

**ODESSA COLLEGE
HEALTH & SCIENCE DIVISION
RADIOLOGIC TECHNOLOGY PROGRAM**

1/11

COURSE SYLLABUS

COURSE NUMBER: RADR 1301 (51.0911)

COURSE TITLE: INTRODUCTION TO RADIOGRAPHY

CREDIT HOURS: 3 LECTURE HOURS: 3 LAB HOURS: 0

PREREQUISITES: NONE

COREQUISITE: RADR 1311 or none

CATALOG DESCRIPTION:

An overview of the historical development of radiography, basic radiation protection, an introduction to medical terminology, ethical and legal issues for health care professionals, and an orientation to the program and the health care system. Also includes infection control procedures and an introduction to prime exposure factors. The student will identify the prime exposure factors and have an understanding and incorporate infection control practices upon entering clinical sites. (SCANS 1,2,3,6,9,10)

TEXTBOOKS: Introduction to Radiologic Sciences and Patient Care Adler, Carlton

LEARNING OUTCOMES:

Define basic medical terms; identify ethical and legal standards; explain basic radiation protection practices; and relate the role of radiography to health care. The student will be able to demonstrate a basic understanding of radiographic equipment and auxiliary devices, and identify the prime exposure factors. The student will also be introduced to the cardinal principles of time, distance, and shielding, the annual dose limits for occupational workers, wearing and location of TLD, and patient radiation protection.

COURSE REQUIREMENTS:

- A. Regular and punctual attendance of all class lectures and laboratory exercises.
- B. Read and discuss textbook assignments and outside readings when they are assigned.
- C. Complete all course assignments to include worksheets, laboratory exercises, written papers, examinations, etc.
- D. Demonstrate proficiency of the requirements set forth in this course by attainment of a grade of "C" or better.

METHOD OF EVALUATION:

Grading Criteria:

- A - 93-100
- B - 84-92
- C - 75-83

Weight of Course Requirements:

- 60% - Unit Examinations
- 10% - Clinical Observation & Evaluation
- 30% - Final Examination

ATTENDANCE POLICY:

Student attendance at every class, lab, and clinical practicum is expected. Students shall be prompt to class and clinical practicums. Points will be deducted from a student's final course grade for absences. (1-2 abs = .5 pt. ea.; 3-5 abs. = .75 pt. ea.; 6-7 abs. = 1pt. ea.) A student is considered absent if more than 30 minutes late to lecture or lab or more than 2 hours late for clinical practicums. Four (4) or more absences will constitute an administrative drop.

ACADEMIC ETHICS:

You are expected to complete your own assignments and take tests without notes or other outside assistance. **ALL WORK IS EXPECTED TO BE YOUR OWN.** If unethical behavior is detected, **ALL** parties involved will be denied points for that project exam. The questioned material and a report of the ethics violation will be submitted to the department chair for further action as deemed necessary by the department chair.

STUDENT ASSISTANCE:

The following resources are available to assist you in successful completion of this course:

A. **Smarthinking** (<http://Smarthinking.com>)

Smarthinking Provides live, online, on-demand tutoring and writing assistance to Odessa College students in **Mathematics (Basic Skills - Calculus II), Writing, General Chemistry, Organic Chemistry, Physics, Biology, Introduction to Human Anatomy and Physiology, Accounting, Economics, Introductory Finance, Spanish and Statistics.**

Keep in mind that the Success Center still has 7 outstanding tutors for in-house face-to-face tutoring sessions.

C. **Instructor Assistance** - Instructor office hours are posted on their office doors. Instructors are available during the hours posted to assist students.

D. **"SPECIAL NEEDS:** Odessa College complies with Section 504 of the Vocational Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990. If any student has any special needs or issues pertaining to their access to and participation in this or any other class at Odessa College, please feel free to contact your instructor to discuss your concerns. Students may also call the Office of Disability Services at 432-335-6861 to request assistance and accommodations."

IMPORTANT NOTES:

The final examination is a comprehensive examination based on the ARRT format.

A one time clinical observation is required during this semester. The student must meet with the instructor to schedule the observation as soon as possible.

Students will be allowed to make up tests; however, 10 points will be deducted for each class day a student fails to schedule and complete the examination.

COURSE COMPETENCIES: Students will be responsible for the Course Competencies found in the notebooks in the classroom.

**ODESSA COLLEGE
201 WEST UNIVERSITY
ODESSA, TEXAS 79764**

Instructor : Catherine Laney (CT 114) or Carrie Nanson (CT113)
Office Phone : 335 – 6449 or 335 - 6469
Office Hours :

COURSE NUMBER: RADR 1301 (51.0911)

COURSE TITLE: Introduction to Radiography

METHOD OF EVALUATION:

Unit examinations, clinical observation evaluation, and final examination

Course Requirement Deadlines: Clinical observation and evaluation must be completed prior to final examination week.

ATTENDANCE POLICY:

See Departmental policy in the COURSE SYLLABUS

ACADEMIC ETHICS:

See departmental policy in the COURSE SYLLABUS

IMPORTANT NOTES TO STUDENT:

See important notes in the COURSE SYLLABUS

COURSE COMPETENCIES

1XRA.01.00 KNOW/ADHERE TO THE RULES AND REGULATIONS OF THE EDUCATIONAL PROGRAM

1XRA.01.01 State/adhere to the rules and regulations of the educational program regarding class attendance, grading, vacation/sick leave, and the appeals procedure.

1XRA.01.02 Define/abide by the Essentials and guidelines of an Accredited Educational Program for the Radiographer and state its purpose.

1XRA.01.03 Discuss/adhere to the departmental and hospital rules and regulations which directly or indirectly affect students.

1XRA.01.04 List/perform the major duties and responsibilities of a radiography student.

1XRA.01.05 Identify/employ basic radiation safety procedures for staff and patients.

1XRA.01.06 State/monitor the procedure for monitoring of occupational exposed individuals.

1XRA.01.07 State/adhere to the policies concerning communicable disease and pregnancy for students enrolled in the program.

1XRA.02.00 IDENTIFY/DISCUSS/WORK WITH OTHER HEALTH SCIENCE PROFESSIONALS TO INCLUDE NECESSARY INTERACTIONS WITH OTHER DEPARTMENTS.

1XRA.02.01 Identify/work with individuals in other health science professions which impact on the health care provided to patients seen in radiology.

1XRA.02.02 Describe the relationship of these health care workers to the integrated care of patients.

1XRA.03.00 UNDERSTAND/DISCUSS HOSPITAL ORGANIZATION

1XRA.03.01 Discuss the philosophy and mission of the hospital

1XRA.03.02 Identify key administrative personnel and discuss their relationship with the radiology department.

1XRA.03.03 Describe relationships and inter dependencies of departments within the hospital.

1XRA.04.00 UNDERSTAND/DISCUSS RADIOLOGY ORGANIZATION

1XRA.04.01 Identify key personnel and discuss their function in the radiology department.

1XRA.04.02 Explain patient services available in the radiology department.

1XRA.04.03 Discuss the educational programs in the radiology department.

1XRA.05.00 UNDERSTAND/DESCRIBE ACCREDITATION AND CREDENTIALING OF RADIOGRAPHY PROGRAMS

1XRA.05.01 Define accreditation, credentialing, licensure and regulations.

1XRA.05.02 Describe how the JRCERT Essentials and Guidelines of an Accredited Educational Program for the Radiographer relate to the educational program.

1XRA.05.03 Explain the difference between the accreditation and credentialing processes, and identify agencies involved in each process.

1XRA.06.00 IDENTIFY/DISCUSS PROFESSIONAL ORGANIZATIONS

1XRA.06.01 Describe purposes, functions, and activities of professional organizations.

1XRA.06.02 Identify international, national, state, and local organizations for the radiographer.

1XRA.07.00 IDENTIFY THE NEED FOR CONTINUING PROFESSIONAL DEVELOPMENT

1XRA.07.01 Discuss the general employment outlook and economic return for the graduate radiographer.

1XRA.07.02 Discuss career advancement and opportunities for the radiographer.

1XRA.07.03 Identify the benefits of continuing education as related to improved patient care and professional enhancement.

1XRA.08.00 RECALL HISTORICAL AND PHILOSOPHICAL ASPECTS OF RADIOGRAPHIC ETHICS

1XRA.08.01 Identify/appreciate specialized standards of behavior for the healing arts as a continuum with historical & philosophical roots in the earliest periods of human history.

1XRA.08.02 Define and describe the major milestones in the development of codes of behavior and ethical standards in the healing arts.

1XRA.09.00 DISCUSS ETHICS - A BRANCH OF PHILOSOPHY

1XRA.09.01 Identify and appreciate significance of the health department.

1XRA.09.02 Recognize identifying features of various health disciplines.

1XRA.10.00 IDENTIFY/EMPLOY THE ELEMENTS OF ETHNICAL BEHAVIOR

1XRA.10.01 Be sensitized to the central role of ethical behavior in health care delivery.

1XRA.10.02 Be sensitized to the development of moral reasoning, current theories of same in a psychological/educational context, and explore their personal stage of development.

1XRA.10.03 Differentiate between empathetic rapport and sympathetic involvement in relationships with patients and relate these to ethical conduct.

1XRA.10.04 Identify and rationalize concepts of personal honesty, integrity, accountability, competence and compassion as ethical imperatives in health care.

1XRA.10.05 Identify legal/professional standards and their relationship to practice in health professions.

1XRA.10.06 Identify/describe accepted codes/guidelines for professional ethics & those elements similar to other health professions & those unique to their respective discipline(s).

1XRA.11.00 DISCUSS/EMPLOY ETHICAL ISSUES AND DILEMMAS IN HEALTH CARE AND EMPLOY CRITICAL THINKING SKILLS FOR SOLUTIONS

1XRA.11.01 Recognize and identify those situations and conditions which give rise to ethical dilemmas in health care.

1XRA.11.02 Identify and employ a basic system of examination, clarification, determination of alternatives and decision making in ethical questions.

1XRA.11.05 Identify, discuss and appreciate the significance of accurate, complete, correct methods of medical record keeping as a legal/ethical imperative.

1XRA.11.06 In groups, & individually, explore, discuss and articulate responses to theoretical situations and questions relating to the ethics of care and health care delivery.

1XRA.12.00 UNDERSTAND/DISCUSS THE LEGAL RESPONSIBILITIES OF RADIOGRAPHERS

1XRA.12.17 Discuss the ASRT Scope of Practice for the radiographer and describe the elements that comprise it.

1XRA.12.18 Discuss the limits of responsibility for the radiographer as defined by the Scope of Practice.

1XRA.13.00 UNDERSTAND THE NEED FOR PATIENT CONSENT AND ASSIST IN OBTAINING WHEN NECESSARY

1XRA.13.01 Define the term informed consent.

1XRA.13.02 Describe the elements necessary for informed consent.

1XRA.13.03 Discuss standards for disclosure relative to informed consent.

1XRA.13.04 Describe how consent forms are utilized relative to specific radiographic procedures.

1XRA.13.05 Discuss how consent forms are used in legal action.

1XRA.14.00 DISCUSS THE ORIGIN OF MEDICAL TERMINOLOGY

1XRA.14.01 List the primary and secondary language sources from which medical terms are derived.

1XRA.14.02 Give examples of medical terms from both the primary and secondary sources.

1XRA.15.00 DISCUSS/PRACTICE THE WORD BUILDING PROCESS

1XRA.15.01 Given medical terms, operate and define each according to its basic elements.

1XRA.15.02 Given medical terms in noun and verb forms, change each to adjective and/or adverb forms.

1XRA.15.03 Analyze medical terms that combine prefixes and suffixes with other word elements.

1XRA.15.04 Form a list, select medical terms used in radiology.

1XRA.15.05 Translate medical terms into common language a patient could understand.

1XRA.15.06 Correctly pronounce medical terms.

1XRA.16.00 EMPLOY MEDICAL ABBREVIATIONS AND SYMBOLS

1XRA.16.01 Given abbreviations, provide definitions for each.

1XRA.16.02 Given symbols, provide definition for each.

1XRA.16.03 Given medical orders which include abbreviations and symbols, translate into non-medical language.

1XRA.19.00 EMPLOY OPERATIONAL/MANAGEMENT TERMS

1XRA.19.01 Given operational and management terms and abbreviations, define term or abbreviation.

1XRA.19.02 Given example scenarios utilizing operational and management terms and abbreviations, describe implications for effective provision of radiologic sciences

1XRA.19.03 Relate operational and management terminology to customer/client/patient's satisfaction

1XRA.20.00 DISCUSS RESPONSIBILITIES OF HEALTH CARE FACILITY AND RADIOGRAPHER AND THE SCOPE OF PRACTICE FOR THE RADIOGRAPHER

1XRA.20.01 Discuss the responsibilities of the health care facility.

1XRA.20.02 Discuss the responsibilities of the radiographer.

1XRA.20.03 Discuss the Scope of Practice for the radiographer.

1XRA.21.00 DISCUSS/PUT INTO PRACTICE APPROPRIATE ATTITUDES AND COMMUNICATION IN PATIENT CARE

1XRA.21.01 Discuss the perceptions of death and dying from patient and technologist viewpoints.

1XRA.21.02 Discuss ethical, emotional, personal, and physical aspects of death.

1XRA.21.03 List the stages of dying and describe the characteristics of each stage.

1XRA.21.04 Identify the support mechanisms available to the terminally ill.

1XRA.22.00 DISCUSS/EMPLOY PROFESSIONAL PATIENT/TECHNOLOGIST INTERACTIONS

1XRA.22.01 Describe methods of determining the proper patient identification.

1XRA.22.02 Explain the use of audio and visual communication systems.

1XRA.22.03 Explain the use of immobilization devices.

1XRA.22.04 Explain the use of machine type.

1XRA.22.05 Explain the use of axillary equipment.

1XRA.22.06 Alleviate fears by explaining positioning for examination.

1XRA.22.07 Alleviate fears by explaining length of procedure.

1XRA.22.08 Alleviate fears by explaining room noises.

1XRA.22.09 Alleviate fears by explaining machine movement.

1XRA.22.10 Alleviate fears by explaining machine/patient contact.

1XRA.22.11 Given case studies, interact with patient family members and/or friends.

1XRA.23.00 SAFELY TRANSFER AND POSITION PATIENTS

1XRA.23.01 Describe and demonstrate good principles of body mechanics applicable to patient care.

1XRA.23.02 Demonstrate different techniques for various types of patient transfer.

1XRA.23.03 Describe and demonstrate the procedures for turning patients with various conditions.

1XRA.23.04 Describe and demonstrate restraint techniques for various types of procedures and patient conditions.

1XRA.23.05 Describe the aspects of patient comfort and discuss the importance of each to care and safety of the patient.

1XRA.23.06 Given specific patient considerations and conditions, discuss various aspects of general patient care.

1XRA.23.07 Discuss procedures for assuring security of property of inpatients and outpatients.

1XRA.24.00 EVALUATE THE PATIENTS PHYSICAL NEEDS

1XRA.24.03 Describe vital signs used to assess patient condition.

1XRA.24.06 Describe the method of monitoring respirations and state the normal values expected.

1XRA.24.07 List the equipment necessary for acquisition of blood pressure on a patient.

1XRA.24.08 Identify the normal values for blood pressure in males and females.

1XRA.24.09 Identify the seven major sites for monitoring the pulse and indicate the normal values.

1XRA.24.10 Demonstrate the assessment of vital signs.

1XRA.25.00 CONTROL INFECTIONS EMPLOYING UNIVERSAL PRECAUTIONS

1XRA.25.01 Define infectious pathogens.

1XRA.25.02 Define communicable diseases.

1XRA.25.03 Define nosocomial infections.

1XRA.25.04 Define Centers for Disease Control and Preventions (CDC).

1XRA.25.05 Define Human Immunodeficiency Virus (HIV).

1XRA.25.06 Define Hepatitis B Virus (HBV).

1XRA.25.07 Describe the utilization of Universal Precautions and Isolation Procedures.

1XRA.25.08 Describe source and modes of transmission of infections and diseases.

1XRA.25.09 Describe institutional/departmental procedures for infection control through Universal Precautions.

1XRA.25.10 Discuss psychological considerations for the management of patients utilizing Universal Precautions.

1XRA.26.00 IDENTIFY/DISCUSS/MANAGE MEDICAL EMERGENCIES

1XRA.26.01 Identify symptoms which manifest cardiac arrest.

1XRA.26.02 Identify symptoms which manifest shock.

1XRA.26.03 Identify symptoms which manifest convulsion/seizure.

1XRA.26.04 Identify symptoms which manifest hemorrhage.

1XRA.26.05 Identify symptoms which manifest apnea.

1XRA.26.06 Identify symptoms which manifest vomiting.

1XRA.26.07 Identify symptoms which manifest aspiration.

1XRA.26.08 Identify symptoms which manifest suspected or confirmed fractures.

1XRA.26.09 Identify symptoms which manifest diabetic coma/insulin shock.

1XRA.26.10 Describe the emergency medical code system for the institution and disease the role of the student in this procedure.

1XRA.26.11 Given a CPR mannequin, demonstrate CPR competency.

1XRA.26.12 Discuss acute care procedures for cardiac arrest.

1XRA.26.13 Discuss acute care procedures for shock.

1XRA.26.14 Discuss acute care procedures for convulsion/seizure.

1XRA.26.15 Discuss acute care procedures for hemorrhage.

1XRA.26.16 Discuss acute care procedures for apnea.

1XRA.26.17 Discuss acute care procedures for vomiting.

1XRA.26.18 Discuss acute care procedures for aspiration.

1XRA.26.19 Discuss acute care procedures for suspected or confirmed fractures.

1XRA.26.20 Discuss acute care procedures for diabetic coma/insulin shock.

1XRA.26.21 Discuss the use of medical emergency equipment and supplies.

1XRA.26.22 Given simulations, demonstrate the use of oxygen and suction equipment.

1XRA.26.23 Given simulations, demonstrate basic first aid techniques.

1XRA.27.00 DEAL WITH ACUTE PATIENT CARE SITUATIONS

1XRA.27.01 List the special considerations necessary when performing radiographic procedures on an infant or a child.

1XRA.27.02 List the special considerations necessary when performing radiographic procedures on a geriatric patient.

1XRA.27.03 List the symptoms of a patient with a head injury.

- 1XRA.27.04 List the precautions to be taken when working with a patient with a head injury.
- 1XRA.27.05 List the symptoms of a patient with a spinal injury.
- 1XRA.27.06 List the precautions to be taken when working with a patient with a spinal injury.
- 1XRA.27.07 List the symptoms of a patient with an upper/or lower extremity fracture.
- 1XRA.27.08 List the precautions to be taken when working with a patient with an upper/or lower extremity fracture.
- 1XRA.27.09 List the symptoms of a patient with massive wounds.
- 1XRA.27.10 List the precautions to be taken when working with a patient with massive wounds.
- 1XRA.27.11 List the symptoms of a patient with burns.
- 1XRA.27.12 List the precautions to be taken when working with a patient with burns.
- 1XRA.27.13 List the signs and symptoms of a patient having a reaction to contrast media.
- 1XRA.27.14 Describe the medical intervention for a patient having a reaction to contrast media.
- 1XRA.29.00 CARE FOR PATIENTS WITH TUBES
- 1XRA.29.01 Given specific tube management situations, explain the indication and procedure.
- 1XRA.29.02 Given specific tube management situations, identify the precautions involved.
- 1XRA.29.03 Identify the steps in the operation and maintenance of suction equipment.
- 1XRA.30.00 CARE FOR PATIENTS DURING SPECIAL PROCEDURES
- 1XRA.30.07 Consider patient care in regards to adverse reactions to contrast media and other medical conditions.
- 1XRA.31.00 CARE FOR PATIENTS DURING BEDSIDE RADIOGRAPHY
- 1XRA.31.02 List three situations in which bedside radiography may be preferable to examination in the radiography department.
- 1XRA.31.03 List four important factors to be noted during initial survey prior to radiography in the intensive care unit.
- 1XRA.32.00 EDUCATE PATIENTS
- 1XRA.32.01 Define communication.
- 1XRA.32.02 Identify methods of communication and discuss how each can be utilized in patient education.
- 1XRA.32.03 Identify patient communication problems and discuss how each can be overcome to provide patient education.
- 1XRA.32.04 Given clinical simulations, demonstrate explanations of radiographic examinations.
- 1XRA.32.05 Given clinical simulations, demonstrate explanations for patients with various communication problems.
- 1XRA.32.06 Discuss radiation safety and protection questions patients might ask in connection with radiologic examinations and the radiographer's response to each.
- 1XRA.32.07 Given specific patient conditions and profiles, analyze the moods, expectations, and perceptions of the technologist-patient relationship.
- 1XRA.33.00 PROMOTE HEALTH
- 1XRA.33.01 Define tertiary disease prevention.
- 1XRA.33.02 Describe available sources for patients educational materials.
- 1XRA.33.03 Define secondary disease prevention.
- 1XRA.33.04 State the importance of breast self-exam.
- 1XRA.33.05 State the importance of testicular self-exam.
- 1XRA.33.06 State the importance of skin self-exam.
- 1XRA.33.07 State the importance of mammography.
- 1XRA.33.08 State the importance of physical examinations.
- 1XRA.33.09 State the importance of pelvic examinations.
- 1XRA.33.10 State the importance of colorectal examinations.

1XRA.33.11 Describe the correlation of family history to breast cancer.

1XRA.33.12 Describe the correlation of family history to testicular cancer.

1XRA.33.13 Describe the correlation of family history to colorectal cancer.

1XRA.34.00 MANAGE SUBSTANCE ABUSE PATIENTS

1XRA.34.01 Define chemical dependence and differentiate among terms used to describe aspects of this illness.

1XRA.34.02 Discuss specific signs and symptoms of those suffering from chemical dependence and identify specific strategies used in treating this illness.

1XRA.60.00 COMPETENTLY DISCUSS/MANIPULATE RADIOGRAPHIC DENSITY

1XRA.60.01 Define radiographic density.

1XRA.60.02 Identify the acceptable range of radiographic density.

1XRA.60.03 Analyze relationships of factors affecting radiographic density.

1XRA.61.00 COMPETENTLY DISCUSS/MANIPULATE RADIOGRAPHIC CONTRAST

1XRA.61.01 Define radiographic contrast.

1XRA.61.02 Differentiate between subject contrast and film contrast.

1XRA.61.03 Analyze relationships of factors affecting radiographic contrast.

1XRA.62.00 COMPETENTLY DISCUSS/MANIPULATE RECORDED DETAIL

1XRA.62.01 Define recorded detail.

1XRA.62.02 Differentiate between umbra and penumbra.

1XRA.62.03 Analyze relationships of factors affecting recorded detail.

1XRA.63.00 CONTROL DISTORTION

1XRA.63.01 Define distortion

1XRA.63.02 Differentiate between shape distortion and size distortion.

1XRA.63.03 Analyze relationships of factors affecting distortion.

1XRA.64.00 EXPLAIN/MANIPULATE EXPOSURE LATITUDE

1XRA.64.01 Define exposure latitude.

1XRA.64.02 Analyze relationships of factors affecting exposure latitude.

1XRA.65.00 DISCUSS/USE BEAM LIMITING DEVICES

1XRA.65.01 List the types of beam limiting devices and describe the operation and applications for each.

1XRA.65.02 Explain purposes of beam limiting devices in terms of patient dosage, scattered radiation production, radiographic density and contrast.

1XRA.66.00 DISCUSS/EMPLOY BEAM FILTRATION

1XRA.66.01 Define beam filtration.

1XRA.66.02 Explain purposes of beam filtration in terms of patient dosage, scattered radiation production, radiographic density and contrast.

1XRA.67.00 DISCUSS/CONTROL SCATTERED AND SECONDARY RADIATION

1XRA.67.01 Define scattered and secondary radiation.

1XRA.67.02 Describe interactions of x-rays with matter which produce scattered and secondary radiation.

1XRA.67.03 Analyze relationships of factors affecting scattered and secondary radiation.

1XRA.67.04 Discuss effects of scattered and secondary radiation in terms of patient dosage, image quality, and occupational exposure.

1XRA.68.00 DISCUSS/CONTROL EXIT RADIATION

1XRA.68.01 Explain the relationship between kVp and scattered and secondary radiation.

1XRA.68.02 Describe a grid in terms of its purpose, components, and construction.

1XRA.68.03 Differentiate among types of grids.

1XRA.68.04 Analyze grid efficiency in terms of grid ratio and frequency.

1XRA.68.05 Given technical information, select an appropriate grid.

1XRA.68.06 Define grid cut off.

1XRA.68.07 Describe factors influencing grid cut off.

1XRA.68.08 Define various grid artifacts.

1XRA.68.09 Explain the relationship between beam limitation and scattered/secondary radiation.

1XRA.71.00 DISCUSS/EXPLAIN PROCESSING AREA CONSIDERATIONS

1XRA.71.01 Discuss aspects of processing area location, construction, and function.

1XRA.71.02 Explain safe light illumination in terms of definition, filters, bulb size/color, and testing for both blue and green sensitive film emulsions.

1XRA.71.03 Describe the operation and utilization of day light processing.

1XRA.71.04 Discuss processing area ventilation including considerations of temperature control and light proofing.

1XRA.71.05 Discuss the location, purpose, and function/operation of each piece of processing area equipment/furnishings.

1XRA.72.00 HANDLE AND STORE FILM CORRECTLY

1XRA.72.01 Analyze the effects of processing considerations on film quality.

1XRA.72.02 Analyze the effects of storage considerations of film quality.

1XRA.73.00 EXPLAIN CHARACTERISTICS OF FILMS UTILIZED IN RADIOGRAPHIC PROCEDURES

1XRA.73.01 Given cross-sectioned diagrams of radiographic film, label the components, and describe the structure and function of each component.

1XRA.73.02 Define properties of radiographic film and analyze the influence of each on the resultant image.

1XRA.73.03 Relate properties of radiographic films to specific procedure applications.

1XRA.73.04 Define latent image formation.

1XRA.73.05 Explain how sensitization specks contribute to latent image formation.

1XRA.73.06 Define characteristic curve and explain its purpose.

1XRA.73.07 Given density values, graph characteristic curves for radiographic film.

1XRA.73.08 Given characteristic curves for radiographic film, interpret them.

1XRA.73.09 Given characteristic curves for various radiographic film, analyze the curves and evaluate various films for specific procedure.

1XRA.74.00 DISCUSS/EMPLOY FILM HOLDERS AND INTENSIFYING SCREENS

1XRA.74.01 Discuss various film holders in terms of purpose, construction, application, patient dosage, loading/unloading and maintenance.

1XRA.74.02 Explain the construction and purpose of intensifying screens.

1XRA.74.03 Describe the principles and function of intensifying screens.

1XRA.74.04 Explain classifications of intensifying screens and the application of each.

1XRA.74.05 Discuss the maintenance of intensifying screens in terms of handling, cleaning, testing and evaluation.

1XRA.76.00 DESCRIBE/IDENTIFY ARTIFACTS

1XRA.76.01 Define the term artifact.

1XRA.76.02 Describe types of artifacts including the cause and effect on a radiograph and method of prevention for each.

1XRA.76.03 Given radiographs containing artifacts, identify the type, cause and methods of prevention for each.

2XRA.22.00 DISCUSS/IDENTIFY THE NEED FOR RADIATION PROTECTION

2XRA.22.01 Identify and justify the need to minimize unproductive radiation exposure of humans.

2XRA.22.02 Define and distinguish between somatic and genetic radiation effects (immediate and latent), provide examples.

2XRA.22.03 Differentiate between the stochastic and non-stochastic effects of radiation exposure, provide examples.

2XRA.22.04 List the objectives of a radiation protection program and demonstrate the ability to document some.

2XRA.22.05 Identify effective dose equivalent limits for occupational and nonoccupational radiation exposure.

2XRA.22.06 Identify the acronym “ALARA” and describe the concept optimization.

2XRA.22.07 Identify the basis for occupational exposure limits: comparable risk.

2XRA.22.08 Describe the concept of negligible individual risk level (NIRL).

2XRA.22.09 Identify ionizing radiation from natural and man-made sources and list their approximate dose equivalent contribution.

2XRA.22.10 Identify legal and ethical radiation protection responsibilities of radiation workers.

2XRA.27.00 DESCRIBE/EMPLOY PRACTICAL RADIATION PROTECTION MEASURES

2XRA.27.14 Identify emergency procedures to be followed during failures of x-ray mechanisms.

SEMESTER ASSIGNMENTS:

- One-time clinical observation to be scheduled by student with instructor.
- Chapter 1: Introduction to Radiologic Technology
- Chapter 2: Professional Organizations
- Chapter 3: Educational Survival Skills
- Chapter 4: Critical Thinking and Problem Solving Strategies
- Chapter 10: Human Diversity
- Chapter 11: Patient Interactions
- Test #1: Chapters 1-4, 10 & 11
- Chapter 22: Professional Ethics
- Test #2: Chapter 22, Handouts
- Chapter 24: Medical Law
- Test #3: Chapter 24, Handouts
- Chapter 16: Infection Control
- Medical Terminology Handout & Worksheet
- Test #4: Chapter 16, Handouts, & Medical Terminology
- Chapter 9: Basic Radiation Protection and Radiobiology
- Chapter 7: Radiographic Imaging
- Final Exam: Comprehensive