a. Toes
 1. AP/AP axial
 2. AP oblique (medial rotation)
 3. Lateral (mediolateral or lateromedial)
 - b. Foot
 1. AP/AP axial
 2. AP oblique (medial rotation)

3. Lateral (mediolateral)
- c. Calcaneus
 1. Axial (plantodorsal)
 2. Lateral (mediolateral)
- d. Ankle
 1. AP
 2. Lateral (mediolateral)
 3. AP oblique-medial rotation
 4. PA – ulnar deviation
 5. Mortise joint: AP (medial rotation)
 6. AP – stress view
- e. Forearm
 1. AP
 2. lateral
- f. Leg (tibia and fibula)
 1. AP
 2. Lateral (mediolateral)
- g. Knee
 1. AP (recumbent and standing [weight-bearing])
 2. Lateral (upright and recumbent)
 3. Oblique (medial and lateral rotation)
 4. Intercondylar fossa: PA axial (Holmblad)
 5. Intercondylar fossa: PA axial (Camp-Coventry)
- h. Patella
 1. AP/PA
 2. Lateral (mediolateral)
 3. Patellofemoral joint: tangential (Settegast)
- i. Femur
 1. AP
 2. Lateral (mediolateral)
2. Explain the examination procedure to the patient, family member, or caregiver in age-appropriate terms.
3. Formulate optimal exposure factors for each examination and projection based on the patient's age, body habitus, pathology, and physical condition.
4. Manipulate stationary or portable x-ray equipment in a safe manner to achieve the projection(s) desired.
5. Utilize accessory devices, as needed, to assist in the positioning and/or immobilization of the patient and placement of the image receptor.
6. Protect the patient, yourself, and other personnel from unnecessary radiation exposure and physical harm.
7. Practice standard precautions in the care of all patients.
8. Ensure the radiographic image is recorded with the patient's name and other identifying information.
9. Place the correct letter marker to make it visible on the radiographic image.
10. Evaluate the radiograph for optimal visualization of the area of interest and proper positioning.
11. Identify and report obvious deviations from normal equipment performance to the appropriate clinical staff.
12. Maintain the integrity of the patient's intravenous lines, catheters, oxygen, and tubing.
13. Establish an examination setting that maintains the patient's comfort, privacy, and modesty.
14. Safeguard the confidentiality of the patient's protected health information.
15. Demonstrate a professional demeanor at all times in relations with instructors, peers, staff, patients, families, and physicians.
16. Recognize and facilitate the physical and psychological needs of all patients, including the very young, the elderly, and the special needs patient before, during, and after the radiographic examination.

- N. Unit XIV. Radiography of the Pelvis and Hip
1. Position the patient for any of the following examinations and projections:
 - a. Pelvis and upper femora: AP (supine)
 - b. Femoral necks: AP oblique (Modified Cleaves)
 - c. Hip
 1. AP (supine)
 2. Lateral (mediolateral): supine (Lauenstein, Hickey)
 3. Axiolateral (Danelius-Miller)
 - d. Acetabulum: AP oblique (Judet, modified Judet)
 - e. Anterior pelvic bones: AP axial outlet view (Taylor)
 - f. Anterior pelvic bones: superoinferior axial inlet view (Bridgeman)
 2. Explain the examination procedure to the patient, family member, or caregiver in age-appropriate terms.
 3. Formulate optimal exposure factors for each examination and projection based on the patient's age, body habitus, pathology, and physical condition.
 4. Manipulate stationary or portable x-ray equipment in a safe manner to achieve the projection(s) desired.
 5. Utilize accessory devices, as needed, to assist in the positioning and/or immobilization of the patient and placement of the image receptor.
 6. Protect the patient, yourself, and other personnel from unnecessary radiation exposure and physical harm.
 7. Practice standard precautions in the care of all patients.
 8. Ensure the radiographic image is recorded with the patient's name and other identifying information.
 9. Place the correct letter marker to make it visible on the radiographic image.
 10. Evaluate the radiograph for optimal visualization of the area of interest and proper positioning.
 11. Identify and report obvious deviations from normal equipment performance to the appropriate clinical staff.
 12. Maintain the integrity of the patient's intravenous lines, catheters, oxygen, and tubing.
 13. Establish an examination setting that maintains the patient's comfort, privacy, and modesty.
 14. Safeguard the confidentiality of the patient's protected health information.
 15. Demonstrate a professional demeanor at all times in relations with instructors, peers, staff, patients, families, and physicians.
 16. Recognize and facilitate the physical and psychological needs of all patients, including the very young, the elderly, and the special needs patient before, during, and after the radiographic examination.

III. THECB Learning Outcomes (ACGM) (WECM) (main title)

As outlined in the learning plan, apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry; and will demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry.

IV. Evaluation

- A. Methods
1. Unit Exams
 2. Clinical Progress Evaluation
 2. Clinical Traits Evaluation
 3. Clinical Competency Evaluation
 4. Final Examination

B. Grading Scale

CLINIC				DIDACTIC			
96	-	100	=	A	93	-	100 = A
91	-	95	=	B	85	-	92 = B
85	-	90	=	C	75	-	84 = C
80	-	84	=	D	70	-	74 = D
Below 80			=	F	Below 70		= F

A total final course grade of below C (i.e., less than 85%) is not acceptable for successful completion of this course. Grades for the unit exams and the final exam will be converted from the didactic grade scale to the clinical grade scale (e.g., 75% didactic = 85% clinic). All final grades are rounded to the nearest whole number.

C. Final Grade Determination

The final grade determination for this course is calculated as follows:

Unit Exams	20%
Clinical Progress Evaluation	10%
Clinical Traits Evaluation	10%
Clinical Competency Evaluation	35%
<u>Final Examination</u>	<u>25%</u>
TOTAL	100%

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6-Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.

VII. Title IX and Sex Discrimination

Title 9 (20 U.S.C. 1681 & 34 C.F.R. Part 106) states the following "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance." The Violence Against Women Act (VAWA) prohibits stalking, date violence, sexual violence, and domestic violence for all students, employees and visitors (male and female). If you have any concerns related to discrimination, harassment, or assault (of any type) you can contact the Assistant to the Vice President for Student and Enrollment Services at 915-831-2655. Employees can call the Manager of Employee Relations at 915-831-6458. Reports of sexual assault/violence may also be reported to EPCC Police at 915-831-2200.

