Harlem Hospital Center

506 Lenox Avenue KP 415 New York, New York 10037

The Harlem Hospital Center School of Radiologic Technology Student Catalog 2016-2017

It contains the most up-to-date information available on:

- Program requirements
- Enrollment and registration procedures
- Resources and services for students
- Academic policies and procedures
- Course descriptions

Students are responsible for knowing the School’s policies and procedures as published in this manual. Please take the time to read it carefully. If students cannot find the answers to their questions in this Manual, it is then appropriate to call (212) 939-3475 or (212) 939-3476 regarding educational policy and procedures. This Manual is intended only to provide information for the guidance of The Harlem Hospital Center School of Radiologic Technology students. The information is subject to change, and The Harlem Hospital Center School of Radiologic Technology reserves the right to depart without notice from any policy or procedure referred to in this Manual. This Manual is not intended to be and should not be regarded as a contract between The Harlem Hospital Center School of Radiologic Technology and any student or other person. This Manual is published by The Harlem Hospital Center School of Radiologic Technology Office of Enrollment & Student Services, in conjunction with the Office of Academic Affairs.
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GENERAL INFORMATION
Harlem Hospital Center offers an accredited 24-month program in Radiologic Technology. The curriculum consists of radiography class work and clinical experience.

Under the supervision of professional radiographers, students perform various radiographic examinations and procedures. Students gain experience in routine radiography, trauma radiography, fluoroscopy, mammography and tomography. In addition, elective rotations in nuclear medicine, ultrasound, angiography, computerized tomography (CT), cardiac catheterization, MRI and Bone Densitometry are also offered.

All students meeting the program’s graduation requirements shall be eligible to sit the National Registry Examination given by the American Registry of Radiologic Technologists (ARRT). Upon successfully completing the ARRT examination, the student will also receive a New York State license to practice radiography in the State of New York.

Harlem Hospital Center’s program is fully accredited by the Joint Review Commission on Education in Radiologic Technology (JRCERT), telephone (312) 704-5300, and licensed by the New York State Department of Health, Bureau of Environmental Radiation Protection, under Article 35 of the Public Health Law.

### School Calendar

The school year is divided into 6 trimesters. Classes are in session throughout the year with the exception of scheduled school vacations. There are four (4) weeks of scheduled vacation; one (1) week in the winter (Christmas), one (1) week in the spring (Easter), and two (2) weeks during the summer, plus public holidays. The following recognized holidays are:

- Election Day
- Veterans Day
- Thanksgiving
- Martin Luther King Day
- Presidents Day
- Memorial Day
- Independence Day
- Labor Day

### Accreditation

Harlem Hospital Center School of Radiologic Technology, Program # 4771

Revised 3/22/14  S. Evans, G. Ramsey, O. Peart   Revised 9/1/17  S. Evans, B. Shaev
The program is accredited by the following:
Joint Review Committee on Education in Radiologic Technology (JRCERT)
20 N. Wacker Drive
Suite 2850
Chicago, IL  60606-3182
312.704.5300
www.jrcert.org
Harlem Hospital Center is accredited by the Joint Commission:
http://www.jointcommsion.org

**Mission Statement**

The School of Radiologic Technology’s mission is to graduate competent professional Radiologic Technologists who will provide high quality radiographic health care to the community. The School is dedicated to training and graduating students with the necessary entry level skills required to function as Radiographic Technologists.

**Program Goals**

The program goals are as follows:

1. Graduate will possess the knowledge and skills of a competent entry level radiographer.
2. Graduates will become effective communicators
3. Graduates will demonstrate critical thinking skills
4. Graduates will demonstrate professionalism

**Student Learning Outcomes**

- Student will demonstrate proper positioning skills
- Student will select appropriate exposure factors
- Student will provide patient care safety practices
- Student will effectively communicate in a healthcare setting
- Student will be able to write effectively
- Student will demonstrate age appropriate skills
- Student will modify routine imaging protocols for trauma patients
- Student will evaluate radiographic images for errors that require corrective action
- Students will have the ability to work as a member of a team
- Students will demonstrate reliability and dependability
Program Effectiveness

- Graduates will achieve an employment rate consistent with its program’s mission and goals.
- Graduates will express satisfaction with the training they received.
- Graduates will be successful in the ARRT Certification examination on their first attempt.
- Graduates actively pursuing employment will be employed within 12 months of graduation.
- Employers will be satisfied with graduates’ knowledge, skill and work ethic.
- Students will successfully complete the program within 24 months.

Skills You Need

You will be an excellent candidate for this field if you like to be active and enjoy working with a variety of people. Good communication, problem-solving and analytical skills are also important for radiographers. The profession is a physically demanding one. Tasks on a typical day include assisting with lifting patients, transporting patients on stretchers or in wheelchairs and moving heavy portable imaging equipment within the hospital. The environment is fast paced and stressful and you will be on your feet for several hours at a time. The radiographer must also respond to audio signals and alarms and be able to differentiate subtle shades of gray on a diagnostic image. Radiologic technologists should be sensitive to patient’s physical and psychological needs. They must pay attention to detail and be able to work as part of a team. In addition, operating complicated equipment requires mechanical ability and manual dexterity. Those choosing careers in radiologic technology come from many age groups and employment backgrounds. They range from recent high school graduates to those re-entering the work force or making career changes.

A prospective student should have:

- A desire to work with ill and disable people, as well as with other health professionals
- An ability to do precise work accurately
- An interest in operating machinery and equipment
- An interest in science
- Good physical and mental health

Nature of Work

Radiologic technologists take x-rays and administer non-radioactive materials into patients’ blood streams for diagnostic purposes. They also produce x-ray images of internal parts of the body for use in diagnosing medical problems. They prepare patients for radiologic examinations by explaining the procedure, removing articles such as jewelry, through with x-rays cannot pass, and positioning patients so that he parts of the body can be appropriately radiographed. To prevent unnecessary radiation exposure, they surround the exposed area with radiation protections devices, such as lead shields, or limit the size of the x-ray beam. Radiographers position radiographic equipment at the correct angle.
and height over the appropriate area of a patient’s body. Using instruments similar to a measuring tape (caliper); they may measure the thickness of the section to be radiographed and set controls on the x-ray machine to produce radiographs of the appropriate density, detail, and contrast. Experienced radiographers may perform more complex imaging procedures. For fluoroscopy, radiographers prepare a solution of contrast media for the patient to drink or to be given as an enema, allowing the radiologist, a physician who interprets radiographs, to see the soft tissues of the body.

**CT technologists**, operate computerized tomography scanners to produce cross sectional images of patients.

**MRI technologists** operate machines using strong magnets and radio waves rather than radiation to create an image and are called magnetic resonance imaging technologists.

**Ultrasound technologists** operate using sound waves rather than radiation to create images.

**Radiation Therapy technologists** operate large machines delivering precise amounts of radiation to cancer patients.

**Nuclear Medicine technologists** give patients radioactive materials to produce images of physiologic function.

**Radiologic technologists** must follow physicians’ orders precisely and conform to regulations concerning use of radiation to protect themselves, their patients, and coworkers from unnecessary exposure.

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**Technical Standards**

In order to gain admission to the program, all students must be able to perform numerous physical skills which require at least an average amount of physical coordination. Students shall be able to manipulate technical equipment for the procedures. While performing clinical training students shall be required to:

**Occasional:**
- Grasping – Positioning patients for exams and procedures.
- Repetitive Motions – Entering computer data.
- Crouching – Positioning patients for exams and supply stocking.
- Pulling – Moving items that can weigh as much as 25 LBS (pounds) or more.

**Frequent**
- Pushing – transporting patients in wheelchairs or on carts using 25 LBS of force. Moving portable and C-arm equipment with 20 LBS of force to areas of the hospital.
- Carrying – Carrying cassettes that can weigh as much as 25 LBS.
- Pulling – Assisting and moving patients off and onto carts using 8 to 24 LBS of force.
- Fingering – Entering computer data and setting techniques for exams.
- Lifting – Moving patients (who can weigh more than 50 LBS) (from wheelchairs/carts off and onto exam tables.
Routine

- Reaching – Positioning patients and manipulating portable equipment.
- Stooping – Positioning of exams and assisting patients in and out of wheelchairs.
- Feeling – Perceiving attributes of patients and objects such as when positioning patients for procedures or palpating veins for IV insertion.
- Hearing – Perceiving that nature of sounds at normal range; ability to receive detailed information through oral communication, and to make fine discriminations in sound, during auscultation and percussion.
- Walking – Transporting and assisting patients into dressing/exam rooms. Walking to other areas of the department and hospital to do exams and have images interpreted.
- Talking – Must be able to communicate verbally in an effective manner with patients, co-workers and physicians.
- Standing – All clinical assignments require standing.

Visual Acuity Requirements

- During clinical assignments, students are required to use a computer terminal and set the proper exposure techniques on the x-ray equipment.
- Clinical assignments require working with printed and/or written documentation.
- Students must be able to assess patient’s condition, i.e. color, respiration, motion etc.
- Clinical assignments require critiquing of radiographs.

Environmental Conditions

As a radiologic technology student, you will be exposed to a variety of substances within the work environment and clinical sites. You can expect exposure to blood, body tissues, and fluids. There is the potential of exposure to electrical hazards, hazardous waste materials, radiation, poisonous substances, chemicals, loud or unpleasant noises and high stress emergency situations.

Students are given instruction about OSHA Blood-Borne Pathogen and Universal Precautions prior to starting clinical rotations.

Background Information

Prior to enrolling in a radiology program, students are advised to review the applicable licensure/certification following completion of the program at the Harlem Hospital Center. A conviction of a felony or a misdemeanor is considered to be a violation of the Standards of Ethics. Eligibility for licensure may be limited by the results of a criminal background investigation. Information about this can be obtained from the American Registry of Radiologic Technologists, www.ARRT.org.

All healthcare workers and students are required to undergo a criminal background check in order to work in a clinical setting. A student with a positive background check containing disqualifying conditions as defined by Federal and State law will NOT be allowed to enter the program.
NOTE: You may have been convicted and not sent to jail. People are often fined or given probation or conditional discharge rather than jail time, but these are still considered convictions. If you are unsure as to whether an arrest resulted in a conviction, contact the county in which you were arrested and speak to a representative in the Circuit Clerk’s office, State’s Attorney’s office or your attorney.

**Employment Prospects**

Employment of radiologic technologists is expected to increase by about 28 percent from 2010 to 2020, faster than the average for all occupations, according to the *Occupational Outlook Handbook, 2012-2013 edition*. As the population grows and ages, there will be an increasing demand for diagnostic imaging. In addition to job growth, job openings also will arise from the need to replace technologists who leave the occupation. Those with knowledge of more than one diagnostic imaging procedure – such as CT, MR, and mammography – will have the best employment opportunities as employers seek to control costs by using multi-credentialed employees. Demand for radiologic technologists can tend to be regional with some areas having large demand, while other areas are saturated. Technologists willing to relocate may have better job prospects. Besides full time positions, there are often opportunities for part time and on call work.

A radiographer may be employed in the radiology departments of hospitals, clinics, imaging centers, urgent care clinics and other health care facilities. There are also opportunities in industry, public health services, college health services, Peace Corps and other international organizations. A radiographer may advance to management, education, or equipment sales. Salaries may vary nationwide; however, the range is usually reflective of skills, education, and experience. Excellent benefit packages often accompany a higher than average pay scale.

**Admission Criteria**

The applicant shall:

1. Be at least eighteen (18) years old by December 31st of admission year.
2. Graduate from an accepted high school or equivalent.
3. Take a Health Occupations Aptitude Examination (HObET).
4. Have completed a minimum of 15 college credits in Science, Algebra/Math, computer skills.
5. Possess an Associate’s Degree.
6. Applicants not possessing an Associate’s Degree, AAS, must be able to complete the minimum degree requirements at an accredited college, prior to June 30th of your graduation year.
7. Take a Math and General Science test provided by the program.
8. Pay a non-refundable $60.00 application
Applications and Inquiries

Inquiries regarding the program should be directed to:

School of Radiologic Technology
506 Lenox Avenue, KP 415
New York, New York 10037

Telephone inquiries may be made at (212) 939-3475 or (212) 939-3476.

All application material must be completed before an interview can be scheduled.

All applications must be received by March 31st.

Admission Procedure

The following information is necessary to process your application:

1. Official High School Transcripts
2. Official Transcripts from all Colleges and Universities previously attended.
4. Three letters of recommendation (follow guidelines for references).
5. Application fee of $60.00 made payable to: School of Radiologic Technology (Money Orders Only).
6. Completed and signed application.
7. Submit a personal statement in the form of an essay describing reasons for choosing a career in radiologic technology and reasons for choosing Harlem Hospital Center.

Program Requirements

1. Students are required to purchase specific uniforms and furnish their own transportation to and from Harlem Hospital Center and other clinical affiliates (i.e. Kings County Medical Center, Elmhurst Hospital).
2. All students must maintain an overall average of 75% in academic courses and 85% in clinical education to remain in good academic standing.
3. Failure of two (2) sequential courses (e.g. Physics I and Physics II) will result in dismissal.
4. Students must complete all clinical requirements as set forth in the program manual.
5. The approximate cost of text books is $1,584.00 for the two-year program. The cost of the textbooks is not included in the tuition. A list of required textbooks will be distributed during orientation.
6. Uniforms – approximately $300
7. Student Fee - $100 per year
8. Graduation fee - $500

### Student Records and Transcripts

The Radiography Program maintains all grade records for students. Students who have graduated from the program may request a transcript for a fee of $10.00. The request for a transcript must be on the transcript request form, with the signature of the person requesting the transcript. Please send all transcript requests to the address on the front cover of this catalog. The Radiography Program maintains grade records on all students that are updated every trimester.

### Tuition Policy

Tuition is $15,000.00 which is broken down into six trimester payments of $2,500.00 each. Tuition is due before the beginning of each trimester. Tuition may be deferred pending awards or grant certification. Should the student withdraw voluntarily within two (2) weeks of the beginning of a trimester, tuition will be fully refunded. Should a student withdraw before four (4) weeks of the trimester has been completed, half of the tuition will be refunded. Following four (4) weeks of the trimester, no tuition refund will be made. In the event that a student is dismissed for poor attendance, academic failure, and unsatisfactory clinical performance or for other cause, there will be no tuition refund. Failure to pay tuition when it becomes due will result in suspension of the student until the tuition is paid. Failure to meet all financial obligations to the school will severely interrupt the student’s education and may result in ineligibility for graduation.

### Financial Aid

The School of Imaging Sciences is recognized as an eligible institution of higher education for purposes of state financial aid programs. These include New York State and Veterans Benefit, but do not include Federal financial aid such as Pell Grants and Stafford loans. All financial arrangements should be resolved before attending the program. Students receiving scholarships (1199 Union, VESID etc) may defer that part of their tuition that will be covered by the scholarships. The remaining amount must be paid by the due date.

### School Facilities

All classes and laboratory sessions are held in the school at Harlem Hospital Center. In addition to Harlem Hospital Center, clinical education takes place in the Department of Radiology at Metropolitan Hospital Center, Kings County Hospital Center, Elmhurst Hospital Center, and North Central Bronx Hospital. The extensive number of radiographic examinations and procedures performed enable students to experience the widest possible range of clinical education.
There is a dedicated computer lab in which all students are encouraged to review for classes and for the national registry examination. A variety of questions and answers simulating computer based examinations are available to students and technologists preparing for the national registry examination.

**Resources and Services**

The enrolled student will have multiple resources and services available to them. These include:

- A wide variety of imaging suites and portable rotations to include general, fluoroscopy, surgical suites, emergency department, Level 1 trauma department, orthopedics and pediatrics.
- A wide variety of different types of imaging equipment. All equipment is either computed radiography or direct radiography.
- Harlem Hospital Center Library – 6th floor MLK Building
- All students have the same access as any employee to all library services.

**Computer Labs**

- A computer lab is available. The lab is equipped with PCs. The computers have internet access. Printers are also available. The computers are accessible to all students having their unique ID.

**Physical and Vaccinations**

- The Harlem Hospital Center will provide to the student, a pre-matriculation physical to include a drug screening, at no cost. Hepatitis B and vaccinations for childhood diseases is also offered at no cost. Yearly influenza vaccinations are free.

**CPR Certification**

- The student will be an American Heart Healthcare Provider CPR certified at no cost.

**Personal Counseling**

- The Program Director maintains a list of personal counseling services in the city. The program does not recommend a particular service. It is the responsibility of the student to determine insurance acceptance. Students may also be referred to Department of Social Work.

**Placement Services**

- The program does not offer specific placement services. Any job possibilities that are made known to program faculty are passed along to students who are close to graduation.

**Transfer Students**

Students from either hospital-based or college-based JRCERT accredited programs can be accepted into the Harlem Hospital Center School of Radiologic Technology provided they fulfill the following criteria:

a. The student shall not have failed more than one course in their previous institution.

b. The student must present a minimum of one letter or recommendation from a teacher or staff member of the original institution.
c. The student shall be appropriately interviewed by the Harlem Hospital Center School of Radiologic Technology Admission’s Committee to determine the following:
1. Financial capabilities of attending a full-time program.
2. Genuine interest in the field of Radiography.
3. Capacity to learn and perform at an adequate level of proficiency.
4. Ability to communicate effectively with others.
5. Prior relevant education and/or experience in the health field.
6. The student shall present all transcripts from prior educational institutions including those from which they are transferring.
7. The student shall present a letter identifying his/her reason(s) for transferring.
8. The student shall commit to a minimum enrollment of 50% of the length of the program.

**Grievance Procedure/Due Process**

When an infraction of any of the policies of the Radiologic Technology Program is committed, disciplinary action, commensurate with the nature and severity of the offense, may be imposed on the student involved.

The following sanctions may be considered as appropriate, and imposed by the Program Director:

1. Verbal Reprimand
2. Written Reprimand
3. Probation
4. Suspension
5. Expulsion

The program has a step-by-step process to address any claim by a student that the program is not in compliance with the STANDARDS of the JRCERT. The grievance procedure addresses any claim that there has been a violation, misinterpretation, or inequitable application of any existing policy, procedure, or regulation. **The aggrieved student/s shall exhaust the procedure outlined below.**

**Step 1**

The student has five working (10) days to register his/her grievance in writing to the Program Director. A scheduled meeting shall take place between the student and the Program Director in an attempt to resolve the matter. If the student is not satisfied, the student shall proceed to Step 2, within three (3) days of the Step 1 meeting. If the student lets 3 working days pass and does not pursue Step 2; the appeal process is terminated with the understanding that the student has accepted the Program Director's decision.
Step 2

The student shall request a meeting with the Director of Education in an attempt to resolve the matter to his/her satisfaction. The request shall be made in writing. The student shall bring any representative, witness(es) and/or documentation they deem necessary to this meeting. The meeting shall take place within fourteen (14) working days from the request for the meeting. The Director of Education shall reach a decision and notify the student within ten (10) working days. If the student finds the decision unsatisfactory he/she shall proceed to Step #3, within five (5) working days of the response. Failure to proceed to step 3 within the allotted time period shall result in the appeals process being terminated with the understanding that the student has accepted the group decision.

Step 3

If the student is not satisfied with the decision of the Director of Education, he/she shall request (in writing) within ten (10) working days that the appeal process be forwarded to the Grievance Committee, Chaired by the Director of Volunteer Service who is external to the Program.

The decision of the Grievance Committee (or designee) is final and binding with no further recourse in the appeal process. The decision shall be communicated to the aggrieved student within ten (10) working days of its findings.

RADIATION SAFETY, PROTECTION & MONITORING POLICY

Students will be made aware of methods and procedures for protecting themselves, the patient and the general public from unnecessary exposure to radiation before being allowed to use the college energized lab or to be out on the floor at the clinical assignment.

- The students shall utilize ionizing radiation equipment in a safe manner and provide patient and
personnel protection by practicing the following:

- Implementation of the Three Cardinal Rules (time, distance & shielding) of Radiation Protection.
- Wearing a dosimeter at the collar at all times. During fluoroscopy the dosimeter must be worn outside the lead apron.
- Providing gonadal shielding correctly, as the specific exams allow.
- Wearing protective apparel (lead aprons, thyroid shields, etc.) during any fluoroscopic or mobile procedure.
- Questioning all female patients of childbearing age, as to the likelihood of pregnancy.
- Complying with the program policy prohibiting the holding of patients during exposure.
- Complying with the program policy pertaining to student pregnancy.
- Complying with the program policy pertaining to performing any repeat exposure under direct supervision only.

- Students will be issued a dosimeter to be worn at their clinical assignment. The Clinical Coordinator will supply the radiation monitor to the students at the start of the program. Wearing the radiation-monitoring device is done in order to maintain accordance with established recommendations of the National Council on Radiation Protection and Measurements (NCRP) and current regulations of the State of New York Bureau of Environmental Control. In that radiation doses are maintained “As Low As Reasonable Achievable,” and to provide protection for the program by providing documentation and proper management of student radiation exposure.

- Students will not, under any circumstances, be allowed to perform radiologic examinations without wearing their radiation-monitor dosimeter. The radiation-monitor is to be worn at the collar level and outside the protective lead apron. The student is responsible for wearing the radiation monitor whenever he/she reports to clinical. In the case of a lost or damaged monitor, the students shall report the situation to the Clinical Coordinator and a replacement badge shall be ordered. A fee will be charged for the replacement. The student may not attend their clinical assignment until the new badge is received. The student is then responsible for making up any clinical assignment in accordance with the attendance policy.

- In an effort to keep the radiation exposure levels of students to a minimum, the following guidelines are established:
  - Students shall not hold patients during exposure for any reason.
- Students shall not make an exposure while another Radiology employee holds the patient.
- Students shall inform the Clinical Coordinator of any incidences of their radiation-monitoring being exposed while it was not being worn.
- The student shall inform the Clinical Coordinator of any incidences that may have caused excessive radiation to their person. The Clinical Coordinator should report this to the Program Director and the Director of Education, who may deem it necessary, shall report the incident to the Radiation Safety Officer for appropriate follow up.
- Upon receipt of the quarterly radiation monitoring report, the Clinical Coordinator shall:
  - Review the report and post the exposure statement in the bulletin board of the Administrative Offices. Each student is allowed the opportunity to initial and date the report to indicate they have reviewed it.
  - A quarterly exposure report above 125 mrem shall be deemed higher than expected and require the following action:
    - The Clinical Coordinator will review the report with the student in an effort to determine possible reasons for the elevated exposure.
    - The Clinical Coordinator shall document any findings that may explain the excess exposure on the student’s exposure report.
    - If overexposure is due to student negligence or disregard of radiation safety, the student’s suitability for the radiography field will be reevaluated.
    - Any documentation of excessive radiation will be review by the Radiation Safety Officer for appropriate follow-up.
    - All documentation will be maintained in the student’s file.

A Cumulative report of student’s exposure history during their enrollment in the program shall be issued upon request when the student graduates or withdraws from the program.
Pregnancy Policy

Should a student become pregnant, the student is encouraged to notify the Program Director, *in writing*, as soon as possible. **This is a recommendation only and the student has the option of continuing the educational program without modification or interruption and without a declared pregnancy.** However, the *declared* pregnant student:

- Will indicate her expected date of delivery
- Will *meet* with the Radiation Physicist for appropriate counseling.
- Will be *assigned* an additional “baby badge” and instructed in its use.
- May requested maternity leave or leave of absence
  - Any requested absence from the program must be requested in writing according to the Program's Policies.
- May *withdraw* the declaration, *in writing*, at any time.

In the absence of a voluntary written disclosure the student shall continue in the program unmodified.

Career Opportunities

Harlem Hospital Center offers students a wide variety of clinical experiences and classroom work designed to prepare them to enter the field of Radiologic Technology as Radiographic Technologists. Jobs for graduate Radiographic Technologists are available in hospitals, clinics, doctor’s office, the military and private industries. Once a graduate receives recognition by the American Registry of Radiologic Technologists (ARRT), he/she may be employed in any state in the country. In addition, many foreign countries have reciprocal agreements with the United States and welcome American trained Radiographic Technologists.

Employment opportunities for registered Radiologic Technologists are available in healthcare, education, administration, research and private industry. Also, technologists may wish to gain additional training in any of the following specialty areas:

- Vascular Imaging (Special Procedures)
- Computerized tomography (CT)
- Magnetic Resonance Imaging (MRI)
- Medical Sonography
- Nuclear Medicine
- Bone Densitometry
- Mammography
- Quality Management

_All the information contained herein is subject to change._
Course Descriptions
Curriculum Sequence

The curriculum is designed to integrate the cognitive, affective and psychomotor aspects of the student’s educational experience. The curriculum as presented at the Harlem program is as follows:

FIRST YEAR – TRIMESTER 1

**HR 101.01 – Medical Terminology:** 15 hours
This course includes detailed information about word structure and analysis as well as commonly used medical terms and abbreviations applied to the specialty of radiology, specific systems, disease processes and injuries. Root words, combining forms, suffixes, prefixes and terms pertaining to the body as a whole are discussed.

**HR 101.02 - Introduction to Computers, PACS & RIS** 15 hours
Course will provide the student with the basic understanding of computer capabilities and basic principles of the computer. The course covers health and radiology electronic record information management and technology.

**HR 101.03 – Introduction to Radiologic Technology:** 15 hours
This course will provide the students an overview of radiography and its role in health care delivery. Students will be oriented to the academic and administrative structure, key departments and personnel and to the profession as a whole. The evolution of Radiologic Technology, medical history and professional organization will be presented.

**HR 101.04 – Patient Care I (Ethics & Medicolegal aspects):** 45 hours
This course is designed to provide a fundamental background in ethics. With both the historical and philosophical basis ethical behavior will be discussed. Ethical issues and dilemmas found in clinical practice will be examined. Legal terminology, concepts and principles will be presented. The ASRT scope of practice, misconduct, malpractice, and other legal and professional standards will be discussed.

**HR 101.05 – Introduction to Radiation Protection:** 30 hours
This unit will provide the students with knowledge of the basic elements of radiation protection for the patient, Radiographer, other personnel and the general public. Shielding requirements, units of measurements and exposure monitoring are discussed. The principles and concept explaining basic interaction with matter, maximum permissible doses and the effects of measurements are also included. Content of this course is designed to impart awareness on the proper application of radiation limiting devices and techniques, radiation monitoring systems, safety standards, units of measurement and calculations of exposure.
HR101.06 – Anatomy and Physiology I: 45 hours
This course is to introduce the students to the body systems and their interdependency, cells and tissues and the structure and function of the integumentary system. Information on related topographical anatomy and essential terminology will be presented.

HR101.07 – Physics I: 30 hours
This unit introduces student to basic radiographic physics. The course includes a mathematics review, units of measure, radiation units, atom and atomic structure, electromagnetic radiation, magnetism, electrostatics, electric current and electricity.

HR101.08 – Radiographic Procedures I: 60 hours
This course introduces the student to the terminology of positioning, lines and plane of the body, body habitus and provides instruction on radiographic positioning of chest, abdomen and upper extremity.

HR101.09 – Radiographic Procedures Lab I: 60 hours
This provides the students the application of the positioning principles discussed in the classroom to the laboratory environment. Students are also evaluated on their ability and skills to demonstrate previously covered procedures, film and diagram identification.

HR 101.10 – Principle of Imaging and Image Analysis I: 30 hours
A study of radiographic imaging and the production of quality radiographs. Understanding and control of contrast, density, detail, and distortion are emphasized with the aid of radiographs and laboratory experiments. Digital and film/screen imaging are addressed.

FIRST YEAR TRIMESTER II

HR 102.10 – Principle of Imaging and Image Analysis I: 30 hours
A study of radiographic imaging and the production of quality x-ray images. This unit will provide the student with knowledge on the production and control of scatter radiation, intensifying screens, cones and collimators, grids, formulations exposure techniques, H & D curves, technique charts.

HR102.11 – Radiologic Procedures II: 45 hours
This course is to provide classroom instruction on radiographic positioning of the lower extremities and pelvic girdle. Review of anatomy and image evaluation of each area of interest.

HR102.12 – Radiographic Procedures Lab II: 45 hours
This unit is designed for demonstration and practice of radiographic positioning for the lower extremities and pelvic girdle discussed in the classroom. Student’s will be evaluated on their ability and skills to perform previously covered procedures, diagram and image identification.

HR102.13 – Anatomy and Physiology II: 45 hours
This course will provide classroom instruction concerning the following system: skeletal and muscular. The course will include information on the structure and function of the component part of each system as well as general anatomy and related terminology.
HR102.14 – Physics II:  30 hours
This course will include discussion on electrical circuits, production and control of high voltage, the x-ray tube and x-ray circuit. Topics included transformers, automatic exposure control, and x-ray interactions.

HR102.15 – Patient Care II:  45 hours
This unit will provide the students with the concepts of patient care including the consideration of the physical and psychological conditions. The role of radiographer in patient education will be identified and the different body mechanics, and immobilization techniques will be discussed. Other topics covered include vital signs, oxygen, chest tubes, and lines, infection control, aseptic & nonaseptic techniques.

HR102.16 – Pharmacology II:  30 hours
This course will provide the students of knowledge on the different classes of commonly used drugs and their importance in the field of radiography. The interactions, indications and contraindications of each class of drugs is discussed. Information on adverse reactions of contrast media, its uses, contraindications and emergency treatments of allergic reactions are also included.

HR 102.17 – Clinical Practice I:  224 hours
Students learn patient management skills. Students become acquainted with all imaging department sections, non-clinical and clinical. Skills are integrated and practiced. Students participate in collecting and evaluating patient history relative to the care and method of examination performed in the imaging department.

FIRST YEAR TRIMESTER III

HR103.18 – Anatomy and Physiology III:  45 hours
This course will provide classroom instructions concerning the following systems: digestive and respiratory. The course will include information on the structure and function of the component parts of each system as well as general anatomy and essential terminology.

HR103.19 – Patient Care III & Venipuncture:  30 hours
This unit will continue with medical emergencies, contrast media & intro to radiopharmaceuticals. This course will provide the student with the theory and practice of the basic techniques of venipuncture and the administration of intravenous medication.

HR103.20 – Radiologic Procedures III:  45 hours:
The core of this course will consist of positioning of the bones of the thorax and spine. Specific procedures for mobile, operating room, pediatric and geriatric imaging will be covered. Review of anatomy and image evaluation for each area of interest is also included.

HR103.21 – Radiographic Procedures Lab III:  45 hours
This unit is designed for demonstration and practice of radiographic positioning for the bones of the thorax and spine discussed in the classroom. Students will also be evaluated on their ability and skills to perform previously covered procedures, diagram and image identification of anatomy and positioning errors.
**HR103.22 – Physics III:** 30 hours
This course will provide the information on the special equipment used in radiography such as fluoroscopy, TV camera and different recording systems. The content of this course will provide the student the necessary knowledge on the quality control and quality assurance of the radiographic department. The equipment used for different quality control tests, maintenance of the different radiographic equipment and the different methods to troubleshoot malfunctions are discussed.

**HR 103.24 – Clinical Practice II:** 224 hours
The student gains practical experience needed to function as a radiographer. Consists of supervised application of theory and procedures necessary for the student to attain competency. All areas and radiographic positions have established criteria that students will meet.

**SECOND YEAR TRIMESTER IV**

**HR204.25 – Radiobiology:** 30 hours
The intent of this course is to provide each student awareness and knowledge on the hazardous effects of radiation on living tissue. Information on this course includes cell structure and division, cellular and molecular effects of irradiation and long and short term somatic and genetic effects.

**HR204.26 – Anatomy and Physiology IV:** 45 hours
This course will provide classroom instructions concerning the following systems: urinary and cardiovascular. The course will include information on the structure and function of the component parts of each system as well as general anatomy and essential terminology.

**HR204.27 – Radiographic Procedure IV:** 30 hours
The core of this course will consist of positioning of the skull, sinuses, orbits, facial bones and mandible. Review of anatomy and film evaluation for each area of interest is also included.

**HR204.28 – Radiographic Procedures Lab:** 30 hours
This unit is designed for demonstration and practice of radiographic positioning for the skull, sinuses, orbits, facial bones and mandible discussed in the classroom. Students will also be evaluated on their ability and skills to perform previously covered procedures, diagram and film identification of anatomy and positioning errors.

**HR104.29 – Image Critique I:** 30 hours
This unit will provide the students with the knowledge to evaluate radiographs, to identify and recognize diagnostic quality. Image evaluation brings together knowledge and skills from multiple didactic units and clinical education.
HR 104.30 – Clinical Practice III: 336 hours
The student gains practical experience needed to function as a radiographer. Consists of supervised application of theory and procedures necessary for the student to attain competency. All areas and radiographic positions have established criteria that students will meet.

SECOND YEAR TRIMESTER V

HR205.31 – Pathology: 45 hours
Content of this course is designed to provide the student specific information about various diseases that may affect the resulting radiographic image.

HR205.32 – Anatomy and Physiology V: 45 hours
This course will provide classroom instructions concerning the following systems: reproductive and digestive. The course will include information on the structure and function of the component parts of each system as well as general anatomy and essential terminology.

HR205.33 – Advance Imaging I: 30 hours
This unit will provide the students of the basic fundamental concepts of some of the common special procedures and modalities. The patient care, radiation protection, basic positioning techniques and equipment required for each procedure or modality will be discussed.

HR205.34 – Image Critique II: 15 hours
This unit will provide the students with the knowledge of evaluate radiographs. Students will be evaluated on their ability to identify radiographs with diagnostic quality and determine diagnostic inadequacies resulting from image artifacts, improper positioning, technical errors and be able to correct for the cause.

HR205.35 – Comprehensive Review I: 45 hours
This course will provide information on methods of proper test taking, good study habits and understanding the aim of the course. Each major subject will be reviewed, discussed and appropriate evaluations will be utilized to pinpoint each student’s strength terminology.

HR 205.36 – Clinical Practice IV: 336 hours
The student gains practical experience needed to function as a radiographer. Consists of supervised application of theory and procedures necessary for the student to attain competency. All areas and radiographic positions have established criteria that students will meet.
SECOND YEAR TRIMESTER VI

HR206.37 – Anatomy and Physiology VI: 30 hours
This course will provide classroom instructions concerning the following systems: urinary, endocrine, circulatory and nervous systems. The course will include information on the structure and function of the component parts of each system as well as general anatomy and essential terminology.

HR206.38 – Advance Imaging II: 30 hours
This unit will provide a continuation of fundamental concepts of some of special procedures and other imaging and therapeutic modalities. The patient care, radiation protection, basic positioning techniques and equipment required for each modality will be discussed.

HR206.39 – Comprehensive Review IIA: 45 hours
This course will provide information on methods of proper testing taking, good study habits and understanding the aim of the course. Each major subject will be reviewed, discussed and appropriate evaluations will be utilized to pinpoint each student’s strength and weaknesses. An attempt will be made to develop a strategy to correct student’s weaknesses.

HR206.40 – Comprehensive Review IIB: 45 hours
This course will provide information on methods of proper testing taking, good study habits and understanding the aim of the course. Each major subject will be reviewed, discussed and appropriate evaluations will be utilized to pinpoint each student’s strength and weaknesses. An attempt will be made to develop a strategy to correct student’s weaknesses.

HR206.41 – Seminar in Career Education: 15 hours
Course prepares students for work and focuses on research projects. Workshops allow students to write resumes and develop interviewing and self marketing skills.

HR 206.42 – Clinical Practice V: 336 hours
The student gains practical experience needed to function as a radiographer. Consists of supervised application of theory and procedures necessary for the student to attain competency. All areas and radiographic positions have established criteria that students will meet.
## Curriculum Sequence

The curriculum is designed to integrate the cognitive, affective and psychomotor aspects of the student's educational experience. The curriculum as presented at the Harlem program is as follows:

### FIRST YEAR

#### Trimester I

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<thead>
<tr>
<th>Course #</th>
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<tr>
<td>HR 101.01</td>
<td>Medical Terminology</td>
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<td>HR 101.02</td>
<td>Introduction to Computers, PACS &amp; RIS</td>
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<td>HR 101.03</td>
<td>Introduction to Radiologic Technology</td>
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<td>HR 101.04</td>
<td>Patient Care I (Ethics &amp; Medicolegal)</td>
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<td>Radiation Protection I</td>
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<td>HR 101.06</td>
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<td>HR 101.07</td>
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<td>HR 101.08</td>
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<td>HR 101.09</td>
<td>Radiographic Procedures Lab I</td>
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<td>HR 101.10</td>
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**Total Hours:** 345
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<td>Principle of Imaging and Image Analysis II</td>
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<td>HR 103.19</td>
<td>Patient Care III (plus Venipuncture)</td>
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**Total Hours** 449 15
## SECOND YEAR

### Trimester IV

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<td>Image Critique I</td>
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**Total Hours** 516 12
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**Total Hours** 501 11