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
The medical community will benefit from clinically competent Radiation Therapy Technology graduates entering the profession.
- Program retention rate will remain high.
- Students taking the ARRT exam will pass the first time.
- Students will be CPR certified upon program completion.
- Students will simulate, plan and deliver a prescribed course of radiation.
- Students will have completed sufficient hours of clinical time upon program completion.
- Graduates will be employed within twelve months of program completion.
- Graduates will indicate overall program satisfaction.
- Graduates will indicate adequate preparation for an entry-level radiation therapy position.
- Employers indicate satisfaction with graduate skill levels.
- Employers will seek to hire future program graduates.
- Students acquire the skills and knowledge of an entry-level therapist.

Goal II
Program graduates will have the knowledge and communication skills, verbal and written, of a competent entry-level radiation therapist.
- Students will provide appropriate patient care.
- Students will be competent and concise at radiation therapy clinical documentation.
- Students will be skillful in machine operation and patient set-ups.
- Students will interpret and implement radiation therapy treatment plans.
- Students will practice effective communication skills in the clinical setting.
- Students will demonstrate written communication through a class paper.
- Students will maintain a journal and provide a paper after each clinical rotation.
- Graduates will demonstrate effective communication skills in the clinical employment setting.
- Students will practice verbal communication skills through class presentations.

Goal III
Students will develop professionalism, ethical and moral practices as guided by values consistent with the professions Code of Ethics and pursue lifelong learning.
- First year students will develop professional work attitudes, ethics and behaviors.
- Second year student will demonstrate professionalism.
- Students demonstrate professional behavior and ethical values.
- Graduates exhibit professional work attitudes, ethics and behavior in team situations.
- Post graduates, practicing radiation therapy, will indicate professional membership in ASRT.
- Post graduates intend to pursue advanced degrees or certificates.

Goal IV
Students will demonstrate proficiency in problem solving and critical thinking skills.
- Students will perform complex treatment procedures.
- Students demonstrate critical thinking through research and presentation of case studies.
- Students will calculate doses for several treatment set up and complete dosimetry competencies.
- Students will include in journal entries any observed clinical behaviors, professional or unprofessional.
- Students will demonstrate problem solving skills after completing calculations.
- Graduates apply critical thinking and problem solving skills to clinical situations.

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.);
- 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 & 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 Sept-Dec 31st the program starts the following Fall);
- An informational interview is required of all qualified applicants;
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 non-verbal form; and
• demonstrate an awareness of the ethical and legal responsibilities of radiation therapy technologists.

**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 Directors 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.