

# ADVANCED MEDICAL IMAGING - COMPUTED TOMOGRAPHY (CT)

Computed tomography technologists are highly trained radiographers who work with special rotating X-ray equipment to obtain “slices” of anatomy at different levels within the body. CT technologists are essential members of the medical imaging team performing scans, which are vital to the diagnosis of a variety of injuries and diseases. Graduates of the advanced certificate program at ECC are highly skilled and qualify to sit for advanced certification examination by the American Registry of Radiologic Technologists (ARRT).

## Accreditation

There is no mechanism for accreditation of CT programs at this time.

## Entrance Requirements

Each applicant must be a graduate of a JRCERT-accredited radiography or radiation therapy program and must have passed the ARRT certification examination; or be ARRT- or NMTCB-registered in nuclear medicine technology and a graduate of a JRCNMT-accredited nuclear medicine technology program.

Approximately ten part-time and ten full-time applicants will be accepted on a first-come, first-served basis. Full-time students will be given priority for clinical placement.

## Admission Procedures

Admission into the program is selective. For more information, please see [admission requirements](#).

## Program Requirements

Students must complete all required courses with grades of C or better and meet graduation requirements in order to be eligible to apply to sit for the ARRT national certification exam in computed tomography offered by the American Registry of Radiologic Technologists.

## Policies and Procedures for Medical Imaging Certificate Programs

Any student demonstrating a positive background check will be denied admission to any health professions program.

Before attending clinical training, students must submit documentation through the Castlebranch portal including: completed medical form which includes proof of immunizations/titer results, proof of health insurance coverage, TB test, and proof of healthcare provider CPR certification. Background checks and drug testing are also conducted through Castlebranch.

Health professions students will be required to update their drug test, TB test/TB survey, and flu vaccine information on an annual basis. Any student demonstrating a positive drug test will be dismissed from the Health Professions Division.

The standards, policies, and procedures of the medical imaging programs are published in the advanced medical imaging student handbook. Copies of the student handbook may be obtained online at [Medical Imaging](#).

## Advanced Medical Imaging Programs Mission Statement

Elgin Community College’s advanced imaging programs in magnetic resonance, computed tomography and mammography provide accessible and relevant education in accordance with the highest professional standards. The programs, in partnership with its clinical affiliates, will provide the healthcare community with competent advanced imaging technologists who provide high-quality images and excellent patient-centered care to the diverse populations within the community.

## Program Goals and Expected Outcomes

The program will graduate competent imaging technologists.

Expected outcomes: Students/graduates will demonstrate competency by:

- Producing quality images.
- Practicing safety for the patient, him or herself and others.
- Demonstrating overall competence in clinical practice.

The student/graduate will develop and practice proficiency in problem-solving and critical thinking skills.

Expected outcomes: Students/graduates will demonstrate proficiency in problem-solving and critical thinking skills by:

- Modifying standard procedures to accommodate patient conditions and other variables.
- Determining the need and adapting exposure factors and/or protocol for various patient conditions, equipment, accessories and contrast media to maintain appropriate image quality.
- Evaluating image quality and to make appropriate adjustments to obtain diagnostic images.

The student/graduate will practice effective communication skills in the clinical setting.

Expected outcomes: Students/graduates will practice effective communication skills in the clinical setting by:

- Demonstrating effective communication skills.

The student/graduate will conduct him or herself in a professional manner.

Expected outcomes: Students/graduates will conduct him or herself in a professional manner by:

- Demonstrating professional values and behavior in clinical practice.
- Demonstrating professional growth through participation in lifelong learning.

The student/graduate will provide excellent patient care for a diverse population of patients.

Expected outcomes: Students/graduates will provide excellent patient care for a diverse population of patients by:

- Demonstrating increased understanding of the importance of cultural competence in clinical practice.
- Demonstrating increased awareness of current trends and changes in healthcare affecting the global population.

The program will provide the healthcare community with qualified practitioners of advanced medical imaging modalities.

Expected outcomes:

- A retention rate of 75% percent or higher.
- The 5-year average employment rate of graduates within one year of graduation will be 75 percent or greater. A positive outcome is defined as employment in the field for those graduates who declare they are actively seeking employment in the field or pursuing continued education in the field.
- First-time pass rates of graduate cohorts on the ARRT credentialing exam will be consistent with or above the national passing rates each year of the exam, with a minimum pass rate of 75%.
- Mean scores of graduate cohorts on the ARRT credentialing exam will be consistent with or above the national mean scores each year.
- The mean score on the employers' satisfaction survey of the graduates' preparation for employment will be 3.0 (meets expectations) or higher on a 5.0 (exceeds expectations) point scale.

## Computed Tomography - Basic Vocational Specialist

Course	Title	Credit Hours
<b>First Semester</b>		
CTI 100	CT Physical Principles I	3
CTI 101	CT Procedures I	3
AMI 110	Advanced Sectional Anatomy I	2
AMI 102	Patient Care and Safety	2
CTI 103	CT Clinical Practicum I	3
<b>Total</b>		<b>13</b>
<b>Second Semester</b>		
CTI 200	CT Physical Principles II	3
CTI 201	CT Procedures II	3
AMI 210	Advanced Sectional Anatomy II	2
CTI 204	CT Clinical Practicum II	4
<b>Total</b>		<b>12</b>
<b>Program Total</b>		<b>25</b>

## Advanced Medical Imaging Courses

SPECIAL NOTE: For more information on ECC's advanced imaging programs, go to [Medical Imaging](#).

A criminal background check and drug test MAY be required prior to enrollment.

### AMI 102 Patient Care and Safety (2) 1,2

Patient Care & Safety provides the student with patient care knowledge and skills related to specialized imaging procedures. The roles of the MR and CT technologists are defined as well as behavioral standards, and ethics and law related to the position. Medical records management concerns, including privacy and regulatory issues, are examined. This course will provide the student with patient assessment skills as it relates to advanced imaging procedures, a review of infection control and special considerations within these imaging environments. Contrast pharmacology, the theory and practice of basic techniques of venipuncture and administering diagnostic contrast agents and/or intravenous medications will be discussed. Course content will provide basic emergency medicine and management of medical emergencies related to adverse contrast reactions. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

### Radiography Program Information

SPECIAL NOTE: Students enrolled in this program are required to have the following: 1) criminal background check, 2) drug test, 3) physical exam, 4) lab tests to prove immunity to common illnesses, 5) TB test, 6) health insurance, 7) uniform, 8) social security card 9) Basic Life Support (BLS) Healthcare Provider CPR certification 10) fully vaccinated for COVID-19. .

**In-District Tuition/Fees:** \$405 (effective 2025/26 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** Acceptance in to the Computed Tomography Imaging or the Magnetic Resonance Imaging program

**Semester(s) Offered:** Fall

**AMI 110 Advanced Sectional Anatomy I (2) 1,2**

Advanced Sectional Anatomy I will enhance the student's knowledge of gross radiographic anatomy through the observation of the human body from multiple orthogonal planes. The following anatomical regions of interest included in this course are: brain, face, neck, spine, upper and lower musculoskeletal regions. This course also familiarizes the student with the common pathologies found in magnetic resonance imaging and computed tomography through the appearance of normal and abnormal pathologies in various imaging planes. Pathological and traumatic disease processes associated with the skeletal, endocrine, and hemopoietic systems will be discussed to help the student identify these disease processes in common practice and make the associated imaging changes required to adequately demonstrate the patient's anatomy and pathology. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

**Radiography Program Information**

SPECIAL NOTE: Students enrolled in this program are required to have the following: 1) criminal background check, 2) drug test, 3) physical exam, 4) lab tests to prove immunity to common illnesses, 5) TB test, 6) health insurance, 7) uniform, 8) social security card 9) Basic Life Support (BLS) Healthcare Provider CPR certification 10) fully vaccinated for COVID-19. .

**In-District Tuition/Fees:** \$276 (effective 2025/26 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** Acceptance in to the Computed Tomography Imaging or the Magnetic Resonance Imaging program

**Semester(s) Offered:** Fall

**AMI 210 Advanced Sectional Anatomy II (2) 1,2**

Advanced Sectional Anatomy II is the secondary anatomy and pathology course. It will further enhance the student's knowledge of gross radiographic anatomy and increase understanding of this anatomy through the observation from a three dimensional perspective. The student will be introduced to gross anatomy from a cross sectional perspective including the following regions/systems: thorax, abdomen and pelvis. Pathological and traumatic disease processes associated with the respiratory, cardiovascular, abdomen, gastrointestinal, hepatobiliary, urinary, and reproductive systems. Anatomical structures and the plane that best demonstrates anatomy are discussed as well as signal characteristics of normal and abnormal structures will be discussed. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

**Radiography Program Information**

SPECIAL NOTE: Students enrolled in this program are required to have the following: 1) criminal background check, 2) drug test, 3) physical exam, 4) lab tests to prove immunity to common illnesses, 5) TB test, 6) health insurance, 7) uniform, 8) social security card 9) Basic Life Support (BLS) Healthcare Provider CPR certification 10) fully vaccinated for COVID-19. .

**In-District Tuition/Fees:** \$276 (effective 2025/26 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** Grade of C or better in AMI 110

**Semester(s) Offered:** Spring

## Computed Tomography Courses

### CTI 100 CT Physical Principles I (3) 2,2

CT Physical Principles I introduces the student to physical principles and image acquisition parameters of computed tomography, surveys instrumentation and digital processing parameters, and discusses scanning techniques as applied to single and multi-slice spiral CT. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

#### Radiography Program Information

SPECIAL NOTE: Students enrolled in this program are required to have the following: 1) criminal background check, 2) drug test, 3) physical exam, 4) lab tests to prove immunity to common illnesses, 5) TB test, 6) health insurance, 7) uniform, 8) social security card 9) Basic Life Support (BLS) Healthcare Provider CPR certification 10) fully vaccinated for COVID-19. .

**In-District Tuition/Fees:** \$517 (effective 2025/26 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** Acceptance in to the Computed Tomography Imaging program

**Semester(s) Offered:** Fall

### CTI 101 CT Procedures I (3) 2,2

This course provides detailed coverage of procedures for CT imaging. Procedures include, but are not limited to, indications for the procedure, patient education, preparation, orientation and positioning, patient history and assessment, contrast media usage, scout image, selectable scan parameters, filming and archiving of the images. CT procedures will be taught for differentiation of specific structures, patient symptomology and pathology. CT images studied will be reviewed for quality, anatomy and pathology. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

#### Radiography Program Information

SPECIAL NOTE: Students enrolled in this program are required to have the following: 1) criminal background check, 2) drug test, 3) physical exam, 4) lab tests to prove immunity to common illnesses, 5) TB test, 6) health insurance, 7) uniform, 8) social security card 9) Basic Life Support (BLS) Healthcare Provider CPR certification 10) fully vaccinated for COVID-19. .

**In-District Tuition/Fees:** \$517 (effective 2025/26 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** Acceptance in the Computed Tomography Program or consent of instructor

**Semester(s) Offered:** Fall

### CTI 103 CT Clinical Practicum I (3) 0,15

In CT Clinical Practicum I content and clinical practice experiences should be designed to sequentially develop, apply, critically analyze, integrate, synthesize and evaluate concepts and theories in the performance of radiologic procedures. Through structured, sequential, competency-based clinical assignments, concepts of team practice, patient-centered clinical practice and professional development are discussed, examined and evaluated. Clinical practice experiences should be designed to provide patient care and assessment, competent performance of radiologic imaging and total quality management. Levels of competency and outcomes measurement ensure the well-being of the patient preparatory to, during and following the radiologic procedure. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

#### Radiography Program Information

SPECIAL NOTE: Students enrolled in this program are required to have the following: 1) criminal background check, 2) drug test, 3) physical exam, 4) lab tests to prove immunity to common illnesses, 5) TB test, 6) health insurance, 7) uniform, 8) social security card 9) Basic Life Support (BLS) Healthcare Provider CPR certification 10) fully vaccinated for COVID-19. .

**In-District Tuition/Fees:** \$517 (effective 2025/26 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** Acceptance into the Computed Tomography Imaging program or consent of instructor

**Semester(s) Offered:** Fall

### CTI 200 CT Physical Principles II (3) 2,2

CT Physical Principles II introduces the student to the principles of single slice, multi-slice and volume scanning computed tomography as they pertain to radiation dose in adults and pediatrics. It will also cover post-processing techniques, PET/CT, and quality control. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

#### Radiography Program Information

SPECIAL NOTE: Students enrolled in this program are required to have the following: 1) criminal background check, 2) drug test, 3) physical exam, 4) lab tests to prove immunity to common illnesses, 5) TB test, 6) health insurance, 7) uniform, 8) social security card 9) Basic Life Support (BLS) Healthcare Provider CPR certification 10) fully vaccinated for COVID-19. .

**In-District Tuition/Fees:** \$517 (effective 2025/26 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** Grade of C or better in CTI 100 or consent of instructor

**Semester(s) Offered:** Spring

**CTI 201 CT Procedures II (3) 2,2**

Content provides detailed coverage of procedures for CT imaging. Procedures include, but are not limited to, indications for the procedure, patient education, preparation, orientation and positioning, patient history and assessment, contrast media usage, scout image, selectable scan parameters, filming and archiving of the images. CT procedures will be taught for differentiation of specific structures, patient symptomology and pathology. CT images studied will be reviewed for quality, anatomy and pathology. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

**Radiography Program Information**

SPECIAL NOTE: Students enrolled in this program are required to have the following: 1) criminal background check, 2) drug test, 3) physical exam, 4) lab tests to prove immunity to common illnesses, 5) TB test, 6) health insurance, 7) uniform, 8) social security card 9) Basic Life Support (BLS) Healthcare Provider CPR certification 10) fully vaccinated for COVID-19. .

**In-District Tuition/Fees:** \$517 (effective 2025/26 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** Grade of C or better in CTI 101 or consent of the instructor

**Semester(s) Offered:** Spring

**CTI 204 CT Clinical Practicum II (4) 0,20**

In CT Clinical Practicum II content and clinical practice experiences should be designed to sequentially develop, apply, critically analyze, integrate, synthesize and evaluate concepts and theories in the performance of radiologic procedures. Through structured, sequential, competency-based clinical assignments, concepts of team practice, patient-centered clinical practice and professional development are discussed, examined and evaluated. A comprehensive "mock" registry will be given at the conclusion of the course. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

**Radiography Program Information**

SPECIAL NOTE: Students enrolled in this program are required to have the following: 1) criminal background check, 2) drug test, 3) physical exam, 4) lab tests to prove immunity to common illnesses, 5) TB test, 6) health insurance, 7) uniform, 8) social security card 9) Basic Life Support (BLS) Healthcare Provider CPR certification 10) fully vaccinated for COVID-19. .

**In-District Tuition/Fees:** \$655 (effective 2025/26 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** Grade of C or better in CTI 103 or consent of instructor

**Semester(s) Offered:** Spring