Course Acronym:	RTEC
Course Number:	328
Descriptive Title:	Clinical Experience 7
Division:	Health Sciences and Athletics
Department:	Radiologic Technology
Course Disciplines:	Radiologic Technology
Catalog Description:	This course continues the development of clinical skills in radiography with emphasis in specialized radiography and new modalities. Advanced clinical practice experiences are designed to provide competent performance of radiologic imaging, using sequential development, critical analysis, and evaluation in the performance of radiologic procedures and patient assessment and care. Students perform independently with appropriate supervision to assess their skills for employability. This course also reviews the entire radiologic technology curriculum, following the American Registry of Radiologic Technologists (ARRT) examination outline, to prepare the students for State and National Certification examinations.
Prerequisite:	RTEC 220 with a minimum grade of C
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	3
Hours Laboratory (per week):	4.5
Outside Study Hours:	6
Total Course Hours:	135
Course Units:	4.5
Grading Method:	Letter Grade only
Credit Status:	Credit, non degree applicable
Transfer CSU:	Yes
Effective Date:	3-15-1999
Transfer UC:	No
Effective Date:	
General Education: ECC	
Term:	
Other:	
CSU GE:	
Term:	
Other:	

IGETC:	
Term:	
Other:	
Student Learning Outcomes:	**SLO #1 Professionalism** The Student will demonstrate professionalism with patients, self and others. **SLO #2 Problem Solving for Image Critique** Students will evaluate radiographic images and make appropriate changes when necessary to produce quality diagnostic images. **SLO #3 Radiographic Techniques** Students will employ radiographic techniques that produce quality diagnostic images using the lowest patient dose while maintaining good ALARA (as low as reasonably achievable) radiation safety principles on patients.
Course Objectives:	1. Describe career opportunities in the field of radiography and requirements for employment and certification. 2. Demonstrate the appropriate clinical skills required to successfully complete all mandatory and elective competencies per the ARRT guidelines for the following areas: thorax, abdomen and gastrointestinal studies, urological studies, spine, pelvis, cranium and extremities. 3. Analyze and critique radiographic images and determine correct measures to make appropriate changes for optimum image quality. 4. Diagram and label the basic components of an image intensifier tube, fluoroscopic components of the imaging chain, including the viewing and recording systems, circuit boards, x-ray generator, transformer and a rectifier. 5. Compare quality control procedures to maintain fluoroscopic, digital, and radiographic equipment. 6. Demonstrate methods of reducing patient and operator dosage during radiographic and fluoroscopic procedures. Describe how patient positioning, automatic exposure control, and other technical factors as well as patient communication reduces exposure to radiation. 7. Review the specific sections of California regulation control (Title 17) which govern basic radiologic and fluoroscopic standards and safety. 8. Conduct a comprehensive review through discussion and examination of the Radiologic Technology program curriculum following the guidelines set forth by the American Registry of Radiologic Technologists (ARRT), and the California Department of Public Health - Radiologic Health Branch (CDPH-RHB) Title 17 Diagnostic Radiologic Technology and Fluoroscopy Permit School curriculum requirements. 9. Complete all necessary evaluation forms for continuous program improvement and outcomes assessment.
Major Topics:	**I. Completion of all required Mandatory, Elective and Final Radiographic Exam Clinical Competencies as required by the American Registry of Radiologic Technology (ARRT) (81 hours, lab)** A. All Competencies in the following catagories: Chest, Upper and Lower Extremity, Thorax,Spine, Pelvis, Abdomen, Cranium, Fluoroscopy and Contrast studies, Sugery, Mobile studies, Trauma, Pediatric and Geriatric studies. B. Special Imaging Modalities Observation - Students may observe up to two special modalities for a maxiumum of 32 hours within this period if all required competencieshave been completed.

	Special Modalities include: Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Ultrasond, Angiography and Cardiac Catheterization, Radiation Therapy, Bone Densitometry and Mammography. **II. Patient Care and Education (5 hours, lecture)** A. Infection Control, Contrast Media, Medical Emergencies, Professional Ethics **III. Radiographic Positioning, Procedures and Imaging (12 hours, lecture)** A. Review of Radiographic positioning and procedures for the Chest, Upper and Lower Extremity, Thorax,Spine, Pelvis, Abdomen, Cranium, Fluoroscopy and Contrast studies, Sugery, Mobile studies, Trauma, Pediatric and Geriatric studies with age specific competencies for each. B. Review of Medical Terminology and Image Crtique evaluation. C. Review of Pathologic Conditions, anatomy and physiology related to radiographic exams **III. Radiation Safety and Protection (10 hours, lecture)** A. Units of measurement of radiation, radiobiology of tissue , review of specific sections of the California Regulations Control (CRC-Title 17) which governs basic radiographic and fluoroscopic standards. B. Protection and safety of patients and personnel from ionizing radiation hazards, ALARA principles and use of shielding and other devices **IV. Image Production: Image Acquisition and Technical Evaluation (12 hours, lecture)** A. Computered and Digital Imaging principles and how to apply technique changes to create an optimal image with the lowest patient dose. **V. Image Production: Equipment Operation and Quality Control and Assurance (12 hours, lecture)** A. Design and components of radiographic and fluoroscopic equipment and the quality control testing required for optimum function for lowest radiation doses to the patient. **VI. Employment (3 hours, lecture)** A. Resume writing and job interviewing skills for new Radiologic Technology graduates.
Total Lecture Hours:	54
Total Laboratory Hours:	81
Total Hours:	135
Primary Method of Evaluation:	3) Skills demonstration
Typical Assignment Using Primary Method of Evaluation:	Demonstrate the proper positioning, technical and safety procedures for an emergency and/or trauma radiographic examination.
Critical Thinking Assignment 1:	Present a radiographic case study that includes an analysis and critique of technical factors, positioning, pathology involved, terminology and radiation protection principles utilized.
Critical Thinking Assignment 2:	Demonstrate the ability to modify examination protocols of a surgical patient for a hip pinning, providing radiation protection and safety to self, patient and staff, while maintaining a sterile field.
Other Evaluation Methods:	Completion, Fieldwork, Homework Problems, Multiple Choice, Other (specify), Other Exams, Performance Exams, Written Homework
Instructional Methods:	Lab, Lecture, Multimedia presentations, Other (specify)
If other:	Image evaluation and critique presentations, skill demonstration, clinical assignment at hospital affiliate with direct and indirect supervision during the performance of

	radiographic procedures. Direct supervision during performance of specialized radiographic, mobile and emergency procedures.
Work Outside of Class:	Answer questions, Observation of clinical skills, Problem solving activity, Required reading, Skill practice, Study, Written work (such as essay/composition/report/analysis/research)
If Other:	Complete all clinical competencies and study for review exams.
Up-To-Date Representative Texts:	D. Saia. Radiography Prep Program Review and Exam Preparation, 10th ed., Appleton and Lange, 2023. D. Saia. Radiography Exam Q&A, 12th ed, Appleton and Lange, 2021. W. Calloway, Mosby's Comprehensive Review of Radiography, 8th ed, Elsevier, 2020.
Alternative Texts:	
Required Supplementary Readings:	Rollins, J.et al. Merrill's Atlas of Radiographic Positions and Radiographic Procedures. VOLUMES I, II & III15TH ED Mosby/Elsevier 2023. Workbook for Merrill's Atlas of Radiographic Positions and Radiographic Procedures. 15th ed. Elsevier Mosby Publishers, 2023. Mary Alice Statkiewicz-Sherer, Radiation Protection in Medical Radiography, 9TH Edition - 2022. Carter, B. Veale, Digital Radiography and PACS, 4th ed., Elsevier, 2023. Principles of Radiographic Imaging an Art and Science - 6th -Richard Carlton,et.al, Cengage, 2021. Adler Carlton, Introduction to Radiologic Sciences & Patient Care, 8th Ed., 2023.
Other Required Materials:	Stuart Bushong, Radiologic Science for Technologists, 12th ed., Elsevier, 2021. Stuart Bushong, Radiologic Science Workbook and Lab Manual, 12th ed., Elsevier, 2021
Requisite:	Prerequisite
Category:	sequential
Requisite course(s): List both prerequisites and corequisites in this box.	Radiologic Technology-220
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	**Ability to appropriately respond to patients in due to their physical condition, mental state, or age, are unable to cooperate for the procedure, while being attentive to their physical comfort, safety and needs.** RTEC 220 - Adapt to changes and varying clinical situations, and respond appropriately in emergency and non-emergency situations. **Demonstrate advanced image evaluation and critique and perform required modifications with 90% accuracy.** RTEC 220 - Expand personal and technical abilities to the expected level required of a newly graduated radiologic technologist. RTEC 220 - Critique images for appropriate clinical information, patient positioning and image quality. Apply appropriate corrective action when applicable to produce a diagnostic quality image. **Demonstrate the ability to perform with general supervision all previously identified radiographic exams.** RTEC 220 - Interpret written orders for radiographic exams, assist and perform radiologic examinations of all areas, including special procedures, under the appropriate level of supervision as outlined in the RT program supervision policy located in the student

	handbook. RTEC 220 - Demonstrate competency in the principles of radiation protection standards and select technical factors to produce quality diagnostic images with the lowest radiation exposure possible to patients. RTEC 220 - Set up the exam room and demonstrate the appropriate clinical skills required to successfully complete all mandatory, elective and final competencies as outlined in the student handbook and course syllabus.
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable	
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Donald Visintainer
Date:	11/01/1979
Original Board Approval Date:	
Last Reviewed and/or Revised by:	Dawn Charman
Date:	03/28/2024
Last Board Approval Date:	06/17/2024
Effective Term:	FA 2025