Central Ohio Technical College
Course Description Listing – Radiologic Technology Courses
2008-2009 Academic Year

RAD-4046 Current Issues in Allied Health

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Second Year status in Diagnostic Medical Sonography Technology or Radiologic Technology. Course is graded A-E.

This course presents current issues relevant to imaging departments and personnel. During the course topics such as ethics, professionalism, death and dying, organ and tissue donation/transplantation, medical research, and new techniques and procedures will be reviewed.

RAD-4102 RT Anatomy and Positioning II

5 credit hours, 6 contact hours (4 hours lecture and 2 hours lab). Prerequisite: Must be enrolled in the Radiologic Technology program. C grade (2.00) or better in BIO-1770/BIO-1771 and RAD-4103. Course is graded A-E.

This course covers Radiologic imaging of the bony thorax, vertebral column, digestive and urinary systems and cranium. Emphasis is on the anatomy, routine positioning, common pathologies, and contrast media utilized.

RAD-4103 Anatomy and Positioning I

4 credit hours, 5 contact hours (3 hours lecture and 2 hours lab). Prerequisite: Admittance to Radiologic Technology and concurrent enrollment in RAD-4130. Course is graded A-E

The student will be introduced to the basic Radiologic positioning principles and terminology. This course also covers Radiologic imaging of the chest, abdomen, and upper and lower extremities. Emphasis is on the anatomy, routine positioning and common pathologies demonstrated.

RAD-4109 Patient Care and Management I

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and a grade of Satisfactory in RAD-4130. Course is graded A-E.

During this introductory course of the Patient Care sequence, the student is introduced to universal precautions, patient transfers, and body mechanics, fire safety and guest relations. The student will also learn basic patient assessment procedures and policies and study the communication process as it applies to patients and the health care team.

RAD-4126 Departmental Administration

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in Radiologic Technology or Diagnostic Medical Sonography Technology. (Concurrent enrollment in RAD-4183) or (C grade [2.00] or better in the following: DMS-4544 or DMS-4562 and concurrent enrollment in DMS-4546 or DMS-4563). Course is graded A-E.

This course is designed to introduce the student to basic principles of hospital administration and organization and relates those principles to the management of the radiology department. Students will have the opportunity to review the concepts of hospital organization, financing, employment practices and quality control. Upon completion of this course, students gain an insight into the overall administration of hospitals and departments within the hospital. This course provides basic management skills and knowledge for those students interested in pursuing a supervisory position in the radiology department.

RAD-4130 Pre-Clinical Radiology

1 credit hour, 3 contact hours (0 hours lecture and 3 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and concurrent enrollment in RAD-4103. Course is graded S/U.

This course provides an orientation to the clinical environment. Topics covered are designed to prepare the student for safe practice in the clinical setting. Topics include radiation safety, OSHA standards, policies and procedures, code of ethics, departmental organization, and the health care team. This course will be taught as a term course (contact hours will be doubled over a five week period). This course is graded on a Satisfactory/Unsatisfactory basis.

COTC Course Description Listing – Radiologic Technology Courses
2008-2009 Academic Year

RAD-4139 Radiobiology and Radiation Protection

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: Enrollment in Radiologic Technology. C grade (2.00) or better in RAD-4184 or permission of the instructor. Course is graded A-E.

This Radiologic technology course presents the study of radiobiology, radiation protection and safety and methods of minimizing radiation exposure to occupational workers and patients. The radiobiology portion of the course includes the following topics: molecular and cellular radiobiology, early and late effects of radiation exposure and theories related to the effect of ionizing radiation on humans. During the radiation protection and safety segment students will be introduced to state and federal regulations and discuss various methods of minimizing radiation exposure.

RAD-4140 Clinical Radiology II

1 credit hour, 8.5 contact hours (.50 hour lecture and 0 hours lab, 8 hours clinical). Prerequisite: Enrollment in the Radiologic Technology program and a grade of Satisfactory in RAD-4130. Course is graded S/U.

This course will be made inactive at the end of the 2008-2009 academic year.

This is an introductory experience into the clinical setting in which students have the opportunity to observe concepts and techniques related to Radiologic imaging and patient care. Students will function under the supervision of qualified radiographers or physicians. This course will meet for one hour weekly on campus with the program faculty. The course will be taught as a term course (contact hours will be doubled over a five week period). This course is graded on a Satisfactory/Unsatisfactory basis.

RAD-4146 Clinical Radiology I

2 credit hours, 17 contact hours (1 hour lecture and 0 hours lab, 16 hours clinical). Prerequisite: Enrollment in the Radiologic Technology program and a grade of Satisfactory in RAD-4140. Course is graded S/U.

During this clinical experience students will gain practical experience and begin to apply cognitive, psychomotor, and affective skills in the clinical setting. Students will function under the supervision of qualified radiographers or physicians. This course will meet for one hour weekly on campus with the program faculty. This course is graded on Satisfactory/Unsatisfactory basis.

RAD-4148 Clinical Radiology VI

2 credit hours, 17 contact hours (1 hour lecture and 0 hours lab, 16 hours clinical). Prerequisite: Enrollment in the Radiologic Technology program and a grade of Satisfactory in RAD-4159. Course is graded S/U.

This course provides advanced experience in the clinical setting. It is designed to allow students to apply previously learned theories and techniques for Radiologic imaging. Students will have the opportunity to observe angiography and specialized procedures. Student radiographers will function under the supervision and guidance of the clinical radiographers and physicians in the health care setting. Hospital computer systems will be discussed. This course will meet for one hour weekly on campus with the program faculty. This course is graded on Satisfactory/Unsatisfactory basis.

RAD-4149 Clinical Radiology IV

2 credit hours, 16 contact hours (0 hours lecture and 0 hours lab, 16 hours clinical). Prerequisite: Enrollment in the Radiologic Technology program and a grade of satisfactory in RAD-4148. Course is graded A-E.

This final clinical experience emphasizes mastery of skills in all areas of Radiologic technology. The course is designed to challenge students to function independently within the supervised environment of the clinical setting. Students will have the opportunity to observe several imaging modalities. This course will be taught as a term course (contact hours will be doubled over a five week period).

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RAD-4150 Clinical Education in Radiology II

3 credit hours, 25 contact hours (1 hours lecture, 0 hours lab, and 24 hours directed practice). Prerequisite: Enrollment in the Radiologic Technology program with 2 earned credits for RAD-4146. Course is graded S/U.

This course provides the student with extensive clinical experience in all areas of the radiology department. It is designed to allow the student to apply previously learned theories and techniques for Radiologic imaging. The student will develop individual techniques and skills in Radiologic procedures under the supervision of qualified radiographers or physicians. This course will meet for one hour weekly on campus with the program faculty. This course is graded on a Satisfactory/Unsatisfactory basis.

RAD-4152 Special Radiologic Procedures

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and C grade (2.00) or better in RAD-4182 and a grade of Satisfactory in RAD-4159. Course is graded A-E.

This Radiologic Technology course is the study of advanced Radiologic procedures, angiography and interventional radiology. Topics to be covered include equipment requirements, anatomy visualized, radiographers role, indications, contraindications, pre and post procedural care and pathologies demonstrated.

RAD-4154 Radiologic Seminar I

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and C grade (2.00) or better in RAD-4158 and RAD-4184 and a grade of Satisfactory in RAD-4146. Course is graded A-E.

This course provides the student with the opportunity to discuss the principles of Radiologic imaging. Application of previously learned concepts will be discussed relative to the clinical setting.

RAD-4155 Radiologic Seminar II

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and C grade (2.00) or better in RAD-4185 and a grade of Satisfactory in RAD-4148. Course is graded A-E.

This course provides the correlation between previously learned Radiologic concepts and clinical application. It is designed to aid in the transition from student to entry level radiographer. General topics of discussion include: radiation protection, equipment operation, image production and evaluation, Radiologic positioning, and patient care procedures. Requirements for ethical and legal practice of radiography in Ohio are discussed. This course will be taught as a term course (contact hours will be doubled over a five week period).

RAD-4157 Radiation Physics I

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and a grade of Satisfactory in RAD-4140. Course is graded A-E.

This course discusses the principles of physics as they relate to radiation. Topics to be covered include electromagnetic and particulate radiation, electrodynamics and electrostatics, magnetism and electromagnetism.

RAD-4158 Radiation Physics II

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and C grade (2.00) or better in RAD-4157. Course is graded A-E.

This course is a continuation of 4157 Radiation Physics I. The student will apply knowledge to the construction and use of the Radiologic equipment. Special emphasis will be placed on the effects on Radiologic techniques and image formation.

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RAD-4159 Clinical Radiology IV

4 credit hours, 32 contact hours (1 hour lecture and 0 hours lab, 31 hours clinical). Prerequisite: Enrollment in the Radiologic Technology program and a grade of Satisfactory in RAD-4146. Course is graded S/U.

This course is designed to provide students with extensive clinical experience in all areas of the radiology department. Students will develop individual techniques and skills in Radiologic procedures under the supervision of qualified radiographers or physicians. This course will meet for one hour weekly on campus with the program faculty. This course is graded on Satisfactory/Unsatisfactory basis.

RAD-4160 Principles of Pathology for Radiographers

4 credit hours, 4 contact hours (4 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and a C grade (2.00) or better in RAD-4152. Course is graded A-E.

This course discusses the principles of human pathophysiology, the signs, symptoms, diagnosis and treatment of numerous pathological processes. Topics will include the imaging implications and methods to best demonstrate various pathologies.

RAD-4165 Patient Care and Management II

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiologic Technology program, a C grade (2.00) or better in RAD-4109. Course is graded A-E.

During this second course in the Patient Care sequence, the student is introduced to surgical and medical asepsis, patient advocacy, contrast and oxygen administration, general pharmacological principles, and medico-legal aspects of radiography. Principles of conflict management and the impact of values and beliefs on patient communication will be discussed.

RAD-4166 Patient Care and Management III

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and C grade (2.00) or better in RAD-4165. Course is graded A-E.

During this Patient Care course, the student is introduced to the principles of mobile, surgical, and trauma radiology. Special patient situations encountered with critical care, orthopedic and geriatric patients will also be discussed. The student will also evaluate his/her listening skills relative to patient care.

RAD-4167 Patient Care and Management IV

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and C grade (2.00) or better in RAD-4166. Course is graded A-E.

During this Patient Care course the student will study basic pharmacology and radiopharmaceuticals. Recognition and acute care in specific emergency situations will be discussed. Other topics include special needs of the pediatric and disabled patients and patient education techniques.

RAD-4168 Patient Care and Management V

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and C grade (2.00) or better in RAD-4167. Course is graded A-E.

The final course in the Patient Care sequence is designed to provide the student with knowledge of Electrocardiograms and monitor indications, common laboratory procedures, patient record keeping, and forensic radiology. Phlebotomy techniques will be discussed and practiced.

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RAD-4177 Clinical Education in Specialty Disciplines

2 credit hours, 17 contact hours (1 hours lecture, 0 hours lab, and 16 hours directed practice). Prerequisite: Enrollment in the Radiologic Technology program with 9 earned credit hours in RAD-4150 and RAD-4178 and RAD-4179 or permission of the Instructor. Course is graded S/U.

This course provides clinical experience in one specialty discipline. It is designed to allow the student to apply theories and techniques in specialty discipline imaging. The student will have the opportunity to participate in interventional/surgical radiography, magnetic resonance imaging or computed tomography procedures. The student radiographer will function under the supervision and guidance of the clinical radiographers and physicians in the health care setting. This course will meet for one hour weekly on campus with program faculty. This course is graded on a Satisfactory/Unsatisfactory basis.

RAD-4178 Clinical Education in Radiology III

3 credit hours, 25 contact hours (1 hours lecture, 0 hours lab, and 24 hours directed practice). Prerequisite: Enrollment in the Radiologic Technology program with 2 earned credits for 4146. Course is graded S/U.

This course provides the student with extensive clinical experience in all areas of the radiology department. It is designed to allow the student to apply previously learned theories and techniques for Radiologic imaging. The student will develop individual techniques and skills in Radiologic procedures under the supervision of qualified radiographers or physicians. This course will meet for one hour weekly on campus with the program faculty. This course is graded on a Satisfactory/Unsatisfactory basis.

RAD-4179 Clinical Education in Radiology V

3 credit hours, 25 contact hours (1 hours lecture, 0 hours lab, and 24 hours directed practice). Prerequisite: Enrollment in the Radiologic Technology program with 2 earned credits for 4146. Course is graded S/U.

This course provides the student with extensive clinical experience in all areas of the radiology department. It is designed to allow the student to apply previously learned theories and techniques for Radiologic imaging. The student will develop individual techniques and skills in Radiologic procedures under the supervision of qualified radiographers or physicians. This course will meet for one hour weekly on campus with the program faculty. This course is graded on a Satisfactory/Unsatisfactory basis.

RAD-4180 Mammography and Breast Health

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: Enrollment in Radiologic Technology. C grade (2.00) or better in the following: RAD-4152 and RAD-4185, or proof of registration with the ARRT, or permission of the instructor. Course is graded on an A-E or Pass/Non-Pass basis.

This course provides a complete overview of breast health, and the theory and practice of diagnosing and treating the patient with breast disease. Topics to be covered include the following: pathology, mammographic positioning, patient education, diagnostic intervention. Students will have the opportunity to apply classroom theory in the laboratory setting. The assurance of quality and the selection of radiation parameters will also be discussed.

RAD-4183 Imaging Modalities II

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in (RAD-4182 or RAD-4187). Course is graded A-E.

This course is an overview of the imaging modalities of Computed Tomography, Magnetic Resonance Imaging, Ultrasonography, Radiation Therapy and Nuclear Medicine. Emphasis will be on general operating principles of the modality, image production and its integration into patient diagnosis.

RAD-4184 Principles of Radiologic Exposure

4 credit hours, 5 contact hours (3 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and C grade (2.00) or better in RAD-4157. Course is graded A-E.

This course is the study of the science of determining diagnostic Radiologic exposure factors. Topics to be covered include: film processing, intensifying screens and cassettes, grids, scatter radiation, contrast, density, detail, distortion, and human pathology influence.

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RAD-4185 Advanced Exposure and Quality Assurance

3 credit hours, 5 contact hours (2 hours lecture and 3 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and C grade (2.00) or better in RAD-4158 and RAD-4184. Course is graded A-E.

The importance of quality assurance programs in the radiography department is discussed in this course. Students will be introduced to basic testing procedures of x-ray equipment. Students will analyze the finished radiograph and identify all factors which alter quality.

RAD-4187 Radiologic Imaging Modalities

4 credit hours, 5 contact hours (3 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and a grade of C (2.00) or better in RAD-4158 and RAD-4184. Course is graded A-E.

This course will discuss the basic principles of fluoroscopy, tomography, and image intensification. Digital imaging and computed radiology and other advancements and related technology will be discussed.

RAD-4188 Specialty Disciplines in Radiology

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and a grade of C (2.00) or better in RAD-4158 and DMS-4511. Course is graded A-E.

This course is an overview of the imaging modalities inclusive of Computed Tomography, Magnetic Resonance Imaging, Diagnostic Medical Sonography, Radiation Therapy, and Nuclear Medicine. Emphasis will be placed on general operating principles of the modality, image production and its integration into patient diagnosis.

RAD-4193 Interventional and Surgical Radiology

5 credit hours, 5 contact hours (5 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and a grade of C (2.00) or better in RAD-4197 and 9 earned credit hours in RAD-4150. Course is graded A-E.

This Radiologic Technology course is the study of interventional radiologic and surgical procedures. Topics to be covered include equipment requirements, anatomy visualized, radiographer's role, indications, contraindication, and pre and post procedural care, surgical procedures and pathologies demonstrated.

RAD-4194 CT Instrumentation

5 credit hours, 5 contact hours (5 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and a grade of C (2.00) or better in RAD-4160 and DMS-4511 or current registration with the American Registry of Radiologic Technologists or permission of the Instructor. Course is graded A-E.

This course provides the principles and instrumentation of Computed Tomography. CT principles of operation and components, image processing and display, image quality, artifact recognition and reduction are included.

RAD-4196 Bone Densitometry

1.5 credit hours, 1.5 contact hours (1.5 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiologic Technology program and a C grade (2.00) or better in RAD-4185 or proof of registration with the ARRT or permission of the instructor or the Academic Dean. Course is graded A-E.

This course provides the basic principles of bone densitometry. Topics to be covered include, examination objectives, patient preparation, examination procedures and protocols, data analysis, patient education and the pathophysiology of osteoporosis. Various types of equipment, methods of data collection and radiation protection procedures will be discussed. The student will become knowledgeable about dietary and pharmacological procedures for prevention, treatment and maintenance of the disease.

RAD-49XX Special Topics in Allied Health

1-5 credit hours, contact hours to be determined. Prerequisite: Approval of Academic Dean. Course is graded A-E.

This course will provide the student an opportunity to work on special topics within the field of Allied Health under the direct supervision of a faculty member. A faculty member and student must obtain approval from the Academic Dean prior to initiating this course. Enrollment in this course must be approved by the Academic Dean.