

ADVANCED MEDICAL IMAGING – MAGNETIC RESONANCE IMAGING (MRI)

Coming Soon! Summer 2026

Magnetic resonance technologists are highly trained radiographers who operate magnetic resonance (MR) equipment that scans the patient using a combination of magnetic fields and radiofrequency to produce high-resolution images of the body. MR technologists are essential members of the medical imaging team performing scans that 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 by the American Registry of Radiologic Technologists (ARRT).

Accreditation

The Magnetic Resonance Program is accredited by:

The Joint Review Committee on Education in Radiologic Technology (JRCERT)
20 N. Wacker Drive, Suite 2850
Chicago, IL 60606
312-704-5300
jrcert.org

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, or be a graduate of a JRCNMT-accredited sonography program and have passed the ARRT or ARDMS certification examination.

Approximately ten part-time and ten full-time applicants will be accepted. 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 to be eligible to apply to sit for the ARRT national certification exam in magnetic resonance 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 a completed medical form which includes proof of immunizations/titer results, the COVID-19 vaccine required, 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 on information 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.**

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.

Magnetic Resonance Imaging- Associate of Applied Science

| Course | Title | Credit Hours |
|------------------------|---------------------------------|--------------|
| First Semester | | |
| RAD 102 | Methods of Patient Care | 2 |
| PSY 218 | Human Growth and Development | 3 |
| ENG 101 | English Composition I | 3 |
| MRI 102 | MRI Safety | 3 |
| Total | | 11 |
| Second Semester | | |
| MRI 101 | MR Procedures I | 3 |
| MRI 103 | MR Clinical Practicum I | 3 |
| AMI 110 | Advanced Sectional Anatomy I | 2 |
| BIO 246 | Human Anatomy and Physiology II | 4 |
| Total | | 12 |
| Third Semester | | |
| AMI 210 | Advanced Sectional Anatomy II | 2 |
| MRI 100 | MR Physical Principles | 3 |
| MRI 201 | MR Procedures II | 3 |
| MRI 204 | MR Clinical Practicum II | 3 |
| Total | | 11 |
| Fourth Semester | | |
| MRI 200 | Clinical Aspects of MR | 3 |
| MRI 202 | MRI Image Evaluation | 1 |
| MRI 205 | MR Clinical Practicum III | 2 |
| ENG 102 | English Composition II | 3 |
| Total | | 9 |
| Fifth Semester | | |
| RAD 212 | Radiographic Pathology | 2 |
| RAD 230 | Medical Ethics and Law | 2 |
| CMS 215 | Intercultural Communication | 3 |
| MRI 206 | Clinical Practicum IV | 5 |
| Total | | 12 |
| Sixth Semester | | |
| RAD 240 | Career Development | 1 |
| HPE 270 | Global Context of Healthcare | 2 |
| HUM 216 | Ethics | 3 |
| MRI 207 | Clinical Practicum V | 5 |
| Total | | 11 |
| Program Total | | 66 |

Magnetic Resonance Imaging - Basic Vocational Specialist

| Course | Title | Credit Hours |
|------------------------|-------------------------------|--------------|
| First Semester | | |
| MRI 100 | MR Physical Principles | 3 |
| MRI 101 | MR Procedures I | 3 |
| AMI 110 | Advanced Sectional Anatomy I | 2 |
| AMI 102 | Patient Care and Safety | 2 |
| MRI 103 | MR Clinical Practicum I | 3 |
| Total | | 13 |
| Second Semester | | |
| MRI 200 | Clinical Aspects of MR | 3 |
| MRI 201 | MR Procedures II | 3 |
| AMI 210 | Advanced Sectional Anatomy II | 2 |
| MRI 204 | MR Clinical Practicum II | 4 |
| Total | | 12 |

Third Semester

| | | |
|---------|---------------------------|-----------|
| MRI 205 | MR Clinical Practicum III | 2 |
| | Total | 2 |
| | Program Total | 27 |

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

Magnetic Resonance Imaging Courses**MRI 100 MR Physical Principles (3) 2,2**

MR Physical Principles will introduce the fundamental principles that lend themselves to the creation of the magnetic resonance images through the understanding of basic quantum physics, instrumentation, and the manipulation of basic technical factors. This course's topics will cover magnetic molecular principles, image weighting and contrast, tissue characteristics, spatial localizations, MR system components, data collection and image formation, imaging parameters and their trade-offs, and MR safety. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

Radiography Program Information .

In-District Tuition/Fees: \$543 (effective 2025/26 academic year)

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

Prerequisite: Acceptance into the Magnetic Resonance Imaging program

Semester(s) Offered: Spring

MRI 101 MR Procedures I (3) 2,2

This course will help the student begin to apply their knowledge of MR physical principles, MR safety, sectional anatomy, MR instrumentation and image formation, and patient care within the MR environment. The student will be introduced to intravenous puncture techniques and contrast administration. This course also provides the student with slice and patient positioning, proper coil selection and positioning, imaging protocols and techniques related to the central nervous system (CNS), neck, and spine. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

Radiography Program Information .

In-District Tuition/Fees: \$543 (effective 2025/26 academic year)

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

Prerequisite: Acceptance into the MRI program or consent of the instructor

Semester(s) Offered: Fall

MRI 102 MRI Safety (3) 3,2

This course provides a comprehensive understanding of Magnetic Resonance Imaging (MRI) technology and the critical aspects of ensuring MRI safety. In the introductory section, students gain insights into the overview of MRI technology, the significance of magnet protection, and the basic principles of magnetic fields in MRI. Moving into the core components and operation of MRI magnets, the course delves into superconducting magnets, gradient coils, and radiofrequency coils, emphasizing their roles and potential risks. Students explore various magnet protection systems, including quench protection systems and cryogenic systems, with a focus on emergency response protocols. The course outlines safety measures for magnet protection, including operational guidelines, patient screening, and routine maintenance procedures. Emergency procedures and protocols are thoroughly covered, addressing magnet quench events, cryogenic system failures, and collaboration with emergency services. Real-life case studies and scenarios provide valuable insights, allowing students to analyze historical incidents, learn from successful interventions, and implement lessons into current practices. The course also covers regulatory compliance, emphasizing international and local standards, and certification processes for MRI magnet systems. Students are updated on future developments in magnet protection, including emerging technologies and proactive strategies for staying ahead of challenges. Proficiency Credit: Not Available Pass/No Credit: Not Available.

In-District Tuition/Fees: \$414 (effective 2025/26 academic year)

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

Prerequisite: Acceptance into the Magnetic Resonance Imaging Program.

Semester(s) Offered: Summer

MRI 103 MR Clinical Practicum I (3) 0,15

MR Clinical Practicum I encompass the clinical application of technical and professional aspects of magnetic resonance imaging within a healthcare setting. Content is presented as a progression in competency levels through clinical performance objectives and competency exams. Students will be rotated through different MR facilities and be exposed to MR personnel, examinations and educational materials necessary to competently achieve content objectives. The student will be required to demonstrate clinical competency in a number and variety of procedures as required by the American Registry of Radiologic Technologists (ARRT). Activities include demonstration and observation, after which the student assists in performing the activity. When a satisfactory degree of proficiency is apparent, the student can perform the activity under direct supervision. When both the student and instructor are satisfied with the student's proficiency, the student performs studies under indirect supervision to gain experience and expertise in MR imaging and meet the clinical procedural examination requirements outlined in this course. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

Radiography Program Information .

In-District Tuition/Fees: \$543 (effective 2025/26 academic year)

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

Prerequisite: Acceptance in the MRI Program or consent of instructor

Semester(s) Offered: Fall

MRI 200 Clinical Aspects of MR (3) 2,3

Clinical Aspects of MR will introduce the student to clinical aspects of magnetic resonance imaging. Topics include pulse sequences, vascular imaging, artifacts and their compensation, contrast agent and their effects on the overall image, advanced imaging techniques and quality assurance. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

Radiography Program Information .

In-District Tuition/Fees: \$543 (effective 2025/26 academic year)

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

Prerequisite: Grade of C or better in MRI 100 or consent of instructor

Semester(s) Offered: Summer

MRI 201 MR Procedures II (3) 2,2

This procedures course will help the student begin to apply their knowledge of MR physical principles, MR safety, sectional anatomy, MR instrumentation and image formation, and patient care within the MR environment. The student will be introduced to intravenous puncture techniques and contrast administration. This course also provides the student with slice and patient positioning, proper coil selection and positioning, imaging protocols and techniques related to the muscular skeletal system, thorax, abdomen, pelvis, vascular examinations, and special procedures. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

Radiography Program Information .

In-District Tuition/Fees: \$543 (effective 2025/26 academic year)

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

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

Semester(s) Offered: Spring

MRI 202 MRI Image Evaluation (1) 0,2

This course is demonstrating the fundamentals of cause and effect associated with MRI imaging. Students will learn the routine examinations and selected non-routine MRI examinations of the neurological system, muscle skeletal system, vascular system, and body. The factors that control and influence image quality will be discussed in depth. This included technical factors selection, positioning, patient condition, and other challenges so that students can producing acceptable images. The expectation of students entering this course is to know and understand cross sectional anatomy and the parameters used to produce an MRI image. This course includes demonstrations and laboratory activities to reinforce concepts and enhance student learning. Problem solving and critical thinking skills will be emphasized in technique formulation and exposure calculations Proficiency Credit: Not Available Pass/No Credit: Not Available.

In-District Tuition/Fees: \$138 (effective 2025/26 academic year)

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

Prerequisite: Grade of C or better in MRI 100, AMI 210, MRI 201 and MRI 204

Semester(s) Offered: Summer

MRI 204 MR Clinical Practicum II (3) 0,15

This clinical course provides the student with additional clinical experience necessary to comply with the ARRT clinical experience requirements in order to be eligible to take the ARRT Advanced Certification Examination. It will encompass many of the same technical and professional aspects the prerequisite course, MRI 103; however, the focus here will be to increase the student's knowledge and confidence with more repetition within a healthcare setting. Technologists performing magnetic resonance imaging must competently apply basic protocols, recognize when and how to appropriately alter the standard protocol and recognize equipment and patient considerations that affect image quality. The technologist is responsible for maintaining a safe MRI environment. This course provides the necessary supervised clinical education to become proficient in these skills. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

Radiography Program Information

In-District Tuition/Fees: \$543 (effective 2025/26 academic year)

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

Prerequisite: Grade of C or better in MRI 103 or consent of instructor

Semester(s) Offered: Spring

MRI 205 MR Clinical Practicum III (2) 0,10

This clinical course provides the student with additional clinical experience necessary to comply with the ARRT clinical experience requirements in order to be eligible to take the ARRT Advanced Certification Examination. It will encompass many of the same technical and professional aspects the prerequisite courses, MRI 103 and 204. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available

Radiography Program Information

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

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

Prerequisite: Grade of C or better in MRI 204 or consent of instructor

Semester(s) Offered: Summer

MRI 206 Clinical Practicum IV (5) 0,25

This course is a continuation of the MRI Clinical Practicum III. The course emphasizes the continued development of clinical competency and professional development. Students complete clinical rotation assignments which reinforce and provide opportunities for observation, assistance and participation in MRI procedures which are covered in the Procedures courses and patient care skills covered in the Methods of Patient Care course. Emphasis is placed on application of concepts in the actual performance of procedures. Students will complete 384 hours of clinical experience in MRI under direct and/or indirect supervision of an MRI technologist as appropriate. The student will continue attaining, maintaining and documenting competency in MRI procedures. Proficiency Credit: Not Available Pass/No Credit: Not Available.

In-District Tuition/Fees: \$690 (effective 2025/26 academic year)

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

Prerequisite: Grade of C or better in MRI 200, MRI 202 and MRI 205

Semester(s) Offered: Fall

MRI 207 Clinical Practicum V (5) 0,25

This is the final clinical practicum course. This clinical course provides the student with additional clinical experience necessary to comply with the ARRT clinical experience requirements in order to be eligible to take the ARRT Advanced Certification Examination. It will encompass many of the same technical and professional. Clinical requirements include successful completion of final clinical competencies in all major areas of MRI including critical thinking and problem-solving. Successful completion of final competencies is a program graduation requirement, Emphasis is placed on application of concepts in the actual performance of procedures. The student will continue attaining, maintaining and documenting competency in MRI procedures. Special Note: A criminal background check and drug test are required prior to enrollment Proficiency Credit: Not Available Pass/No Credit: Not Available.

In-District Tuition/Fees: \$690 (effective 2025/26 academic year)

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

Prerequisite: Grade of C or better in MRI 103, MRI 204, MRI 205 & MRI 206.

Semester(s) Offered: Spring