

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Medical Imaging Technology-Radiography</u>								
COURSE RUBRIC AND NUMBER	<u>RADR 1363</u>								
COURSE TITLE	<u>Clinical-Radiologic Technology/Science-Radiographer II</u>								
COURSE CREDIT HOURS	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 33%;"><u>3</u></td> <td style="text-align: center; width: 33%;"><u>0</u></td> <td style="text-align: center; width: 33%;"><u>:</u></td> <td style="text-align: center;"><u>18</u></td> </tr> <tr> <td style="text-align: center;">Credits</td> <td style="text-align: center;">Lec</td> <td></td> <td style="text-align: center;">Lab</td> </tr> </table>	<u>3</u>	<u>0</u>	<u>:</u>	<u>18</u>	Credits	Lec		Lab
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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. **Prerequisite: RADR 1262. (0:18). Professional Practice Insurance required.**

II. Course Objectives

In addition to maintaining competency in radiographic skills acquired in the preceding clinical course(s), at the completion of this course the student will be able to demonstrate competency in radiographic examinations of the anatomical areas as detailed in the following units:

- A. Unit I - Radiography of the Vertebral Column
 - 1. Position the patient for any of the following examinations and projections:
 - a. Cervical/Cervicothoracic Spine
 - 1. Dens (Fuchs Method)
 - 2. Atlas and axis – AP open mouth
 - 3. AP axial
 - 4. Lateral (Grandy Method)
 - 5. Lateral – flexion and extension
 - 6. Intervertebral foramina – AP/PA axial oblique
 - 7. Cervicothoracic region – lateral (Swimmer’s technique)
 - b. Thoracic Spine
 - 1. AP
 - 2. Lateral
 - c. Lumbar Spine/Lumbosacral Junction
 - 1. AP
 - 2. Lateral
 - 3. Lumbar zygapophyseal joints – AP obliques
 - 4. L5/S1 lumbosacral junction – AP/AP axial (Ferguson Method)
 - 5. L5/S1 lumbosacral junction – lateral
 - d. Sacrum and Coccyx
 - 1. AP/PA axial
 - 2. Lateral
 - 3. Sacroiliac joints – AP oblique
 - e. Thoracolumbar Spine
 - 1. PA/lateral (Frank et al)

2. PA (Ferguson Method)

2. Explain the examination to the patient or family member 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 machinery in a safe manner to achieve the projection(s) desired.
5. Elicit the patient's cooperation (when possible) in obtaining proper body/part positioning and motion control.
6. Utilize accessory devices, as needed, to assist in the positioning of the patient and placement of the image receptor.
7. Protect the patient, yourself and other personnel from unnecessary radiation exposure and physical harm.
8. Practice standard precautions in the care of all patients.
9. Ensure the radiographic image is recorded with the correct patient's name and other personal identifying information.
10. Identify the radiographic anatomy with the correct letter marker.
11. Evaluate the radiograph for optimal visualization of the area of interest and proper anatomical alignment.
12. Identify and report obvious deviations from normal equipment performance to the appropriate clinical staff.
13. Maintain the integrity of any patient IV's, catheters, oxygen, and tubing.
14. Establish an examination setting that maintains the patient's privacy and modesty.
13. 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 the elderly and/or special needs patient before, during, and after the radiographic examination.

B. Unit II - Radiography of the Bony Thorax

1. Position the patient for any of the following examinations and projections:
 - a. Sternum
 1. PA oblique (RAO)
 2. Lateral
 - b. Sternoclavicular articulations
 1. PA
 2. PA oblique (body rotation method)
 3. PA oblique (central ray angulation method)
 - c. Ribs
 1. Upper anterior ribs – PA
 2. Posterior ribs – AP
 3. Axillary ribs – AP oblique
 4. Axillary ribs – PA oblique
2. Explain the examination to the patient or family member 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 machinery in a safe manner to achieve the projection(s) desired.
5. Elicit the patient's cooperation (when possible) in obtaining proper body/part positioning and motion control.
6. Utilize accessory devices, as needed, to assist in the positioning of the patient and placement of the image receptor.
7. Protect the patient, yourself and other personnel from unnecessary radiation exposure and physical harm.
8. Practice standard precautions in the care of all patients.
9. Ensure the radiographic image is recorded with the correct patient's name and other personal identifying information.

10. Identify the radiographic anatomy with the correct letter marker.
11. Evaluate the radiograph for optimal visualization of the area of interest and proper anatomical alignment.
12. Identify and report obvious deviations from normal equipment performance to the appropriate clinical staff.
13. Maintain the integrity of any patient IV's, catheters, oxygen, and tubing.
14. Establish an examination setting that maintains the patient's privacy and modesty.
13. 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 the elderly and/or special needs patient before, during, and after the radiographic examination.

C. Unit III - Radiography of the Skull

1. Position the patient for any of the following examinations and projections:
 - a. Cranium
 1. PA
 2. Lateral – supine, erect, dorsal decubitus
 3. PA axial (Caldwell Method)
 4. AP axial
 5. AP axial (Towne Method)
 6. PA axial (Haas Method)
 7. Submentovertex (Schüller Method)
 - b. Facial Bones
 1. Lateral – erect, recumbent
 2. Parieto-acanthial – erect, recumbent (Waters Method)
 3. Acantho-parietal – erect, recumbent (Reverse Waters Method)
 4. PA axial – erect, recumbent ((Caldwell Method)
 5. Lateral nasal bones – erect, semiprone
 - c. Zygomatic arches
 1. Submentovertex – supine, erect
 2. Tangential
 3. AP axial (Modified Towne Method)
 - d. Mandible
 1. PA
 2. PA axial
 3. PA oblique-lateral rotation
 4. Axiolateral oblique
 - e. Temporomandibular joints
 1. AP axial
 2. Axiolateral oblique
 - f. Paranasal sinuses
 1. Lateral - erect
 2. Frontal and anterior ethmoid sinuses: PA axial – erect (Caldwell Method)
 3. Maxillary sinuses: parieto-acanthial – erect (Waters Method)
 4. Maxillary and sphenoid sinuses: parieto-acanthial – erect open mouth (Waters Method)
 5. Ethmoid and sphenoid sinuses: submentovertex – erect
2. Explain the examination to the patient or family member 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 machinery in a safe manner to achieve the projection(s) desired.
5. Elicit the patient's cooperation (when possible) in obtaining proper body/part positioning and motion control.

6. Utilize accessory devices, as needed, to assist in the positioning of the patient and placement of the image receptor.
7. Protect the patient, yourself and other personnel from unnecessary radiation exposure and physical harm.
8. Practice standard precautions in the care of all patients.
9. Ensure the radiographic image is recorded with the correct patient's name and other personal identifying information.
10. Identify the radiographic anatomy with the correct letter marker.
11. Evaluate the radiograph for optimal visualization of the area of interest and proper anatomical alignment.
12. Identify and report obvious deviations from normal equipment performance to the appropriate clinical staff.
13. Maintain the integrity of any patient IV's, catheters, oxygen, and tubing.
14. Establish an examination setting that maintains the patient's privacy and modesty.
13. 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 the elderly and/or special needs patient before, during, and after the radiographic examination.

D. Unit IV - Contrast and Special Examinations

1. Prepare and position the patient for examinations of the:
 - a. Upper gastrointestinal tract
 - b. Lower gastrointestinal tract
 - c. Biliary tract
 - c. Genito-urinary tract
 - d. Central nervous system (e.g., myelography)
 - e. Joints (arthrography)
2. Explain the examination to the patient in understandable terms.
3. Select optimal exposure factors for each examination and projection based on the patient's age, body habitus, pathology, and physical condition.
4. Manipulate equipment in a safe manner to achieve the projection(s) desired.
5. Elicit the patient's cooperation (when possible) in obtaining proper body/part positioning and motion control.
6. Utilize accessory devices, as needed, to assist in the positioning of the patient and placement of the image receptor.
7. Protect the patient, yourself and other necessary personnel from unnecessary radiation exposure and physical harm.
8. Identify the radiograph with the patient's name and with positioning markers.
9. Evaluate the radiograph for proper alignment and exposure.
10. Identify and report obvious deviations in normal equipment performance to the appropriate clinical staff.
11. Maintain the integrity of the patient's IV's, catheters, and tubes (if applicable).
12. Demonstrate a professional demeanor at all times in relations with instructors, peers, staff, patients, families and physicians.
13. Recognize and facilitate the physical and psychological needs of the elderly and/or special needs patient before, during, and after the radiographic examination.
14. Demonstrate a basic understanding of the pharmacology of common classes of drugs (including contrast media) used in the healthcare setting, in terms of:
 - a. indications
 - b. actions
 - c, contraindications
 - d. cautions
 - e. side effects and adverse reactions
 - f. interactions
 - g. management of adverse reactions

- h. drug forms
 - i. routes of administration
 - j. metabolism
 - k. routes of excretion
 - l. drug classifications
 - m. drugs and infants, children, and geriatrics
- E. Unit V – Radiography in the Surgical Suite
1. Identify the components of the mobile fluoroscope (c-arm) to include
 - a. c-arm tube travel and rotation locks
 - b. c-arm wheel locks
 - c. imaging intensifier or compact flat detector (CFD)
 - d. tube housing/x-ray generator
 - e. exposure control
 - f. emergency shut-off control
 - g. pulse-fluoro mode button
 - h. continuous fluoro mode button
 - i. fluoro boost (HLF) button/control
 - j. fluoro timer and timer reset buttons
 - k. shutter (collimator) vertical/horizontal/rotation controls
 - l. iris collimator
 - m. image vertical/horizontal/rotation controls
 - n. manual technique adjustment control
 - o. image store/recall controls
 - p. image zoom
 - q. magnification
 2. Discuss the components of the c-arm workstation to include
 - a. brightness/contrast controls
 - b. enhancement
 - c. annotation controls (keyboard)
 - d. post-processing controls
 - e. printer
 - f. monitor
 3. Identify the components of the mobile x-ray unit to include
 - a. tube/image intensifier (or CFD) travel and orientation locks
 - b. unit transport controls (forward, reverse, brake)
 - c. power on/off switch
 - d. light switch
 - e. collimators
 - f. field size indicator
 - g. distance indicator
 - h. mAs/kVp controls
 - i. exposure indicator
 - j. handswitch/footswitch and exposure control
 4. Describe proper sterile draping procedures for the c-arm.
 5. Orient the monitor image properly for the anatomy being visualized.
 6. Demonstrate the proper technique for intraoperative orthopedic and non-orthopedic procedures utilizing the c-arm.
 7. Demonstrate the ability to properly place and remove a radiographic grid/cassette in a surgical table without compromising the sterile field.
 8. Manipulate the c-arm to achieve oblique and lateral projections of the spine or peripheral anatomy without moving the patient.
 9. Navigate the mobile x-ray equipment in the surgical suite without compromising the sterile field.

III. THECB Learning Outcomes (WECM)

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. Clinical Progress Evaluation
2. Clinical Traits Evaluation
3. Clinical Competency Evaluation/Surgical Clinical Competency Evaluation
4. Final Examination

B. Grading Scale

96	-	100	=	A
91	-	95	=	B
85	-	90	=	C
80	-	84	=	D
Below		80	=	F

A total final course grade of below C (i.e., less than 85%) is not acceptable for successful completion of professional (RADR) courses.

All grades are rounded to the nearest whole number.

C. Final Grade Determination

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

Clinical Progress Evaluation	15%
Clinical Traits Evaluation	15%
(Surgical) Clinical Competency Evaluations	40%
<u>Final Examination</u>	<u>30%</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.