RADT A195: FLUOROSCOPY

Item	Value
Curriculum Committee Approval Date	03/12/2025
Top Code	122500 - Radiologic Technology
Units	1 Total Units
Hours	36 Total Hours (Lecture Hours 9; Lab Hours 27)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S)

Course Description

Study of knowledge and skills required to qualify student for fluoroscopy component of state permit. Review of imaging concepts (analog and digital), x-ray beam quantity and quality, and radiation protection of fluoroscopy. COREQUISITE: Enrollment in the Radiologic Technology Program. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Identify the methodologies for reducing exposure to patients, staff, and self during fluoroscopic procedures
2. Describe the quality control procedures to maintain California State mandated requirements of fluoroscopic equipment.

Course Objectives

- 1. Discuss the principles of image intensification.**
- 2. Analyze the various image intensification systems and their use in digital diagnostic radiography.**
- 3. Operate and manipulate fluoroscopic equipment in specific simulated laboratory experiments.*
- 4. List quality control procedures to maintain fluoroscopic equipment.*
- 5. Demonstrate correct usage of image recording/viewing systems.**
- 6. Identify the major principles of radiation protection in fluoroscopy.*
- 7. List methods of reducing patient and operator dosage during fluoroscopic procedures.*
- I * Competencies
- II ** Foundation Skills

Lecture Content

Introduction to the course Course objectives Syllabus Topic outline Ground rules Methods of assessment Tests Quizzes Attendance/ Participation Assignments Lab assignment Participation and attendance Fluoroscopy and image intensification utilization Working conditions Types of exams Patient load Protection surveys Principles of patient protection State syllabus guidelines Title 17 regulations Protective measures Barrier/lead shields Room construction requirements Image intensification Intensifier design Input phosphor Photocathode Fluoroscopy and image intensification equipment Electrostatic focusing lens Accelerator anode Output phosphor Brightness gain Conversion factor Minification gain flux gain Cesium iodide image intensifiers n bsp; Image quality Quantum mottle Contrast Subject contrast Radiographic contrast Resolution Distortion Vignetting Modulation transfer function Speed index Fluoroscopy quality control Fluoro quality/sensitometry Recorded detail Factors governing blur Motion blur Devices for improving quality Dual-field image intensifiers Triple field Electronic communication Recorder Camera monitor Viewing systems in fluoroscopy Closed-circuit television Video signal Television camera Camera control unit Television scanning Video signal frequency Synchronization Television image quality Resolution Contrast Lag Brightness Plumbicon, Orthicon, Videocon, and CCD cameras Camera comparison Disadvantages Recording systems in fluoroscopy Magnetic recorders Videotape recorder Videodisc recorder Videotape versus cine film Cine fluorography Optical system Lens characteristics Magnification Field depth Resolution Auxiliary apertures Speed of optical systems X-ray photon image Motion unsharpness Geometric unsharpness Contrast Cine film/projectors Types Processing Spot film cameras Advantages/disadvantages Framing Mobile fluoroscopy units Procedures Protection guidelines

Lab Content

Lab experiment; Basic Controls Lab experiment; Advbanced Controls Lab experiment; Moving the C-arm Lab experiment; Sterile field and the C-arm Lab experiment; SSE and Distance Lab experiment; SSE and Distance, Continued Lab experiment; Acquisition Modes and Dose Lab experiment; Acquistion Modes and Dose, Continued Lab experiment; Distance and Resolution Lab experiment; Weekly mA/kVp checks Lab experiment; Dose limits Lab experiment; Apron checks Lab experiment; Documentation Lab experiment; Review

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

1. Theory a. lecture b. reading assignments 2. Demonstration a. overhead projector b. collaborative learning techniques 3. Laboratory experiment participation/evaluation

Reading Assignments

Students will be expected to rad the assigned chapters each week along withthe companion powerpoint and other materials posted to the CMS. 1 hr./week

Writing Assignments

1. Lab experiment summations. 2. Short answers to weekly questions 30 minutes/wk

Out-of-class Assignments

Homework assigments could include short online quizzes, short essay answers to weekly content questions. 30 minutes/week

Demonstration of Critical Thinking

1. Periodic quizzes2. Tests (written components)3. Performance of lab experiments4. Final exam comprehensive5. Class participation

Required Writing, Problem Solving, Skills Demonstration

1. Some examination and quizzes contain essay format questions. 2. Homework assignments will require both written and verbal responses.
3. Lab experiment summations.

Eligible Disciplines

Radiological technology: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Bushong, S. C. . Radiologic Science for Technologists, 11th ed. Elsevier/Mosby, 2017 Rationale: - 2. Required Carroll, Q. B. . Radiography in the Digital Age, 3rd ed. Thomas, 2018