

INTRODUCTION

Welcome to the OCTC Radiography Program.

The next twenty-four months will no doubt be very rigorous and demanding for you. You will need to master the theory presented in your professional courses; and be able to apply all your new-found knowledge in the clinical area. In addition you will learn to multi task, and most of all learn professionalism and how to present yourself in a professional manner.

Although you will sometimes feel overwhelmed with the course work, remember that the faculty is here to help make sure you succeed with your career choice.

This Student Handbook has been prepared to answer many of your questions concerning the didactic and clinical portions of your education.

The faculty will always be available to help you with your career choices and needs while you attend the program.

Please read this handbook CAREFULLY. After reading and understanding the program's policies, sign and remove the acknowledgement page in the book and return it to the Program Director on the first day of class.

Joy Menser
Program Director
Assistant Professor

PROGRAM MISSION AND GOALS

Section I

MISSION STATEMENT:

The Owensboro Community and Technical College Program of Radiologic Technology is committed to preparing qualified individuals to be entry level radiographers. The program is dedicated to providing academic excellence through didactic and clinical learning experiences. Faculty and clinical staff work in a cooperative spirit to ensure an environment conducive to critical thinking and independent learning to assist students in the development of their full potential. The program is committed to providing an environment that fosters professional behavior, ethical attitude, cultural diversity and quality patient care. The program promotes life long learning.

Program Goals

1. Graduates will be able to fulfill the need for registered radiographers.
2. Graduates will demonstrate competence as an entry-level radiographer producing radiographic images of diagnostic quality and who is able to meet the needs of employers.
3. Graduates will demonstrate the ability to think critically and problem solve effectively in the practice of radiography
4. Graduates will be prepared to achieve personal and professional growth in the field of radiography.
5. Students and graduates will demonstrate development of professional attitudes, behaviors, and ethics.
6. Students will develop effective oral and written communication skills with patients, peers, and medical professionals.

**Owensboro Community and Technical College Radiography Program is an accredited program through Joint Review Committee on Education in Radiologic Technology.
www.jrcert.org**

FACULTY

Section II

You will come in contact with many faculty members throughout your time at OCTC. However, the faculty members for the Radiography program are:

- 1) Mrs. J. Menser, MSM, RT (R) (T)
Program Director
Office: 270-686-4633

- 2) Mrs. M. Tudor, BS, RT (R)
Clinical Coordinator
Office: 270-686-4646

Program Director Mrs. Menser MSM RT (R) (T)

The program director is responsible for the organization, development, and coordination of the didactical and clinical portion of the radiologic technology program. This includes, but is not limited to:

1. Communication between radiologic technology program and college administration.
2. Assessment of program needs.
3. Official reports and recommendations.
4. Action to improve effectiveness.
5. Fulfilling needs for program accreditation.
6. Advisement and counseling of student course and career needs.

Clinical Coordinator Mrs. Tudor BS RT (R)

The clinical coordinator is given the responsibility for assisting in the organization, supervision, and coordination of the clinical education in each of the affiliate hospitals.

This responsibility includes but is not limited to:

1. Establishing clinical guidelines and objectives.
2. Serving as a liaison between the academic and clinical faculty.
3. Maintaining communication between the facilities.
4. Assisting the clinical Instructor as needed.
5. Integrating and relating curriculum objectives for the classroom and clinical portion to make the education experience as relevant as possible.
6. Observing, counseling, and advising the students in the clinical environment.

Clinical Instructor

In each clinical facility, a technologist is designated to be the clinical Instructor. In addition to their responsibilities for the day-to-day operation of the department, these individuals are responsible for the supervision of the clinical education. This includes, but is not limited to:

1. Scheduling students through appropriate departmental work center.
2. assuring that students assignment are made to qualified technologist.
3. Complete end of the month and competency evaluation forms as needed.
4. being available to assist and advise students in clinical situations.
5. Discipline according to the rules and guidelines set forth in the program Handbook.

ACADEMIC INFORMATION

Section III

You will receive letter grades and college credit for your formal classroom work and clinical education.

Grades for formal classroom work in Radiography courses will be based on written tests, practical tests, and lab assignments or projects.

The grading scale is:

- A- 94-100 exceptionally high achievement
- B- 85-93 high achievement
- C- 75-84 satisfactory (Minimum achievement)
- D- 70-74 unsatisfactory
- E- 0-69 unsatisfactory

If you earn less than a "C" in any Professional (or Radiography) course, it is the policy of this program that you will be dismissed from the program. In addition, you must maintain a minimum of 75% in both the didactic (Test scores) and Final clinical evaluation of all clinical to remain in the program.

Please note that the grading scale is higher in our program.

NOTE: If at any time your test average drops below an 80% you will be required to attend 5 hours documented time receiving assistance from the Teaching Learning Center.

**** Students will be requested to write term papers while in the program. At NO time is the students allowed to use Wikipedia as a reference on any research project in the classroom.**

POLICIES

Policies and Procedures are subject to change at the Program Directors discretion. Students will be notified if a policy has been added or changed

- ***The Handbook has been reviewed and accepted by the Radiography Advisory Committee and Clinical Instructors.***

ATTENDANCE POLICIES

Section IV

Attendance for all classes, clinics and any scheduled program or function such as workshops or guest lectures is necessary if students are to meet the educational challenges and accomplish the objectives of the Radiography Program. Class times may be adjusted to accommodate guest lectures. Students will be notified in advance.

If a student is going to absent from class they must call the faculty member for that class no less than 30 minutes prior to the start of class time. Failure to do this will result in a no call/no show.

Class Cancellation/Postponement:

1. In case of inclement weather, clinical experience will be cancelled in conjunction only with the cancellation of classes at Owensboro Community and Technical College. No student is allowed to be at a clinical site if the College has been closed.

Probation

For any infraction of program rules, the program director may place the student on probationary status. Probationary status means that the student must fulfill set goals and behavior for a specific time without additional infraction of the rules. If the desired behavior is not accomplished during the specified time or additional unacceptable behavior documented, the student will be terminated from the program.

DISMISSAL POLICY

Section V

The decision to dismiss a student will be determined by Program Faculty and Clinical Instructors. The student will be afforded the opportunity to have a hearing before the OCTC Student Appeals Committee if they disagree with the decision of the faculty.

The following **WILL** be cause for dismissal:

Termination from the program will result from:

1. Failure to obtain at least a "C" in test score in a radiologic technology course at the end of each semester.
2. Failure to obtain an overall "C" average at any time at the end of each semester.
3. Excessive absence as stated in the radiologic technology program Handbook.
4. Excessive tardies as stated in the radiologic technology program Handbook.
5. Falsifying records.
6. Stealing.
7. Engaging in illegal possession, sale, or distribution of drugs.
8. Illegal possession of weapons.
9. **Misrepresentation or falsification of yourself or another student, as well as patient and/or agency records.**
10. Unauthorized possession of examinations.
11. Plagiarism
12. Academic cheating or misconduct

13. Intoxication or drug usage in class, or at clinical site.
14. Any activity incompatible with professional behavior. This includes discrimination and any form of sexual harassment.
15. Placing patients in danger at the clinical site.
16. **Expelled from a clinical site by the clinical instructor or radiology department administrator.**
17. Activities determined to be dishonest, inconsistent with professional responsibility and accountability and/or may be detrimental to the protection, safety and welfare of patients and the public or in any situation when representing the Radiologic Technology Program.
18. Failure to maintain performance levels stated in a probationary agreement.
19. **Two** unexcused absences from clinical/Classroom (no call-no show).

RE-ADMISSION POLICY

The student seeking re-admission to the radiologic technology program must contact the program director. Re- admission will be determined by KCTCS admission policies and available clinical space.

CLASS ROOM RULES

It is very important that you exhibit professional behavior at **ALL** times. Therefore the following rules will apply in the classroom.

1. You are responsible for all work and assignments done in class.
2. All reading assignments must be completed prior to the classroom lecture.
3. If you feel that you are having difficulty with any part of the course, speak with the faculty member of that class before it is too late.
4. **You are expected to show courtesy toward peers and faculty at all times. Disruptive behavior will not be tolerated, and you will be asked to leave the classroom.**
5. **All cell phones and beepers** must be turned **OFF**. These will only be permitted at the Faculty's discretion. If a cell phone rings during class time the student's final grade will be lowered by 1 letter grade every time this happens.
6. Please do not bring your children to class, it is not appropriate and will not be allowed.
7. If you miss a test day, all make-up exams will be given on the same day of the final.

Program Expectations

1. At all times the student will act in a professional manner. To include classroom behavior, clinical experience and at any time the student is representing the OCTC Radiography Program.
2. Students will not in any way show insubordination towards faculty, Clinical Instructors, Technologist, or any other members of the medical staff or college faculty.
3. Students will at all times adhere to all policies and procedures set forth in the Radiography Handbook.
4. Students will at all times adhere to the students KCTCS code of conduct.
5. At all times students will be respectful to all faculty and staff both on and off campus.

RECOGNITION AWARDS

Section VI

Each year, OCTC will recognize four graduating Radiography Students with the following awards

1. OCTC Radiography Award – Outstanding Student (selected by Faculty)
2. Mallinckrodt Award - Outstanding Student (selected by faculty, Clinical Instructors and second year students)
3. Bracco Award - Most Improved Student (selected by faculty, Clinical Instructors and second year students).
4. Joint Review Committee on Education in Radiologic Technology. Selected by Faculty

PREGNANT RADIATION STUDENT POLICY

VOLUNTARY DECLARATION

Section VII

Owensboro Community and Technical College

School of Radiologic Technology

PREGNANCY POLICY—PROTECTING THE EMBRYO/FETUS

Declared Pregnant Student:

A student should inform the program officials, in writing, of her pregnancy and the estimated length of gestation. A student has the right to declare their pregnancy, at such time the precautions listed below will be followed. A student also has the right to not declare their pregnancy, in which case, the student will be treated as though she were not pregnant. Once a student has declared her pregnancy, the student also has the right to undeclare her pregnancy at any time. This is in accordance with Federal and State laws.

The National Council on Radiation Protection and Measurement (NCRP) recommends that the maximum permissible dose equivalent to the embryo-fetus from occupational exposure to the expectant mother should be limited to 0.5 REM (50 milliSeivert) for the entire gestation period. It is recommended by the NCRP that persons involved in the occupation should notify the supervisor immediately if pregnancy is suspected. Through proper instruction of all safety precautions and personnel monitoring, and strict adherence to these precautions, it can be possible to limit all occupational exposure to under 0.5 REM per year and prevent fetal MPD levels from being surpassed.

Students enrolled in the OCTC Radiologic Technology Program are instructed in proper safety precautions and personnel monitoring prior to being admitted to any ionizing radiation area. Students are required to abide by all safety precautions, and the importance of keeping exposure as low as practical through a combination of time, distance and shielding is stressed. Due to the number and variety of courses in the curriculum and the importance of maintaining a rotation schedule through the various assigned areas without interruption; should any student suspect pregnancy, the student will not be permitted to request a change in the clinical rotation schedule if they become pregnant. They are recommended to report it immediately to the Program Director..

If a student declares pregnancy, she will:

1. Counsel with Program Director and the Radiation Safety Officer regarding the nature of potential radiation injury associated with interutero exposure, the regulations established by the NCRP, and the required preventive measures to be taken throughout the gestation period.
2. Complete Declaration of Pregnancy Form available from the Program Director.
3. Following counseling, submit in writing within 24 hours, her decision to remain in the program (see options listed in #4 below).
4. Submit a statement from her physician verifying pregnancy and expected due date. The statement should include the physician's recommendation as to which of the following options would be advisable:
 - a. Immediate leave of absence or withdrawal
 - b. Withdrawal from clinical rotations only, with continued participation in didactic instruction (All clinical time must be completed on return to program if clinical space is available).
 - c. Withdrawal from the program (duration of one calendar year) and resume full-time status upon return to the program if space is available
5. Be required, if maintaining full-time status, to abide by the following:

- a. Strict adherence to all safety precautions.
 - b. Submit monthly statements from her physician if any changes or problems in her pregnancy occur and advisability of continuation.
 - c. Wear two (2) personal monitoring devices, one placed on the collar and at the abdomen for fetal monitoring. Readings will be monitored closely by the PD (Program Director), and the student will be required to take an immediate leave of absence from the clinical environment if at any point the RSO (Radiation Safety Office) deems it necessary
 - d. At no time and for no reason will the pregnant student place herself in the primary beam of radiation.
6. Be informed that, dependent on the type of course(s), degree of difficulty of the course(s) her academic standing and length of time out, she may be required to re-take the course(s) in their entirety.
 7. Be required to complete upon her return all clinical competencies and rotations missed or not completed prior to and during her maternity leave. In addition, she will be evaluated by Program Faculty in those clinical competencies completed prior to time out and will be subject to participation for review purposes should the Faculty deem it necessary.
 8. Return to full-time status as soon as possible after delivery with the written permission of her physician. She will have to start where her clinical time and didactic time stopped.
 9. Realize that the student must complete, upon her return, all requirements for graduation, including length of time in the program, required courses, clinical competencies and rotations. No diploma will be issued until all requirements have been SUCCESSFULLY MET.

STUDENTS RIGHTS CONCERNING EDUCATION RECORDS

Section VIII

Owensboro Community and Technical College and its clinical affiliates comply with federal and state regulations on student educational records.

Students have their certain rights regarding official student records. These are summarized as follows:

- to inspect and review the content of those records within 45 days of request
- to obtain copies of those records upon payment of expenses
- to challenge, before a panel of three persons appointed by the President of the College, any record felt by the student to be inaccurate, misleading, or otherwise violate the right of privacy of that student
- to receive confidential treatment by the school of educational records

At any time a student may file a grievance if he/she feels that any decisions made by the program officials are unjust. The steps to file a grievance can be found in the OCTC student handbook.

PROBLEMS

Section IX

We realize that problems may occur during the program duration. We can help you solve these problems only if we are made aware of them.

Any problems incurred in the clinical areas should first be brought to the attention of the clinical instructor and clinical coordinator.

Any problems dealing with the program as a whole, whether they deal with your classes at OCTC or problems that cannot be answered to your satisfaction by the clinical instructor or clinical coordinator should be referred to the Program Director.

FINANCIAL ASSISTANCE

Section X

The Financial Aid Office coordinates the College's program of scholarships, grants, loans, and work-study. Students are encouraged to inquire about Financial aid and GRADD monies.

The Financial Aid Office is located in the Administration Building. Students who need verification of status for insurance purposes only should see the Program Director for a letter stating that they are a full-time Radiography student.

The ASRT has several scholarship programs available to Radiology Technology students. Information about the Grants can be found at www.asrt.org

JOB PLACEMENT SERVICES

Section XI

The program's educational director and clinical instructor's will assist you in seeking employment after graduation in the following ways:

1. Assistance in preparing a job resume
2. Counseling on proper procedure, dress, etc. for job interviews
3. Make available names and addresses of prospective employers
4. Assistance in arranging an interview
5. There is no guarantee, stated or implied that we will place you in a job setting.

PROFESSIONAL SOCIETIES

Section XII

It is to your benefit as a student to become involved early in your chosen profession. You can do this by becoming a student member of:

1. The Kentucky Society of Radiologic Technologists (KSRT)
OR/AND
2. The Indiana Society of Radiologic Technologists (ISRT)
OR/AND
3. The American Society of Radiologic Technologists (ASRT)
(A benefit of the ASRT is that they offer several scholarships for entering Radiographer students)

STUDENT FEES

Section XIII

In addition to tuition and books, Radiography students are responsible for:

1. Individual malpractice insurance (through OCTC) every August
2. Purchase of name tag and clinical markers
3. Cost to sit for national registry (\$150.00)
4. Fees related to joining professional societies
5. Uniforms
6. National Conference (Fundraiser)
7. Registry Review- (approx. \$185.00)
8. Graduation
9. Membership to National Alumni
10. Purchase of a PDA for clinical rotation
11. Radiation Dosimeter Badges

NATIONAL REGISTRY

Section XIV

To become a registered technologist, (A.R.R.T.), you must sit for the examination conducted by the American Registry of Radiologic Technologists.

As an OCTC Radiography student, you will be recommended for the Registry exam, providing you have met all requirements. Application books will be distributed during your last course in the program. Students will also be guided to the Kentucky Radiation Control Branch web site to obtain a Kentucky State limited license form prior to graduation.

The American Registry of Radiologic Technologist adheres to very strict guideline on Professional conduct. When a student fills out the application to permit them to sit for the National Registry they must check a box that ask if they have ever been convicted of a felony or misdemeanor and have they been subjected to sanction as a result of a violation of an academic honor code, suspended or dismissed from a educational program that you attended in order to meet ARRT certification requirements. Failure to answer these questions honestly will result in the student **NEVER** being allowed to sit for their National Registry. The Program Director must sign the completed form prior to you sending it in.

TERMINAL COMPETENCIES

Section XV

Students will be evaluated according to the terminal competencies as established by the Joint Review Committee on Education in Radiologic Technology before they are eligible to graduate from the Radiography Program.

The graduate shall be able to:

1. Use oral and written medical communication;
2. Demonstrate knowledge of human structure, function and pathology;
3. Anticipate and provide basic patient care and comfort measures;
4. Apply principles of body mechanics;
5. Perform basic mathematical functions;
6. Operate radiographic imaging equipment and accessory devices;
7. Position the patient and imaging system to perform radiographic examination and procedures;
8. Modify standard procedures to accommodate patient's condition and other variables;
9. Process radiographs;
10. Determine exposure factors to obtain diagnostic quality radiographs with minimum radiation exposure;
11. Adapt exposure factors for various patient conditions, equipment, accessories and contrast media to maintain appropriate radiographic quality;
12. Practice radiation protection for the patient, self and others;
13. Recognize emergency patient conditions and initiate applicable treatment and basic life-support procedures;
14. Evaluate radiographic images for appropriate positioning and image quality;
15. Evaluate the performance of radiographic systems, know the safe limits of equipment operation, and report malfunctions to the proper authority;
16. Demonstrate knowledge and skills relating to quality assurance; and
17. Exercise independent judgement and discretion in the technical performance of medical imaging procedures.

EXIT EXAM

Section XVI

Effective October 31, 2007, the Radiography program at Owensboro Community and Technical College will require that a student successfully complete an EXIT EXAM before being able to sit for the National Registry; thus, the Radiography Program at OCTC will follow the same guidelines set by the ARRT for the National Registry.

In accordance with the American Registry of Radiologic Technologist (ARRT)
Three-Attempt, Three-Year Limit

Candidates who are eligible for a primary certification are allowed three attempts to pass the exam. They must complete the three attempts within a three-year period of time that begins with the initial examination window start date. After three unsuccessful attempts or three years have expired, the individual is no longer eligible.

Individuals who are not taking the examination to reinstate registration may obtain eligibility to retake it one additional time by submitting to ARRT documentation indicating that, since the last examination attempt, the individual has completed remedial activities acceptable to the ARRT. The final attempt must occur within one year after the third unsuccessful attempt or three-year end date.

Remediation options are:

1. Independent Study.
The individual studies the content areas for examination on his or her own.
A minimum of 40 hours is required.
2. Study with an ARRT-Certified Technologist.
The individual studies the content areas for examination with an ARRT technologist certified in the examination category. A minimum of 20 hours is required. All 20 hours must actually be spent with the certified technologist.
3. Study with an Educator from an Accredited Education Program.
The individual studies the content areas for examination with a program director or other educator from an approved radiologic technology program. A minimum of 10 hours is required. The 10 hours must be actual time spent with the educator.

Those failing the fourth attempt, or waiting longer than one year following the third unsuccessful attempt, may subsequently become eligible only by once again successfully completing the didactic and clinical competency requirements of an accredited educational program.

Under ARRT guidelines, a student may sit for the National Registry upon completion of the program courses with grades of "C" or better. Signature of the Program Director is required on the application form."

Effective immediately, the Program Director will not sign the application form until a student passes the Radiography Exit Exam with a grade of 75% or higher. The student will be allowed three attempts. Owensboro Community and Technical College will follow the same procedure as stated above which is in the ARRT Rules and Regulations.

If the student is unsuccessful after their third attempt, they will be required to demonstrate a specific amount of remedial work, prior to the next attempt.

The exam will be given prior to the completion of the RAD1 220 and the date will be determined by the Program Director.

REVIEW EXAMS

Section XVII

After a student has completed the first semester successfully at the beginning of the next semester they will be given a review exam over all content that was previously covered. At the end of semester two the students will be given a review exam at the beginning of the fourth semester over material covered in the first year. Then at the beginning of the fifth semester the student will be given a review exam that will cover the past three semesters of dedicated material. These exams will count as a full test score.

WORK RELATED POLICY

Section XVIII

If a hospital/clinic desires a student to work for their department outside of academic/clinical hours, there must be an individual agreement between the hospital/clinic and the student.

If a first year student is employed after school hours, the first year student **CANNOT** perform any type of examination that requires the use of ionizing radiation: (i.e. operating the control panel, to include the setting of techniques, positioning of patient, or making the exposure). First year students may operate the dark room, stock radiographic rooms, provide transport services and work in all clerical/file areas. Their job description should reflect these duties.

A second year student can not work as a student tech unless they have received permission from the Program Director. The student must maintain an 85% average on test scores before they can be considered for a student tech position. In addition they must maintain this average to continue their employment while they are a student. As first year student you can work as a tech aide only.

Second year students are to be under **DIRECT SUPERVISION** while performing the functions of a limited radiation operator outside the academic setting. The hospital/clinic must provide separate identification name tags and separate film badges; students will not be allowed to use their identification tags or film badge provided by the school.

Direct supervision means supervised by a licensed practitioner of the healing art or certified operator who is at all times available in the individual's place of employment or sponsoring institution. 902 KAR 105:010 Section I (18b).

Students must inform the Program Director **IN WRITING** of their intent to be employed at a specific radiology department. At that time a letter will be sent to the department and the KY Radiation Control Branch listing current competencies of that student. **No student may be scheduled to work more than 20 hours per week when working as a student technologist (limited radiation operator).**

All students are strongly advised to limit any work hours to no more than 20 per week during the academic school term.

GRADUATION

Section XIX

Owensboro Community and Technical College grants the Associate of Applied Science in Radiography to all students who complete the degree requirements. Degrees are conferred in May each year.

The general requirements for graduation are listed in the Owensboro Community and Technical College Guide for Students.

***All radiography students are expected to participate in the May graduation ceremony.**

(Remember you have been taught for 2 years how to be professional so it is expected that you will be at graduation and dress professional)

ARRT CODE OF ETHICS

Section XX

The code of Ethics forms the first part of the Standard of Ethics. The code of Ethics shall serve as a guide by which Registered Technologist and Candidates may evaluate their professional conduct as it relates to patients, health care, consumers, employers, colleagues and other members of the Health care team. The Code of Ethics is intended to assist Registered Technologists and Candidates in maintaining to assist Registered Technologist and Candidates in maintaining a high level of ethical conduct and in providing for the protection, safety and comfort of patients. The Code of Ethics is aspirational.

1. The radiologic technologist conducts herself or himself in a professional manner responds to patient needs, and supports colleagues and associates in providing quality patient care.
2. The radiologic technologist acts to advance the principle objective of the profession to provide services to humanity with full respect to the dignity of mankind.
3. The radiologic technologist delivers patient care and service unrestricted by concern of personal attributes or the nature of the disease or illness, and without discrimination on the basis of sex, race, creed, religion, or socioeconomic status.
4. The radiologic technologist practices technology founded upon theoretical knowledge and concepts, uses equipment and accessories consistent with the purpose for which they were designed, and employs procedures and techniques appropriately.
5. The radiologic technologist assesses situations; exercises care, discretion, and judgement; assumes responsibility for professional decisions; and acts in the best interest of the patient.
6. The radiologic technologist acts as an agent through observation and communication to obtain pertinent information for the physician to aid in the diagnosis and treatment of the patient and recognizes that interpretation and diagnosis are outside the scope of practice for the profession.
7. The radiologic technologist uses equipment and accessories, employ techniques and procedures, performs services in accordance with an accepted standard of practice, and demonstrate expertise in minimizing the radiation exposure to the patient, self, and other members of the health care team.
8. The radiologic technologist practices ethical conduct appropriate to the profession and protects the patient's right to quality radiologic technology care.
9. The radiologic technologist respects confidence entrusted in the course of professional practice, respect the patient's right to privacy, and reveals confidential information only as required by law or to protect the welfare of the individual or the community.
10. The radiologic technologist continually strives to improve knowledge and skills by participating in continuing education and professional activities, sharing knowledge with colleagues, and investigating new aspects of professional practice.

* Code of Ethics of the American Registry of Radiology Technologists, effective July 2002.

CLINICAL INFORMATION

CLINICAL EXPERIENCE

Section XXI

During the course of the program a large percentage of your learning experience will be gained in the clinical setting. There are certain rules and guidelines that each student must follow in order to be a successful student. This portion of the handbook is dedicated to just that.

The student must demonstrate competence in clinical by achieving competencies in several procedures. These will be listed on the following page. A certain number of these procedures are mandatory, and some are electives; however the program will mandate how many competencies we require per semester. Some of these competencies will be chosen for you to re-comp, to evaluate your continued competency on a given procedure. If at any time the program faculty feels that you are not competent on a procedure we will take away the original competency, and you must re-comp on that procedure. The program faculty has the right to evaluate each competency image, and pull any unsatisfactory competency.

NOTE: A student **MUST** complete **ALL** mandatory competencies and a total of 55 competencies as of March 1st of their fifth semester.

FAILURE to do so will result in your final clinical grade being lowered by 5 percent for that semester. If competencies are not completed by May 5th of the fifth semester, you will receive an “E” for that semester’s clinical grade; thus, the student will be dismissed from the program and unable to sit for the ARRT National Registry Exam. This is subject to change at the discretion of the clinical coordinator and program director.

COMPETENCY CATEGORIES

Section XXII

- | | | |
|---|---|--|
| <p>I. <u>Thorax</u>
 *Chest
 *Pediatric Chest
 *Chest (wheelchair or stretcher)
 *Ribs</p> | <p>Chest-Lordotic
 Chest-Decubitus
 Sternum
 Soft Tissue Neck</p> | |
| <p>II. <u>Extremities</u>
 *Finger/Thumb
 *Hand
 *Wrist
 *Forearm
 *Elbow
 *Humerus
 *Shoulder
 *Trauma Shoulder (Scapular Y, Transthoracic, or Axillary)</p> | <p>*Foot
 *Ankle
 *Knee
 *Tibia/Fibula
 *Femur
 *Trauma Upper Extremity
 *Trauma Lower Extremity</p> | <p>Toe
 Oscalcis
 Scapula
 Clavicle
 A-C Joints
 Pediatric Upper Ext.
 Pediatric Lower Ext.
 Patella
 S-C Joints</p> |
| <p>III. <u>Spine & Pelvis</u>
 *Cervical
 *Thoracic
 *Lumbar
 *Pelvis
 *Hip</p> | <p>*Trauma Cervical (CTL)
 *Trauma Hip (CTL)
 S-I Joints
 Sacrum/Coccyx
 Scoliosis Series</p> | |
| <p>IV. <u>Abdomen & GI Tract</u>
 *Abdomen (Decubitus or Upright)
 *KUB
 *UGI Series (Single or Double)
 *Barium Enema (Single or Double)</p> | <p>Esophagus
 Small Bowel Series
 Pediatric Abdomen</p> | |
| <p>V. <u>Cranium</u>
 *Paranasal Sinuses
 *Skull
 Facial Bones
 Nasal Bones</p> | <p>Orbits
 Zygomatic Arches
 Mandible
 CT Head</p> | |
| <p>VI. <u>Other</u>
 IVU
 Myelogram
 Cystogram or Cystourethrogram
 ERCP</p> | <p>Arthogram
 Digital Fluoroscopy</p> | |
| <p>VII. <u>Mobile & Surgical</u>
 *Portable Chest
 *Portable Abdomen
 *Surgical C-Arm (Ortho.)
 *Portable Othopedics</p> | <p>Portable Pediatric
 Retrograde Pyelogram
 Surgical Cholangiogram</p> | |

***MANDATORY COMPETENCIES MUST BE COMPLETED PRIOR TO GRADUATION.**

PEDIATRIC EXAMS ARE CONSIDERED ANY CHILD SIX OR YOUNGER.

Revised 08/07

CLINICAL SITES

Section XXIII

Owensboro Community & Technical College Radiography Program Clinical Sites

	Clinical Site	Address	Clinical Instructor	Phone Number	Opening Time
1.	Advanced Diagnostic Imaging	1120 Professional Blvd. Evansville, IN 47713	Darrin Statz, RT(R)	(812)471-7086	8:00am
2.	Breckenridge Breast & Diagnostic Center	1000 Breckenridge Street Owensboro, KY 42303	Karen Bishop, RT(R)	(270)683-3354	8:00am
3.	Convenient Care Center	1006 Ford Ave. Owensboro, KY 42301	Rachel Boultinghouse, RT(R)	(270)688-1352	8:00am
4.	Healthpark Outpatient Diagnostic Center	1006 Ford Ave. Owensboro, KY 42301	Christa Ackerman, RT(R)(M)	(270)688-4830	7:30am
5.	Immediate Care Center	1200 Breckenridge Street Owensboro, KY 42303	Misty Bratcher, RT(R)(M)	(270) 683-7553	8:00am
6.	Ohio County Hospital	1211 Old Main Street Hartford, KY 42347	Cynthia Pierce RT(R)	(270)298-5450 or 5491	7:30am
7.	Orthopaedics & Sports Medicine	2831 New Hartford Road Owensboro, KY 42303	Bethany Nealen , RT(R)	(270)926-4109 or (270)926-4100	9:00am
8.	Owensboro Medical Health System	811 E. Parrish Ave. Owensboro, KY 42304	Sara Butterworth BS,RT(R)	(270)688-2153	7:00am (If scheduled in OP, File Room)
9.	Perry County Memorial Hospital	1 Hospital Road Tell City, IN 47586	Leo Gronquist, BS, RT(R)(N)	(812)547-0185	8:00am
10.	Twin Lakes Regional Medical Center	910 Wallace Avenue Leitchfield, KY 42726	Julie Mercer, RT(R)	(270)259-9491	7:00am

Clinical Hours:

1st year- 7 hours per day w/ a 30 minute lunch
2nd year-8.5 hours per day w/a 30 minute lunch

ATTENDANCE & WORK TRAITS

Section XXIV

All students at the beginning of their first year will be given a total of 64 hours* of excused absence from the program clinical, classroom, and lab. These hours can be used in clinic or as classroom hours. This total amount of hours will be the total amount of time that the student can miss throughout the five (5) semesters of the program. These hours will be used to cover any absences from the program (i.e. Funerals, sick days, maternity leave, snow days that school is in session etc).

If a student does not use any amount of their hours and accomplished all of the required competencies, the last semester, of their second year, the last eight days of clinical time **ONLY** they will be excused (from clinical hours only) to begin their employment. If a student does use any amount of their hours the time will be adjusted accordingly.

We must remember that we are striving to be professional therefore the behavior that is expected in the program is the same behavior that is expected in the field of Radiography.

If a student is going to be absent from CLINICAL they must contact the Clinical Instructor at the site they are scheduled to attend at least thirty (30) minutes before their scheduled start time. If a student is going to be absent from lecture they must call the faculty member at least 30 minutes prior to scheduled class time. Failure to notify the above mention persons will result in a deduction of eight (8) hours from the allotted excused time. Two incidence of this nature will result in the student being dismissed from the program.

Time missed will be rounded up to the next hour.

(If you are going to be late you must still call in to the appropriate person)

*If a student for any reason misses more than four (4) clinical days in one semester, they will be expected to make- up the time during the summer session after they have completed Clinical V. There must be adequate clinical sites available for this to occur.

There will be **NO MAKE-UP** time for students and absolutely no **BANKING OF HOURS**. During regular schedule semesters all make-up time will be made up at the end of the two years. (See note above).

**Banking of hours is when a student works past their allotted time to complete an exam in clinical.*

Any situation that will result (or has resulted) in more than one day away from class or clinical should be discussed with the clinical coordinator/program director as soon as possible.

If a student is absent for two (2) or more consecutive days due to illness, it is required that they obtain a statement from their personal physician attesting to their illness or injury, and their fitness to return to classes and clinical patient contact.

Student hours in the clinical setting must be recorded daily. Time sheets must be initialed daily by the technologist to whom the student is assigned. The student must be signed in when they arrive and signed out when they leave. The student is not permitted to have a technologist sign them in and out at the same time. A student who does not record his/her time will be counted absent for that day. Any falsification of the time card information will result in dismissal from the program.

Under certain circumstances the Program Director may use the judgment he/she deems necessary in accordance to individual cases.

Remember your clinical experience should be viewed as a two (2) year job interview; so always put your best foot forward. The Clinical Instructors, Managers, Directors and Technologists are observing you at all times

DEPENDABILITY:

Dependability is essential in order that patients are given the highest quality of patient care that they deserve. Students must report promptly to clinical on assigned days. Absenteeism and tardiness develop undesirable traits that are unfortunately very difficult to change, and therefore, are not tolerated in the program. (See absentee policy). Students must also be dependable by remaining in their assigned area while in clinic and informing staff when they need to leave their assigned area for any length of time. Dependability is also important in the classroom to stay abreast of your studies. Therefore, students will be required to be timely to class and prepared when they come to class.

If there is a problem you need to remember whom to go to for guidance. If the problem is in the class room you should first talk with you Instructor, if you are not satisfied with the results you will then go to the Program Director. If you still feel that the problem is not resolved your next step is with the Division Chair of the department. If you have a problem on the clinical floor you must first report it to the Clinical Instructor that is in charge, if still unresolved you would then go to the Clinical Coordinator. If you are still not satisfied you would then go to the Program Director and after that the Division Chair.

MOTIVATION AND INITIATIVE:

- Students will always demonstrate a high degree of motivation and initiative by seeking out unfamiliar and difficult procedures.
- Students will always demonstrate a high degree of industry and energy by doing all procedures expected of them.
- Students will demonstrate motivation by showing a desire to complete the clinical objectives.

DRESS CODE POLICY

Section XXV

Being a healthcare professional, appropriate attire shall be worn when in the clinical area. You are responsible for purchasing and maintaining your own uniforms. Uniforms should always be laundered and pressed prior to going to clinical. The guidelines for professional attire will be dictated by the Program.

Facial Hair

A mustache or beard is permitted so long as it is kept neatly trimmed.

Hair

Must be kept neat and clean and kept back while on duty. Natural hair coloring must be maintained (no burgundy, blues, greens, etc!)

NAILS

Must be kept clean and short. No nail polish.

ARTIFICIAL NAILS ARE NOT PERMITTED.

TATTOOS

Any tattoo must be covered by the uniform or a Band-Aid.

Jewelry

Students, while in the clinical education setting, will be allowed to wear only the following: 1 earring per ear, 1 watch and/or medical bracelet, 1 ring (Wedding set counts as one). **Any other jewelry is prohibited.**

Perfume/After Shave

Not permitted during clinical rotations.

Footwear

Clean, white tennis shoes may be worn no high tops. **Shoes must be all white.** Footwear will be neatly polished at all times. Boots, fabric type shoes, sandals, jellies will not be permitted.

Uniforms

Uniforms are to be pressed and cleaned prior going to clinical.

Females:

White dress uniforms pants of professional style and fit; white hose or white socks with pants; no visible bikini or thong underwear; white lab coat.

Males:

White trousers, white socks, white shoes no visible bikini or thong underwear, white lab coat.

MALES/FEMALES:

All students will wear polo shirts as part of there uniforms.

1st year students will wear Red polo shirts.

2nd year students will wear Royal Blue polo shirts

The color change will take effect when the student becomes a second year student.

Program shirts shall be worn at all times in the clinical setting, unless clinical duties require scrub suits.

Shirts must be tucked in at all times unless a medical condition prohibits this. (i.e. pregnancy)

OCTC Radiography student and hospital photo I.D. nametags must be worn at all times.

When a student is on the clinical floor they must ALWAYS have:

- Name Tag
- Radiation Monitoring Badge
- PDA
- Pocket Reference Book
- Lead Markers

Name Tags

Name tags are done at Owensboro Medical Health System. **Name tags must be worn at all times** on the shirt or jacket, whichever is on the outside. Some clinical sites may require additional hospital identification badges.

Lead Markers

Lead markers will be purchased through the class officer and must be used during all clinical education. Any student present at the clinical site without lead markers is subjected to being dismissed for the day. Students are never allowed to borrow someone else's markers or loan theirs to anyone else.

RADIATION MONITORING BADGES

Each student in the Radiologic Technology Program will receive a radiation monitoring badge while enrolled in the radiography program. This final monitoring badge **MUST** be returned to the program before graduation. Any student who has not returned a monitoring badge will **NOT** be issued a diploma. Once a student has been issued a film badge, they will not be allowed in the classroom unless they have on their film badge.

Any student who loses or misplaces their radiation monitoring badge cannot be on the clinical floor until the badge has been found or replaced. Any time missed will count against the attendance policy.

Personal radiation protection is a very serious matter. Care of the monitoring badge is the responsibility of the student. Any damage or loss of the badge must be reported to the program faculty **immediately**; the cost of a replacement badge is the student's responsibility. Any deviation from program policies or other appropriate policies regarding radiation monitoring may result in disciplinary action.

IMPORTANT: Radiation reports are the students responsibility to review on a monthly basis; if reading is high there will be a consultation with program faculty. Each student must exchange his/her badge according to the program schedule. Failure to observe this schedule will result in disciplinary action. Additional assessments or late fees are usually charged by the company, and are the responsibility of the student. The cost of radiation badges is charged in the bookstore; these will be paid for once a year in August.

RADIATION SAFETY RULES FOR CLINICAL ROTATIONS

Section XXVI

The following rules have been established for the operator's protection against ionizing radiation during hospital and clinical observation and procedures. These rules are established for the student operator's good and MUST be strictly adhered to.

1. At any time during activation of the x-ray tube (when x-rays are being generated) the operator should place his/her body completely behind or within the control booth and observe through the leaded window.
2. The operator should not hold or support a patient during exposure or hold or support a cassette during exposure. If an emergency arises, protective apron and gloves must be worn.
3. During activation of the tube, the operator must not be in direct visual line with either tube or patient. Thus, he/she may not observe the patient during exposure from an adjacent room or hall unless through a lead glass protective window. Do not "peek" around a door or through a crack between a door and wall.
4. During an exposure or procedure do not stand in direct line with the central ray, even when wearing a lead apron and a lead shield is interposed between the tube and the operator. The tube must in all cases be pointing away from the operator's body.
5. Under no circumstances will an operator permit another worker, student, or any other human being to serve as a model for test exposures or experimentation.
6. If during fluoroscopic procedures and mobile exams the operator must remain in the patient's room, the following will prevail:
 - a. A lead apron will be worn at all times and thyroid shield when available or the operator must remain behind a lead protective screen and NOT in visible line with either tube or patient.
 - b. Stand as far from the patient and tube as possible, consistent with the performance for the examination.
7. Radiation monitoring devices MUST be worn at all times when working with diagnostic imaging equipment. Film badges must be exchanged once every four weeks or as designated by the program faculty. There will be NO exceptions to this rule.
8. Radiation monitoring devices shall be worn at or near thyroid level on the outside of the uniform top unless the student is wearing a lead apron, at which time the monitoring device should be worn at the level of the thyroid **outside** the apron.
9. Students shall not operate fluoroscopic units by themselves. This includes but is not limited to spot filming gallbladders and terminal ileums and the operation of remote control fluoroscopic units for positioning.
10. Students should abide by the AS LOW AS REASONABLY ACHIEVABLE (**ALARA**) Principle to minimize the exposure to themselves and patients. However, for monitoring purposes, the student's exposure should not exceed 100 mRem **within a year**. High film badge readings will result in counseling from program faculty. Exceeding annual exposure limits may result in the student being removed from the clinical setting.
11. Monitoring badges must be worn at all times (in class, laboratory and clinic).

**Owensboro Community and Technical College
Radiologic Technology Program**

**DOCUMENTATION OF RADIATION MONITORING BADGE READINGS OVER 100 mR
per MONTH**

STUDENT _____ DATE _____

CLINICAL SITE _____

Radiation Badge Reading _____ mR for the month of _____

If a student's radiation badge reading is over 100mR for any month, the following procedure will be followed and documented.

- | | DATE |
|--|-------------|
| 1. Discussion between student and program director concerning reason for over exposure. | _____ |
| 2. A student contact form signed by the student and program director. | _____ |
| 3. Discussion with the clinical instructor concerning possible reasons for overexposure. | _____ |
| 4. Recommendations made by the clinical instructor to prevent future overexposure. | _____ |

POSSIBLE REASONS AND RECOMMENDATIONS: _____

Signature of Student

DATE

Signature of Program Director

DATE

Signature of Clinical Instructor

DATE

CLINICAL FORMS

Section XXVII

PDA's

PDA's will be used in the clinical setting to monitor your clinical experience. Evaluations, time sheet, and patient log will be on the PDA. It is the students' responsibility to have a fully charged battery each day of clinical; the PDA must be operable in order for the student to be on the clinical floor. The PDA's will be hot synced to the classroom computer on each class day, in order to prevent loss of your files. First year students must hot sync on Mondays and Wednesdays; second years must hot sync on Tuesdays and Thursdays.

If the student does not have their PDA, they will not be allowed on the clinical floor.

The student can be issued a PDA from Owensboro Community & Technical College if they do not choose to purchase one. There is a limited supply of the PDA's that can be issued. These PDA's are property of Owensboro Community & Technical College and must be returned at the end of the student's program experience in same condition as determined by the Program Director; if the PDA is not in the same condition, the cost of a new PDA, memory card, and licensed software will be the student's responsibility. If student's fail to pay for this, the Program Director will not give approval for the student to take their national registry exam and a financial hold will be put on their OCTC Academic Record. There is an agreement form that must be completed prior to being issued the OCTC PDA.

It is the responsibility of the student to keep the PDA in working order during the two year program. If it is damaged the student will be responsible for all associated costs and any information that is lost due to the damage to the PDA.

If the student chooses to purchase their own PDA, specifications will be given by the Program Director.

CLINICAL APPLICATION RECORDS

You will be required to document your clinical experience in order to ensure that you are getting the correct number and variety of examinations which will eventually lead to your becoming competent in all phases of radiography.

PHONE CALLS

Section XXVIII

There will be no PERSONAL phone calls while in clinic. We understand that emergency may arise while you are at clinic. So this should be the only time you receive calls during clinical hours. All personal business must be conducted during your lunch break or after hours.

Cell phone

Cellular phones, pagers and beepers are **NOT PERMITTED** on the clinical floor at ALL.

CLINICAL ASSIGNMENTS

Section XXIX

Schedules of rotations through various clinical areas will be posted at least one month in advance. There can be **no** changing between students on these rotations, and there can be no request of clinical sites.

Once the clinical schedule has been posted there will not be any changes made unless the clinical coordinator deems it necessary. No student requests will be honored.

During the fifth semester of the program, student may request observing in other modalities (i.e. Nuclear Medicine, Radiation Therapy, etc.). This is only allowed if ALL competencies are achieved.

Students will work the hours that that clinical site works not to exceed the hours deemed for clinical education.

WEATHER POLICY

The Radiography Program follows the weather policy of the Owensboro Community & Technical College. Local radio and/or television stations must announce "Owensboro Community & Technical College is closed or on a ___ hour delay," or the school will be open and classes will be held.

HOLIDAYS AND VACATIONS

Holidays will be in accordance with the Owensboro Community and Technical College catalog. Students are off during each semester break and holidays. No "vacations" are incorporated into the program.

WEEKEND AND NIGHTS

To obtain the widest variety possible in clinical experience, you will be required to complete a portion of your clinical education during the evening, night, and on weekend in all radiography courses.

These clinical assignments will be posted at least one month in advance.

REPEAT EXPOSURE POLICY

Section XXX

A student is a learner and as such, should not attempt to correct a poor quality image on a trial and error basis. A registered technologist must be present for any repeated exposures.

STUDENTS ARE RESPONSIBLE FOR THE IMPLEMENTATION OF THIS REPEAT POLICY.

STUDENT HEALTH SERVICES

Section XXXI

Any student who becomes ill or is injured in the clinical area or classroom/lab must report to their clinical instructor/instructor. The clinical instructor/instructor will determine the course of action that the student should follow. Students must complete a KCTCS incident report, available from the Program Director, upon their return to the classroom.

Students are responsible for their own medical expenses. Clinical facilities do not cover injuries or illness occurring during clinical.

INCIDENTS OF POSSIBLE EXPOSURE TO BLOOD BORNE PATHOGENS

- **Exposure incidents mean a specific eye, mouth, or other** mucous membrane, non-intact skin, or potential contact with blood or other potentially infectious material (PIM) results from the performance of the student's duties.
- Source person means any individual, living or dead, whose blood or other PIM may be a source of exposure to a student.
- **Immunoassay means an approved serological test or group of tests which is currently performed in an accredited clinical laboratory for the determination of HBV and HIV infection**

VACCINATION RECORDS

Section XXXII

HEPATITIS B, MMR, TUBERCULIN SKIN TEST, TETANUS

HEPATITIS B VACCINATIONS

Students are exposed during clinical rotations by performing those task assignments which may involve contact with blood and other potentially infectious materials. As a precautionary measure; Radiography students enrolling in the program must show proof of having the Hepatitis B vaccine. If a student refuses to undergo the Hepatitis B vaccine, this student must sign a "Statement of Understanding Universal Precautions Hepatitis B Vaccine" waiver form.

Also, all students must have on file with the program a current physical examination, proof of current immunity to measles/mumps/rubella, tetanus vaccination and a tuberculin skin test within the last year.

Proof of immunity to measles (rubeola)/rubella may be shown by:

- (1) Immunization record
- (2) Administration of a measles/mumps/rubella (MMR) vaccine booster
- (3) Proof of immunity by laboratory tests, (titer) to each

If the laboratory test shows that the student is not immune to either measles (rubeola) or rubella, the student shall have an MMR vaccine booster.

It is the responsibility of the student to maintain their Healthcare Professionals CPR and to have a TB skin test yearly while in the program. If these are not kept current the student will not be allowed to attend clinical until the student has completed the necessary measures, and any time missed will be deducted from the allotted time on the attendance record.

Clinical sites may request a blood or urine test. Failure to comply with the clinical facility will result in dismissal from the program.

KCTCS PROFESSIONAL LIABILITY INSURANCE

Section XXXIII

Each student must purchase the liability insurance for health-related disciplines prior to any clinical (patient care) activity. The application and premium made me completed in the Owensboro Community & Technical College Business Office. The policy period will be one (1) year from date application is received. A new application is mandatory upon the end of the year when first applied. Students will not be allowed in the clinical setting until a receipt of this is given to the clinical coordinator, any missed time will be deducted from the allotted attendance record.

STUDENT PERMITS

Section XXIV

In order to x-ray in the state of Indiana, students must obtain a Student Permit from the Indian State Department of Health. There is no cost associated with this student permit. The student must complete the paper application and submit it to the Clinical Coordinator at the start of the program. The permit will be good for the two years and for six months post graduation.

BACKGROUND CHECKS

Section XXXV

All students are required to have a background check done prior to starting clinical the first semester. The cost of the background check is the student's responsibility. If the student fails a criminal background check or if the student fails to submit to a criminal background check, the student may be dismissed from the radiography program.

Address to send background check to:

Joy Menser
Radiography Program
4800 New Hartford Road
Owensboro, KY 42303

DIDACTIC AND COURSE DESCRIPTION

AAS in Radiography

Section XXXVI

Program Title: AAS in Radiography

<u>Course Prefix</u>	<u>Course Number</u>	<u>Course Title</u>	<u>Credit Hours</u>
General Education:			
		Social Interaction	3
		Humanities	3
		Oral Communication	3
		Computer Literacy	0-3
ENG	101	Writing I	3
MT	150	College Algebra and Functions OR Higher Level Mathematics Course	3 (3)
BIO	137	Human Anatomy & Physiology I	4
BIO	139	Human Anatomy & Physiology II	4
PH	171	Applied Physics OR	4
PH	172	Physics for Health Sciences OR	(2)
PHY	152	Introduction to Physics	(3)
Subtotal			25-30
Support Course:			
CLA	131	Medical Terminology from Greek & Latin OR	3
AHS	115	Medical Terminology	(3)
Subtotal			3
Technical Courses:			
RADI	104	Introduction to Radiography AND	(2)
RADI	106	Patient Care in Radiography* AND	(2)
RADI	108	Radiographic Procedures I	(4)
RADI	109	Clinical Practice I	(1)
RADI	114	Image Production and Acquisition AND	(2)
RADI	116	Advanced Patient Care in Radiography AND	(2)
RADI	118	Radiographic Procedures II	(4)
RADI	119	Clinical Practice II	(3)
RADI	209	Clinical Practice III	(3)
RADI	214	Imaging Equipment AND	(2)
RADI	216	Basic Computer Tomography	(2)
RADI	219	Clinical Practice IV	(6)
RADI	224	Radiation Protection & Biology AND	(2)
RADI	226	Radiography Pathology AND	(1)
RADI	228	Radiography Seminar	(1)
RADI	229	Clinical Practice V	(6)
Subtotal			35-43
Total Credits			63-76

Owensboro Community and Technical College offers only the AAS full option for Radiography students.

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
FIRST YEAR
First Semester
RADI 104
2 Credits 1 Lecture 1 Lab

Course Description:

Introduces radiography with emphasis on the historical perspective, professional requirements, health care environment, cultural diversity, and legal and ethical considerations. Incorporates basic tube function and radiation protection.

Course Title: Introduction to Radiography

Course Outline

- I. The Health Science Professions
 - A. Radiologic Technology
 - B. Health care professions
- II. The Health Care Environment
 - A. Health care systems
 - B. Health care delivery settings
 - C. Payment/reimbursement systems
- III. Hospital Organization
 - A. Philosophy
 - B. Mission
 - C. Administrative services
 - D. Medical services
- IV. Radiology Organization
 - A. Professional personnel
 - B. Support services
 - C. Patient services
 - D. Educational personnel
- V. Accreditation
 - A. Definition
 - B. Programmatic accreditation
 - C. Institutional accreditation
- VI. Regulatory Agencies
 - A. Federal
 - B. Reimbursement
 - C. State
- VII. Professional Credentialing
 - A. Definition
 - B. Agencies
- VIII. Professional Organizations
 - A. Purpose, function, activities
 - B. Local organizations
 - C. State organizations
 - D. National
 - E. International
 - F. Related associations organizations
- IX. Professional Development and Advancement
 - A. Continuing education opportunities
 - B. Employment considerations
 - C. Advancement opportunities

- X. Values
 - A. Personal
 - B. Societal
 - C. Professional
 - D. Moral Development
- XI. Culture, Ethnicity, and Diversity
 - A. Medical ethnocentrism
 - B. Societal and individual factors
- XII. Ethics and Ethical Behavior
 - A. Origins and history of medical ethics
 - B. Moral reasoning
 - C. Personal behavior standards
 - D. Competence
 - E. Professional attributes
 - F. Standards of practice
 - G. Self-assessment and self-governance
 - H. Code of professional ethics
 - I. Ethical concepts
 - J. Systematic analysis of ethical problems
 - K. Ethical patient care data research/data discovery
- XIII. Ethical Issues in Health Care
 - A. Individual and societal rights
 - B. Cultural considerations
 - C. Economical considerations
 - D. Technology and scarce resources
 - E. Access to quality health care
 - F. Human experimentation and research
 - G. Medical/health care research
 - H. End of life issues
- XIV. Legal Issues
 - A. Parameters of legal responsibility
 - B. Patient personal information
 - C. Intentional torts
 - D. Negligence and malpractice
 - E. Legal risk reduction
- XV. Patient Consent
 - A. Definition
 - B. Types
 - C. Condition for valid consent
 - D. Documentation of consent
- XVI. Production of X-rays
 - A. X-ray tube
 - B. Target Interactions
- XVII. Radiation Protection
 - A. Basic Principles
 - B. Measurement of radiation
 - C. Personnel Monitoring

Lab activities include patient equivalent phantom radiographic exposures, patient care assessments, and patient positioning.

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
FIRST YEAR
First Semester
RADI 106
2 Credits 1 Lecture 1 Lab

Course Description:

Provides the basic concepts of patient care including considerations for the physical and psychological needs of the patient and the patient's family. Includes communication, safety, and infection control.

Course Title: Patient Care in Radiography

Course Outline

- I. Attitudes and Communication in Patient Care
 - A. Health-illness continuum
 - B. Developing professional attitudes
 - C. Communication across the age continuum
 - D. Psychological considerations
- II. Patient/Technologist Interactions
 - A. Patient identification methods
 - B. Procedure question and explanations
 - C. Interaction with patient family members and friends
- III. Safety and Transfer Positioning
 - A. Environmental safety
 - B. Body Mechanics
 - C. Patient transfer and movement
 - D. Positioning for safety and comfort
 - E. Immobilization techniques
 - F. Accident and incident reporting
- IV. Evaluating Physical Needs
 - A. Assessing patient status
 - B. Vital Signs
 1. Obtaining and recording
 2. Evaluating
 - C. Acquiring and recording vital signs
 - D. Review of laboratory data
 - E. Patient chart
- V. Infection Control
 - A. Terminology
 - B. Centers for Disease Control and Prevention (CDC)
 - C. Cycle of infection
 - D. Preventing disease transmission
 - E. Asepsis
 - F. Environmental Asepsis
 - G. Isolation techniques and communicable diseases
 - H. Management of isolation patient in radiology department
 - I. Precautions for the compromised patient (reverse isolation)
 - J. Psychological considerations
- VI. Tubes, Catheters, Lines and Collection Devices
 - A. Terminology
 - B. Nasogastric/nasointestinal
 - C. Suction
 - D. Tracheostomy

- E. Chest tube
- F. Tissue drains
- G. Oxygen administration
- H. Urinary collection
- I. Other ostomies

Lab activities include patient care assessments, patient care labs and patient positioning.

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
FIRST YEAR
First Semester
RADI 108
4 Credits 2 Lecture 2 Lab

Course Description:

Presents the principles of human anatomy applied to the study of fundamental radiographic procedures (exposure factors and patient positioning) used for different age groups for upper and lower extremities, bony and visceral thorax, and abdomen. Consideration is given to the evaluation of optimal diagnostic images.

Course Title: Radiographic Procedures I

Course Outline

- I. Standard Terminology for Positioning and Projection
 - A. Standard terms
 - B. Positioning terminology
 - C. General planes
 - D. Terminology of movement and direction
 - E. Positioning aids
 - F. Accessory equipment
- II. General Considerations
 - A. Evaluation of radiographic order
 - B. Patient communication
 - C. Patient preparation
 - D. Room preparation
 - E. Patient Assistance and monitoring
- III. Positioning Considerations for Routine Radiographic Procedures
 - A. Patient instructions
 - B. Patient positioning
 - C. Part placement
 - D. Image receptor selection and placement
 - E. Beam alignment and angulation
 - F. Beam limitation and shielding
 - G. Special considerations
 - H. Positioning for the following studies:
 - 1. Upper extremity
 - 2. Shoulder girdle
 - 3. Lower extremities
 - 4. Pelvic girdle
 - 5. Respiratory system
 - 6. Bony thorax
 - 7. Abdomen
- IV. Patient Education
 - A. Communication
 - B. Clinical situations
 - C. Common radiation safety issues and concerns
- V. Image Evaluation
 - A. Proper image display
 - B. Identification of anatomy

- C. Identification of acceptable radiographs
- VII. Mobile and Surgical Radiography
 - A. Prior to bedside procedure:
 - B. Steps followed during bedside procedure
 - C. Bedside procedure for neonate
 - D. Bedside procedure for the orthopedic patient
 - E. Special situations
 - F. Radiography in surgery
 - G. Radiation protection

Lab activities include radiographic exposures of patient equivalent phantom and patient positioning.

**OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
FIRST YEAR
First Semester
RADI 109
1 Credit**

Course Description:

Provides clinical experience through structured sequential competency-based clinical assignments of the upper and lower extremities, bony and visceral thorax, and abdomen.

Course Title: Clinical Practice I

Course Outline

- I. Clinical Practice
 - A. Role of the radiographer
 - B. Equipment operation
 - C. Adapt to varying clinical situations
 - D. Emergency response
 - E. Total quality management
- II. Procedural Performance
 - A. Scheduling and sequencing of exams
 - B. Order/requisition evaluation and corrective measures
 - C. Facilities setup
 - D. Patient assessment, clinical history, education and care
 - E. Imaging
- III. Clinical Competency
 - Upper and lower extremities
 - Bony and visceral thorax
 - Abdomen

Clinical activities include radiographic exposures of patients under direct supervision and patient care.

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
FIRST YEAR
Second Semester
RADI 114
2 Credits 1 Lecture 1 Lab

Course Description:

Provides a knowledge base of factors related to image production and acquisition. Exposes students to digital imaging systems.

Course Title: Image Production & Acquisition

Course Outline:

- I. Image Appearance Characteristics Standards
 - A. Establishing appearance standards
 - B. Maintaining appearance standards
- II. Optical Density
 - A. Film-image density (optical density)
 - B. Film-screen factors
- III. Contrast
 - A. Definition
 - B. Description
 - C. Components
- IV. Recorded Detail/Spatial Resolution
 - A. Definition
 - B. Types
- V. Distortion
 - A. Definition
 - B. Types
- VI. Beam-limiting Devices
 - A. Definition
 - B. Functions/Purposes
 - C. Types – applications
- VII. Beam Filtration
 - A. Tube filtration
 - B. Compensating filtration
 - C. Impact of filtration on image characteristics
 - D. Filtration vs. HVL
- VIII. Scattered and Secondary Radiation
 - A. Definition
 - B. Factors
 - C. Effects
- IX. Control of Remnant Beam/Exit Beam
 - A. Grids
 - B. Beam restricting devices
- X. Exposure Factor Formulation
 - A. Purpose
 - B. Considerations
 - C. Types
- XI. Exposure Factors
 - A. Distance
 - B. mAs
 - C. kVp
 - D. Grids

- E. Receptor speed or speed class
 - F. Calculations for receptor exposure maintenance
 - G. Distortion calculations
 - XII. Basic Principles of Digital Radiography
 - A. Digital image characteristics
 - B. Digital receptors
 - C. Comparison of detector properties and evaluative criteria
 - D. Dynamic range vs. latitude
 - XIII. Image Acquisition
 - A. Raw data acquisition – “latent image”
 - B. Image extraction – cassette-less system
 - C. Image extraction – cassette-based system
 - D. Exposure indicators
 - XIV. Image Acquisition Errors
 - A. Exposure field recognition
 - B. Histogram analysis error
 - C. Low intensity radiation response
 - D. Scatter control
 - XV. Software (Default) Image Processing
 - A. Automatic rescaling
 - B. Final image processing
 - C. Effects of excessive processing
 - D. Recognition of image processing errors that affect image clarity
 - XVI. Fundamental Principles of Exposure
 - A. Optimal receptor exposure
 - B. Receptor response – DQE
 - C. Selection of exposure factors
 - D. Exposure myths associated with digital systems
 - E. Control patient exposure
 - F. Monitor patient exposure
 - XVII. Image Evaluation
 - A. Evidence of appropriate exposure level
 - B. Contrast
 - C. Recorded detail
 - D. Artifacts
 - XVIII. Display
 - A. Monitor
 - B. Film
 - C. Picture archiving and communication system (PACS)
 - D. Teleradiology
 - E. Radiographer’s responsibilities
- Lab activities include patient equivalent phantom radiographic exposures.**

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
FIRST YEAR
Second Semester
RADI 116
2 Credits 1 Lecture 1 Lab

Course Description:

Provides the basic concepts of medical emergencies and pharmacology related to radiography. Addresses use of imaging contrast agents, venipuncture, IV therapy, and informed consent in radiology practice. Includes professional practice standards of radiographer.

Course Title: Advanced Patient Care in Radiography

Course Outline:

- I. Medical Emergencies
 - A. Terminology
 - B. Emergency equipment
 - C. Latex reactions
 - D. Shock
 - E. Diabetic emergencies—signs, symptoms and interventions
 - F. Respiratory and cardiac failure—signs, symptoms and interventions
 - G. Airway obstruction—signs, symptoms and interventions
 - H. Cerebral vascular accident (stroke)—signs, symptoms and interventions
 - I. Fainting and convulsive seizures, signs, symptoms and interventions
 - J. Other medical conditions
- II. Unique Injuries
 - A. Head injuries
 - B. Spinal injuries
 - C. Extremity fractures
 - D. Wounds
 - E. Burns
 - F. Reactions to contrast agents
- III. Barium Studies
 - A. Patient education
 - B. Preparation for examination
- IV. Care of Patients during Myelography and Urography
 - A. Monitoring and care during invasive procedures
 - B. Myelography
 - C. Urography
- V. Drug Nomenclature
 - A. Chemical name
 - B. Generic name
 - C. Trade name
- VI. Methods of Drug Classification
 - A. Chemical group
 - B. Mechanism/site of action
 - C. Primary effects
- VII. General Pharmacologic Principles
 - A. Pharmacokinetics
 - B. Pharmacodynamics
- VIII. Five Rights of Drug Safety
 - A. The right medication
 - B. The right dose

- C. The right patient
- D. The right time
- E. The right location
- IX. Drug Categories of Relevance to Radiography (Side Effects, Uses and Impacts on Medical Imaging)
 - A. Analgesics
 - B. Antiemetic drugs
 - C. Antianxiety drugs
 - D. Antidepressants
 - E. Anti-inflammatory drugs
 - F. Antiarrhythmic drugs
 - G. Vasodilators and vasoconstrictors
 - H. Diuretics
 - I. Antihypertensive drugs
 - J. Anticoagulant and coagulant drugs
 - K. Antiallergic and antihistamine drugs
 - L. Bronchodilators
 - M. Antibacterial drugs
 - N. Antiseptic and disinfectant agents
 - O. Sedative and hypnotic drugs
 - P. Anesthetic agents
 - Q. Cathartic and antidiarrheal drugs
 - R. Diagnostic contrast agents
- X. Classifications of Contrast Agents
 - A. Types of Compound
 - B. Beam attenuation characteristics
 - C. Pharmacologic profile of contrast agents
 - D. Dosage
 - E. Preparation
- XI. Routes of Drug Administration
 - A. Systemic
 - B. Parenteral
- XII. Intravenous Drug Therapy
 - A. Purpose
 - B. Advantages
 - C. Methods
 - D. Sites of administration
 - F. Initiation of intravenous therapy
- XIII. Current Practice Status
 - A. Professional standards
 - B. State statutes
 - C. Employer prerogative
- XIV. Informed Consent
 - A. Procedures
 - B. Legal Implications

Lab activities include venipuncture techniques and procedures.

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
FIRST YEAR
Second Semester
RADI 118
4 Credits 3 Lecture 1 Lab

Course Description:

Continues the acquisition of radiographic procedures with emphasis on the vertebral column, cranium, gastrointestinal, urinary, and special radiographic procedures. Consideration is given to the evaluation of optimal diagnostic images.

Course Title: Radiographic Procedures II

Course Outline

- I. Standard Terminology for Positioning and Projection
 - A. Skull lines
 - B. Skull landmarks
- II. Positioning Considerations for Routine Radiographic Procedures
 - A. Patient instructions
 - B. Patient positioning
 - C. Part placement
 - D. Image receptor selection and placement
 - E. Beam alignment and angulation
 - F. Beam limitation and shielding
 - G. Special considerations
 - H. Positioning for the following studies:
 - 1. Vertebral column
 - 2. Skull
 - 3. Gastrointestinal system
 - 4. Urinary system
 - 5. Hepatobiliary tract
 - 6. Additional studies
 - 7. Arthrography
 - 8. Leg length studies
 - 9. Bronchography
 - 10. Enterocolysis
 - 11. G-tube placement
 - 12. Retrograde urography
 - 13. Venography
 - 14. Lymphangiography
 - 15. Other
- III. Procedural Considerations for Contrast Studies
 - A. Equipment and materials needed
 - B. Contrast media
 - D. General procedure
 - E. Patient and body part positioning
 - F. Structures and functions demonstrated
- IV. Patient Education
 - A. Communication
 - B. Clinical situations
 - C. Common radiation safety issues and concerns
- V. Radiation Protection
 - A. Documentation of pregnancy status

- B. Shielding
- C. Beam restriction
- VI. Image Evaluation
 - A. Proper image display
 - B. Identification of anatomy
 - C. Identification of acceptable radiographs

Lab activities include patient equivalent phantom radiographic exposures, patient care assessments, and patient positioning.

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
FIRST YEAR
Second Semester
RADI 119
3 Credits

Course Description:

Provides clinical experience through structured sequential competency based clinical assignments of the upper and lower extremities, bony and visceral thorax, and abdomen.

Course Title: Clinical Practice II

Course Outline:

- I. Clinical Practice
 - A. Role of the radiographer
 - B. Equipment operation
 - C. Adapt to varying clinical situations
 - D. Emergency response
 - E. Total quality management
- II. Procedural Performance
 - A. Scheduling and sequencing of exams
 - B. Order/requisition evaluation and corrective measures
 - C. Facilities setup
 - D. Patient assessment, clinical history, education and care
 - E. Imaging
- III. Clinical Competency
 - A. Vertebral column
 - B. Cranium
 - C. Gastro-intestinal system
 - D. Urinary system
 - C. Myelography
 - D. Arthrography
- IV. On-Going Clinical Competency
 - A. Upper and lower extremities
 - B. Bony and visceral thorax
 - C. Abdomen

Clinical activities include radiographic exposures of patients under direct and indirect supervision and patient care.

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
SECOND YEAR
Third Semester
RADI 209
3 Credits

Course Description:

Provides clinical experience through structured sequential competency based clinical assignments to include the upper and lower extremities, bony and visceral thorax, abdomen, vertebral column, cranium, and contrast studies of the digestive, urinary, and central nervous systems, and arthrography.

Course Title: Clinical Practice III

Course Outline:

- I. Clinical Practice
 - A. Role of the radiographer
 - B. Equipment operation
 - C. Adapt to varying clinical situations
 - D. Emergency response
 - E. Total quality management
- II. Procedural Performance
 - A. Scheduling and sequencing of exams
 - B. Order/requisition evaluation and corrective measures
 - C. Facilities setup
 - D. Patient assessment, clinical history, education and care
 - E. Imaging
- III. On-Going Clinical Competency
 - A. Upper and lower extremities
 - B. Bony and visceral thorax
 - C. Abdomen
 - D. Vertebral column
 - E. Cranium
 - F. Gastro-intestinal system
 - G. Urinary system
 - H. Myelography
 - I. Arthrography

Clinical activities include radiographic exposures of patients under direct and indirect supervision and patient care.

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
SECOND YEAR
Fourth Semester
RADI 214
2 Credits 1 Lecture 1 Lab

Course Description:

Focuses on the types of imaging equipment used in radiography including x-ray imaging systems, fluoroscopy, tomography, screens, film, and automatic processing. Introduces quality management in radiography.

Course Title: Imaging Equipment

Course Outline:

- I. X-ray Circuit
 - A. Electricity
 - B. Protective devices
 - C. Transformers
 - D. Components and functions
 - E. Rectification
 - F. Generator types
- II. Radiographic Equipment
 - A. Permanent installation
 - B. Mobile units
 - C. Automatic exposure control (AEC) devices
- III. Diagnostic X-ray Tubes
 - A. Construction
 - B. Extending tube life
- IV. Image Intensified Fluoroscopy
 - A. Construction
 - B. Intensification principles/characteristics
 - C. Viewing and recording systems
 - D. Digital fluoroscopy
- V. Linear Tomography
 - A. Purpose
 - B. Principles
 - C. Equipment
 - D. Applications
- VI. Quality Management
 - A. Definitions
 - B. Benefits
 - C. Elements
 - D. Equipment
- VII. Quality Assurance and Maintenance Issues For Digital Equipment
 - A. Initial acceptance testing
 - B. Cassette-based system reader preventive maintenance (PM)
 - C. Plate maintenance
 - D. Uniformity of default processing codes
 - E. Reject analysis
- VIII. Darkroom/Storage Environment
 - A. Processing considerations
 - B. Darkroom environment
 - C. Film storage considerations
 - D. Safety

- IX. Characteristics of Image Receptors
 - A. Properties
 - B. Latent image formation
 - C. Response curves
- X. Image Receptor Holders and Intensifying Screens
 - A. Image receptor holders
 - B. Intensifying screens
- XI. Automatic Processing
 - A. Purpose
 - B. Components
 - C. Systems
 - D. Image receptor feed
 - E. Maintenance/cleaning
 - F. Quality control
 - G. documentation
- XII. Artifacts
 - A. Definition
 - B. Types
 - C. Causes
 - D. Effects
 - E. Preventive/corrective maintenance
- XIII. Silver Recovery
 - A. Definition
 - B. Rationale
 - C. Methods
 - D. Security

Lab activities include digital and film screen lab experiments as well as quality assurance testing of equipment.

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
SECOND YEAR
Fourth Semester
RADI 216
2 Credits 2 Lecture

Course Description:

Provides the basics of computed tomography including image formation, equipment, and terminology. Includes scanning techniques for basic CT procedure of the head, chest and abdomen, and sectional anatomy.

Course Title: Basic Computed Tomography

Course Outline:

- I. Computed Tomography Generations
 - A. Capabilities and limitations
 - B. Emerging technology
- II. Components, Operations and Processes
 - Data acquisition
 - Factors controlling image appearance
 - Anatomical structures
 - Post processing
- III. Radiation Protection
 - A. Methods for reducing radiation dose to the patient
 - B. Reducing the radiographer's exposure to scatter radiation
- IV. Cross-sectional Anatomy
 - A. Structures and locations
 - B. Atypical anatomy

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
SECOND YEAR
Fourth Semester
RADI 219
6 Credits

Course Description:

Provides clinical experience through structured sequential competency-based clinical assignments to include the upper and lower extremities, bony and visceral thorax, abdomen, vertebral column, cranium, and contrast studies of the digestive, urinary, and central nervous systems, and arthrography. Includes basic CT scan procedures.

Course Title: Clinical Practice IV

Course Outline:

- I. Clinical Practice
 - A. Role of the radiographer
 - B. Equipment operation
 - C. Adapt to varying clinical situations
 - D. Emergency response
 - E. Total quality management
- II. Procedural Performance
 - A. Scheduling and sequencing of exams
 - B. Order/requisition evaluation and corrective measures
 - C. Facilities setup
 - D. Patient assessment, clinical history, education and care
 - E. Imaging
- III. Clinical Competency
 - A. CT of the head
 - B. CT of the chest
 - C. CT of the abdomen
 - D. CT of the pelvis
- IV. On-Going Clinical Competency
 - A. Upper and lower extremities
 - B. Bony and visceral thorax
 - C. Abdomen
 - D. Vertebral column
 - E. Cranium
 - F. Gastro-intestinal system
 - G. Urinary system
 - H. Myelography
 - I. Arthrography

Clinical activities include radiographic exposures of patients under direct and indirect supervision and patient care.

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
SECOND YEAR
Fifth Semester
RADI 224
2 Credits 2 Lecture

Course Description:

Provides knowledge of radiation protection, effects of various radiation levels and methods to measure radiation. Introduces the principles of radiation biology.

Course Title: Radiation Protection & Biology

Course Outline:

- I. Introduction to Radiation Protection
 - A. Justification for radiation protection
 - B. Biologic damage potential of ionizing radiation
 - C. Objectives of a radiation protection program
 - D. Sources of radiation
 - E. Legal and ethical responsibilities
- II. Units, Detection and Measurement
 - A. Radiation units
 - B. Dose reporting according to current NCRP reports
 - C. Measurement devices: (principle, application and types)
- III. Surveys, Regulatory/Advisory Agencies and Regulations
 - A. General survey procedures
 - B. Equipment survey
 - C. Area survey
 - D. Regulatory/Advisory Agencies
 - E. Radiation safety officer
- IV. Personnel Monitoring
 - A. Historical perspective
 - B. Requirements for personnel monitoring
 - C. Methods and types of personnel monitors
 - D. Records of accumulated dose
 - E. Dose recommendations
 - F. Responsibilities for radiation protection
- V. Application
 - A. Design
 - B. Regulations and recommendations
 - C. Cardinal principles in protection
 - D. Emergency procedures
- VI. Patient Protection
 - A. Beam-limiting devices
 - B. Filtration
 - C. Shielding
 - D. Exposure factors
 - E. Image receptor system
 - F. Immobilization
 - G. Fluoroscopic procedures
 - H. Mobile radiography

- I. Special considerations
- VII. Introduction to Radiation Biology
 - A. Molecule
 - B. Review of cell biology
 - C. Types of ionizing radiations
 - D. Sources of medial radiation exposure
- VIII. Biophysical Events
 - A. Molecular effects of radiation
 - B. The deposition of radiant energy
- IX. Radiation Effects
 - A. Subcellular radiation effects
 - B. Cellular radiation effects
 - C. Individual radiation effects
 - D. Factors influencing radiation response
- X. Radiosensitivity and Response
 - A. Law of Bergonie` and Tribondeau
 - B. Cell survival
 - C. Systemic response to radiation
 - D. Radiation dose-response curves
 - E. Total body irradiation
 - F. Late effects of radiation
 - G. Risk estimates

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
SECOND YEAR
Fifth Semester
RADI 226
1 Credit

Course Description:

Introduces concepts related to disease and etiological considerations with emphasis on radiographic appearance of disease and impact on exposure factor selection.

Course Title: Radiographic Pathology

Course Outline:

- I. Definitions/Terminology
 - A. Pathology
 - B. Disease
 - C. Pathogenesis
 - D. Etiology
 - E. Diagnosis
 - F. Prognosis
 - G. Indications for procedure
 - H. Manifestations of pathology
 - I. Relevance to radiographic procedures
- II. Classifications (Definition, Examples, Sites, Complications, Prognosis)
 - A. Mechanics
 - B. Chemicals
 - C. Thermals
 - D. Radiation
- III. Causes of Disease (Process, Examples)
 - A. Pathological
 - B. Traumatic
 - C. Surgical
 - D. Healing process
 - E. Complications
 - F. Genetics vs environment
- III. Radiologic Pathology (Definitions, Etiology, Examples, Sites, Complications, Prognosis, Radiographic Appearance, Procedural and Technique Considerations, Appropriate Imaging Modality)
 - A. Skeletal and articular
 - B. Digestive
 - C. Respiratory
 - D. Urinary
 - E. Reproductive
 - F. Circulatory
 - G. Endocrine
 - H. Nervous

**OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
SECOND YEAR
Fifth Semester
RADI 228
1 Credit**

Course Description:

Introduces the format, rules, and regulations regarding certification by the American Registry of Radiologic Technologists (ARRT) and state certification requirements.

Course Title: Radiography Seminar

Course Outline:

- I. American Registry of Radiologic Technologists
 - A. Mission
 - B. Rules and Regulations
 - C. ARRT National Exam
- II. State Certification
 - A. Mission
 - B. Kentucky certification requirements
 - C. Other

OWENSBORO COMMUNITY AND TECHNICAL COLLEGE
RADIOGRAPHY PROGRAM
SECOND YEAR
Fifth Semester
RADI 229
6 Credit

Course Description:

Provides clinical experience through structured competency-based clinical assignments including upper and lower extremities, bony and visceral thorax, abdomen, vertebral column, cranium, and contrast studies of the digestive, urinary, and central nervous systems, and arthrography. Includes basic CT scan procedures.

Course Title: Clinical Practice V

Course Outline:

- I. Clinical Practice
 - A. Role of the radiographer
 - B. Equipment operation
 - C. Adapt to varying clinical situations
 - D. Emergency response
 - E. Total quality management
- II. Procedural Performance
 - A. Scheduling and sequencing of exams
 - B. Order/requisition evaluation and corrective measures
 - C. Facilities setup
 - D. Patient assessment, clinical history, education and care
 - E. Imaging
- III. On-Going Clinical Competency
 - A. Upper and lower extremities
 - B. Bony and visceral thorax
 - C. Abdomen
 - D. Vertebral column
 - E. Cranium
 - F. Gastro-intestinal system
 - G. Urinary system
 - H. Myelography
 - I. Arthrography
 - J. CT of the head
 - K. CT of the chest
 - L. CT of the abdomen
 - M. CT of the pelvis

Clinical activities include radiographic exposures of patients under direct and indirect supervision and patient care.

Standards
for an Accredited Educational Program
in Radiologic Sciences

EFFECTIVE JANUARY 1, 2002

Adopted by:

**The Joint Review Committee on Education
in Radiologic Technology: January 1996; Revised 2001**

Introduction

The **Standards for an Accredited Educational Program in Radiologic Sciences** are directed at the assessment of program and student outcomes. Using these **STANDARDS**, the goals of the accreditation process are to: protect the student and the public, stimulate programmatic improvement, provide protective measures for federal funding or financial aid, and promote academic excellence.

Each **STANDARD** is titled and includes a narrative statement, supported by objectives, describing the outcome required for compliance with the **STANDARD**. Selected key terms are underlined and defined in the Glossary to clarify the meaning. The definitions contained in the Glossary are considered a component of the **STANDARDS** and, as such, must be satisfied to comply with the **STANDARDS**.

Standard One: Mission/Goals, Outcomes, and Effectiveness

The program, in support of its mission and goals, develops and implements a system of planning and evaluation to determine its effectiveness and uses the results for program improvement.

Objectives:

In support of Standard One, the program:

- 1.1 Has a mission statement that defines its purpose and scope.
- 1.2 Has written goals that outline what the program is designed to achieve.
- 1.3 Makes its mission statement and goals readily available to students, faculty, administrators, and the general public.
- 1.4 Develops and implements an assessment plan that identifies benchmarks for the measurement of outcomes in relation to its mission statement and goals and includes:
 - program completion rate;
 - clinical performance and clinical competence;
 - problem solving skills and critical thinking;
 - communication skills;
 - professional development and growth;
 - graduate satisfaction; and
 - employer satisfaction.
- 1.5 Documents outcomes consistent with each of the following JRCERT policies:
 - over the past five years, credentialing examination pass rate average of not less than 75% at first attempt; and
 - over the past five years, job placement rate of not less than 75% within six months of graduation.
- 1.6 Regularly solicits feedback from students, faculty, radiologists/radiation oncologists, graduates, employers, and other communities of interest.
- 1.7 Analyzes and uses feedback from communities of interest and outcome data for continuous improvement of its policies, procedures, and educational offerings.
- 1.8 Periodically evaluates its mission statement, goals, and assessment plan and makes revisions as necessary to achieve continuous quality improvement.

Standard Two: Program Integrity

The program demonstrates integrity in representations to communities of interest and the public, in pursuit of educational excellence, and in treatment of and respect for students, faculty, and staff.

Objectives:

In support of Standard Two, the program:

- 2.1 Adheres to high ethical standards in relation to students, faculty, and staff.
- 2.2 Has program faculty recruitment and employment practices that are nondiscriminatory with respect to any legally protected status such as race, color, religion, gender, age, disability, and national origin.
- 2.3 Publishes statements accurately reflecting the program's offerings.
- 2.4 Has due process procedures that are readily accessible, fair, and equitably applied.
- 2.5 Has a policy that assures timely and appropriate resolution of complaints regarding allegations of non-compliance with JRCERT **STANDARDS** and maintains a record of such complaints and their resolution.
- 2.6 Regularly evaluates program policies, procedures, and publications and revises as appropriate.

- 2.7 Documents the continuing accreditation of the sponsoring institution.
- 2.8 Documents the continuing recognition of each clinical education setting by applicable regulatory agencies.
- 2.9 Maintains JRCERT recognition of all clinical education settings.
- 2.10 Maintains JRCERT recognition of all applicable faculty appointments.
- 2.11 Complies with requirements to achieve and maintain JRCERT accreditation.

Standard Three: Organization and Administration

Organizational and administrative structures support quality and effectiveness of the educational process.

Objectives:

In support of Standard Three, the program:

3.1 Has organizational and administrative structures that support the program's mission and student learning outcomes.

3.2 Establishes and maintains affiliation agreements with clinical education settings.

3.3 Assures the security and confidentiality of student records, instructional materials, and other

appropriate program materials.

3.4 Assures an appropriate relationship between program length and the subject matter taught and the

objectives for the degree or credential offered.

3.5 Measures the length of all didactic and clinical courses in clock hours or credit hours.

Standard Four: Curriculum and Academic Practices

The program's curriculum and academic practices promote the synthesis of theory, use of current technology, competent clinical practice, and professional values.

Objectives:

In support of Standard Four, the program:

4.1 Maintains a master plan of education.

4.2 Follows a JRCERT recognized and accepted curriculum that prepares the student to practice in the professional discipline.

4.3 Provides a curriculum that promotes professional values, life-long learning, and competency in

critical thinking and problem solving skills.

4.4 Provides a well-structured, competency based curriculum that supports the program's mission and goals.

4.5 Has a curriculum that reflects assessment of affective, cognitive, and psychomotor domains.

4.6 Provides learning opportunities in current and developing imaging and/or therapeutic technologies.

4.7 Provides equitable learning opportunities.

Standard Five: Resources and Student Services

The program's learning resources, learning environments, and student services are sufficient to support its mission and goals.

Objectives:

In support of Standard Five, the program:

5.1 Provides classrooms, laboratories, clinical education settings, administrative and faculty offices, and other facilities to support its mission and goals.

5.2 Provides clinical observation sites, as appropriate.

5.3 Has clinical education settings that provide students with a variety and volume of procedures

for competency achievement.

5.4 Reviews, evaluates, and maintains learning resources to assure the achievement of student learning outcomes and program goals.

5.5 Reviews, evaluates, and maintains student services to assure the achievement of student learning outcomes and program goals.

Standard Six: Human Resources

The program has sufficient qualified faculty and staff with delineated responsibilities to support the program's mission and goals.

Objectives:

In support of Standard Six, the program:

6.1 Documents that all faculty and staff possess academic and professional qualifications appropriate for their assignments.

• Full-time Program Director:

Holds, at a minimum, a masters degree;

Is proficient in curriculum design, program administration, evaluation, instruction, and

counseling;

Documents the equivalent of three years full-time experience in the professional discipline;

Documents two years experience as an instructor in a JRCERT accredited program;

Holds American Registry of Radiologic Technologists certification or equivalent and registration in the pertinent discipline.

• Didactic Program Faculty:

Is qualified to teach the subject;

Is knowledgeable of course development, instruction, evaluation, and academic counseling;

Holds appropriate professional credentials, if applicable.

• Full-Time Clinical Coordinator:

Holds, at a minimum, a baccalaureate degree;

Is proficient in curriculum development, supervision, instruction, evaluation, and counseling;

Documents the equivalent of two years full-time experience in the professional discipline;

Documents a minimum of one year of experience as an instructor in a JRCERT accredited program;

Holds American Registry of Radiologic Technologists certification or equivalent and registration in the pertinent discipline.

• **Radiography Clinical Instructor(s) or Radiation Therapy Clinical Supervisor(s):**

Is proficient in supervision, instruction, and evaluation;

Documents the equivalent of two years full-time experience in the professional discipline;

Holds American Registry of Radiologic Technologists certification or equivalent and registration in the pertinent discipline.

• **Clinical Staff:**

Hold American Registry of Radiologic Technologists certification or equivalent and registration in the pertinent discipline.

6.2 Documents administrative, faculty, and clinical staff responsibilities are delineated and support the fulfillment of the program's mission and goals.

• **Program Director:**

Organizes, administers, reviews, develops, and assures program effectiveness;

Conducts on-going program assessment;

Participates in budget planning;

Evaluates and assures clinical education effectiveness;

Maintains current knowledge of the professional discipline and educational methodologies

through continuing professional development;

Assumes the leadership role in the continued development of the program.

• **Didactic Faculty:**

Prepare and maintain course outlines and objectives, instruct and evaluate students, and report progress;

Cooperate with the program director in periodic review and revision of course materials;

Maintain appropriate expertise and competencies through continuing professional development.

• **Clinical Coordinator:**

Correlates clinical education with didactic education;

Evaluates students;

Coordinates clinical education and evaluates its effectiveness;

Cooperates with the program director in periodic review and revision of clinical course materials;
Maintains current knowledge of the professional discipline and educational methodologies through continuing professional development;
Maintains current knowledge of program policies, procedures, and student progress.

• **Radiography Clinical Instructor(s) or Radiation Therapy Clinical Supervisor(s):**

Is knowledgeable of program goals;
Understands the clinical objectives and clinical evaluation system;
Provides students with clinical instruction/supervision;
Evaluates students' clinical competence;
Maintains competency in the professional discipline and in instructional and evaluative techniques through continuing professional development;
Maintains current knowledge of program policies, procedures, and student progress.

• **Clinical Staff:**

Understand the clinical competency system;
Support the educational process;
Maintain current knowledge of program policies, procedures, and student progress.

6.3 Provides an adequate number of faculty to meet all educational, program, administrative, and accreditation requirements.

6.4 Provides support services to meet all educational, program, and administrative requirements.

6.5 Provides faculty with opportunities for continued professional development.

6.6 Evaluates didactic and clinical faculty performance regularly to assure instructional responsibilities are performed.

8

Standard Seven: Students

The program's and sponsoring institution's policies and procedures serve and protect the rights, health and educational opportunities of all students.

Objectives:

In support of Standard Seven, the program:

7.1 Has student recruitment and admission practices that are consistent with published policies of the program and sponsoring institution.

7.2 Uses student recruitment and admission practices that are non-discriminatory with respect to any legally protected status such as race, color, religion, gender, age, disability, and national origin.

7.3 Makes available to prospective students accurate information about admission policies, transfer credit, tuition and fees, refund policies, academic calendars, academic policies, graduation requirements, and student services.

7.4 Makes available to enrolled students accurate information about admission policies, transfer credit, tuition and fees, refund policies, academic calendars, academic policies, grading policies, graduation requirements, and student services.

7.5 Provides timely and supportive academic, behavioral, and clinical advisement to students enrolled in the program.

7.6 Provides student academic and clinical activities that are educationally valid and support attainment of student learning outcomes.

7.7 Safeguards the health and safety of students associated with educational activities through implemented policies and procedures in regard to workplace hazards, harassment, communicable diseases, and substance abuse.

7.8 Limits required clinical and academic involvement for students to not more than 40 hours per week.

Standard Eight: Radiation Safety

Program policies and procedures are in compliance with federal and state radiation protection laws.

Objectives:

In support of Standard Eight, the program:

8.1 Safeguards the health and safety of students associated with educational activities through the implementation of published policies and procedures that are in compliance with Nuclear Regulatory Commission regulations and state laws as applicable.

8.2 Has a pregnancy policy that is published and made known to accepted and enrolled female students that:

- is consistent with applicable federal regulations and state laws;
- includes notice of voluntary disclosure; and
- provides options for student continuance in the program.

8.3 Assures that students use equipment and accessories, employ techniques, and perform procedures in accordance with accepted equipment use and radiation safety practices to minimize radiation exposure to patients, selves, and others.

8.4 Assures that radiation therapy procedures are performed under the direct supervision of a qualified practitioner.

8.5 Assures that medical imaging procedures are performed under the direct supervision of a qualified practitioner until a radiography student achieves competency.

8.6 Assures that medical imaging procedures are performed under the indirect supervision of a qualified practitioner after a radiography student achieves competency.

8.7 Assures that radiography students repeating unsatisfactory radiographs are under the direct supervision of a qualified practitioner.

8.8 Maintains documentation that learning environments are in compliance with applicable state and federal radiation safety laws.

Standard Nine: Fiscal Responsibility

The program and the sponsoring institution have adequate financial resources, demonstrate financial stability, and comply with obligations for Title IV federal funding, if applicable.

Objectives:

In support of Standard Nine, the program:

9.1 Has sufficient on-going financial resources to support the program's mission and goals.

9.2 Provides the program director an opportunity to participate in the budget planning process.

9.3 For those institutions and programs for which the JRCERT or a mixed accreditor serves as gatekeeper for Title IV financial aid, maintains compliance with USDE policies and procedures.

Glossary

Affiliation Agreement – A formal written understanding between an institution sponsoring the program and an independent clinical education setting.

American Registry of Radiologic Technologists Certification or Equivalent – Certification by the American Registry of Radiologic Technologists or unrestricted state license to operate radiation producing equipment.

Assessment – The systematic collection, review, and use of information to improve student learning, educational quality, and program effectiveness.

Assessment Plan – Provides direction for actions and is a way to determine progress. At a minimum, an assessment plan should include goals, evaluation criteria and benchmarks, outcomes, and a plan of action.

Clinical Coordinator – Required if the program has 6 or more clinical education settings or more than 30 students enrolled in the clinical component. The clinical coordinator may not serve as program director. The clinical coordinator position may be considered equal to a full-time equivalent but may be shared by no more than four appointees.

Clinical Instructor(s) – In radiography one full-time equivalent clinical instructor for every 10 students involved in the competency achievement process.

Clinical Supervisor(s) – In radiation therapy, one clinical supervisor for each clinical education setting.

Clinical Education Setting – A facility recognized by the JRCERT as meeting appropriate qualifications for delivering clinical education and evaluation of clinical competency. A minimum of one clinical instructor/supervisor is designated at each site.

Clinical Observation Site – An observation site is used for student observation of the operation of equipment and/or procedures.

Clinical Staff – For radiography, the ratio of students to staff prior to student competency achievements in a given examination or procedures shall not exceed 1:1. For radiation therapy, the ratio of students to staff shall always be 1:1.

Communities of Interest – Institutions, organizations, groups and/or individuals interested in educational activities in radiologic sciences.

Competency Based – Student attainment of a specified level of proficiency.

Credentialing Examination Pass Rate – The number of graduates who pass the American Registry of Radiologic Technologists Credentialing examination or an unrestricted state licensing examination compared with the number of graduates who take the examination.

Direct Supervision – Student supervision by a qualified practitioner who reviews the procedure in relation to the student’s achievement, evaluates the condition of the patient in relation to the student’s knowledge, is present during the procedure, and reviews and approves the procedure. A qualified radiographer is present during student performance of a repeat of any unsatisfactory radiograph.

Due Process – The formal procedure for resolution of a grievance or complaint that identifies timeframes for completion of each step and provides for a final appeal to a source external to the program.

Gatekeeper – An agency with responsibility for oversight of the distribution, record keeping, and repayment of Title IV financial aid.

Goals – Ends or results the program wants to achieve.

Indirect Supervision – For radiography, that supervision provided by a qualified practitioner immediately available to assist students regardless of the level of student achievement. Immediately available is interpreted as the physical presence of a qualified practitioner adjacent to the room or location where a radiographic procedure is being performed. This availability applies to all areas where ionizing radiation equipment is in use.

Job Placement Rate – The number of students employed in the radiologic sciences compared to the number of students actively seeking employment in the radiologic sciences.

JRCERT- (Joint Review Committee on Education in Radiologic Technology) a group of persons appointed by sponsoring organizations to oversee the accreditation process.

Learning Environment – Places, surroundings or circumstances where knowledge, understanding, or skills are studied or observed such as classrooms, laboratories and clinical education settings.

Learning Resources – Media and reference materials utilized to support and enhance the educational program and scholarly activity.

Master Plan of Education – Documentation of the entire course of study that includes a minimum: didactic and clinical curricula, program policies and procedures, and strategies for assessing program effectiveness.

Mission Statement – A means to communicate an educational vision and purpose.

Mixed Accreditor – An accrediting agency whose responsibilities for accreditation include situations where the agency accredits the only educational program in an institution. Where there are multiple educational programs in an institution, the agency selected as the institutional accreditor.

Outcomes – Results, end products, or actual consequences resulting from the educational process. Outcomes include what the students demonstrated/accomplished or what the program achieved.

Program Completion Rate – The number of students who complete the program compared to the number of students initially enrolled in the program.

Program Length – Duration of the program which may be stated as total academic or calendar year(s), or total semesters, trimesters, or quarters.

Qualified Practitioner – A radiation therapist or radiographer possessing American Registry of Radiologic Technologist certification or equivalent and active registration in the pertinent discipline and practicing in the profession.

Recognized and Accepted Curriculum – 1) The latest American Society of Radiologic Technologists professional curriculum and /or 2) other professional curriculum adopted by the JRCERT Board of Directors following review and recommendation by the JRCERT Standards Committee.

Sponsoring Institution – The facility or organization that has primary responsibility for the educational program and grants the terminal award. A sponsoring institution must be accredited by a recognized agency or meet equivalent standards. Educational programs may be established in: community and junior colleges; senior colleges and universities, hospitals, medical schools, postsecondary vocational/technical schools and institutions; military/governmental facilities; proprietary schools; and consortia (two or more academic or clinical institutions that have formally agreed to sponsor the development and continuation of an educational program). Consortia must be structured to recognize and perform the responsibilities and functions of a sponsoring institution.

Title IV Financial Aid:

Monies for education loaned or granted by the Federal government, e.g. Perkins loans, Stafford loans, PLUS loans, Pell grants, Supplemental Educational Opportunity grants and work-study programs.

ACKNOWLEDGEMENT

This is to acknowledge that I have received a copy of the Radiography Program Student Handbook. I have read the policies and practices contained in the manual, and I agree to comply with them during my enrollment in the Radiography Program. I understand the program has the right to change policies and practices from time to time and I agree to abide by said changes in these policies and practices.

Signature _____

Date _____

OWENSBORO MEDICAL HEALTH SYSTEM

CONFIDENTIALITY STATEMENT

All information pertaining to patients, medical records and reports, or personnel records is strictly confidential.

Anyone found reading records, discussing patient information, or imparting confidential information except when authorized to do so is liable to instant dismissal from the clinical Radiography Technology program at Owensboro Medical Health System.

I, _____, understand the above policy and agree to respect and keep absolutely confidential all information I may hear or read pertaining to patients, medical records, or staff personnel records.

Student's Signature

Date

All participating Clinical site

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Student's Signature

Date

TECHNICAL COLLEGE BRANCH
STATEMENT OF UNDERSTANDING

Student Name:	
Program:	Radiography
School:	Owensboro Community and Technical College

I am applying for the program shown above and agree to the rules, regulations, policies and procedures as stated below.

1. The program requires a period of assigned, guided clinical experiences either in the school or other appropriate facility in the community
2. For educational purposes and practice on “live” models, I consent in allowing other students to practice procedures on me, as I will practice these same procedures on them under the guidance and direct supervision of my instructor. The nature and educational objectives of these procedures have been fully explained to me. No guarantee or assurance has been given by anyone as to any problem that might be incurred as a result of these procedures.
3. These clinical experiences are assigned by the instructor for their educational value and thus no payment (wages) will be earned or expected.

KENTUCKY COMMUNITY AND TECHNICAL COLLEGE SYSTEM

It is understood I will be a student within all clinical facilities that affiliate with my school and will conduct myself accordingly. All required and published personnel policies, standards, philosophy, and procedures of these agencies will be followed. I also agree to obtain all tests and immunizations required by the affiliating agency.

I have read and agree to adhere to the school’s policies, rules, and regulations related to the program for which I am applying.

I understand the information regarding a patient or former patient is confidential and is to be used only for clinical purposes within an educational setting.

I understand the educational experiences and knowledge gained during the program do not entitle me to a job; however, if all educational objectives and licensure requirements are successfully attained, I will be qualified for a job in this occupation and the school will assist me in attaining employment.

I understand any action on my part inconsistent with the above understandings may result in suspension of training.

It is understood that I am liable for my own medical and hospitalization insurance.

I understand that I will be accountable for my own actions; therefore, I will carry adequate malpractice insurance during the clinical phase of the program. (School will assist in identifying plans available to be acquired at the student’s expense)

I have read, and understand each statement, and agree to abide by the above.

To be signed by legal guardian if applicant is a minor.

Student Signature:	
Date:	

As the legal guardian of the student named above, I agree to the above conditions for enrollment.

Legal Guardian Signature:	
Date:	