

COURSE SYLLABUS

RT 1130 – INTRODUCTION TO RADIOLOGIC TECHNOLOGY

CLASS HOURS: 3
LABORATORY HOURS: 0

CREDIT HOURS: 3

CATALOG COURSE DESCRIPTION: The presentation of an overall view of radiologic technology. Acquaints the student with the organization, function, supervision and financial arrangements relative to departments of radiology; the rules and regulations of the program and the clinical affiliates, a brief history of medicine and radiology, the do's and don'ts regarding radiation and electrical protection and general safety, and the ethical and legal responsibilities entailed by becoming a member of a paramedical profession are covered. In addition, basic patient care techniques and diversity are introduced.

ENTRY LEVEL STANDARDS: High school and college achievement and test scores shall be consistent with the Radiologic Technology program admission requirements.

PREREQUISITE: Admission to the Radiologic Technology Program

TEXTBOOK(S) AND OTHER REFERENCE MATERIAL BASIC TO COURSE:

1. Basic Medical Techniques and Patient Care for Radiologic Technologists, Torres and Moore
2. Student Manuals Radiologic Technology Program
3. Merrill's Atlas of Radiographic Positions and Radiologic Procedures, Volumes 1-3
4. Radiologic Technology Clinical Education Manual
5. Legal Aspects of Health Care Administration, Pozgar
6. Course management system materials

Required Student Learning Outcomes (Program Student Learning Outcomes and Course Student Learning Outcomes):

(PSLO 1-9 are covered in different courses. If a PSLO is not identified here it is not addressed in this course.)

- PSLO#1.** Provide basic patient care and comfort, well-being, safety, procedural materials appropriate to quality care and exam performance using proper sterile or aseptic technique to prevent contamination of patients, self, sterile trays, instruments or fields.
- CSLO# 11** Demonstrate an awareness of the patient as an individual who has emotional as well as physical needs that may be met by establishing a therapeutic relationship.
- CSLO# 12** Demonstrate knowledge of the need to accept personal responsibility for controlling the spread of microorganisms in the radiology department.
- CSLO# 13** Be able to explain the purposes of the medical chart, the purposes of consent forms, and the care of patients' belongings and will be able to simulate the correct method to assist the patient with dressing and undressing.
- CSLO# 14** Under simulated conditions, be able to move and transfer patients in a manner that is safe for the patient and for herself/himself.
- CSLO# 15** Demonstrate knowledge and appreciation for basic fire, electrical, general safety and radiation protection concepts and practice.
- CSLO# 20** Understand comparisons of diverse populations based on their value system, cultural and ethnic influences, communication styles, socioeconomic influences, health risk's and life stages.
- PSLO#3.** Apply knowledge of human anatomy, physiology, pathology, positioning and radiographic technique to demonstrate anatomical structures on a radiograph or other imaging receptor utilizing equipment and accessories while maintaining the overall diagnostic quality of radiographs.
- CSLO# 1** Demonstrate knowledge of the educational plan of the radiologic technology program in terms of course sequence, schedules, the integration of academic education with clinical education and competency based instruction.
- CSLO# 2** Explain the scope of practice for the student radiographer after 1) successful simulation of an exam category; 2) after successful evaluation of category competency; 3) after successful evaluation of final category competency.

- PSLO#6. Use acceptable verbal, nonverbal and written medical/conventional communication in patient care intervention and professional relationships in order to promote positive experiences for patients, peers and staff.
- CSLO# 16 Demonstrate knowledge of radiology department organization, administration, personnel and function.
- CSLO# 17 Be familiar with the routine, special and para radiologic examinations and treatments performed in radiology.
- CSLO# 18 Appreciate the economic problems of health care institutions and radiology departments, understand the need for his/her cooperation in correcting these problems.
- CSLO# 19 Appreciate the economic problems of health care institutions and radiology departments, understand the need for his/her cooperation in correcting these problems.
- PSLO#7. Comply with the Radiologic Technology profession's code of ethics and scope of practice while demonstrating involvement in professional organizations and activities designed to promote the standards of the profession.
- CSLO# 3 Identify major duties/responsibilities of a student radiographer.
- CSLO# 4 Identify and provide rationale for program policies and clinical education centers rules and regulations.
- CSLO# 5 Describe how the Essentials and Guidelines of an Accredited Educational Program for the Radiographer relate to the educational program.
- CSLO# 6 Explain the difference between the review/accreditation and credentialing processes and identify agencies involved in each process.
- CSLO# 7 Discuss career advancements and opportunities for the radiographer.
- CSLO# 8 Identify the benefits of continuing education as relates to improved patient care and professional enhancement.
- CSLO# 9 Be familiar with major contributors and major landmarks in the medical and radiology profession.
- CSLO# 10 Describe ethical and legal practice and identify the ethical and legal responsibilities of the radiographer relative to health care delivery.

Other Learning Indicators or Objectives (optional): The student will:

History (Test 1)

1. Identify the stages of development in the practice of medicine from the period of time before the dawn of civilization until the present, and discuss the medically significant advances of each of those periods. (I)
2. Identify the contributions to modern medicine made by the following people:
 - a. Hippocrates
 - b. Aristotle
 - c. Herophilus
 - d. Erasistratus
 - e. Asclepiades
 - f. Dioscorides
 - g. Galen
 - h. Phazes
 - i. Avicenna
 - j. Vesalius
 - k. Ambroise Pare
 - l. William Harvey
 - m. Marcello Malpighi
 - n. Sydenham
 - o. Giovanni Battista Morgagni
 - p. John Hunter
 - q. Edward Jenner
 - r. Rudolf Virchow
 - s. Louis Pasteur
 - t. Joseph Lister
 - u. Robert Koch
 - v. Marie and Pierre Curie
 - w. Wassermann
 - x. Gregor Mendel
3. Identify the man who is given credit for the discovery of x-ray. Also identify the date and place of his discovery. (I)
4. Explain the medical significance of the discovery of x-rays. (I)

5. Identify the inventor of the high-vacuum "hot cathode" x-ray tube. (I)
6. Identify the contributor in the history of radiology who formulated the theory of anode rotation. (I)

Medical Ethics and the Law (Test 1)

1. Define moral and professional ethics. (J)
2. Describe accepted (ethical) standards of conduct for the radiographer when interacting with the following people: (J)
 - a. patients
 - b. peers and other health team members
 - c. radiologists
 - d. attending physicians
3. Differentiate between confidential and nonconfidential information relative to a patient's medical care. (J)
4. Describe the scope of practice for the student radiographer after the following objectives have been completed: (J)
 - a. simulation of an exam category
 - b. category competency evaluation
 - c. final category competency evaluation
5. Discuss the American Society of Radiologic Technologists Scope of Practice for the Radiographer and describe the elements that comprise it. (J)
6. Given the ASRT Code of Ethics, discuss how it relates to professional ethical values and principles/standards. (J)
7. Given the Patient Bill of Rights, discuss how its provisions relate to proper ethical conduct on the part of the medical institution. (J)
8. Given the Joint Commission on Accreditation of Hospitals patient responsibility criteria, discuss how its provisions relate to proper ethical conduct on the part of the patient. (J)
9. Define the following: (J)
 - a. professional liability
 - b. gross negligence
 - c. contributory negligence
10. Describe the elements necessary for a valid malpractice claim. (J)
11. Discuss the doctrines of: (J)
 - a. borrowed servant
 - b. res ipsa loquitur
 - c. respondeat superior
12. Discuss institutional and professional liability protection available to the radiographer. (J)
13. Define the following terms: (J)
 - a. assault
 - b. battery
 - c. borrowed servant
 - d. common law
 - e. consent
 - f. criminal law
 - g. expert witness
 - h. Good Samaritan Law
 - i. harm or injury
 - j. malpractice
 - k. liability
 - l. negligence
 - m. plaintiff
 - n. res ipsa loquitur
 - o. respondeat superior
 - p. tort
 - q. witness
 - r. written authorization
14. Define informed consent. (J) (M)
15. Describe the elements necessary for informed consent. (J) (M)
16. Discuss legal theories relating to informed consent. (J) (M)
17. Discuss standards for disclosure relating to informed consent. (J) (M)
18. Given radiographic procedures, describe how consent forms are utilized. (J) (M)

19. Describe the use of consent forms in court action. (J) (M)
20. Describe ethical and legal impacts on hospital and departmental patient records. (J)
21. Discuss ownership and availability of patient records. (J)
22. Discuss the importance of documenting/reporting patient/examination. (J)
23. Discuss aspects of confidentiality as they relate to the patient, professional, institution and release of information. (J)
24. Define forensic radiography. (J)
25. Discuss ethical and legal considerations of forensic radiography. (J)
26. Describe location considerations in radiographing a body in the radiology department and in the morgue. (J)
27. Discuss the US Genome Project relative to the cause of genetically induced disease. (J)
28. Explore the ethical issues of genetic screening. (J)
29. Explain the genetic counseling responsibility of health care providers.(J)
30. Describe the Consistency, Accuracy, Responsibility and Excellence in Medical Imaging and Radiation Therapy (CARE) bill.

Human Diversity (Test 1)

1. Define diversity and describe interaction patterns.(T)
2. Discuss the ways values affect issues of diversity.(T)
3. Explain the ways in which diversity and ethical problems solving relate to each other. (T)
4. Understand and discuss the origins of discrimination law.(J)
5. Know discrimination law in employment and patient treatment solutions.(J,T)
6. Describe how professional values influence patient care. (T)
7. Explain the influence a person's value system has on his or her behavior.(J,T)
8. Discuss family dynamics in a cultural, social, ethnic and lifestyle context.(T)

Communications, Grieving and Problem Solving (Test 1)

1. List the basic physical needs of the patient. (K)
2. List the basic emotional needs of the patient. (K)
3. Define communication and describe the reasons why it is necessary for the radiologic technologist to use therapeutic communication techniques in his work. (K)
4. Discuss the accurate assessment of the patient's general condition. (K)
5. Describe problem-solving techniques that may be used in planning patient care. (K)
6. List the expectations that a patient might have of the radiographer. (K) (M)
7. Explain the radiographer's ethical obligations to patients and colleagues. (K) (M)
8. Explain the radiographer's legal obligations to patients and colleagues. (K) (M)

Infection Control (Test 2)

1. List four common means by which microorganisms are spread in the radiology department. (L)
2. Define the following terms: (L)
 - a. antibiotic
 - b. antiseptic
 - c. asepsis
 - d. bacteriostatic
 - e. contaminate
 - f. disinfectant
 - g. infectious
 - h. medical asepsis
 - i. sterilize
3. List and describe three types of microorganisms. (L)
4. Identify the most important procedure to follow to prevent the spread of microorganisms. (L)
5. Discuss practices of medical asepsis which assist in the control of disease. (L)
6. List the transmission routes of microorganisms. (S)
7. List and define the five classifications of isolation that the RT may find in the hospital. (S)
8. Describe the action that an RT should take if he suspects that a patient has an infectious disease. (S)
9. Explain how to prepare to enter and leave a strict isolation unit. (S)
10. Explain how an RT should transport a patient with a contagious disease to and from a radiology department. (S)
11. Explain how an RT should make a radiographic exposure in an isolation room. (S)

Basic Radiation, Fire and Electrical Protection and General Safety (Test 3)

1. Describe the instructions one would give to ambulatory patients about the correct manner of dressing or undressing for an x-ray examination. (M)
2. Describe the methods one should follow to protect patients' belongings while they are in the radiology department. (M)
3. Describe the proper method of dressing or undressing a disabled patient for an x-ray examination. (M)
4. Describe the correct manner of assisting a patient with a bedpan or urinal to make the patient comfortable and assure him privacy, with medically aseptic technique. (K) (L)
5. Describe the correct manner of moving and lifting patients to prevent injury to the patient himself. (N)
6. List four safety factors that must be considered when moving a patient. (N)
7. Describe the positioning of a patient to maintain good body alignment. (N)
8. List three safety measures that must be taken when transferring a patient from the hospital ward to the radiology department and returning him to the ward. (N)
9. List three situations in the radiology department that might result in damage to a patient's skin. (N)
10. Describe the correct method of moving a patient who is wearing a plaster cast. (N)
11. List four possible signs of circulatory impairment that must be recognized by the radiographer. (N)
12. List the general safety precautions to prevent injury in a hospital setting. (O)
13. List the safety precautions to prevent electrical shock. (O)
14. Explain the meaning of protective barriers and the reason for them. (O)
15. List eight basic radiation protection rules to be followed in the control of radiation exposure. (O)
16. Define dose equivalent limits, accumulated dose, emergency dose, weekly and annual dose, and medical dose. (O)
17. Explain the personnel monitor report and its application in evaluating personnel work habits and radiology department safety conditions. (O)
18. List four general rules for fire prevention and protection. (O)
19. Describe the procedure for reporting a fire. (O)
20. Define the meaning of Class A, Class B, and Class C fires and describe the fire extinguisher for each. (O)
21. Define the meaning of infection control. (O)
22. Explain infection control methods involving personnel, equipment and rooms, general patients, and infected or isolated patients. (O)

Radiology Department Organization and Administration (P) (Test 4)

1. Explain the management principles: Planning, Analysis, Leading and Delegating.
2. State the overall responsibility of a radiology department administrator.
3. State the major goal of the radiology department in patient scheduling and control.
4. State the four basic principles which should be practiced in a radiology department to assure that patient care is efficient and that patient waiting time is minimal.
5. Name at least seven ways to maximize the efficient manner by which radiological examinations are performed.
6. Discuss the attributes of the color coding-terminal digit system.
7. Explain the importance of the design of the film filing envelopes used in the radiology department.
8. Name six file room functions.
9. Explain the method of film interpretation which is most efficient in saving the radiologist's time.
10. Name three systems of transcription used in a radiology department.

Radiology Department Personnel (R) (Test 5)

1. Discuss the training and function of a radiologist.
2. Discuss the training and function of a radiologic technologist.
3. Discuss the training and function of the radiation safety officer.

The Economics of a Radiology Department (R) (Test 6)

1. Discuss the major economic problems of health care institutions.
2. Describe the impact of the following points on the economics of a radiology department:
 - a. quality assurance
 - b. inelasticity of demand
 - c. work ethics
 - d. division of labor
 - e. planning

Introduction to Routine, Special and Pararadiologic Examinations and Treatment Performed in Radiology (Q)

1. Briefly describe the routine radiologic examinations examined in this course.
2. Briefly describe the non-routine radiographic procedure examined in this course.

Computed Tomography(Q)n (test 7)

1. Discuss the concepts of transverse tomography, translation, and reconstruction of images.
2. List & describe the various generations of CT imaging systems.
3. Relate CT system components and their functions.
4. Describe CT characteristics of image matrix and Hounsfield unit.
5. Discuss image reconstruction and image quality (resolution, contrast resolution, noise, linearity and uniformity)
6. Describe the principles, advantages and limitations of spiral CT.
7. Give methods for reducing radiation dose to the patient and radiographer.

Radiologic Technology Educational Program (Test 8)

1. Discuss the following program policies and provide a rationale for each policy. (D)
 - a. assignment of duty
 - b. hours of clinical education
 - c. attendance
 - d. reporting late or leaving early
 - e. vacations and holidays
 - f. food service
 - g. smoking
 - h. personal hygiene and dress
 - i. parking
 - j. lockers
 - k. illness while on duty
 - l. pregnancy
 - m. malpractice insurance
 - n. transportation
 - o. radiation monitoring badge
 - p. identification markers
 - q. radiation protection
2. Identify major duties/responsibilities of a student radiographer. (C)
3. State the progression and termination program policy and the program graduation requirements. (D)
4. State the scope of practice for a student radiographer after simulation of an exam category. (B)
5. State the scope of practice for a student radiographer after successful evaluation following the criteria for category competency. (B)
6. State the scope of practice for a student radiographer after successful evaluation following the criteria for final category competency. (B)
7. Discuss the attitudinal evaluation requirements. (C)
8. Explain the difference between the review/accreditation and credentialing processes and identify agencies involved in each process. (F)
9. Discuss the general employment outlook and economic return for the graduate radiographer. (G)
10. Discuss career advancement and opportunities for the radiographer. (G)
11. Identify the benefits of continuing education as related to improved patient care and professional enhancement. (H)
12. Explain the need to demonstrate interest in professional growth and discuss the benefits derived from association with professional organizations. (G)

Required Assessments:**Assessment Names and Descriptions:**

1. Evaluation: Objective and/or essay type examination following completion of each unit. Mastery level for each unit must be 75% or greater.
2. Research Paper: Content, organization and development to equal 75% or greater.

CSLO/Assessment Alignment:

Course	CSLO 1	CSLO 2	CSLO 3	CSLO 4	CSLO 5	CSLO 6	CSLO 7	CSLO 8	CSLO 9	CSLO 10
RT 1130	HB outline Test 8	HB outline Test 8	HB outline Test 8	HB outline Test 8	HB outline Test 8	HB outline Test 2	Test 1	Test 1	Test 1	Test 1
	CSLO 11	CSLO 12	CSLO 13	CSLO 14	CSLO 15	CSLO 16	CSLO 17	CSLO 18	CSLO 19	CSLO 20
	Test 2	Test 2	Test 1 Perform. Check list	Test 4 Perform Check list	Test 4	Test 5 Research paper	Specialty summary report; Research paper	Test 6 Research paper	Test 3	Test 1

Grading Scale or Policy, Weekly Outline, Topics, or Instructional Activities:

1. Average of unit examinations and research paper
2. Two points from the total grade for each absence exceeding the formula: excused days absent = 1/15 (class hours) (number of weeks per semester)
3. Plus 5 points for 100% attendance (no absences or tardies).
4. Because promptness is as important as attendance, a combined frequency of tardiness of 50 minutes will equal one day absent.

Chattanooga State Community College

Radiologic Technology Program

Statement of Understanding

Disabilities Statement

Students who have educational, psychological, and/or physical disabilities may be eligible for accommodations that provide equal access to educational programs and activities at Chattanooga State.

These students should notify the instructor immediately, and ideally should contact Disabilities Support Services (S-113, phone 697-4452) within the first two weeks of the semester in order to discuss individual needs. The student must provide documentation of the disability so that reasonable accommodations can be requested in a timely manner. All students are expected to fulfill essential course requirements in order to receive a passing grade in a class, with or without reasonable accommodations.

Disruption Statement

Disruption or obstruction of teaching, research, administration, disciplinary proceedings, other college activities, including its public service functions on or off campus, or other authorized non-College activities, when the act occurs on College premises, is subject to disciplinary sanctions.

The terms classroom disruptions means behavior a reasonable person would view as substantially or repeatedly interfering with the conduct of a class. A student who persists in disrupting a class will be directed by the faculty member to leave the classroom for the remainder of the class period. The student will be told the reason(s) for such action and given an opportunity to discuss the matter with the faculty member as soon as possible. Prompt consultation will be undertaken by the faculty with the Department Dean and the College Judicial Officer.

If a disruption is serious, and other reasonable measures have failed, the class may be adjourned and the campus police summoned.

Pagers and Cell Phones - Activated pagers and cell phones are strictly prohibited when class is in session.

The **RADIOLOGIC TECHNOLOGY PROGRAM** is a competency-based program. The goal of each instructor is to have students complete the competency requirements of each course. Completion of set competency areas of a course is greatly affected by student's ability to progress through the material. If competencies are not mastered in a specific course, a subsequent course will be structured to assure competency attainment of those areas.

Each topic in each syllabus will indicate a mastery level for the objectives that correlate to the topic. Evaluation is criterion-referenced to the objectives for each topic. **Mastery level criteria for each topic must be met.** Remediation is permitted with restrictions. The first remediation test grade will be averaged with the original test grade. A second remediation will result in ten points being subtracted from the specific topic grade. Subject to the discretion of the instructor, further remediation and testing may result in a reduction of one letter grade for the course for each occurrence, which may lead to failure of the course.

A grade of "C" or better in the following courses is required for progression:

1. All RT prefixed courses
 2. Human Anatomy & Physiology I, II (BIOL2010, BIOL2020)
 3. Radiobiology and Radiation Protection (RT 2543)
 4. Math 1710
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I hereby acknowledge that I have read the syllabus and understand the policies regarding objectives, grading, performance, participation, absenteeism, tardiness, and conduct.

I understand the policy on NO activated cell phones or pagers during class time and agree to keep these devices enclosed in a container (such as a purse or backpack) so that they are not visible to anyone in the classroom.

Chattanooga State is committed to promoting a mode of individual conduct based on the principles of honesty, fairness, trust, respect and responsibility. I understand that academic integrity is demanded in ALL records, exercises, assignments and tests in the classes. Those who falsify records, copy others work or share such information inappropriately will receive an F in the course.

I understand that most courses in this program offer supplemental websites which are required on a routine basis. Computers with web access are readily available on campus and may be used to access this required component of the course.

My signature documents my agreement to abide by all policies and conditions stated in the course syllabus, as well as all program policies.

Name in print

Date

Signature
