

RADT – Radiologic Technology

RADT 1010 - Introduction to Radiology 4.000 Credits

Introduces a grouping of fundamental principles, practices, and issues common to many specializations in the health care profession. In addition to the essential skills, students explore various delivery systems and related issues. Provides the student with an overview of radiography and patient care. Students will be oriented to the radiographic profession as a whole. Emphasis will be placed on patient care with consideration of both physical and psychological conditions. Topics include ethics, medical and legal considerations, Right to Know Law, professionalism, basic principles of radiation protection, basic principles of exposure, equipment introduction, health care delivery systems, hospital and departmental organization, hospital and technical college affiliation, medical emergencies, pharmacology/contrast agents, media, OR and mobile procedures patient preparation, death and dying, body mechanics/transportation, basic life support/CPR, and patient care in radiologic sciences.

RADT 1030 - Radiographic Procedures I 3.000 Credits

Prerequisites: BIOL 2114; BIOL 2114L
Corequisites: RADT 1010

Introduces the knowledge required to perform radiologic procedures applicable to the human anatomy. Emphasis will be placed on the production of quality radiographs, and laboratory experience will demonstrate the application of theoretical principles and concepts. Topics include introduction to radiographic procedures; positioning terminology; positioning considerations; procedures, anatomy, and topographical anatomy related to body cavities, bony thorax, upper extremities, shoulder girdle; and lower extremities.

RADT 1060 – Radiographic Procedures II 3.000 Credits

Prerequisites: RADT 1010; RADT 1030

Continues to develop the knowledge required to perform radiographic procedures. Topics include anatomy and routine projections of the pelvic girdle; anatomy and routine projections of the spine, gastrointestinal (GI) procedures; genitourinary (GU) procedures; biliary system procedures; and minor procedures.

RADT 1070 - Principles of Imaging I 6.000 Credits

Prerequisites: MATH 1111

Content is designed to establish a basic knowledge of atomic structure and terminology. Also presented are the nature and characteristics of radiation, x-ray production and the fundamentals of photon interactions with matter. Factors that govern the image production process, film imaging with related accessories, and a basis for analyzing radiographic images. Included are the importance of minimum imaging standards, discussion of a problem-solving technique for image evaluation and the factors that can affect image quality. Actual images will be included for analysis.

RADT 1160 - Principles of Imaging II 6.000 Credits

Prerequisites: RADT 1070

Content is designed to impart an understanding of the components, principles and operation of digital imaging systems found in diagnostic radiology. Factors that impact image acquisition, display, archiving and retrieval are discussed. Guidelines for selecting exposure factors and evaluating images

within a digital system assist students to bridge between film-based and digital imaging systems, with a knowledge base in radiographic, fluoroscopic, mobile, and tomographic equipment requirements and design. This content also provides a basic knowledge of quality control; principles of digital system quality assurance and maintenance are presented. Content is designed to provide entry-level radiography students with principles related to computed tomography (CT) imaging, and other imaging modalities (i.e., MRI, US, NM, Mammography) in terms of purpose, principles, equipment/material, and procedure. Topics include imaging equipment, digital image acquisition and display, and basic principles of CT and other imaging modalities.

RADT 1200 – Principles of Radiation Biology and Protection 3.000 Credits

Provides instruction on the principles of cell radiation interaction. Radiation effects on cells and factors affecting cell response are presented. Acute and chronic effects of radiation are discussed. Topics include radiation detection and measurement; patient protection; personnel protection; absorbed dose equivalencies; agencies and regulations; introduction to radiation biology; cell anatomy, radiation/cell interaction; and effects of radiation.

RADT 1320 - Clinical Radiography I 4.000 Credits

Corequisites: RADT 1030

Introduces students to the hospital clinical setting and provides an opportunity for students to participate in or observe radiographic procedures. Topics include orientation to hospital areas and procedures; orientation to mobile/surgery; orientation to radiography and fluoroscopy; participation in and/or observation of procedures related to body cavities, the shoulder girdle, and upper extremities. Activities of students are under direct supervision.

RADT 1330 - Clinical Radiography II 7.000 Credits

Prerequisites: RADT 1010; RADT 1030; RADT 1320
Corequisites: RADT 1060

Continues introductory student learning experiences in the hospital setting. Topics include equipment utilization; exposure techniques; attention to and/or observation of routine projections of the lower extremities, pelvic girdle, and spine; attention to and/or observation of procedures related to the gastrointestinal (GI), genitourinary (GU), and biliary systems; and attention to and/or observation of procedures related to minor radiologic procedures. Execution of radiographic procedures will be conducted under direct and indirect supervision.

RADT 2090 - Radiographic Procedures III 2.000 Credits

Prerequisites: RADT 1060

Corequisites: RADT 2340

Continues to develop the knowledge required to perform radiographic procedures. Topics include anatomy and routine projections of the cranium; anatomy and routine projections of the facial bones; anatomy and routine projections of the sinuses; sectional anatomy of the head, neck, thorax, and abdomen.

RADT 2190 - Radiographic Pathology 2.000 Credits

Prerequisites: BIOL 2114; BIOL 2114L

Content is designed to introduce the student to concepts related to disease and etiological considerations. Pathology and disease as they relate to various radiographic procedures are discussed with emphasis on radiographic appearance of disease and impact on exposure factor selection. Topics include fundamentals of pathology, trauma/physical injury, and systematic classification of disease.

RADT 2201 - Introduction to Computed Tomography

2.000 Credits

Introduces the student to computed tomography and patient care in the CT suite. Topics include the history of computed tomography, patient care and assessment, anatomy, contrast agents, radiation safety and protection, medical ethics and law, cultural diversity, and patient information management.

RADT 2210 – Computed Tomography Physics and Instrumentation

5.000 Credits

Introduces the concepts of basic physics and instrumentation for computed tomography. Topics include computer concepts, system operation and components, image processing and display, instrumentation, single slice and volume scanning, 3-D volume rendering, image quality and artifacts, radiation protection and quality control.

RADT 2220 – Computed Tomography Procedures I

3.000 Credits

Provides knowledge CT procedures of the head, chest, abdomen, and pelvis. Topics include anatomy, pathology, scanning procedures, scanning protocol, contrast administration, and contraindications for computed tomography.

RADT 2230 - Computed Tomography Procedures II

3.000 Credits

Provides knowledge of anatomy, pathology, scanning protocols, contrast administration, and contraindications for computed tomography of the neck, spine, musculoskeletal system, and special procedures. Post-processing and quality assurance criteria are addressed. Topics include anatomy, pathology, scanning protocol, contrast administration and contraindications, post processing and quality assurance,

RADT 2250 - Computed Tomography Clinical I

4.000 Credits

Introduces students to the computed tomography department and provides an opportunity for participation in and observation of CT procedures. Students progress toward completion of clinical competency evaluations. Topics include exam preparation, patient care, equipment utilization, exposure techniques, evaluation of CT procedures, and incorporation of contrast media.

RADT 2260 - Radiologic Technology Review

3.000 Credits

Prerequisites: RADT 1160; RADT 1200; RADT 2090; RADT 2350

Provides a review of basic knowledge from previous courses and helps the student prepare for national certification examinations for radiographers. Topics include image production and evaluation; radiographic procedures; anatomy, physiology, pathology, and terminology; equipment operation and quality control; radiation protection; and patient care and education.

RADT 2265 - Computed Tomography Clinical II

4.000 Credits

Provides students with continued computed tomography work experience. Students demonstrate increased proficiency levels in skills introduced in Computed Tomography Procedures and practiced in the previous clinical course. Students complete clinical competency evaluations. Topics include exam preparation, patient care, equipment utilization, exposure techniques, evaluation of CT procedures, and incorporation of contrast media.

RADT 2340 - Clinical Radiography III

6.000 Credits

Prerequisites: RADT 1330

Provides students with continued hospital setting work experience. Students continue to develop proficiency in executing procedures introduced in Radiographic Procedures. Topics include patient care; behavioral and social competencies; performance and/or observation of minor special procedures, special equipment use, and participation in and/or observation of cranial and facial radiography. Execution of radiographic procedures will be conducted under direct and indirect supervision.

RADT 2350 - Clinical Radiography IV

7.000 Credits

Prerequisites: RADT 1010; RADT 2090; RADT 2340

Provides students with continued hospital setting work experience. Students continue to develop proficiency in executing procedures introduced in Radiographic Procedures. Topics include sterile techniques; participation in and/or observation of minor special procedures, special equipment use, and genitourinary system procedures; and participation in and/or observation of cranial and facial radiography; and competency completion evaluation. Execution of radiographic procedures will be conducted under direct and indirect supervision.

RADT 2360 - Clinical Radiography V

9.000 Credits

Prerequisites: RADT 2350

Provides students with continued hospital setting work experience. Students demonstrate increased proficiency levels in skills introduced in all of the radiographic procedures courses and practiced in previous clinical radiography courses. Topics include patient care; behavioral and social competency; advanced radiographic anatomy; equipment utilization; exposure techniques; sterile techniques; integration of procedures and/or observation of angiographic, interventional, minor special procedures; integration of procedures and/or observation of special equipment use; integration of procedures and/or observation of routine and special radiographic procedures; and final completion of all required clinical competencies. Execution of radiographic procedures will be conducted under direct and indirect supervision.

RADT 2520 - Mammographic Anatomy, Physics, and Positioning
6.000 Credits

The student should have a pre-existing knowledge and skills gained during an entry-level radiography educational experience and reinforced through professional practice. The content in this course is intended to aid technologists in preparing for post primary practice of mammography. The course provides the student with an overview of the following topics: Breast anatomy and mammographic correlation, breast viability and pathology, correlative physical breast assessment, department organization and regulation, equipment, interventional procedures mammography quality management, positioning, sonomammography, and technical applications.

RADT 2530 - Clinical Mammography
6.000 Credits

Content and clinical practice experiences should sequentially develop, apply, critically analyze, integrate, synthesize and evaluate concepts and theories used to perform radiologic procedures in mammography. Through structured, sequential, competency-based clinical assignments, students discuss, examine and evaluate concepts of team practice, patient-centered clinical practice and professional development. Clinical practice experience should teach students to provide care and assessment and competently perform radiologic imaging and total quality management. Levels of competency and outcomes measurement ensure the well-being of the patient prior to, and after the radiologic procedure. Topics include mammography clinical practice, patient preparation and education, mammographic procedure, quality control, interventional special procedures, and positioning.