

**RADT 66 Course Outline as of Fall 2024****CATALOG INFORMATION**

Dept and Nbr: RADT 66 Title: SPECIAL MODALITIES

Full Title: Special Modalities

Last Reviewed: 9/25/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	3.50	17.5	Lecture Scheduled	61.25
Minimum	4.00	Lab Scheduled	1.50	8	Lab Scheduled	26.25
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 122.50

Total Student Learning Hours: 210.00

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

In this course, students will learn principles of specialized imaging modalities, including principles of venipuncture, computerized tomography, fluoroscopy, and related equipment. Students will practice and demonstrate competence in venipuncture.

**Prerequisites/Corequisites:**

Course Completion of RADT 61C and Concurrent Enrollment in RADT 71D

**Recommended Preparation:****Limits on Enrollment:**

Acceptance to Program

**Schedule of Classes Information:**

Description: In this course, students will learn principles of specialized imaging modalities, including principles of venipuncture, computerized tomography, fluoroscopy, and related equipment. Students will practice and demonstrate competence in venipuncture. (Grade Only)

Prerequisites/Corequisites: Course Completion of RADT 61C and Concurrent Enrollment in RADT 71D

Recommended:

Limits on Enrollment: Acceptance to Program

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

**AS Degree:**      **Area**      Effective:      Inactive:

**CSU GE:**      **Transfer Area**      Effective:      Inactive:

**IGETC:**      **Transfer Area**      Effective:      Inactive:

**CSU Transfer:** Transferable      Effective:      Fall 1981      Inactive:

**UC Transfer:**      Effective:      Inactive:

### **CID:**

#### **Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Manipulate equipment in special procedure rooms.
2. Operate fluoroscopes, digital equipment, and computerized tomography.
3. Competently perform venipuncture, as permitted by the State of California.

### **Objectives:**

At the conclusion of this course, the student should be able to:

1. Explain the steps of operation of a medical fluoroscopic imaging system.
2. Describe the direct correlation between patient radiation dose and use of fluoroscopy.
3. Apply principles of radiation protection to self, patients, and other personnel.
4. Identify viscera and cardiovascular systems, lungs, heart, brain, and cross-sectional anatomy on radiographic images.
5. List the components and operation of a computerized tomography system.
6. Perform venipunctures in medical imaging environments.

### **Topics and Scope:**

- I. Principles of Fluoroscopy
  - A. Overhead X-ray tube
  - B. Undertable X-ray tube
  - C. Mobile unit
  - D. Digital fluoroscopy
- II. Operation of Fluoroscopic Imaging Systems
  - A. Digital fluoroscopy
  - B. Post processing capabilities
- III. State Regulations in Fluoroscopy
  - A. Requirements
  - B. Good practice

- IV. Patient Radiation Dose in Fluoroscopy
  - A. Primary radiation
  - B. Secondary and scatter radiation
  - C. Skin dose
  - D. Organ dose
- V. Computerized Tomography (CT)
  - A. Principles
  - B. Equipment and operational procedures
  - C. Patient procedures and safety protocols
- VI. Angiography
  - A. Principles
  - B. Equipment and operational procedures
  - C. Accessory devices
- VII. Radiographic Anatomy and Medical Images
  - A. Visceral organs
  - B. Cardiovascular system
  - C. Lungs
  - D. Heart
  - E. Brain
  - F. Cross-sectional anatomy
- VIII. Venipuncture
  - A. Principles
  - B. Instrumentation
  - C. Regulations
  - D. Practice
- IX. Filmless and Paperless Radiology
  - A. Picture archiving and communication system (PACS)
  - B. Digital communication
  - C. Radiology information system
  - D. Hospital information system
  - E. Electronic medical records

All topics are covered in the lecture and lab portions of the course.

**Assignment:**

Lecture-Related Assignments:

1. Chapter readings (20-40 pages per week)
2. Written homework and chapter assignments.
3. Completion of modality specific interactive learning modules (6-8)
4. Quizzes (10-15)
5. Midterm exam (1)
6. Final exam (1)

Lab-Related Assignments:

1. Completion of successful venipunctures (10 minimum)

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Written homework and chapter assignments

Writing  
10 - 20%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Modality specific module assignments

Problem solving  
10 - 20%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Completion of successful venipunctures

Skill Demonstrations  
30 - 40%

**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes; midterm exam; final exam

Exams  
30 - 40%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

None

Other Category  
0 - 0%

**Representative Textbooks and Materials:**

Merrill's Atlas of Radiographic Positions and Radiologic Procedures. 15th ed. Long, Bruce and Rollins, Jeannean and Smith, Barbara. Elsevier. 2023.

Patient Care in Radiography with an Introduction to Medical Imaging. 10th ed. Ehrlich, Ruth Ann and Coakes, Dawn M. Elsevier. 2021.

Instructor-prepared material