Radiation therapy technology is one of the most sophisticated tools of modern medical science. Radiotherapy, the treatment of disease with ionizing radiations, may be used alone or in combination with surgery or chemotherapy. The primary responsibility of the radiation therapy technologist is to plan and implement the treatment program prescribed by the radiation oncologist. In recent years, the use of radiation in treating cancer has increased, and with this rise has come the demand for radiation therapy services.

The Radiation Therapy Technology curriculum is designed to provide students with the knowledge and cognitive skills necessary for the competent performance as an entry-level radiation therapist.

Program Description

Radiation therapy is one of the most sophisticated tools of modern medical science. Radiotherapy, the treatment of disease with ionizing radiations, may be used alone or in combination with surgery or chemotherapy. The primary responsibility of the radiation therapy technologist is to plan and implement the treatment program prescribed by the radiation oncologist. In recent years, the use of radiation in treating cancer has increased, and with this rise has come the demand for radiation therapy services.

The Radiation Therapy Technology curriculum is designed to provide students with the knowledge and cognitive skills necessary for the competent performance as an entry-level radiation therapy technologist.

Program graduates will have demonstrated numerous academic and clinical competencies consistent with the individual course objectives required within the program. Course objectives and competencies are developed from information provided by accreditation bodies, licensing agencies, and professional societies. The competencies listed below are an abbreviated list of clinical competencies.

This program, completed over 24 calendar months of full-time study, features a concentration of radiotherapy courses supplemented with labs. In addition to these specialized studies, students take courses in anatomy and physiology, composition, psychology and radiation biology. Program graduates will have completed a sufficient number of supervised clinical hours at affiliated hospitals and clinical sites, some of which are located in the Rochester and Jamestown areas. Upon completion of the courses and the clinical work, graduates qualify to apply to the American Registry of Radiologic Technologists examination for certification in radiation therapy technology.

Employment opportunities for radiation therapy technologists exist in hospitals, physicians’ private practices and government agencies.

Mission Statement

The mission of the Radiation Therapy Technology Program is to provide a comprehensive education and emphasize excellence by incorporating extensive didactic learning, professional courses and clinical experiences necessary to prepare students to: become entry-level radiation therapists; provide quality patient care; be active participants in the profession; and to pursue life-long learning.
Program Goals

Goal I
Students will be clinically competent.
• Students will simulate, plan and deliver a prescribed course of radiation

Goal II
Students will have effective verbal and written communication skills.
• Students will practice effective communication skills in the clinical setting
• Students will practice verbal communication skills in through class presentations
• Students will demonstrate written communication skills through class paper

Goal III
Students will develop professionalism, ethical behaviors and pursue life-long learning
• Students will demonstrate professional and ethical values

Goal IV
Students will demonstrate problem solving and critical thinking skills.
• Students will demonstrate critical thinking through research and presentation of case studies
• Students will demonstrate problem solving skills utilizing VERT
• Students will demonstrate problem solving skills after completing calculations

Department Notes
• Students must earn a grade of “C” in all radiologic technology and science courses.
• Hospital and clinical affiliates of the program require students to have a health assessment and immunizations, including Hepatitis B.
• The Radiation Therapy Technology Student Handbook describes additional program policies.
• Students must meet the technical standards for the program. Please contact the department for details.

Special Admission Requirements/Prerequisites
• Applicant must be a high school graduate or equivalent and have a high school average of at least 88 percent;
• Applicant should have completed two years of high school laboratory science courses (such as chemistry with lab, or physics with lab) with a minimum grade of “C”; or completed a college-level anatomy and physiology course with lab within the past five years of anticipated program start date;
• College: Anatomy and Physiology I or transfer equivalent must be one of the two required pre-req sciences courses with a grade of “C” or better. (It is recommended the completion of Anatomy and Physiology be done during a full academic semester)
• High School: Have completed two years of mathematics with a minimum grade of “C.” (Algebra and geometry are required; trigonometry is recommended);
• SUNY Erie Community College pretest scores of MTLV4 and E80;
• College: A minimum GPA of 3.0 at all undergraduate colleges attended within the last 5 years. Appropriate college math (MT 125 required) and two (2) laboratory science courses;
• High School and College: It is strongly recommended interested students meet with the program director or program counselor as admission into the program is based on academic qualifications and interview process once application is completed (available online mid-September through December 31 the program starts the following Fall);
• An informational interview is required of all qualified applicants;
• Three recommendation letters are due at time of interview;
• Students are required to purchase health and accident insurance;
• All Students accepted into the program must submit a completed Allied Health Report and Physician’s Certificate. The college reserves the right to deny acceptance into the Radiation Therapy Technology Program to students who have incomplete or unacceptable physical reports;
• Students should initiate the processing of all transfer credits for any courses indicated in the Radiation Therapy Curriculum Outline while in General Studies and/or before acceptance into the Radiation Therapy Program. Students should meet with a General Studies adviser for advisement and processing of transfer credits. Acceptance into General Studies does not guarantee future entrance into the Radiation Therapy Program; and
• The Radiation Therapy Program is committed to accepting the most qualified candidates regardless of gender, religion, age, race and other demographic factors. The department’s acceptance committee shall be charged with screening applicants, reviewing and evaluating application files, interviewing the applicants, rating and ranking each candidate to establish a new class.

Admission and Retention Requirements: Safety and Technical Skills
Candidates seeking enrollment into the Radiation Therapy Program must meet the safety and technical skills in the following areas: observation-communication, motor and behavioral-social attributes.

Observation-Communication
The student must possess the ability to communicate effectively and read, write and use the English language. In addition, the student must have the functional use of the senses of vision, touch, hearing, and smell which are essential in assisting patients, gathering data, and maintaining their safety. Examples of observation-communication include but are not limited to:
• appraise and report, within the Scope of Practice for Radiation Therapists, the clinical progress of the patient undergoing radiation therapy;
• accurately interpret data from medical records and treatment plan; and
demonstrate professional attitudes in the work environment (e.g., cooperation, teamwork, attendance and punctuality).

**Sensory/Motor**
The student is required to perform gross and fine motor movements, maintain consciousness and equilibrium, and possess the physical strength and stamina which are necessary to provide safe delivery of radiation treatments. Examples of sensory/motor skills include but are not limited to:

- Transferring patients;
- Responding rapidly to emergency situations (cardiac arrest, respiratory arrest, falls);
- Protect and remove patients from an area in the event of a fire or disaster;
- Utilize a keyboard to input data;
- Distinguish equipment and background sounds and hear a variety of pitches;
- See in dim light;
- Visually monitor patients via video monitors;
- Monitor patients via audio monitors;
- Read and apply appropriate instructions in patient charts, notes, and records;
- Lift 30 pounds of weight from the floor to shoulder height;
- Push a patient in a standard wheelchair;
- Have good strength in both upper extremities; and
- Use good body mechanics to bend, stretch, reach, stoop, kneel, and twist in performance of job duties.

**Behavioral-Social Attributes**
The student must possess emotional stability and flexibility, which will enable him/her to develop the ability to function effectively in stressful situations. This includes the ability to adapt to changing environments, exercise sound judgement, complete assessment and intervention activities and develop sensitive interpersonal relationship with patients, families and other responsible for health care. Examples of these behavioral and social attributes include but are not limited to:

- Ability to think and act rationally during a crisis;
- Demonstrate appropriate behavior towards staff, peers and patients according to societal norms; and
- Apply principles of confidentiality of medical records and HIPPA regulations.

**Program Competencies**
Upon graduation with an Associate in Applied Science degree in Radiation Therapy Technology, the graduate will be able to:

- Deliver a planned course of radiation therapy;
- Verify the mathematical accuracy of the prescription for radiotherapy;
- Maintain daily records and document technical details of the radiotherapy treatment administered;
- Observe the clinical progress of the patient undergoing radiation therapy, observe the first signs of any complications and determine when treatment should be withheld until a physician may be consulted;
- Provide patient care and comfort essential to radiation therapy procedures;

- Within the scope of practice for a radiation therapy technologist, detect equipment malfunctions, report same to the proper authority and know the safe limits of equipment operation;
- Understand the functions, limitations and utilization of radiotherapy equipment;
- Apply the rules and regulations for radiation safety, detect radiation hazards and other hazards to patient welfare within the scope of practice for the radiation therapy technologist;
- Simulate and plan a prescribed course of radiotherapy treatment;
- Construct immobilization and beam-directional devices for external beam radiotherapy;
- Assist in the preparation of brachytherapy sources, calibration of radiotherapy equipment and the maintenance of quality assurance procedures and records;
- Assist in exam room procedures, patient follow-up, patient educational procedures for the radiotherapy patient;
- Provide certification in cardiopulmonary resuscitation;
- Communicate clearly and effectively in written, verbal and nonverbal form; and
- Demonstrate an awareness of the ethical and legal responsibilities of radiation therapy technologists.

**PROGRAM EFFECTIVENESS**
In addition to the mission statement, goals and program competencies (objectives) already listed on this page, the following data is provided to reflect the Radiation Therapy Technology Program's effectiveness.

**Program completion rate:** This is defined as the number of students who complete the program, didactic and clinical within 150% of the stated program length. It is an annual measure of the number of students beginning the program and the actual number that complete the program. Information for years 2013 to 2017 is listed. The completion rate for 2017 was 78.6%. Eleven of the fourteen students enrolled graduated. The five year, 2013 to 2017 average completion rate was 76.3%.

**Program credentialing rate:** This rate reflects the number of students that pass the American Registry of Radiologic Technologists (ARRT), Radiation Therapy certification examination on their first attempt. The information for the years 2013 to 2017. The five-year credentialing rate for 43/59 first-time examinees was 73%.

**Program job placement rate:** This rate reflects the number of students who obtain employment in radiation therapy within twelve (12) months of graduation versus the number of graduates actively seeking employment. For the most recent five-year period 2012-2016, 86.2% 25/29 graduates actively seeking employment were hired.
Job placement rate is defined as the number of graduates employed in the radiologic sciences compared to the number of graduates actively seeking employment in radiation therapy. The JRCERT has defined not actively seeking employment as: 1) graduate fails to communicate with program officials regarding employment status after multiple attempts, 2) graduate is unwilling to seek employment that requires relocation, 3) graduate is unwilling to accept employment due to salary or hours, 4) graduate is on active military duty, and/or 5) graduate is continuing education.

**CURRICULUM**

*Total Degree Credits: 77.0*

**First Year, Fall Semester**
- RA 100 Radiotherapy Technology I (3 cr)
- RA 101 Lab/Clinical I (4 cr)
- BI 150 Anatomy and Physiology I (3 cr)
- BI 151 Laboratory for BI 150 (1 cr)
- EN 110 College Composition (3 cr)
- PH 210 Radiologic Physics I (4 cr)

**First Year, Spring Semester**
- RA 102 Lab/Clinical II (4 cr)
- RA 120 Radiotherapy Technology II (3 cr)
- BI 152 Anatomy and Physiology II (3 cr)
- BI 153 Laboratory for BI 152 (1 cr)
- PH 215 Radiologic Physics II (3 cr)

**First Year, Summer Semester**
- RA 150 Summer Clinical (6 cr)

**Second Year, Fall Semester**
- RA 203 Lab/Clinical III (5 cr)
- RA 230 Radiotherapy Technology III (3 cr)
- BI 180 Radiation Biology (2 cr)
- PH 220 Advanced Radiation Physics I (4 cr)
- PS 100 General Psychology (3 cr)

**Second Year, Spring Semester**
- RA 204 Lab/Clinical IV (5 cr)
- RA 240 Radiotherapy Technology IV (3 cr)
- BI 241 Pathophysiology (3 cr)
- PA 250 Legal Issues in Health Care (3 cr)

**PH 225 Advanced Radiologic Physics II (2 cr)**

**Second Year, Summer Session**
- RA 250 Summer Clinical II (6 cr)

**Note:**

The following courses may be taken out of program sequence by (non-High School students) to qualify for FT Financial Aid if applicable with Program Director’s permission.

*PS 100 may be taken First Year Fall Semester

*PA 250 may be taken First Year Spring Semester

Certification in Cardiopulmonary Resuscitation is required for graduation. A C.P.R. certification course will be offered by the college on an alternating summer basis for Radiologic Technology: Radiation Therapy program students.

All coursework, including clinical courses, must be completed satisfactorily to qualify for program graduation.

**NOTE:** This is a recommended sequence. Student should consult his/her academic adviser prior to registering.

MT 125 or equivalent is a prerequisite.