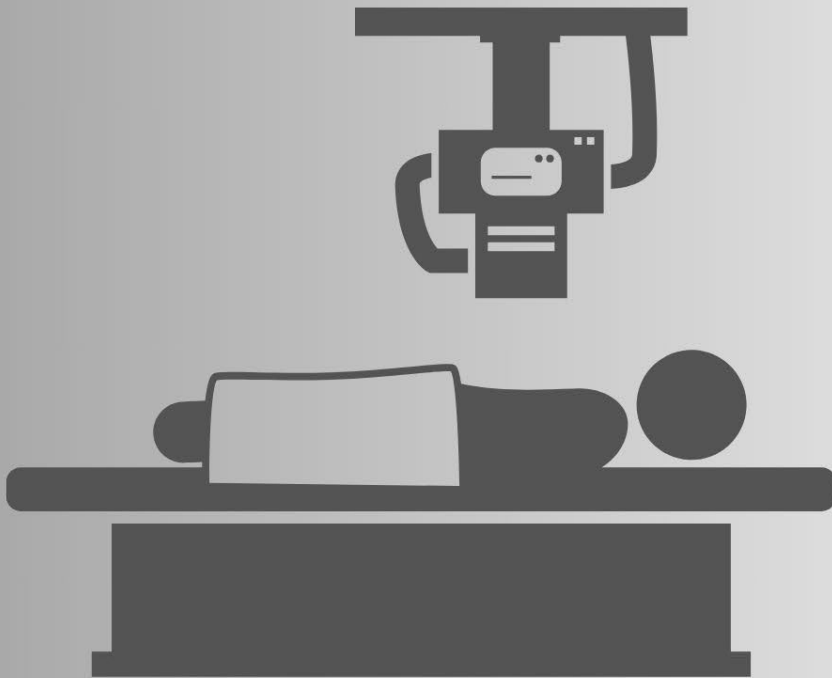




# RADIOGRAPHY



## Clinical Manual 2024



**Northwestern State University**

**Radiography**

**Clinical Manual**

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# RADIOGRAPHY CURRICULUM

## Freshman Year

<u>Semester 1</u>	<u>Hours</u>	<u>Semester 2</u>	<u>Hours</u>
English 1010	3	English 1020	3
**Math 1020 or 1035	3	**Math	3
University Studies 1000	1	BIOL 2260, 2261	4
Allied Health 1020 <sup>1</sup>	2	*History	3
BIOL 2250, 2251	<u>4</u>	ALHE 2200 <sup>1</sup>	<u>2</u>
	<b>13</b>		<b>15</b>

## Sophomore Year

<u>Semester 3</u>	<u>Hours</u>	<u>Semester 4</u> <b>CLINICAL STARTS</b>	<u>Hours</u>
***Behavioral Science	3	CIS 1015	3
Science 1010	3	RADS 3310 (Pos. I) <sup>3</sup>	4
Comm 2500 or 1010	3	RADS 3320 (Pt. Care) <sup>3</sup>	3
Fine Arts 1040	3	English 2110	<u>3</u>
ALHE 2210 (Intro) <sup>2</sup>	<u>3</u>		<b>13</b>
	<b>15</b>		

<u>Semester 5</u>	<u>Hours</u>
RADS 3300 (Rad Princ. & Equip) <sup>2</sup>	3
RADS 3311 (Clinic I)	<u>3</u>
	<b>6</b>

## Junior Year

<u>Semester 6</u>	<u>Hours</u>	<u>Semester 7</u>	<u>Hours</u>
RADS 3811 (Clinic II)	3	RADS 3911 (Clinic III)	5
RADS 3820 (Pos. II) <sup>3</sup>	3	ALHE 4520 (Research) <sup>1</sup>	3
RADS 3830 (Imaging Princ.) <sup>2</sup>	3	RADS 4530 (Protection) <sup>2</sup>	2
ALHE 3840 (Adv. Pt. Care) <sup>1</sup>	<u>3</u>	RADS 3920 (Pathology) <sup>1</sup>	<u>3</u>
	<b>12</b>		<b>13</b>
RADS 4511 (Clinic IV)		<u>4</u>	
		<b>7</b>	

## Senior Year

<u>Semester 9</u>	<u>Hours</u>	<u>Semester 10</u>	<u>Hours</u>
****Social Science	3	RADS 4711 (Clinic VI)	4
RADS 4611 (Clinic V)	5	****Advanced Imaging Elective <sup>1</sup>	3
ALHE 4610 (HC Quality) <sup>1</sup>	3	RADS 4620 (Adv. Prac) <sup>2</sup>	3
RADS 4510 (Prof. Imaging) <sup>1</sup>	<u>2</u>	ALHE 4630 (Mgmt) <sup>1</sup>	<u>3</u>
	<b>13</b>		<b>13</b>

**Total Semester Hours for Degree: 120**

<sup>1</sup>Internet course (additional fees apply) <sup>2</sup>Distance Learning <sup>3</sup>Hybrid (additional fees apply)

\*Selected from: History 1010, 1020, 2010, & 2020

\*\*Selected from: Math 1020/1060, Math 1020/1090, Math 1020/2010, Math 1035/1060, Math 1100 (6hrs), 1810 (6hrs), 2100/2110 (10 hours)

\*\*\*Selected from: Educational Psychology 2020; Psychology 1010, 2050; Sociology 1010

\*\*\*\*Selected from: Anthropology 1510, 2020; Economics 2000; Geography 1010, 1020; Political Science 2010

\*\*\*\*\*Selected from: ALHE 4850, 4910, or 4950

Students will take clinical courses on either the Shreveport or Alexandria campus.

Revised: 2017, 2019, 2022, 2024

Reviewed: 2012-2016, 2018, 2020, 2021, 2023

## CLINICAL OBLIGATIONS AND FEES

As a clinical student at Northwestern State University, students have a number of clinical obligations and fees. The obligations include, but are not limited to, the following:

### **Clinical Obligations\*:**

- Health form - varies according to the facility and the student
- Drug screening - varies according to the facility
- Background investigations ~\$40
- iPads~\$500 (if purchased in bookstore)
- Clinical rotations and travel-varies
- Parking fees
- Trajecsyst-\$150 total
- Tuition: <https://www.nsula.edu/futurestudents/nsu-tuition-and-fees/>

### **Additional fees\*:**

- Professional degree fees-\$300 for 5 semesters
- Uniforms -\$75 for scrubs
- Books~\$900 the first semester
- CPR~\$40 for class and ~\$20 for book
- Annual flu shots~\$25 per year
- Immunization updates annually, fees vary
- RadTech Bootcamp~\$150
- Lead Markers ~\$35
- Registry preparation materials ~\$600
- Graduation fees ~\$75
- Recognition pin ~\$55
- ARRT certification exam ~\$250
- LSRTBE license ~\$110

Students will be required to complete a health form, a drug screening and a background investigation prior to attending clinical assignments at area hospitals and clinics. The cost of completion of the health form and drug screening will vary according to your health insurance. Also, students are required to have annual immunizations to attend clinical education settings. Any costs pertaining to these obligations are the responsibility of the student.

Students will be required, on occasion, to attend various clinic rotation shifts including evening and early morning clinical assignments (times vary based on clinical site). Other clinic rotation shifts may include 10-hour shifts. The Radiologic Sciences Program at Northwestern State University utilizes many clinical education settings in north and central Louisiana. At times, a student may be required to travel more than 60 minutes from the Shreveport or Alexandria campus for a clinical assignment. Any

costs pertaining to traveling to and from a clinical education setting are the responsibility of the student.

The School of Allied Health is located on the Shreveport campus of Northwestern State University. There is a satellite campus located in Alexandria. Students attending clinical on the Alexandria campus may be required to travel to the Shreveport campus as needed for official events. Students attending clinical on the Shreveport and Alexandria campuses may be required to travel to Natchitoches for official events/meetings/functions.

As a student in the clinical portion of the Radiologic Sciences program, students are charged an additional fee of \$300 for RADS 3311, 3811, 3911, 4511, and 4611. This fee is known as a Professional Degree Fee. This fee is established to help cover the cost of the clinical portion of the curriculum.

Students will be required to purchase lead markers and uniforms. These items are part of the professional attire for the clinical education setting.

*\*Fees are approximate and subject to change*

Policy: 2011

Revised: 2012-2015, 2017, 2018, 2019, 2020, 2021, 2023

Reviewed: 2016, 2022, 2024

## MANDATORY CLINICAL SUPPLIES

The following is a list of items the student is required to carry to clinic *each* day:

1. Photo Identification Badge
2. Dosimeter
3. Lead Markers
4. Pen
5. Technique Notebook
6. Clinical Competency List
7. Registration in Trajecsys system

Clinical instructors will be checking for the presence of these items. If the student does not have these items at the time of the clinical instructor's inquiry, the student will be subject to disciplinary action.

### Lead Markers

Students entering into the professional curriculum are responsible for ordering **two** sets of right (R) and left (L) lead identification markers with lead position indicators (BBs) and their initials (two initials required with an "X" in front of initials) for use in the Clinical Education Settings. These markers are to be used on every image the student produces and are not to be used by another student or radiographer.

In the event that markers are lost, the student will check out markers from the Clinical Coordinator. Lost markers must be reported immediately to the Clinical Coordinator and replacement markers should be ordered as soon as possible. The student will be able to use the NSU markers until their markers arrive.

Students who arrive at their clinical education setting without their markers will be sent home and the day will be *counted as a clinical absence*.

### Technique Book

Students are required to maintain a pocket-sized notebook for techniques. This book will serve as a reference for students while they are learning techniques. As techniques are used and deemed “good,” these techniques should be written in the book for future reference.

### Books and Bags

Due to infection control policies in the clinical education settings, students are permitted to have only one book and one notebook in the clinical setting. Backpacks, briefcases and other bags are not permitted in the clinical education setting. This will also ensure the safety and security of your personal items. This policy will be strictly enforced. Disciplinary action will follow if the rule is not followed.

Policy: 2000

Reviewed: 2001, 2003, 2004, 2007, 2008, 2009, 2011, 2012, 2014-2017, 2019-2024

Revised: 2002, 2006, 2010, 2013, 2018

## ACCREDITATION



The Northwestern State University Radiologic Sciences Program is accredited and evaluated by the Joint Review Committee on Education in Radiologic Technology (JRCERT). Inspection of these documents is available through the Program Director. The JRCERT is dedicated to excellence in education and to the quality and safety of patient care through educational programs in radiation and imaging sciences.

The JRCERT is recognized by the United States Department of Education to accredit educational programs in radiography and radiation therapy. The JRCERT awards accreditation to programs demonstrating substantial compliance with these **STANDARDS**.

There are established standards a program must be in compliance with to achieve accreditation. The Standards for an Accredited Educational Program in Radiologic Sciences (JRCERT, 2021) are as follows:

**Standard One: Accountability, Fair Practices, and Public Information**

The sponsoring institution and program promote accountability and fair practices in relation to students, faculty, and the public. Policies and procedures of the sponsoring institution and program must support the rights of students and faculty, be well-defined, written, and readily available.

**Standard Two: Institutional Commitment and Resources**

The sponsoring institution demonstrates a sound financial commitment to the program by assuring sufficient academic, fiscal, personnel, and physical resources to achieve the program's mission.

**Standard Three: Faculty and Staff**

The sponsoring institution provides the program adequate and qualified faculty that enables the program to meet its mission and promote student learning.

**Standard Four: Curriculum and Academic Practices**

The program's curriculum and academic practices prepare students for professional practice.

**Standard Five: Health and Safety**

The sponsoring institution and program have policies and procedures that promote the health, safety, and optimal use of radiation for students, patients, and the public.

**Standard Six: Programmatic Effectiveness and Assessment: Using Data for Sustained Improvement**

The extent of a program's effectiveness is linked to the ability to meet its mission, goals, and student learning outcomes. A systematic, ongoing assessment process provides credible evidence that enables analysis and critical discussions to foster ongoing program improvement.

Students have the right to report program infractions of the STANDARDS to the JRCERT. Any individual associated with the program has the right to submit allegations against a JRCERT-accredited program if there is reason to believe that the program has acted contrary to JRCERT accreditation standards and/or JRCERT policies. Additionally, an individual has the right to submit allegations against the program if the student believes that conditions at the program appear to jeopardize the quality of instruction or the general welfare of its students.

The individual must first attempt to resolve the complaint directly with institutional/program officials by following the grievance policy/procedures provided by the institution/program (refer to the BSRS student handbook for grievance policy). If the individual is unable to resolve the complaint with institutional/program officials or believes that the concerns have not been properly addressed, the individual may submit allegations of noncompliance directly to the JRCERT.

**Contact Information:**

The Joint Review Committee on Education in Radiologic Technology  
20 North Wacker Drive, Suite 2850  
Chicago, Illinois 60606-3182  
312-704-5300  
[mail@jrcert.org](mailto:mail@jrcert.org)



Policy: 1993

Revised: 1997, 2004, 2005, 2010, 2011, 2014, 2016, 2020, 2021, 2024

Reviewed: 2002, 2003, 2006, 2008, 2009, 2012, 2013, 2015, 2017, 2018, 2019, 2022-2023

## COMPLIANCE WITH JRCERT STANDARDS

The Northwestern State University Radiologic Sciences program strives at all times to be in compliance with the JRCERT *Standards for an Accredited Educational Program in Radiologic Sciences*. If an individual believes, at any time, the program is not in compliance with any standard; a complaint can be brought to the program's attention. Upon receipt of an allegation, the Radiologic Sciences Program will review it to determine if the non-compliance issue exists. Within ten (10) days after receiving the complaint, a meeting will be scheduled with the individual filing the allegation to discuss the complaint. If the complaint is legitimate, the program faculty will develop a plan to resolve the issue and bring the program into compliance. If the party filing the complaint is not satisfied with the results, a meeting will be scheduled with the Program Director to determine if non-compliance still exists. This meeting will be scheduled within twenty (20) days of the original meeting. If the Program Director determines non-compliance is still present, a plan will be drafted to solve the non-compliance issue. If the results of this meeting are still unsatisfactory to the party filing the complaint, a meeting can be scheduled with the Dean for the College of Nursing and School of Allied Health, the Provost, and/or the JRCERT.

Policy: 1999

Revised: 2007

Reviewed: 2000, 2001, 2002, 2003, 2008-2020, 2021, 2022-2024

## ARRT NATIONAL CERTIFICATION/REGISTRY



The American Registry of Radiologic Technologists (ARRT) is the only examining and certifying body for radiographers in the United States.

To become a Registered Technologist in Radiography, RT(R)(ARRT), you will have to successfully complete the ARRT examination.

The ARRT examination can be scheduled after your official graduation date. You will need to schedule an appointment with a testing center to take the examination at your convenience. As a Northwestern State University Radiologic Sciences graduate, it is suggested that you take the examination as soon as you graduate, within two months

of your graduation. Examination dates will be scheduled on an individual basis with the testing center.

One issue addressed for certification eligibility is the conviction of a crime, including a felony, a gross misdemeanor, or a misdemeanor with the sole exception of speeding and parking violations. All alcohol and /or drug-related violations must be reported. All potential violations must be investigated by the ARRT to determine eligibility. Individuals may file a pre-application with the ARRT to obtain a ruling on the impact of their eligibility for the examination. This pre-application may be submitted at any time either before or after entry into an accredited program. For pre-application contact the ARRT at:

ARRT  
1225 Northland Dr.  
St. Paul, MN 55120-1155  
Tel: (651) 687-0048  
[www.arrt.org](http://www.arrt.org)

Policy: 1993  
Revised: 1997, 1999, 2001, 2011, 2021  
Reviewed: 2002-2020, 2022-2024

## **RADIOGRAPHY LOUISIANA STATE LICENSURE**



### **Louisiana State Radiologic Technology Board of Examiners**

To work as a registered radiologic technologist in a hospital located in Louisiana, you are required to hold a valid license granted by the state.

Successful completion of the American Registry of Radiologic Technologists' (ARRT) examination in radiography and payment of a licensure fee will enable you to work at a hospital in the state.

From the time you graduate from the program until your registry results are sent to the Louisiana State Radiology Technology Board of Education (LSRTBE), you will be able to work under a temporary permit. The temporary permits are issued one time and one time only. Refer to LSRTBE for the expiration date of the temporary permit.

Students engaged in radiologic procedures from a Board-approved school are exempt from the licensure law while at the Clinical Education Setting (CES) for clinical radiography courses. Students may not perform radiologic procedures at the CES any other time than the scheduled clinical time.

Policy: 1993  
Revised: 2005, 2007  
Reviewed: 2002-2004, 2006, 2008-2020, 2021, 2022-2024

## RADIOGRAPHY PROFESSIONAL SOCIETIES

Many organizations play key roles in the professional lives of radiologic technologists. Upon acceptance to the Radiologic Sciences Program, each student can become a member of the Shreveport Students Technologists Association in Radiologic Sciences (STARS) or CENLA Association of Radiology Students (CARS). The purpose of these organizations is to encourage early professional involvement in professional organizations, promote a professional attitude within the clinical setting, facilitate effective communication between administration, faculty, and student organizations, and orient, introduce, and promote the Radiologic Sciences major and the professional aspects of the career. The presidents of each senior and junior class are invited to attend the Radiologic Sciences Faculty meetings to provide the faculty with suggestions and concerns the students have in regard to the policies and procedures of the BSRS Program.

The state society is the Louisiana Society of Radiologic Technologists (**LSRT**). All clinical students are encouraged to join the LSRT. The LSRT conducts two educational meetings per year. The national society is the American Society of Radiologic Technologists (**ASRT**). Student membership is available in both organizations at a reduced rate. For more membership information, see the Program Director.

**Lambda Nu** is the national honor society for the radiologic and imaging sciences. Students with a grade point average of 3.7 or higher will be invited into the honor society just prior to graduation.

Policy: 1993

Revised: 2002, 2004, 2005, 2007, 2010, 2018

Reviewed: 2002, 2003, 2006, 2008-2017, 2019, 2020, 2021, 2022-2024

## RADIOGRAPHY SCOPE OF PRACTICE & PRACTICE STANDARDS

Medical imaging and radiation therapy professionals are vital members of a multidisciplinary team that forms a core of highly trained healthcare professionals, who each bring expertise to the area of patient care. They play a critical role in the delivery of health services as new modalities emerge and the need for medical imaging and radiation therapy procedures increases.

Medical imaging and radiation therapy integrates scientific knowledge, technical competence and patient interaction skills to provide safe and accurate procedures with the highest regard to all aspects of patient care. A medical imaging and radiation therapy professional recognizes elements unique to each patient, which is essential for the successful completion of the procedure.

Medical imaging and radiation therapy professionals are the primary liaison between patients, licensed practitioners and other members of the health care team. These professionals must remain sensitive to the needs of the patient through communication, assessment, monitoring and patient care. As members of the health care team, medical imaging and radiation therapy professionals participate in quality improvement processes and continually assess their professional performance.

Medical imaging and radiation therapy professionals think critically and use independent, professional and ethical judgment in all aspects of their work. They engage in continuing education to include their area of practice to enhance patient care, safety, public education, knowledge and technical competence. Medical imaging procedures increases.

### **Radiographer General Requirements**

The practice of radiography is performed by health care professionals responsible for the administration of ionizing radiation for diagnostic, therapeutic or research purposes. A radiographer performs a full scope of radiographic and fluoroscopic procedures and acquires and analyzes data needed for diagnosis at the request of and for interpretation by a licensed practitioner.

Radiographers independently perform or assist the licensed practitioner or radiologist assistant in the completion of radiographic and fluoroscopic procedures. Radiographers prepare, administer and document activities related to medications and radiation exposure in accordance with federal and state laws, regulations, or lawful institutional policy.

Radiographers must demonstrate an understanding of human anatomy, physiology, pathology and medical terminology.

Radiographers must maintain a high degree of accuracy in radiographic positioning and exposure technique. They must possess, apply and maintain knowledge of radiation protection and safety. Radiographers independently perform or assist the licensed medical imaging professional in the completion of radiographic procedures. Radiographers prepare, administer and document activities related to medications and radiation exposure in accordance with federal and state laws, regulations or lawful institutional policy.

### **Education and Certification**

The medical imaging and radiation therapy professional and any individual who is legally authorized to perform medical imaging or radiation therapy must be educationally prepared and clinically competent as a prerequisite to professional practice. The individual should, consistent with all applicable legal requirements and restrictions, exercise individual thought, judgment and discretion in the performance of the procedure. Federal and state statutes, regulations, accreditation standards and institutional policies could dictate practice parameters and may supersede the ASRT practice standards.

Medical imaging and radiation therapy professionals must be educationally prepared and clinically competent as a prerequisite to professional practice. Only medical imaging and radiation therapy professionals who have completed the appropriate education and training as outlined in the ASRT practice standards should perform medical imaging and radiation therapy procedures. Individuals working in more than one modality must meet these requirements in the specific modalities they are responsible to perform. Medical imaging and radiation therapy professionals should be registered by certification agencies recognized by the ASRT. Individuals performing diagnostic or therapeutic procedures in more than one modality will adhere to the general and specific criteria for each area of practice.

To maintain certification(s), medical imaging and radiation therapy professionals must complete appropriate continuing education requirements to sustain their expertise and awareness of changes and advances in practice.

Medical imaging and radiation therapy professionals performing multimodality hybrid procedures should meet certification requirements for the diagnostic or therapeutic portion of the procedure and must be educationally prepared and clinically competent in the specific modality for which they perform attenuation correction or anatomical localization.

Medical imaging and radiation therapy professionals performing multimodality hybrid procedures should be registered by certification agencies recognized by the ASRT in the modality for the diagnostic or therapeutic portion of the procedure. Individuals performing multimodality hybrid procedures will adhere to the specific criteria for the diagnostic or therapeutic portion of the procedure.

Medical imaging and radiation therapy professionals performing multimodality hybrid procedures should complete continuing education requirements in the modality used for the diagnostic or therapeutic portion of the procedure and maintain education and clinical competence in the modality used for attenuation correction or anatomical localization.

### ***Radiography***

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform radiographic and fluoroscopic procedures.

Radiographers prepare for their roles on the interdisciplinary team by meeting examination eligibility criteria as determined by the ARRT.

Those who have passed the ARRT radiography examination use the credential R.T.(R).

## **Radiographer Scope of Practice**

### ***Medical Imaging and Radiation Therapy Scope of Practice***

Scopes of practice delineate the parameters of practice and identify the boundaries for practice. A comprehensive procedure list for the medical imaging and radiation therapy professional is impractical because clinical activities vary by the practice needs and expertise of the individual. As medical imaging and radiation therapy professionals gain more experience, knowledge and clinical competence, the clinical activities may evolve. The scope of practice of the medical imaging and radiation therapy professional includes:

- Administering medications enterally, parenterally, through new or existing vascular or through other routes as prescribed by a licensed practitioner.\*†
- Administering medications with an infusion pump or power injector as prescribed by a licensed practitioner.\*†
- Applying principles of ALARA to minimize exposure to patient, self and others.
- Applying principles of patient safety during all aspects of patient care.
- Assisting in maintaining medical records while respecting confidentiality and established policy.
- Corroborating a patient's clinical history with the procedure and ensuring information is documented and available for use by a licensed practitioner.
- Educating and monitoring students and other health care providers.\*
- Evaluating images for proper positioning and determining if additional images will improve the procedure or treatment outcome.
- Evaluating images for technical quality and ensuring proper identification is recorded.
- Identifying and responding to emergency situations.
- Identifying, calculating, compounding, preparing and/or administering medications as prescribed by a licensed practitioner.\*†
- Performing ongoing quality assurance activities.
- Performing point of care testing as prescribed by a licensed practitioner.†
- Performing venipuncture as prescribed by a licensed practitioner.\*†
- Postprocessing data.
- Preparing patients for procedures.
- Providing education.
- Providing input for equipment and software purchase and supply decisions when appropriate or requested.
- Providing optimal patient care.
- Receiving, relaying and documenting verbal, written and electronic orders in the patient's medical record.
- Selecting the appropriate protocol and optimizing technical factors while maximizing patient safety.
- Starting, maintaining and/or removing intravenous access as prescribed by a licensed practitioner.\*†
- Verifying archival storage of data.
- Verifying informed consent for applicable procedures.\*

\*Excludes limited x-ray machine operator

†Excludes medical dosimetry

### ***Radiography***

- Assisting the licensed practitioner with fluoroscopic and specialized radiologic procedures.
- Performing diagnostic radiographic and noninterpretive fluoroscopic procedures as prescribed by a licensed practitioner.

## **Standards**

### **Standard One – Assessment**

The medical imaging and radiation therapy professional collects pertinent data about the patient, procedure, equipment and work environment.

#### ***Rationale***

Information about the patient's health status is essential in providing appropriate imaging and therapeutic services. The planning and provision of safe and effective medical services relies on the collection of pertinent information about equipment, procedures and the work environment.

The medical imaging and radiation therapy professional:

#### ***General Criteria***

- Assesses and maintains the integrity of medical supplies and medications, properly disposing when indicated.
- Assesses any potential patient limitations for the procedure.
- Assesses factors that may affect the procedure.
- Assesses patient lab values, medication list and risk for allergic reaction(s) prior to procedure and administration of medication.\*†
- Confirms that equipment performance, maintenance and operation comply with the manufacturer's specifications.
- Determines that services are performed in a safe environment, minimizing potential hazards.
- Maintains restricted access to controlled areas.
- Obtains and reviews relevant previous procedures and information from all available resources and the release of information as needed.
- Recognizes signs and symptoms of an emergency.
- Verifies appropriateness of the requested or prescribed procedure, in compliance with the clinical indication and protocol.
- Verifies patient identification.
- Verifies that protocol and procedure manuals include recommended criteria and are reviewed and revised.
- Verifies that the patient has consented to the procedure.
- Verifies the patient's pregnancy status.

### *Specific Criteria*

#### **Radiography**

- Develops and maintains standardized exposure technique guidelines for all equipment.
- Maintains and performs quality control on radiation safety equipment.

#### **Standard Two – Analysis/Determination**

The medical imaging and radiation therapy professional analyzes the information obtained during the assessment phase and develops an action plan for completing the procedure.

### *Rationale*

Determining the most appropriate action plan enhances patient safety and comfort, optimizes diagnostic and therapeutic quality and improves efficiency.

The medical imaging and radiation therapy professional:

### *General Criteria*

- Consults appropriate medical personnel to determine a modified action plan.
- Determines that all procedural requirements are in place to achieve a quality procedure.
- Determines the appropriate type and dose of contrast media to be administered based on established protocols.\*†
- Determines the course of action for an emergent situation.
- Determines the need for and selects supplies, accessory equipment, shielding, positioning and immobilization devices.
- Develops methods for minimizing hazards associated with medical imaging and radiation therapy procedures.
- Employs professional judgment to adapt procedures to improve diagnostic quality or therapeutic outcomes.
- Evaluates and monitors services, procedures, equipment and the environment to determine if they meet or exceed established guidelines and revises the action plan.
- Selects the most appropriate and efficient action plan after reviewing all pertinent data and assessing the patient's abilities and condition.

### *Specific Criteria*

#### **Radiography**

- Develops, maintains and makes available optimal exposure technique guidelines for all radiographic and fluoroscopic equipment.

#### **Standard Three – Education**

The medical imaging and radiation therapy professional provides information about the procedure and related health issues according to protocol; informs the patient, public and other health care providers about procedures, equipment and facilities; and acquires and maintains current knowledge in practice.



### *Rationale*

Education and communication are necessary to establish a positive relationship and promote safe practices. Advancements in the profession and optimal patient care require additional knowledge and skills through education.

The medical imaging and radiation therapy professional:

### *General Criteria*

- Advocates for and participates in continuing education related to area of practice to maintain and enhance clinical competency.
- Advocates for and participates in vendor specific applications training to maintain clinical competency.
- Educates the patient, public and other health care providers about procedures, the associated biological effects and radiation protection.
- Elicits confidence and cooperation from the patient, the public and other health care providers by providing timely communication and effective instruction.
- Explains effects and potential side effects of medications.\*†
- Maintains credentials and certification related to practice.
- Maintains knowledge of the most current practices and technology used to optimize patient exposure while producing quality images.
- Provides accurate explanations and instructions at an appropriate time and at a level the patient and their care providers can understand; addresses questions and concerns regarding the procedure.
- Provides information on certification or accreditation to the patient, other health care providers and the public.
- Provides information to patients, health care providers, students and the public concerning the role and responsibilities of individuals in the profession.
- Provides pre-, peri- and post-procedure education.
- Refers questions about diagnosis, treatment or prognosis to a licensed practitioner.

### *Specific Criteria*

#### ***Radiography***

Refer to general criteria.

#### **Standard Four – Performance**

The medical imaging and radiation therapy professional performs the action plan and quality assurance activities.

### *Rationale*

Quality patient services are provided through the safe and accurate performance of a deliberate plan of action. Quality assurance activities provide valid and reliable information regarding the performance of equipment, materials and processes.

The medical imaging and radiation therapy professional:

### *General Criteria*

- Adheres to radiation safety rules and standards.
- Administers contrast media and other medications only when a licensed practitioner is immediately available to ensure proper diagnosis and treatment of adverse events.\*†
- Administers first aid or provides life support.†
- Applies principles of aseptic or sterile technique.
- Assesses and monitors the patient's physical, emotional and mental status.
- Consults with medical physicist or engineer in performing and documenting quality control tests and in reviewing of quality assurance.
- Explains to the patient each step of the action plan as it occurs and elicits the cooperation of the patient.
- Immobilizes patient for procedure.
- Implements an action plan.
- Maintains current information on equipment, materials and processes.
- Modifies the action plan according to changes in the clinical situation.
- Monitors the patient for reactions to medications.\*†
- Participates in ALARA, patient and personnel safety and risk management activities.
- Performs ongoing quality assurance activities and quality control testing.
- Performs procedural timeout.
- Positions patient for anatomic area of interest, respecting patient ability and comfort.
- Supports and implements the safe use of new technologies and procedures.
- Uses accessory equipment.
- Uses an integrated team approach.
- When appropriate, uses personnel radiation monitoring device(s) as indicated by the RSO or designee.
- Works aseptically in the appropriate environment while preparing, compounding and dispensing sterile and nonsterile medication.\*†

### *Specific Criteria*

#### **Radiography**

- Coordinates and manages the collection and labeling of tissue and fluid specimens.
- Reviews patient exposure records and reject analyses as part of the quality assurance program.
- Uses appropriate uniquely identifiable pre-exposure radiopaque markers for anatomical and procedural purposes.
- Uses pre-exposure collimation and proper field-of-view selection.

#### **Standard Five – Evaluation**

The medical imaging and radiation therapy professional determines whether the goals of the action plan have been achieved, evaluates quality assurance results and establishes an appropriate action plan.

### *Rationale*

Careful examination of the procedure is important to determine that expected outcomes have been met. Equipment, materials and processes depend on ongoing quality assurance activities that evaluate performance based on established guidelines.

The medical imaging and radiation therapy professional:

### *General Criteria*

- Communicates the revised action plan to appropriate team members.
- Completes the evaluation process in a timely, accurate and comprehensive manner.
- Confirms data is accurate and complete.
- Develops a revised action plan to achieve the intended outcome.
- Evaluates images for optimal demonstration of anatomy of interest.
- Evaluates quality assurance results.
- Evaluates the patient, equipment and procedure to identify variances that might affect the expected outcome.
- Identifies exceptions to the expected outcome.
- Measures the procedure against established policies, protocols and benchmarks.
- Validates quality control testing conditions and results.

### *Specific Criteria*

#### **Radiography**

- Evaluates images for the purpose of monitoring radiation exposure.
- Evaluates images to determine the use of appropriate imaging parameters.
- Verifies that exposure indicator data for digital radiographic systems has not been altered or modified and is included in the DICOM header and on images exported to media.

### **Standard Six – Implementation**

The medical imaging and radiation therapy professional implements the revised action plan based on quality assurance results and achievement of goals from the initial action plan.

### *Rationale*

It may be necessary to make changes to the action plan based on quality assurance results and achievement of goals from the initial action plan to promote safe and effective services.

The medical imaging and radiation therapy professional:

### *General Criteria*

- Adjusts imaging parameters, patient procedure or additional factors to improve the outcome.
- Bases the revised plan on the patient's condition and the most appropriate means of achieving the expected outcome.

- Implements the revised action plan.
- Notifies the appropriate health care provider when immediate clinical response is necessary, based on procedural findings and patient condition.
- Obtains assistance to support the quality assurance action plan.
- Takes action based on patient and procedural variances.

*Specific Criteria*

**Radiography**

Refer to general criteria.

**Standard Seven – Outcomes Measurement**

The medical imaging and radiation therapy professional reviews and evaluates the outcome of the procedure according to quality assurance standards.

*Rationale*

To evaluate the quality of care, the medical imaging and radiation therapy professional compares the actual outcome with the expected outcome. Outcomes assessment is an integral part of the ongoing quality management action plan to enhance services.

The medical imaging and radiation therapy professional:

*General Criteria*

- Assesses the patient’s physical, emotional and mental status prior to discharge.
- Evaluates the process and recognizes opportunities for future changes.
- Measures and evaluates the results of the revised action plan.
- Reviews all data for completeness and accuracy.
- Reviews and evaluates quality assurance processes and tools for effectiveness.
- Reviews the implementation process for accuracy and validity.
- Uses evidence-based practice to determine whether the actual outcome is within established criteria.

*Specific Criteria*

**Radiography**

Refer to general criteria.

**Standard Eight – Documentation**

The medical imaging and radiation therapy professional documents information about patient care, procedures and outcomes.

*Rationale*

Clear and precise documentation is essential for continuity of care, accuracy of care and quality assurance.

The medical imaging and radiation therapy professional:

### *General Criteria*

- Archives images or data.
- Documents diagnostic, treatment and patient data in the medical record in a timely, accurate and comprehensive manner.
- Documents medication administration in patient's medical record.\*†
- Documents procedural timeout.
- Documents unintended outcomes or exceptions from the established criteria.
- Maintains documentation of quality assurance activities, procedures and results.
- Provides pertinent information to authorized individual(s) involved in the patient's care.
- Records information used for billing and coding procedures.
- Reports any out-of-tolerance deviations to the appropriate personnel.
- Verifies patient consent is documented.

### *Specific Criteria*

#### **Radiography**

- Documents fluoroscopic time.
- Documents radiation exposure.
- Documents the use of shielding devices and proper radiation safety practices.

### **Standard Nine – Quality**

The medical imaging and radiation therapy professional strives to provide optimal care.

#### *Rationale*

Patients expect and deserve optimal care during diagnosis and treatment.

The medical imaging and radiation therapy professional:

### *General Criteria*

- Adheres to standards, policies, statutes, regulations and established guidelines.
- Anticipates, considers and responds to the needs of a diverse patient population.
- Applies professional judgment and discretion while performing the procedure.
- Collaborates with others to elevate the quality of care.
- Participates in ongoing quality assurance programs.

### *Specific Criteria*

#### **Radiography**

Refer to general criteria.

### **Standard Ten – Self-Assessment**

The medical imaging and radiation therapy professional evaluates personal performance.

#### *Rationale*

Self-assessment is necessary for personal growth and professional development.

The medical imaging and radiation therapy professional:

*General Criteria*

- Assesses personal work ethics, behaviors and attitudes.
- Evaluates performance, applies personal strengths and recognizes opportunities for educational growth and improvement.
- Recognizes hazards associated with their work environment and takes measures to mitigate them.

*Specific Criteria*

**Radiography**

Refer to general criteria.

**Standard Eleven – Collaboration and Collegiality**

The medical imaging and radiation therapy professional promotes a positive and collaborative practice atmosphere with other members of the health care team.

*Rationale*

To provide quality patient care, all members of the health care team must communicate effectively and work together efficiently.

The medical imaging and radiation therapy professional:

*General Criteria*

- Develops and maintains collaborative partnerships to enhance quality and efficiency.
- Informs and instructs others about radiation safety.
- Promotes understanding of the profession.
- Shares knowledge and expertise with others.

*Specific Criteria*

**Radiography**

Refer to general criteria.

**Standard Twelve – Ethics**

The medical imaging and radiation therapy professional adheres to the profession's accepted ethical standards.

*Rationale*

Decisions made and actions taken on behalf of the patient are based on a sound ethical foundation.

The medical imaging and radiation therapy professional:

*General Criteria*

- Accepts accountability for decisions made and actions taken.
- Acts as a patient advocate.

- Adheres to the established ethical standards of recognized certifying agencies.
- Adheres to the established practice standards of the profession.
- Delivers equitable and inclusive patient care and service free from bias or discrimination.
- Promotes radiation safety standards.
- Provides health care services with consideration for a diverse patient population.
- Reports unsafe practices to the RSO, regulatory agency or other appropriate authority.
- Respects the patient's right to privacy and confidentiality.

*Specific Criteria*

**Radiography**

Refer to general criteria.

**Standard Thirteen – Research, Innovation and Professional Advocacy**

The medical imaging and radiation therapy professional participates in the acquisition and dissemination of knowledge and the advancement of the profession.

*Rationale*

Participation in professional organizations and scholarly activities advances the profession.

The medical imaging and radiation therapy professional:

*General Criteria*

- Adopts new best practices.
- Advocates for an ergonomically safe work environment based on evidence-based practices.
- Investigates innovative methods for application in practice.
- Monitors changes to federal and state law, regulations and accreditation standards affecting area(s) of practice.
- Participates in data collection.
- Participates in professional advocacy efforts.
- Participates in professional societies and organizations.
- Pursues lifelong learning.
- Reads and evaluates research relevant to the profession.
- Shares information through publication, presentation and collaboration.

*Specific Criteria*

**Radiography**

Refer to general criteria.

Source: American Society for Radiologic Technologists (ASRT)

Policy: 2010

Revised: 2020, 2021, 2022, 2024

Reviewed: 2011-2019, 2023

## CODE OF ETHICS

Ethical professional conduct is expected of every individual registered by the American Registry of Radiologic Technologists (ARRT). As a guide, the American Society of Radiologic Technologists (ASRT) and the ARRT have issued a code of ethics for their members and registrants. By following the principles embodied in this code, radiologic technologists will protect the integrity of the profession and enhance the delivery of patient care.

Adherence to the code of ethics is only one component of each radiologic technologist's obligation to advance the values and standards of their profession. Technologists also should take advantage of activities that provide opportunities for personal growth while enhancing their competence as caregivers. These activities may include participating in research projects, volunteering in the community, sharing knowledge with colleagues through professional meetings and conferences, serving as an advocate for the profession on legislative issues and participating in other professional development activities.

By exhibiting high standards of ethics and pursuing professional development opportunities, radiologic technologists will demonstrate their commitment to quality patient care.

### **Code of Ethics**

The Code of Ethics shall serve as a guide by which Registered Technologists and Candidates may evaluate their professional conduct as it relates to patients, healthcare consumers, employers, colleagues, and other members of the healthcare team. The Code of Ethics is intended to assist Registered Technologists 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 Registered Technologist acts in a professional manner, responds to patient needs, and supports colleagues and associates in providing quality patient care.
2. The Registered Technologist acts to advance the principal objective of the profession to provide services to humanity with full respect for the dignity of humankind.
3. The Registered Technologist delivers patient care and service unrestricted by the concerns of personal attributes or the nature of the disease or illness, and without discrimination on the basis of race, color, creed, religion, national origin, sex, marital status, status with regard to public assistance, familial status, disability, sexual orientation, gender identity, veteran status, age, or any other legally protected basis.
4. The Registered Technologist practices technology founded upon theoretical knowledge and concepts, uses equipment and accessories consistent with the purposes for which they were designed, and employs procedures and techniques appropriately.



5. The Registered Technologist assesses situations; exercises care, discretion, and judgment; assumes responsibility for professional decisions; and acts in the best interest of the patient.
6. The Registered 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 Registered Technologist uses equipment and accessories, employs techniques and procedures, performs services in accordance with an accepted standard of practice, and demonstrates expertise in minimizing radiation exposure to the patient, self, and other members of the healthcare team.
8. Registered Technologist practices ethical conduct appropriate to the profession and protects the patient's right to quality radiologic technology care.
9. The Registered Technologist respects confidences entrusted in the course of professional practice, respects 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 Registered 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.
11. The Registered Technologist refrains from the use of illegal drugs and/or any legally controlled substances which result in impairment of professional judgment and/or ability to practice radiologic technology with reasonable skill and safety to patients.

Source: American Registry of Radiologic Technologists (ARRT)

Revised: 2020, 2021, 2024

Reviewed: 2011-2019, 2022, 2023

## **DEVELOPING CLINICAL PROFICIENCY**

Clinical skills can be developed by following a systematic step-by-step approach. The following sequence of steps will generally produce outstanding technologists:

**Academic Preparation**  
**Observation**  
**Assisting Registered Radiologic Technologist**  
**Performance Evaluation**  
**Competency Evaluation**  
**Performance Proficiency**

1. **Academic Preparation:** You complete this step by studying radiographic physics, radiographic principles and techniques, anatomy and physiology, radiographic positioning, and patient care, in your didactic coursework.

2. **Observation:** Your initial activities in the hospital will consist primarily of observing registered technologists at work.
3. **Assisting Registered Radiologic Technologist:** Once you feel comfortable in the radiographic imaging room, you will be given an opportunity to assist the registered technologist in performing imaging procedures.
4. **Performance Evaluation:** As you develop confidence and proficiency, you will be given the opportunity to complete entire examinations under the direct supervision of a registered radiologic technologist or sonographer. The technologist will observe and assist you and step in whenever the need arises.
5. **Competency Evaluation:** When you feel certain that you are able to do a particular examination by yourself, ask the Clinical Preceptor to do a competency evaluation when the next patient for that examination arrives. Your performance will be documented on a Clinical Competency form. Students should give the competency form to the CP prior to starting the exam. If competency is achieved, it will be counted toward the requirement for that semester. If competency is not achieved, the competency must be repeated until competency has been achieved. ***All competencies may be reevaluated by the Clinical Coordinator or NSU faculty for quality and completeness. The final approval of competency evaluations will be by the Clinical Coordinator or NSU faculty, regardless of prior approval by Clinical Preceptor.***
6. **Performance Proficiency:** Once a student has completed their required ARRT clinical competency requirements, students must also perform a minimum of three diagnostic comps in different categories: head, spine, extremity, thorax, abdomen, fluoroscopy, mobile, or surgery.

Policy: 1998

Revised: 2002, 2003, 2004, 2005, 2007, 2009, 2014, 2015, 2021, 2023

Reviewed: 2000, 2006, 2008, 2010, 2011, 2012, 2013, 2016-2020, 2022-2024

## CLINICAL SUPERVISION

During the professional curriculum, the students are under the supervision of an ARRT registered technologist. Once a student has successfully performed a specific competency evaluation, the student is under indirect supervision of a radiographer.

### Direct Supervision

1. Must occur for students **before** documented competency of any procedures.
2. The clinical preceptor or radiologic technologist will:
  - a. Review patient's requisition in relation to the student's achievement.
  - b. Evaluate the condition of the patient in relation to the student's knowledge.
  - c. Be present during the examination.
  - d. Review and approve the radiographs or scans.

3. Students must be directly supervised during surgical and all mobile, including mobile fluoroscopy, procedures regardless of the level of competency.

### Indirect Supervision

1. Must occur for students **after** documentation of competency for any given procedure.
2. The clinical preceptor or radiologic technologist will:
  - Review, evaluate, and approve the procedure as indicated above and is immediately available to assist students regardless of student achievement. The technologist is responsible for reviewing and approving images and releasing images to PACS.

### Repeat Image Policy

When repeat exposures are necessary, a radiographer must be present in the examination room. No student will repeat an image unless a Clinical Preceptor or a licensed staff technologist is present in the radiographic room. This also applies to mobile examinations.

Failure to comply will result in:

- A written warning and a loss of 10% from Clinical Competency category of the clinical grade for the first offense.
- **Dismissal** from the program for the second offense.
- It is the student's responsibility to ensure proper clinical supervision prevails before performing a specific exam. To document that a radiographer was present during the repeat exposure exam, the student must report all repeated exams in the Trajecsys system along with the technologist who directly supervised the repeats. This documentation is factored into the student's clinical grade as part of required clinical documentation. The student's repeat logs are checked regularly by faculty during clinical site visits, and each semester during scheduled faculty clinical student performance evaluations for midterm and final grades.

**Students will be subject to dismissal from the program if this policy is not strictly followed.**

Policy: 1993

Revised: 1998, 2003, 2005, 2007, 2014, 2015, 2020, 2021

Reviewed: 2001, 2002, 2004, 2006, 2008-2013, 2016-2019, 2022-2024

## **RADIOLOGIC PROCEDURES**

Students are **not** allowed to have complimentary radiologic procedures performed on them during clinical time. Also, students are not allowed to perform imaging procedures on staff. Radiologic exams are not to be performed without a physician's order. Even

though ultrasound and magnetic resonance imaging are nonionizing radiation, these are not allowed.

Any violation of the above will result in disciplinary action by the program faculty.

Policy: 2002

Revised: 2005, 2014

Reviewed: 2003, 2004, 2006-2013, 2015-2020, 2021, 2022-2024

## **CLINICAL DOCUMENTATION**

The following documentation should be completed per rotation.

In Trajecsys, the electronic forms must be completed within one week after each clinical assignment:

1. Student Clinical Rotation Evaluation (completed by the Clinical Preceptor)
2. Daily Procedure and Repeat Exam Log
3. Daily Attendance log for clocking in and out
4. Clinical Education Setting Evaluation

In addition, the student will print the following documents and submit them to their assigned clinical coordinator:

### **Room checklist**

The student will complete a room checklist and have a technologist sign the form. The student will complete the room checklist before the first attempt to perform a competency in that room. The student will complete a room checklist on their first day of the new clinical rotation and submit the form to their respective clinical coordinator.

### **Student Clinical Rotation Evaluation**

The student will be evaluated at the end of each rotation by the radiographer to whom they are assigned. It is the students' responsibility to ensure the evaluation has been completed by the technologist.

### **Patient/Repeat Exam Log**

The student is to maintain a log of exams performed daily in Trajecsys and indicate whether the exam was observed, assisted, or unassisted.

The student is required to report every repeated exam and the registered technologist who directly supervised the repeated exam while present in the examination room daily. Clinical instructors and faculty will be checking the repeat exposure log while in the CES. If students do not report all repeats, the student will be written up for violation of this policy and will receive a loss of 10% from Clinical Competency category of the clinical grade for the first offense. Upon second offense the student will be dismissed from the program.

## Clinical Education Setting Evaluation

Students will evaluate each Clinical Education Settings to which they were assigned at the end of each rotation.

### Privacy

Students must be aware that reviewing another student's clinical documentation is a violation of the confidentiality of those students' records.

Any violation of the above will result in disciplinary action by the Program Faculty.

Policy: 1997, 1998

Revised: 2003, 2005, 2006, 2007, 2008, 2010, 2011, 2014, 2015, 2021, 2023

Reviewed: 2001, 2002, 2004, 2009, 2012, 2013, 2016-2020, 2022, 2024

## RADIATION SAFETY AND DOSIMETRY MONITORING

Radiation safety is an individual attitude and reflects each student's motivation toward protecting himself /herself. Students will be expected to practice proper radiation safety procedures at all times when present in clinical assignments and in laboratory activities. The Radiation Safety Officer (RSO) will closely monitor dosimeter readings. The radiation monitoring reports will be made available to the student within 30 school days of returning the dosimeter/or when the report is received. Students are required to review and initial their report each month.

Students will always wear a dosimeter while attending clinical assignments and energized laboratory sessions; the student is not allowed to attend either without their dosimeter. If a student arrives without the dosimeter, the student will be sent home. The dosimeter is the responsibility of the student. If a student loses a dosimeter, the student must contact the RSO immediately for a replacement before returning to the clinical or lab setting.

Declared pregnant students will have collar and fetal dosimeters assigned for more thorough monitoring. All radiation monitoring records are kept on file and scanned into Teams.

Northwestern State University will follow NCRP dose limits currently set at:

- 416 mREM / month: Whole body
- 1250 mREM / month: Lens of Eye
- 4,166 mREM / month: Skin / shallow dose
- 4,166 mREM / month: Extremities

### All students will adhere to the following guidelines:

1. Wear dosimeter attached to the collar when in clinic or the energized laboratory.

2. Prevent dosimeter from exposure to moisture, washing machines, dryers, microwave ovens, and color televisions.
3. Prevent dosimeter from receiving excessive exposure from radiation when not worn.
4. Exchange dosimeter by the fifth day of every month.
5. Students will review their dosimetry report monthly and initial the report verifying that they have reviewed the report and given the opportunity to ask questions and discuss radiation safety practices and radiation protection measures.
6. Students who arrive at their clinical education classes without their dosimeter will be asked to return home to get their dosimeter. The student will not be allowed to stay in clinical without a dosimeter. *The student will lose one full day of their personal time.*
7. In the event a dosimeter is lost or destroyed, it is the student's responsibility to inform the RSO immediately so that a replacement dosimeter can be obtained. Students will not be allowed to attend clinical or lab without a dosimeter.
8. If a reading exceeds the monthly limit, the RSO will meet with the student to discuss the cause of the excessive exposure, assess the associated risks, and identify ways to minimize future exposure. If a student is nearing the annual exposure limit, their clinic rotation may be adjusted to reduce additional exposure. If a student receives more than the stated limit, the student may not be allowed to attend clinic to reduce the risk of additional exposure.
9. Students will practice the ALARA (As Low As Reasonably Achievable) principles in the CES and lab settings.
10. Refrain from holding patients during radiographic procedures. Should a student violate this policy, the student will face disciplinary action to include but not limited to loss of clinical attendance, reduction in clinical grade, and a formal write-up. The student will be counseled on radiation safety practices.
11. Refrain from holding Image Receptor (IR) during radiographic procedures. Should a student violate this policy, the student will face disciplinary action to include but not limited to loss of clinical attendance, reduction in clinical grade, formal write-up. The student will be counseled on radiation safety practices.

Policy: 1993

Revised: 2002, 2003, 2005, 2011, 2013, 2015, 2024

Reviewed: 2004, 2006, 2007, 2008, 2009, 2010, 2012, 2014, 2016-2020, 2021-2023

## **PREGNANCY POLICY**

If a student suspects she is pregnant while enrolled in the program, she may notify the Radiation Safety Officer (RSO), Clinical Coordinator, or Program Director. **Pregnancy notification is strictly voluntary**, but it is strongly recommended so that measures can

be taken to protect the unborn child from ionizing radiation. If a student decides to declare her pregnancy, she must complete the **Pregnancy Notification form**.

Once a pregnancy is declared, the student will be provided with a second dosimeter to measure fetal radiation exposure. The radiography program may communicate with the clinical education setting regarding the declared pregnancy.

For a declared pregnancy, the student may choose one of the following options:

1. **Modified Program Continuation:** Continue in the program without rotations through Fluoroscopy, Special Procedures, Cardiovascular Intervention, Mobile, Surgery, Radiation Therapy, and Nuclear Medicine. The declared pregnant student should not remain within the MRI scanner room or Zone IV during actual data acquisition or scanning. Depending on competency completion, graduation may be delayed beyond the originally scheduled cohort date.
2. **Unmodified Program Continuation:** Continue in the program with no changes to the clinical rotation schedule.
3. **Individualized Options:** Other options may be available on a case-by-case basis.

Students may withdraw the declaration of pregnancy at any time after discussing all options. Withdrawal of the notification must be submitted in writing to the Radiation Safety Officer and Clinical Coordinator.

This pregnancy policy aligns with Title IX of the Education Amendments of 1972, which prohibits discrimination based on sex, including pregnancy and parental status, in educational programs and activities. For more information on Title IX, students can refer to the university's handbook or visit the university's Title IX website at [this link](#).

Students who declare their pregnancy are required to follow the National Council on Radiation Protection and Measurement (NCRP) dose limits for the embryo and fetus in occupationally exposed women. The current limits are a maximum of 50 mREM/month and 500 mREM/gestational period.

Pregnant students who choose to participate in all phases of education, with or without modifications, must review the U.S. Nuclear Regulatory Commission "Regulatory Guide 8.13," available [here](#).

The program emphasizes the importance of proper radiation safety for all students. Neither the University nor the Clinical Education Setting will be responsible for radiation injury to the student or the embryo/fetus if the student chooses to continue in the program during pregnancy.

Policy 1993

Revised: 1997, 2002, 2005, 2011, 2024

Reviewed: 2001, 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2012-2020, 2021-2023

## BSRS-Radiography Pregnancy Notification Form

I, _____, am <u>voluntarily</u> notifying a Program Official of my pregnancy on _____.	
Print Name	
Date	
My estimated gestation period is _____ weeks.	
My estimated due date is _____.	
<i>(Month) (Day) (Year)</i>	

<b>I have read and agree to abide by the pregnancy policy in the BSRS Radiography Student Clinical Manual, and do agree to take personal responsibility for the radiation safety and protection of my unborn child.</b>	
Student Signature	Date

<b>I have read the appendix to Regulatory Guide 8.13 of the United States Nuclear Regulatory Commission.</b>	
Student Signature	Date

<b>I, the undersigned, realize that neither the University, its faculty, nor the Clinical Setting will be responsible for radiation injury to myself or the embryo/fetus since I am continuing in the program during my pregnancy.</b>	
Student Signature	Date

<b>I will continue in the program without modification.</b>	
Student Signature	Date

<b>I will continue in the program following the recommendations of the program.</b>	
Student Signature	Date

***Written Withdrawal of Declaration***

<b>I wish to withdraw my declaration of pregnancy.</b>	
Student Signature	Date



## RADIOGRAPHY RADIATION SAFETY IN ENERGIZED LABORATORY SETTING

Students will always wear a dosimeter while attending energized laboratory sessions. Student utilization of energized laboratories must be under the **direct** supervision of a qualified radiographer who is readily available. At no time are students allowed to be in the energized laboratory without a faculty member. A violation of this policy will result in disciplinary action.

Policy: 2011

Revised: 2021

Reviewed: 2012, 2022-2024

## FLUOROSCOPY GUIDED POSITIONING

Northwestern State University students will **not** use fluoroscopy for the purpose for "checking the positioning" of a patient for any clinical radiography course. Not only is this a radiation safety issue and does not abide by the ALARA principle, but it is also an ethical violation as noted in the position statement of the American Society of Radiologic Technologists (ASRT). Northwestern State University students may perform selected fluoroscopic procedures in keeping with the policy of the Clinical Education Setting if the student has previously demonstrated competency in the procedure and/or is under the direct supervision of the Clinical Instructor or Supervising Technologist or Physician.

The following position statement by the Louisiana State Radiologic Technology Board of Examiners is intended to serve as clarification on what actions related to the use of ionizing radiation require the license dictated by LA R.S. 37:3200-3219:

Licensed Radiologic Technologists in Radiography are permitted to assist with fluoroscopic procedures and perform non-interpretive fluoroscopic procedures (such as spot imaging of the terminal ileum, voiding cystogram, and placement and removal of peripherally inserted central catheters) **under direct supervision of a Licensed Physician.** *Adopted 2003, Revised 4/18/2012*

The American Society of Radiologic Technologists adopted the following position statement at the National Conference in June 2006:

### **Resolution 06-3.14 - ASRT Position Statement on Fluoroscoping for Positioning**

Resolved, the ASRT adopt the position statement "Fluoroscoping for Positioning" that reads: "The American Society of Radiologic Technologists (ASRT) recognizes that the routine use of fluoroscopy to ensure proper positioning for radiography prior to making an exposure is an unethical practice that increases patient dose unnecessarily and should never be used in place of appropriate skills required of the competent radiologic technologist."

**Any violation of the above policy will result in disciplinary action, which may include dismissal from the program.**

Policy: 1997, 1998

Revised: 2003, 2009, 2010

Reviewed: 2001, 2002, 2004, 2005, 2006, 2007, 2008, 2011-2024

## **POST-PROCESSING POLICY**

Digital image manipulation by students following image processing should be limited, if not avoided. The following are examples of practices that are not allowed following the processing of an image.

- Under no circumstances should students manipulate the brightness or contrast of an image.
- The act of “post-collimation”, which is collimating or cropping an area of the image after processing to give the appearance of collimation during the exposure, is an unethical and intolerable practice.
- Images are not to be re-centered to give the appearance of correct longitudinal and/or transverse centering.
- Parts of an image must not be cropped, then copied/pasted into another location.
- Markers cannot be “cut” from an image and moved to another location.
- Anatomy cannot be “cut” from an image and saved as another projection.
- No part of an image can be duplicated and used for more than one prescribed view or projection on any exam.
- Acquiring an image to represent two different prescribed views or projections is a falsification of the information in the patient medical record and imaging study.
- Images may not be deleted without approval from the supervising technologist.

These practices are unethical and violate the ARRT’s Code of Ethics. Failure to comply will result in:

- A written warning and a loss of 10% from Clinical Competency category of the clinical grade for the first offense.
- **Dismissal from the program for the second offense.**

Policy: 2014

Revised: 2018

Reviewed: 2015-2017, 2019-2024

## **CLINICAL ROTATIONS**

Students enrolled in the professional phase (clinical) courses of the Radiologic Sciences Program are assigned to area hospitals and clinics that serve as Clinical Education Settings (CES). The Clinical Coordinator makes clinical assignments on a semester basis. Course assignments, including both clinical and didactic courses, shall not

exceed 40 hours/week or 10 hours/day. Students may be required to travel up to approximately 65 miles from campus to a clinical education setting.

While assigned to the CES, the student will rotate through the various areas of the Radiology Department. Clinical rotation assignments take place during daytime and evening hours, Monday through Friday. Clinical rotation assignments are given to each student at the beginning of each semester and posted at each CES. Students are not permitted to attend clinic in an area they are not assigned. Also, students are not allowed to attend clinic beyond their scheduled time, without prior approval from the program director.

To increase the understanding and appreciation of the specialty areas within the radiology department, students are scheduled to rotate through advanced imaging areas where NSU has clinical contract agreements. Students will also be scheduled on different shifts to gain experience in trauma and mobile. During these rotations, students should try to observe as much as possible to maximize their clinical progress and gain an understanding of other modalities.

### **Radiography Required Clinical Rotations**

*Diagnostic Radiography*  
*Fluoroscopy*  
*Portables (Early Morning Shift)*  
*Pediatric*  
*Surgery*  
*Special Procedures / Cardiovascular*  
*ED/Trauma (Late Evening Shift)*  
*Computed Tomography (CT)*  
*Magnetic Resonance Imaging (MR)*

Once the student has completed all the required competencies for the program, the student may rotate through an elective specialty area of interest or any of the above-mentioned clinical specialty rotations for an extended period.

The following elective rotations are strictly voluntary based on the students' interest. The student must meet with the Clinical Coordinator to discuss their interests and determine if a rotation through one of these areas can be added to their rotations.

### **Elective Specialty Rotations**

*Dual Energy X-ray Absorptometry (DEXA)*  
*Mammography*  
*Ultrasound*  
*Nuclear Medicine*  
*Radiation Therapy*

Policy: 2000

Revised: 2003, 2005, 2006, 2007, 2008, 2011, 2015, 2021

Reviewed: 2001, 2002, 2004, 2009, 2010, 2012, 2013, 2014, 2016-2020, 2022-2024

## STUDENT EMPLOYMENT

Students must exercise judgment in the number of hours of employment that they seek outside of the clinical and didactic requirements of the program. **Work schedules must not conflict with the program curriculum** (clinical and didactic courses), this includes clinical mid-term and final evaluations. Students must never receive monetary compensation for work done in the Radiology Department **during their assigned clinical education rotations**. Please be advised, if a student is employed in a radiology department, you are not allowed to take an exposure when you are on the clock. This could prohibit you from being able to take the national registry or obtain a state license.

Policy: 1993

Revised: 1998, 2005, 2006, 2011, 2013, 2017

Reviewed: 2002, 2003, 2004, 2007, 2008, 2009, 2010, 2012, 2014-2021, 2022-2024

## GRADING PROCEDURES FOR CLINICAL RADIOGRAPHY COURSES

The grade requirements for each clinical course are stated in course syllabi and posted in the current semester course management shell. The weighted grade categories and assignment values are detailed for each clinical level. Grade requirements include the ARRT-specified list of clinical procedures (clinical competency requirements) and complete relevant coursework (didactic requirements) for radiography discipline.

The minimum competency requirements are stated on the master competency form as posted in Moodle. This form should be used as a guide and is recommended that students use this form to unofficially keep up with their attempted competencies. These minimum requirements are necessary for establishing a grading system and are not meant to be restrictive. Students should request an evaluation on any examination they feel prepared to perform, even if they have completed their requirements for the semester. Competency evaluations completed over the minimum requirements will be counted in the current semester. All required competency evaluations must be completed by the last day of clinical. If the student does not meet the minimum competency requirements for a semester, the student will meet with the clinical coordinator. The consequences for not completing the minimal competency requirements can include receiving an incomplete for the semester, not progressing to the next semester and failing the course.

Competencies should be turned in weekly and no later than the end of each rotation. Competencies need to be submitted in enough time to allow faculty to grade at the various clinical sites. Submitting competencies in a timely manner is important for faculty to determine both midterm and final grades. Competencies that are not turned in during the current semester performed will not be accepted.

It is important to emphasize that this is a competency-based system and the pace or rate of the student's progress is dependent on the student's ability to comprehend and perform the various examinations. The competency requirements are based on the ARRT's requirements.

### **Faculty Evaluation of Student**

Students enrolled in clinical radiography courses will be evaluated by the Radiologic Sciences faculty each semester for clinical radiography courses. Students are required to attend these evaluations.

### **Mock Registry Comprehensive Examination**

Each semester students will take a mock comprehensive examination in an effort to assess the ARRT content retained from previous courses. The examination will be comprehensive in nature, reflect the content specifications of the national registry (in relation to completed didactic courses at the time of the exam), and prepare the students for the rigors of the national certification exam (ARRT national registry). This exam is proctored by faculty in person on campus. The student's score on this exam makes up a percentage of the student's clinical grade.

Policy: 1998

Revised: 2003, 2004, 2005, 2006, 2007, 2009, 2010, 2012, 2013, 2014, 2015, 2016, 2018, 2019, 2020, 2021

Reviewed: 2002, 2008, 2011, 2017, 2020, 2022-2024

## **SPECIFICS OF THE COMPETENCY EVALUATION SYSTEM**

The clinical education of the students in the Radiologic Sciences Program is distributed over the professional curriculum. There are seven semesters in which clinical experience is a part of the curriculum. Clinical competencies are divided into two categories, module one and module two.

### **Module 1: Mandatory**

There are mandatory examination competencies that must be performed and mastered on patients (or simulated\* with an instructor). One of the elective imaging procedures must be selected from the head section, and two of the elective imaging procedures must be selected from the fluoroscopy studies section. Fluoroscopic and c-arm exams cannot be simulated. No more than ten total from module 1 and module 2 lists that may be simulated with an instructor.

### **Module 2: Elective**

The elective examinations are performed less frequently in the imaging department. Because these examinations are less common, it may be necessary for students to simulate\* some of these exams using anthropomorphic phantoms; no more than ten total from module 1 and module 2 lists that may be simulated with an instructor. Each student must complete any 15 of the 34 elective exams on patients or in simulation. The clinical faculty will determine the need for clinical simulation as opposed to examining a

live patient. Performing these exams on actual patients, when possible, provides the optimal learning experience.

Imaging Procedures	Mandatory or Elective		Eligible for Simulation
	Mandatory	Elective	
<b>Chest and Thorax</b>			
Chest Routine	<input type="checkbox"/>		
Chest AP (Wheelchair or Stretcher)	<input type="checkbox"/>		
Ribs	<input type="checkbox"/>		<input type="checkbox"/>
Chest Lateral Decubitus		<input type="checkbox"/>	<input type="checkbox"/>
Sternum		<input type="checkbox"/>	<input type="checkbox"/>
Upper Airway (Soft-Tissue Neck)		<input type="checkbox"/>	<input type="checkbox"/>
Sternoclavicular Joints		<input type="checkbox"/>	<input type="checkbox"/>
<b>Upper Extremity</b>			
Thumb or Finger	<input type="checkbox"/>		<input type="checkbox"/>
Hand	<input type="checkbox"/>		
Wrist	<input type="checkbox"/>		
Forearm	<input type="checkbox"/>		
Elbow	<input type="checkbox"/>		
Humerus	<input type="checkbox"/>		<input type="checkbox"/>
Shoulder	<input type="checkbox"/>		
Clavicle	<input type="checkbox"/>		<input type="checkbox"/>
Scapula		<input type="checkbox"/>	<input type="checkbox"/>
AC Joints		<input type="checkbox"/>	<input type="checkbox"/>
<b>Trauma:</b> Shoulder or Humerus (Scapular Y, Transthoracic or Axial)*	<input type="checkbox"/>		
<b>Trauma:</b> Upper Extremity (Non-Shoulder)*	<input type="checkbox"/>		
<b>Lower Extremity</b>			
Toes		<input type="checkbox"/>	<input type="checkbox"/>
Foot	<input type="checkbox"/>		
Ankle	<input type="checkbox"/>		
Knee	<input type="checkbox"/>		
Tibia-Fibula	<input type="checkbox"/>		<input type="checkbox"/>
Femur	<input type="checkbox"/>		<input type="checkbox"/>
Patella		<input type="checkbox"/>	<input type="checkbox"/>
Calcaneus		<input type="checkbox"/>	<input type="checkbox"/>
<b>Trauma:</b> Lower Extremity*	<input type="checkbox"/>		

Imaging Procedures	Mandatory or Elective		Eligible for Simulation
	Mandatory	Elective	
<b>Head</b> – Candidates must select at least one elective procedure from this section.			
Skull		<input type="checkbox"/>	<input type="checkbox"/>
Facial Bones		<input type="checkbox"/>	<input type="checkbox"/>
Mandible		<input type="checkbox"/>	<input type="checkbox"/>
Temporomandibular Joints		<input type="checkbox"/>	<input type="checkbox"/>
Nasal Bones		<input type="checkbox"/>	<input type="checkbox"/>
Orbits		<input type="checkbox"/>	<input type="checkbox"/>
Paranasal Sinuses		<input type="checkbox"/>	<input type="checkbox"/>
<b>Spine and Pelvis</b>			
Cervical Spine	<input type="checkbox"/>		
Thoracic Spine	<input type="checkbox"/>		<input type="checkbox"/>
Lumbar Spine	<input type="checkbox"/>		
Cross-Table (Horizontal Beam) Lateral Spine (Patient Recumbent)	<input type="checkbox"/>		<input type="checkbox"/>
Pelvis	<input type="checkbox"/>		
Hip	<input type="checkbox"/>		
Cross-Table (Horizontal Beam) Lateral Hip (Patient Recumbent)	<input type="checkbox"/>		<input type="checkbox"/>
Sacrum and/or Coccyx		<input type="checkbox"/>	<input type="checkbox"/>
Scoliosis Series		<input type="checkbox"/>	<input type="checkbox"/>
Sacroiliac Joints		<input type="checkbox"/>	<input type="checkbox"/>
<b>Abdomen</b>			
Abdomen Supine	<input type="checkbox"/>		
Abdomen Upright	<input type="checkbox"/>		<input type="checkbox"/>
Abdomen Decubitus		<input type="checkbox"/>	<input type="checkbox"/>
Intravenous Urography		<input type="checkbox"/>	

Imaging Procedures	Mandatory or Elective		Eligible for Simulation
	Mandatory	Elective	
<b>Fluoroscopy Studies</b> – Candidates must select two procedures from this section and perform per site protocol.			
Upper GI Series, Single or Double Contrast		<input type="checkbox"/>	
Contrast Enema, Single or Double Contrast		<input type="checkbox"/>	
Small Bowel Series		<input type="checkbox"/>	
Esophagus ( <i>NOT</i> Swallowing Dysfunction Study)		<input type="checkbox"/>	

Cystography/Cystourethrography		<input type="checkbox"/>	
ERCP		<input type="checkbox"/>	
Myelography		<input type="checkbox"/>	
Arthrography		<input type="checkbox"/>	
Hysterosalpingography		<input type="checkbox"/>	
<b>Mobile C-Arm Studies</b>			
C-Arm Procedure (Requiring Manipulation to Obtain More Than One Projection)	<input type="checkbox"/>		<input type="checkbox"/>
Surgical C-Arm Procedure (Requiring Manipulation Around a Sterile Field)	<input type="checkbox"/>		<input type="checkbox"/>
<b>Mobile Radiographic Studies</b>			
Chest	<input type="checkbox"/>		
Abdomen	<input type="checkbox"/>		
Upper or Lower Extremity	<input type="checkbox"/>		
<b>Pediatric Patient (Age 6 or Younger)</b>			
Chest Routine	<input type="checkbox"/>		<input type="checkbox"/>
Upper or Lower Extremity		<input type="checkbox"/>	<input type="checkbox"/>
Abdomen		<input type="checkbox"/>	<input type="checkbox"/>
Mobile Study		<input type="checkbox"/>	<input type="checkbox"/>
<b>Geriatric Patient (At Least 65 Years Old and Physically or Cognitively Impaired as a Result of Aging)</b>			
Chest Routine	<input type="checkbox"/>		
Upper or Lower Extremity	<input type="checkbox"/>		
Hip or Spine		<input type="checkbox"/>	
<b>Subtotal</b>			
Total Mandatory exams required	36		
Total Elective exams required		15	
Total number of simulations allowed			10

Source: [ARRT.org](http://ARRT.org)

### Simulations

Students will be allowed to simulate once the clinical coordinator has set a range of dates for simulations to begin. Generally, this range is set to coincide with the last half of the clinical semester. Students are allowed to simulate a total of 10 exams, and this includes module one and module two.

Students are only allowed to simulate the number of examinations that is required to meet the minimum number of required competencies for the semester. Simulations cannot be carried over from semester to semester. For example, if a student needs two



mandatory competencies to finish the semester, that student will only be allowed to simulate two examinations.

Simulated examinations involve all necessary components of an actual examination, including exposure to ionizing radiation, image critique, etc. Simulations will be performed on phantoms in the exposure lab.

NOTE: In compliance with ARRT guidelines, a student is not allowed to simulate more than 10 exams throughout the program.

\*Simulated examinations involve all necessary components of an actual examination, including exposure to ionizing radiation. Simulations will be performed on phantoms and will employ ionizing radiation. Simulations can only be performed under the direct supervision of a NSU faculty member.

Policy: 1998

Revised: 2014, 2017, 2022

Reviewed: 1999-2013, 2015, 2016, 2018, 2019, 2023, 2024

## VENIPUNCTURE

Venipuncture is a procedure commonly performed at the Clinical Education Setting. Students enrolled in Clinical Radiography courses are permitted, under supervision\*, to perform venipuncture and/or injections on patients. This practice is required as a clinical patient care competency checklist. Students will be required to obtain five competencies in venipuncture. The venipuncture competency forms are located in Trajecsys. Students are given the theory of venipuncture in lectures and the opportunity to practice venipuncture on patient simulators in a controlled lab situation. Students are not allowed to perform the competency until after the theory and practice sessions have been completed.

If the student is not performing the venipuncture, they should assist by setting up for the procedure and handing supplies to the qualified individual performing the injection.

\*Supervision of students must be by an ARRT registered radiographer, or licensed RN, or licensed MD approved to perform venipuncture by the CES. The supervisor must be present in the room during the procedure.

Policy: 1993

Revised: 1998, 1999, 2004, 2005, 2006, 2007

Reviewed: 2002, 2003, 2008-2020, 2021-2024