RADT – Radiologic Technology

RADT 1010 - Introduction to Radiology
4 Credits 5 Contact Hours
Corequisites: RADT 1030; RADT 1320
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 Credits 5 Contact Hours
Prerequisites: BIOL 2114 with a minimum grade of C; BIOL 2114L with a minimum grade of C
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, boney thorax, upper extremities, shoulder girdle; and lower extremities.

RADT 1060 – Radiographic Procedures II
3 Credits 5 Contact Hours
Prerequisites: RADT 1010; RADT 1030
Corequisites: RADT 1330
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 1065 Radiologic Science
2 Credits 2 Contact Hours
Designed to establish a basic knowledge of atomic structure and terminology. Other topics include the nature and characteristics of x-radiation; ionizing and non-ionizing radiation; x-ray production; the properties of x-rays and the fundamentals of x-ray photon interaction with matter.

RADT 1075 Radiographic Imaging
4 Credits 5 Contact Hours
Introduces factors that govern and influence the production of the radiographic image using analog and digital radiographic equipment found in diagnostic radiology. Emphasis will be placed on knowledge and techniques required to produce high quality diagnostic radiographic images. Topics include image quality [radiographic density; radiographic contrast; recorded detail; distortion; grids; image receptors and holders (analog and digital)]; processing considerations (analog and digital); image acquisition (analog, digital, and PACS); image analysis; image artifacts (analog and digital). Guidelines for selecting exposure factors and evaluating images within a digital system will assist students to bridge between film-based and digital imaging systems. Factors that impact image acquisition, display, archiving, and retrieval are discussed. Laboratory experiences will demonstrate applications of theoretical principles and concepts.

RADT 1085 Radiologic Equipment
3 Credits 4 Contact Hours
Establishes a knowledge base in radiographic, fluoroscopic and mobile equipment requirements and design. The content also provides a basic knowledge of Automatic Exposure Control (AEC) devices, beam restriction, filtration, quality control, and quality management principles of analog and digital systems. Laboratory experiences will demonstrate applications of theoretical principles and concepts.

RADT 1200 – Principles of Radiation Biology and Protection
2 Credits 2 Contact Hours
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 Credits 12 Contact Hours
Prerequisites: 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 Credits 21 Contact Hours
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 Credits 4 Contact Hours
Prerequisites: RADT 1060
Corequisites: RADT 1330; RADT 2340
Continues to develop the knowledge required to perform radiographic procedures. Topics include anatomy and routine projections of the cranial; 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 2201 - Introduction to Computed Tomography
2 Credits 2 Contact Hours
Corequisites: RADT 2220; RADT 2250
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 Credits 5 Contact Hours
Corequisites: RADT 2230; RADT 2265
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 Credits 3 Contact Hours
Corequisites: RADT 2201; RADT 2250
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 Credits 3 Contact Hours
Prerequisites: RADT 2220; RADT 2250; RADT 2265
Corequisites: RADT 2210; RADT 2265
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 Credits 12 Contact Hours
Corequisites: RADT 2201; RADT 2220
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 Credits 3 Contact Hours
Prerequisites: RADT 1200; RADT 2090; RADT 2350; RADT 2360
Corequisites: RADT 2360
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 Credits 12 Contact Hours
Prerequisites: RADT 2201; RADT 2220; RADT 2250; RADT 2265
Corequisites: RADT 2210; RADT 2230
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 Credits 18 Contact Hours
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/or observation of cranial and facial radiography. Execution of radiographic procedures will be conducted under direct and indirect supervision.

RADT 2360 - Clinical Radiography IV
9 Credits 27 Contact Hours
Prerequisites: RADT 2340
Corequisites: RADT 2260
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 Credits 6 Contact Hours
Corequisites: RADT 2530
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 Credits 18 Contact Hours
Corequisites: RADT 2520
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.