

# R T 53B: APPLIED RADIOGRAPHIC TECHNOLOGY II

## Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2023
Units:	4.5
Hours:	176 laboratory per quarter (176 total per quarter) This is an 11 week course - 16 hours clinical laboratory per week.
Prerequisite:	R T 53A.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

## Student Learning Outcomes

- The student will demonstrate proper radiation protection during the performance of an extremity competency.
- The student will be able to identify anatomy of the upper and lower extremities.

## Description

Second of four courses that includes clinical participation and application of basic positioning, patient care, equipment manipulation, radiation protection, and image analysis. Emphasis is placed on the biliary tract, upper and lower gastrointestinal system, urinary system, and reproductive system. A clinical presentation is also required with the same emphasis. Intended for students in the Radiologic Technology Program; enrollment is limited to students accepted in the program.

## Course Objectives

The student will be able to:

- Demonstrate accuracy in radiation protection for the patient, personnel, and self
- Exhibit knowledge, understanding, and dexterity in the proper use of radiographic equipment
- Adhere to the program's standards of attendance, punctuality, and dependability
- Conduct self in a professional manner with co-workers, the public, and other hospital staff
- Apply theory to practice by exhibiting ongoing, satisfactory job performance skills
- Select proper technical factors for radiographic procedures on an average patient
- Exhibit proper positioning skills as outlined by department protocol
- Demonstrate knowledge and understanding of various nursing procedures and basic patient care
- Develop and deliver an oral presentation as outlined in the Clinical Education Manual
- Demonstrate competence on radiographic procedures of the biliary tract, upper and lower gastrointestinal system, urinary system, and reproductive system as outlined in the Clinical Education Manual
- Critique images of the biliary tract, upper and lower gastrointestinal system, urinary system, and reproductive system for radiographic quality

## Course Content

- Radiation protection
  - Closing doors during procedures and exposures
  - Shielding patients when appropriate
  - Collimating to image receptor size and/or part size
  - Protecting self and others from irradiation by wearing aprons, gloves, and dosimeter
  - Keeping repeats to a minimum
  - Verifying patient pregnancy status
- Equipment
  - Competency and proficiency with equipment
  - Safety precautions
  - Effective manipulation of control panel
- Punctuality and dependability
  - Punctuality in reporting to the room at the start of a shift; being in assigned room and ready for patient at least five minutes before start of shift
  - Minimum loss of time due to absenteeism
  - Taking proper length of time for breaks according to department policy
  - Properly notifying the department in case of absence or tardiness
  - Communicating whereabouts appropriately
- Co-worker, hospital relationships
  - Being tactful and courteous with staff and others
  - Taking the initiative and helping other staff members
  - Working as a team with the technologist
  - Accepting constructive criticism
  - Conducting oneself in a professional manner
  - Adhering to dress code
  - Communicating effectively and following instructions
  - Contributing to a pleasant work environment
- Job performance
  - Marking all radiographs according to department protocol
  - Planning and organizing work efficiently
  - Being alert and interested in what is happening in the room and asking pertinent questions
  - Reading and understanding the requisition and properly identifying the patient
  - Maintaining a neat, clean, and well-stocked room
  - Communicating effectively with all health care personnel, patients, family members
  - Following verbal instructions with multiple steps
  - Making effective use of free time
    - Completing the exam in a reasonable amount of time
    - Demonstrating proper ethical behavior
- Technical factors

- a. Setting the control panel accurately for an exposure
  - b. Demonstrating understanding of how various mA, kV, time, and distance (SID) factors affect the radiographic image
  - c. Being able to differentiate between automatic exposure control (AEC) and manual technique
  - d. Checking control panel before exposure
  - e. Verifying exposure index/deviation index for each exposure to ensure appropriate amount of radiation was applied for the particular patient for the particular exam
7. Positioning
    - a. Knowing department routines for exams stated in objectives
    - b. Knowing specific centering for each part radiographed, including angulation of the x-ray tube and body part
    - c. Positioning the patient carefully and accurately; using proper immobilization
    - d. Identifying basic anatomy and critiquing images
    - e. Handling patients gently when positioning, using concise instructions, and watching patient during breathing instructions
  8. Patient care and nursing procedures
    - a. Communicating effectively with the patient
    - b. Explaining exam to the patient
    - c. Using a safe approach when transferring patients
    - d. Knowing the location of emergency equipment and supplies
    - e. Proper handling of a patient with IVs and catheters
    - f. Applying surgical and medical asepsis when drawing up syringes and working around a sterile field
    - g. Completing the exam in a reasonable amount of time
  9. Student presentation
    - a. Protocol and procedure
    - b. Anatomy
    - c. Positioning
    - d. Technique
    - e. Image analysis
  10. Competency in performing biliary tract, upper and lower gastrointestinal system, urinary system, and reproductive system radiographic procedures
    - a. Radiation protection significance
    - b. Equipment utilization
    - c. Technical factor selection
    - d. Positioning landmarks and skills
    - e. Image receptor and marker use
    - f. Patient management and care
    - g. Image quality and anatomy
  11. Image evaluation
    - a. Anatomic structures shown
    - b. Positioning and patient instructions
    - c. Collimation and central ray
    - d. Technical and exposure criteria
    - e. Image markers and identifiers
    - f. Related pathology

## Lab Content

1. Radiologic technology clinical practice
  - a. Radiation protection
  - b. Equipment operation
  - c. Image production
  - d. Image evaluation
  - e. Radiographic procedures
  - f. Patient care in a clinical setting

## Special Facilities and/or Equipment

1. Rotation to a clinical affiliate with energized x-ray unit.
2. Laptop for viewing digital teaching file in the clinical setting.
3. Radiation dosimeters and lead markers for each student.

## Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Clinical performance evaluation  
 Competency evaluation  
 Clinical presentation evaluation

## Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Discussion  
 Cooperative learning exercises  
 Laboratory  
 Demonstration

## Representative Text(s) and Other Materials

Bontrager, Kenneth. Textbook of Radiographic Positioning and Related Anatomy. 2021.

Foothill College. RT Clinical Education Competency Manual. 2022.

Foothill College. RT Student Handbook. 2022.

Foothill College. RT Clinical Competency Handbook. 2022.

## Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Clinical research
2. Oral presentation and PowerPoint based on assigned topic

## Discipline(s)

Radiological Technology