Introduction to Radiology and Patient Care (RADR 1309)

Credit: 3 semester credit hours (2 lecture and 3 lab hours)

Pre-requisite: Acceptance into the LIT Radiologic Technology Program

Course 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 to the health care system. Patient assessment, infection control procedures, emergency and safety procedures, communication and patient interaction skills, and basic pharmacology are also included.

Textbook And Materials:
- #882 Scan Trons, pencil, and basic calculator

Course Objectives
Upon completion of this course, the student will be able to:
1. Define basic medical terms
2. Identify ethical and legal standards
3. Explain basic radiation protection practices
4. Assess patient conditions.
5. Recognize emergency situations and identify appropriate response. Identify relevant pharmaceuticals and their applications.

Course Outline Lecture:
I. History of Radiology
   a. Important people and their discoveries
   b. American Society Radiologic Technologists
   c. Imaging equipment
II. Role of Each Member in the Radiology Team
   a. Diagnostic department
   b. Special modalities
   c. Employment opportunities
   d. Hospital Organizational Chart
   e. Professional, accrediting, and credentialing agencies
III. Radiology Ethics & Law
   a. Professional ethics
   b. Professional etiquette
   c. Patient Care Partnership
   d. Professional Standards of Conduct
   e. Legal terms
IV. Health Record
   a. HIPAA
   b. Hospital Information Systems

V. Radiation Physics
   a. Atomic Structure
   b. Electromagnetic Radiation
   c. Production of Radiation
   d. Image Production Equipment

VI. Fundamentals of Radiographic Exposure
   a. MA
   b. Time
   c. Distance (Inverse Square Law)
   d. Image Receptor exposure --Density (Square Law)
   e. KVP (15% rule)
   f. Contrast
   g. Geometric Factors

VII. Image Formation and Quality Control
   a. Film
   b. Screens
   c. Grids
   d. Beam Restrictors
   e. Filtration
   f. Digital Imaging

VIII. Radiation Biology
   a. Sources of radiation
   b. Cell radiosensitivity
   c. Radiation effects
   d. Radiation units

IX. Radiation Protection
   a. Principles of radiation protection
   b. Types of radiation monitors

Course Outline Lab:
I. Introduction and description of the Lab
II. Moving and Transferring Patients
   a. Body Mechanics
   c. Positioning the Patient for Examinations
   d. Transfer of Patients
   e. Immobilization Devices

III. Vital Signs
   a. Temperature
   b. Pulse
   c. Respiration
   d. Blood Pressure
   e. O₂ administration
   f. EKG demonstration
IV. Medical Asepsis and Infection Control
   a. Handwashing
   b. Sterile Technique
   c. Protection of Self and Others
   d. Cleaning
   e. Isolation

V. Medical Emergencies
   a. Respiratory Failure
   b. Cardiac Failure
   c. Airway Obstruction
   d. Diabetic Patient
   f. Shock
   g. Stroke

VI. Care of Special Patients
   a. Pediatrics
   b. Geriatrics
   c. Obese patients
   d. Contrast Media Exams
   e. Special Imaging Exams
      1. CT
      2. MRI
      3. MRI
      4. Nuclear Medicine

VII. Contrast Media
   a. Types of contrast media
   b. Selection criteria

VIII. Contrast and Drug Preparation, Injections and Venipuncture
   a. Draw contrast media
   b. Venipuncture
   c. Pharmacology

IX. Radiology Equipment, Film Exposure and Processing
   a. Expose and process images
      1. Automatic Processor
      2. Digital Imaging

X. Radiographic Identification
   a. Chest
   b. Abdomen
   c. Extremities
   d. Spines
   e. Contrast Exams
RADR 1309
Course Syllabus - 2019

Grade Scale:
The Radiology courses have elevated grade scales to prepare the students for the national exam they will take at the end of the program.

100 - 93 = A
84 - 92 = B
77 - 83 = C
66 - 76 = D *
65 & BELOW = F*

* STUDENTS SCORING BELOW A 77 WILL NOT BE ALLOWED TO PROGRESS WITHIN THE RADIOLOGY PROGRAM.

Course Policies:
1. No food, drinks, or use of tobacco products in class.
2. Phones, headphones, and any other electronic devices must be turned off while in class.
3. Recording devices may be used except during test reviews and when otherwise stated by the instructor.
4. Lap top computers, I-pad… may be used to take notes during class but may not be used to “surf” the internet, look-up answers, nor anything not directly related to note taking.
5. It shall be considered a breach of academic integrity (cheating) to use or possess on your body any of the following devices during any examination unless it is required for that examination and approved by the instructor: Cell phone, smart watch/watch phone, laptop, tablet, electronic communication devices (including optical), and earphones connected to or used as electronic communication devices.
   • This is a violation of the Radiologic Technology Student Handbook and will result in dismissal from the program.
6. Do not bring children to class.
7. Attendance Policy: Class attendance is important to ensure that a student receives the knowledge and skills necessary to be successful in the Radiologic Technology program. Students are expected to be in class on time. If a student is tardy they may enter only if they do so quietly.
   When it becomes necessary to miss a session, it is the responsibility of the student to contact the instructor and to inquire about assignments. I will not distribute the PowerPoints missed. The student must get the notes from a classmate. If a major test is missed, the test will be administered at the first day the student returns to class or at a time designated by the instructor. There will be a ten (10) point reduction for make-up exams.

Technical Requirements (for courses using Blackboard)
The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:
A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

Disabilities Statement
The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building. You may also visit the online resource at http://www.lit.edu/depts/stuserv/special/defaults.aspx

Student Code of Conduct Statement
It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the LIT Catalog and Student Handbook. The LIT Catalog and Student Handbook may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office. Please note that the online version of the LIT Catalog and Student Handbook supersedes all other versions of the same document

Starfish
LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.