RADIOLOGIC TECHNOLOGY

RT106 Radiologic Technology I
6 credits
This course includes an introduction to radiation physics, processing techniques, and anatomy and positioning terminology. The beginning student is given a basic idea of the institution’s, the department’s and the radiographer’s responsibilities and objectives in patient care. Prerequisite: Pre-Radiologic Technology curriculum. Off-Campus Clinical Program.

RT133 Fundamentals of Radiologic Science
3 credits
This course will provide an overview of the foundations of radiography and the practitioner’s role in the health care delivery system. The course includes an introduction to medical terminology related to radiology, imaging equipment, medical ethics, patient care, radiation protection, and career opportunities.

RT201 Radiologic Technology II
13 credits
This course includes radiation physics, anatomy and positioning, continuation of processing techniques and beginning radiographic exposure. The student is introduced to physical concepts of radiology, positioning of chest, abdomen, and extremities, and factors affecting image quality. Prerequisite: RT106. Off-Campus Clinical Program.

RT253 Radiologic Science Procedures I
3 credits
Positioning terminology, basic principles of imaging, and radiation protection practices are introduced. Anatomy, positioning and critique of chest, abdomen, upper GI, upper limb, shoulder girdle, lower limb, proximal femur and pelvic girdle are covered. Prerequisite: BI162 (or concurrent).

RT263 Radiologic Science Clinical I
3 credits
Orientation to radiographic, fluoroscopic, and processing equipment will take place. Students will be evaluated on clinical objectives for each assigned area. Routine and optional radiographic positioning will be demonstrated and evaluated for chest, abdomen, extremities, pelvis, and hip. 288 hours of clinical practicum.

RT273 Radiologic Science Procedures II
3 credits
Anatomy, positioning, and critique of cervical, thoracic, lumbar spines, sacrum, coccyx, ribs, sternum, LGI, urinary, cranial and facial bones, trauma, mobile, and surgical procedures are studied.
RT275 Radiologic Science Clinical II
5 credits
Routine and optional radiographic positioning will be demonstrated and evaluated for the spinal column, bony thorax, LGI, urinary, and skull. Use of mobile radiographic and fluoroscopic equipment will be demonstrated and evaluated. Evening and/or weekend rotations may be required. 17 clinical hours practicum per week. Prerequisite: RT263.

RT293 Radiologic Science Ethics and Patient Care
3 credits
Ethical and legal responsibilities of radiographers are discussed. The importance of professional relationships and communication with other health care providers, patients, and family members is emphasized. General and emergency patient care considerations are studied.

RT294 Radiation Physics
3 credits
Atomic structure, electricity, magnetism, forms of energy, algebraic equations, and units of measurement are studied. Production of x-rays and their interaction with matter is an essential part of this course. X-ray generating equipment, circuitry, and x-ray beam characteristics are examined. Physical principles of the fluoroscopic imaging chain are included.

RT302 Radiologic Technology III
13 credits
This course includes radiation physics, radiographic exposure, and anatomy and positioning. Students learn about production of x-rays and their interaction with matter, and methods of reducing scatter reaching the film, thereby improving radiographic quality. Students apply radiographic exposure knowledge to clinical assignments. They also position pelvis, spine, and thorax. Prerequisite: RT201. Off-Campus Clinical Program.

RT303 Procedures III
3 credits
Anatomy, positioning and critique of cranial, facial bones, sinuses, mastoids, TMJs, upper and lower gastrointestinal system, and biliary system procedures are studied. 3 hours lecture.

RT305 Clinical IV
5 credits
Routine and optional radiographic positioning will be demonstrated and evaluated for skull, gastrointestinal and biliary studies. Students will also achieve competence in previously studied procedures. 16 to 24 hours of clinical practicum.
RT306 Radiologic Technology IV
6 credits
This course includes special imaging equipment, anatomy and positioning, and contrast procedures. Students learn about special imaging techniques and equipment and positions for skull, facial bones, TMJs, mastoids, and sinuses. They learn details of preparation, procedures, and follow-up care for common contrast procedures performed daily. Prerequisite: RT302. Off-Campus Clinical Program.

RT312 Special Imaging Equipment
2 credits
Physical principles and equipment operation of fluoroscopy, conventional tomography, mammography, digital x-ray imaging, computed tomography, magnetic resonance imaging, and ultrasound are included. Fundamental principles of computer technology, related terminology and computer applications in radiology are part of this course. 2 hours lecture/discussion/demonstration.

RT313 Radiologic Technology V
13 credits
This course includes special imaging equipment, special contrast procedures, and pediatric radiography. The student learns about special imaging systems and about special contrast procedures which require sterile technique and assistance of radiographer to radiologist. Student learns about methods of dealing with infants, children, and parents and special considerations for protection and positioning of parts. Student is required to write a scientific paper. Prerequisite: RT306. Off-Campus Clinical Program.

RT315 Clinical V
5 credits
Students will achieve competence in previously studied procedures. Students will develop image evaluation skills and gain more experience in stationary and mobile fluoroscopic procedures. 16 to 24 hours of clinical practicum.

RT320 Radiologic Science Procedures III
3 credits
Procedures in additional diagnostic and therapeutic modalities are studied in this course. Nonvascular interventional procedures are introduced. Students will learn basics of mammography, bone densitometry, and EKG studies. Pediatric considerations are examined. The circulatory system anatomy is included. Prerequisite: RT253, RT273.

RT322 Image Evaluation
2 credits
Students evaluate images for radiographic quality, radiation protection, accurate positioning by showing structures of interest, proper identification and image artifacts. Students must be able to distinguish between acceptable diagnostic quality and poor
radiographic quality images. Both written and oral exams are taken as part of this course. 2 hours lecture/discussion.

**RT323 Radiologic Technology VI**  
**13 credits**  
This course includes radiobiology and health physics, angiography, cross-sectional anatomy, radiologic pathology, and review classes. The student learns about radiobiology, early and late effect of radiation exposure, radiation protection procedures, and ultrasound. The student learns about equipment and procedures used in angiography, learns medical terminology which relates to radiographic pathology, and reviews all course material in preparation for ARRT exam. Prerequisite: RT313. Off-Campus Clinical Program.

**RT325 Radiologic Science Clinical III**  
**5 credits**  
Students will achieve competence in previously studied procedures by practicing principles of radiographic exposure, radiation protection, and positioning. Evening and/or weekend rotations may be required. 17 clinical hours practicum per week. Prerequisite: RT275.

**RT330 Radiobiology and Radiation Protection**  
**3 credits**  
Discussion of radiation protection of patients, operators, and the public takes place. Devices used to detect and measure radiation are studied, as well as dose equivalent limits. Fundamental principles of radiobiology are introduced. Biologic effects of radiation on cells and radiosensitivity of cells, tissues, and organs are discussed. Early and late effects of radiation are studied.

**RT332 Radiation Protection and Radiobiology**  
**2 credits**  
More advanced discussion of radiation protection of patients, operators, and the public takes place. Devices used to detect and measure radiation are studied, as well as dose equivalent limits. Fundamental principles of radiobiology are introduced. Biologic effects of radiation on cells and radiosensitivity of cells, tissues, and organs are discussed. Early and late effects of radiation are studied. 2 hours lecture.

**RT333 Procedures IV**  
**3 credits**  
Urinary system procedures, mammography, trauma and mobile radiography, pediatric radiography and conventional tomography, arthrography, myelography and orthoroentgenography are studied. 3 hours lecture.
RT340 Image Formation, Processing and Display
3 credits
Traditional and digital imaging acquisition, processing, and display methods are studied. Rules for proper film handling and storage, artifact identification, and processor quality control procedures are part of this course.

RT343 Clinical VI
3 credits
Students will apply knowledge of procedures, radiographic exposure and radiation protection as they become proficient in areas assigned. Weekend rotations may be required. 320 hours clinical practicum total.

RT350 Radiologic Science Procedures IV
3 credits
Vascular diagnostic and interventional procedures are studied. Students will research and write a scientific paper, prepare a visual display, and present their findings to peers and instructors. Prerequisite: RT253, RT273.

RT353 Cross-Sectional Anatomy
3 credits
A study of human anatomy as viewed in cross-section. Anatomical cross-sections of the human head, thorax, neck, abdomen, pelvis and extremities will be presented using advanced modalities such as computed tomography and magnetic resonance imaging. Structures illustrated in the cross-section are labeled. Students practice and assess the anatomy through several different exercises.

RT360 Radiologic Science Clinical IV
3 credits
Students will achieve competence in previously studied procedures and will maintain competence while exploring additional modalities. Weekend and/or evening rotations may be required. 288 hours of clinical practicum.

RT363 Educational Methods
3 credits
This course develops skills in teaching radiologic methods by providing instruction in curriculum development, methods of instruction and psychology of learning. Learn how to develop performance objectives, organize lesson plans, and effectively present a lecture.

RT373 Quality/Risk Management
3 credits
This course is designed to develop an understanding of the tasks and protocols making up the quality/risk management activities of a radiology department. The roles of the personnel contributing to the quality/risk program will be presented. Tools, procedures, and evaluation criteria used in the performance assessment of imaging modalities and
processing will be discussed. Formulate a risk management plan and gather data to assess risk in the patient care setting.

RT383 Pathophysiology
3 credits
This course will focus on the characteristics and symptoms of disease caused by alterations or injury to the structure or function of the body. Normal function and structure as well as common disease conditions are studied and then followed by in-depth descriptions of pathological processes. Etiology, pathogenesis, prognosis and therapies will be discussed for each pathology as well as image correlation.

RT395 Computers in Radiology
3 credits
Introduce knowledge in computing and information processing in the areas of computed radiography, digital radiography and picture archiving and communication systems. Computer applications in radiology related to image capture, display, storage and distribution are presented.

RT402 Procedures V
2 credits
Radiographic anatomy and positioning of cranial, thoracic, abdominal and pelvic computed tomography are studied and evaluated. Cerebral, thoracic, abdominal and peripheral angiography and magnetic resonance imaging are surveyed. Each student is required to write and present a scientific paper as part of this course. 2 hours lecture.

RT403 Clinical VII
3 credits
Students will integrate prior coursework by applying positioning and technical skills in the clinical setting. Students will perform the majority of exams under indirect supervision. Students will take a leadership role in the clinical setting. Students gain experience in special radiologic procedures while maintaining radiography competence. 11 to 16 hours clinical practicum; in addition, the student may be assigned weekend duty.

RT411 Introduction to Quality Improvement
1 credit
Methods of evaluating components of radiologic imaging systems are studied in order to ensure consistency in radiographic image quality. Laboratory experiments are used to demonstrate application of quality control tools and measurement. An individual quality improvement project is required as part of this course. 1 hour lecture/lab/discussion.

RT413 Image Analysis and Quality Improvement
3 credits
Students evaluate images for radiographic quality, radiation protection, and accurate positioning showing structures of interest, proper identification and image artifacts. Students must be able to distinguish between acceptable diagnostic quality and poor
radiographic quality images. Quality control in medical imaging is studied by discussion of quality control instruments, measurements, and frequency of testing. An individual quality improvement project is a requirement of this course.

RT423 Physical Principles of CT
3 credits
This course is designed to provide entry-level radiography students with the principles related to CT imaging. The physical principles discussed in the course will support the foundational CT positioning skills learned in the clinical setting.

RT425 Radiologic Science Clinical V
5 credits
Students will apply knowledge of procedures, radiographic exposure, and radiation protection as they become proficient in areas assigned. This course provides the student the opportunity to function more independently in all areas. Students will be evaluated on professional skills as they prepare for application for positions in their chosen field. Weekend and/or evening rotations may be required. 17 clinical hours practicum per week. Prerequisite: RT360.

RT432 Radiographic Pathology
2 credits
Pathologic conditions in each body system and their relevance to radiologic procedures are studied in this course. Medical terminology is an essential part of this course. 2 hours lecture.

RT433 Clinical VIII
3 credits
Students who have completed competencies in radiography will have the opportunity to rotate into a special imaging modality, quality management or education. 11 to 16 hours of clinical practicum; in addition, the student may be assigned weekend duty.

RT443 RT Senior Seminar
3 credits
Students will be guided to develop and carry out a project in their designated concentration. The completed project will be presented at the end of the semester to all the Radiologic Technology students and faculty. These senior students will also be guided in a review of the Radiologic Technology curriculum in preparation to take the American Registry of Radiologic Technologist’s exam. Students are required to take monthly exams as well as simulated registry exams as part of this course. Meet as assigned.

RT453 Radiographic Pathology
3 credits
Pathologic conditions in each body system and their relevance to radiologic procedures are studied in this course. Students study and present a pathology report demonstrated by some medical imaging technique. Prerequisite: BI173 and BI183 (or equivalents).
RT455 Radiologic Science Clinical VI
5 credits
Students who have achieved competency in radiography will have the opportunity to pursue their interest in an area of specialization in a given modality, quality management, or education. Weekend and/or evening rotations may be required. 17 clinical practicum per week. Prerequisite: RT425.