

ARMRIT[®]

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American Registry of Magnetic Resonance Imaging Technologists

***Magnetic Resonance Imaging Technologist
(MRI)***

***Examination-New Version
Candidate Handbook***



"The Gold Standard of MRI Technologist Certification"

"Because MRI is a Specialty"

"You are MRI when you are ARMRIT"

Note: Apply only if you are ready now to challenge & sit for the exam!

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IMPORTANT: READ ENTIRE HANDBOOK!!!

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About the ARMRIT: 'THE MRI REGISTRY of MRI SPECIALISTS

ARMRIT has always stressed the importance of well-trained and highly qualified Technologists for MRI.

The ARMRIT is the first and only certifying organization to:

- 1) Recognize MRI Technology as a distinct medical imaging specialty utilizing non-ionizing radiation.
- 2) Require MRI clinical experience and competency for eligibility.
- 3) Promote formal MRI education with MRI clinical training.
- 4) Recognize MRI schools that offer full-time educational program leading to a career in MRI.

The ARMRIT Board of Directors and Examination Committee includes MRI professionals such as, MRI Researchers, Physicists, MRI Technologists, Educators, and Legal Advisors.

- **American College of Radiology (ACR)** - MRI Accreditation Committee has recognized ARMRIT as an autonomous certifying body meeting the ACR accreditation requirements for MRI technologists. The Centers for Medicare and Medicaid Services (CMS) has selected the ACR, as a designated accrediting organization.
- **American Council on Education (ACE)**, Washington, DC. The MRI Technologist examination has been recommended for College-Level Credit.
- **Apprenticeship - USDOL**, ARMRIT allows graduates from U.S. Department of Labor (USDOL) Registered Apprenticeship programs to sit for their certification exam. Approved Registered Apprenticeship Program by the U.S. Department of Labor, Office of Apprenticeship, or a State Apprenticeship Agency recognized by the Office of Apprenticeship. Magnetic Resonance Imaging (MRI) Technologist O*NET Code: **29-2035.00** Rapids Code: **1115**
- **Centers for Medicare and Medicaid Services (CMS)** has established accreditation requirements for providers of advanced medical imaging mandated by the Medicare Improvements for Patients and Providers Act of 2008 (MIPPA). Providers must comply with CMS' requirement that all providers of CT, MRI, PET and nuclear medicine exams be accredited by Jan. 1, 2012, in order to be reimbursed.
- **Institute for Credentialing Excellence (ICE)**, Washington, DC, ARMRIT is a member organization.
- **Intersocietal Accreditation Commission** includes ARMRIT as a recognized certifying body for MRI Technologists.
- **The Joint Commission** includes ARMRIT as a recognized certifying body for MRI Technologists.
- **Los Angeles County, CA, Department of Health Services** includes ARMRIT certification in the selection requirements for MRI Technologist positions in LA County Hospitals.
- **New Hampshire Board of Medical Imaging and Radiation Therapy** includes ARMRIT certification as a requirement to be eligible for a license to practice MRI Technology.
- **New Mexico Medical Imaging & Radiation Therapy Act Committee** includes ARMRIT certification as a requirement to be eligible for a license to practice MRI Technology.
- **North Dakota Medical Imaging & Radiation Therapy Board** includes ARMRIT certification as a requirement to be eligible for a License to practice MRI Technology.
- **Ohio Department of Health** includes ARMRIT as a recognized certifying body for MRI Technologists.
- **O*NET OnLine** a proud partner of the **americanjobcenter®network** includes ARMRIT Certification. Magnetic Resonance Imaging (MRI) Technologist O*NET Code: **29-2035.00** Rapids Code: **1115**
- **Oregon Board of Medical Imaging Technology** includes ARMRIT certification as a requirement to be eligible for a Medical Imaging Technologist License to practice MRI Technology.
- **RadSite** includes ARMRIT as a recognized Certifying Organization for MRI Technologists.
- **Veterans Administration** ARMRIT is recognized and approved by the Medical Imaging Department which established the policy of reimbursing the associated application and examination fees of its members.
- **West Virginia Medical Imaging and Radiation Therapy Technology Board of Examiners** includes ARMRIT certification as a requirement to be eligible for a license to practice MRI Technology.

The History and Current Practice of Magnetic Resonance Imaging (MRI)

A White Paper presented by the American Registry of Magnetic Resonance Imaging Technologists

Revised March 2020

The American Registry of Magnetic Resonance Imaging Technologists - ARMRIT, a New York State Not-for-Profit corporation, tax exempt under Internal Revenue Code Section 501(c)(6), is a certifying organization which was founded in 1991 to provide certification to the thousands of MRI Technologists who had been trained on the job since MRI became available in 1983. As an International Certifying Body, ARMRIT certifies MRI technologists who have met its established criteria, and who work in MRI facilities at Hospitals and private non-hospital facilities. To date it has certified technologists in 46 states, Puerto Rico, Guam, Canada, Britain, and in Asia and the Middle East. ARMRIT has adopted the slogan - "Because MRI is a Specialty".

Radiologic Science, in a strictly technical definition, has to do with the administration of ionizing radiation (X-Ray). MRI Technology has nothing to do with Radiologic Science. MRI Technology employs radio frequency transmission in a main magnetic field. The education and training of an MRI Technologist is distinct from any other medical imaging modality. The patient safety issues, especially, are specific to MRI which involves very strong magnetic fields that can affect medically implanted devices. This high magnetic field can cause ferromagnetic objects to become projectiles. Numerous MRI manufacturers, such as, Fonar Corporation, General Electric Healthcare, Bruker Biospin, Hitachi Medical Systems of America, Philips, Siemens, Varian and Toshiba Medical Systems, etc., produce different types of MRI units with differing designs, magnetic field strengths and imaging capabilities. These MRI scanners allow the patients to be imaged in various positions, for example, lying down on a table supine, sitting-up in a chair or standing, depending on the anatomical area of the body being imaged. The MRI Technologist must have a deep understanding of MR physics which involves electromagnetic fields and deciphering information from the hydrogen atoms in human body tissue. To insure high quality diagnostic images the MRI Technologist must have an extensive knowledge of the numerous and increasingly complex applications, protocols and parameters involved in quality imaging, patient care and safety techniques, the knowledge and ability to inject MRI specific contrast agents and most important, the safety requirements of patient care in the MRI suite.

MRI is an exceptionally safe imaging modality. No inherent adverse biological affect has ever been shown in MRI when performed correctly and carefully. MRI is a highly respected modality due to the flexibility and versatility of MRI Technology and modern medical preference to avoid ionizing radiation. MRI is however not without unique safety issues. Ferrous objects can fly into the magnet bore causing severe injury or death, radio-frequency burns could occur on the patient's skin without proper supervision, high-decibel acoustic noise to damage hearing and gadolinium-based IV-contrast agents while much safer than iodine based contrast agents can be harmful in patients with compromised kidney function. The MRI technologist is trained in preventing, and responding to, all possible MRI hazards.

The most horrific injuries that have occurred in conjunction with MRI were due to ferrous oxygen tanks and other ferrous items being allowed near the MRI machine which were drawn into the magnet bore with incredible levels of force. There have in fact been a number of MRI related fatalities and other serious injuries all of which occurred when a technologist failed to protect his/her patients. Lack of proper MRI safety training is the cause. No MRI-related patient injury has ever been attributed to an ARMRIT-certified technologist.

MRI, like Ultrasonography uses no 'Ionizing Radiation', hence it does not necessarily fall under generally accepted regulations applicable to Radiography. Accordingly, there are no Federal regulations governing MRI Technologists specifically. The Centers for Medicare and Medicaid Services (CMS) has established accreditation requirements for providers of advanced medical imaging mandated by the Medicare Improvements for Patients and Providers Act of 2008 (MIPPA). Providers have been required to comply with the CMS requirement that all providers of CT, MRI, PET and Nuclear Medicine exams be accredited by a CMS recognized accrediting organization as of January 1, 2012 in order to be reimbursed. CMS has recognized four organizations as acceptable accrediting bodies: the American College of Radiology (ACR), the Inter-societal Accreditation Commission (IAC), The Joint Commission, and RadSite. **ARMRIT is included in the MRI site accreditation standards of all four CMS recognized accrediting organizations.**

O*NET Online: in the fall of 2009, ARMRIT was contacted by Traci Davis of RTI International, Raleigh, North Carolina informing announcing that the U.S. Department of Labor was sponsoring research of 400 new careers and that MRI Technology was one of them. Ms. Davis requested a national database of MRI Technologists with at least five (5) years of MRI Clinical experience to participate in the project to collect occupational information on the career of MRI Technologist. In September 2013, Ms. Davis provided the materials to the MRI Technologists explaining the O*NET Occupational Expert Data Collection Program for review. On September 26, 2013, ARMRIT agreed to the process.

In December 2013, Ms. Davis sent an email for distribution to the MRI Technologists in the database, which included an extensive Occupational Questionnaire. Upon submission of the questionnaires and completion of the Occupational Expert Data Collection Program, Magnetic Resonance Imaging (MRI) Technologist was described as a distinct and separate career by the U.S. Department of Labor with the O*NET Code: **29-2035.00** Rapids Code: **1115**.

Apprenticeship-USDOL, ARMRIT allows graduates from U.S. Department of Labor (USDOL) Registered Apprenticeship programs to sit for their certification exam. Approved Registered Apprenticeship Program by the U.S. Department of Labor, Office of Apprenticeship, or a State Apprenticeship Agency recognized by the Office of Apprenticeship. Magnetic Resonance Imaging (MRI) Technologist O*NET Code: **29-2035.00**, Rapids Code: **1115**

Continued:

On the State level, at this time, currently five States, New Hampshire, New Mexico, North Dakota, Oregon and West Virginia, have licensing requirements for MRI Technologists. ARMRIT certification is a criterion for licensure in all five states. In all other states, certification in the specialty is required or highly recommended however by insurance providers and required by most MRI employers.

ARMRIT is the first MRI Registry certifying body that required specific MRI education, in-depth clinical training, and hands-on experience. All applicants for Certification must meet the criteria to be eligible to sit for the ARMRIT certification examination, which are: 1) Graduate of an approved MRI Technologist Program; 2) Cross-Trained from an Allied Health Field with at least one-thousand (1000) hours of documented MRI Clinical experience; 3) Equivalency Clause, which is On-The-Job Training with at least four years of documented full-time clinical experience. Applicants who are qualified as Cross-Trained or the Equivalency Clause must be documented and signed off by a practicing board certified Physician. All eligible applicants must sit and successfully pass the ARMRIT MRI Technologist examination.

Once certified, ARMRIT Technologists are required to perform a minimum of 24 Continuing Medical Education credits specifically in the topic of MRI for every three-year renewal period. ARMRIT established an annual meeting and seminar, offering MRI Technologists twelve hours of lecture in MRI subjects by leaders in the MRI field nationally and internationally. For example, in 2010 Raymond Damadian, MD, inventor of the modern MRI scanner was the featured speaker at the ARMRIT Annual Meeting & Seminar.

The examination for ARMRIT Certification is administered by PSI Computer Testing. PSI has over 1000 testing sites nationally and internationally. Exams are graded and a hard copy of results is made available immediately to each candidate upon completion of the exam. PSI also provides evaluation of the on-going psychometric data used by the ARMRIT examination committee.

Moreover, the genesis of ARMRIT is to offer an alternative venue to qualified MRI Technologists who opted to train specifically in MRI technology without undergoing a Radiology/Radiography oriented background. Parenthetically, there are individuals who have radiation-phobia, whether justified or not, especially among women of child bearing age. That said ARMRIT does not preclude ARRT technologists to take the Registry certification exam, provided the ARMRIT criteria for said candidates are met. In fact a significant number of its current certificants are of ARRT background.

The Commission on Accreditation (COA) of the American Registry of Magnetic Resonance Imaging Technologists was created in response to a growing interest in the accreditation of MRI programs and in order to comply with federal and state regulatory requirements and of any national or international body. The voluntary application process assures that any MRI program accredited by the COA is committed to quality education. The sponsoring institution of the MRI program must formally apply to the COA for accreditation. Upon approval of the submitted application a site visit of the institution is scheduled. Accreditation is required for all campuses and at the conclusion of the accreditation period a renewal of accreditation is required.

Safety and Imaging Complexity Implications of MRI

Used properly and with care MRI is extremely safe. **No inherent adverse biological effects from MRI have ever been shown. Moreover, MRI and Ultrasound are the only two imaging modalities deemed safe for imaging a human fetus.** However, the MRI process poses significant dangers. Aside from rare and extreme allergic reactions from IV contrast agents in other modalities, **MRI is the only modality that has resulted in the death of a patient at the time of the exam. MRI is the only imaging modality that can kill instantly.**

The complexity of the MRI process is unparalleled in medical imaging. For example, the decision tree for selecting the Imaging Options in Radiography (X-Ray) is 4, Computed Tomography is approximately 6, Ultra-sonography including Echo is approximately 35, Nuclear Medicine including PET is approximately 6. **Contrast these with the number of imaging parameters controlled by an MRI Technologist which is no less than 70.**

There is no imaging modality like Magnetic Resonance Imaging. Like Ultrasonography, MRI utilizes a completely different branch of physics. There is no other imaging modality that is at the same time so safe and so **potentially** dangerous. It is understandable that the general public is not aware of the vast differences between MRI and every other imaging modality. What is unfortunate is that so many in the medical imaging field are equally unaware.

Magnetic Resonance Imaging as Compared to Other Imaging Modalities

Can there be any argument that Radiography and Ultrasonography (U/S) are two completely different imaging modalities? That they are both used in industrial and medical imaging is their only similarity. Nuclear Medicine (NM) and Radiography both share the same unit of energy: ionizing radiation. But again, here the similarities stop. Is it any surprise then that the fields of medical Ultrasonography and Nuclear Medicine have separate registries from medical radiography?

Computed Tomography (CT) is often thought to have much in common with Magnetic Resonance Imaging (MRI), yet nothing could be further from the truth. Other than having similar looking machines and consoles they have virtually nothing in common. In fact, CT has far more in common with X-ray Radiography. In the simplest sense, CT is just an X-ray tube that goes around in a circle while energized. MRI, like U/S and NM, is a completely different imaging modality. **A comparison of MRI to other medical imaging modalities (see pages 7-12) is therefore useful.**

Continued:

In Conclusion:

- 1) MRI already plays a major role in modern medicine which will continue to grow with expanded clinical and research applications and advanced imaging techniques.
- 2) The patient safety need to reduce exposure to ionizing radiation will lead to the continuing growth of MRI and the reduction of future use of CT Scan.
- 3) At present, **the vast majority of MRI Technologists, as much as 90%, in the United States were trained on the job.** Since its inception, ARMTRIT has advocated for distinct MRI Technologist training verses MRI training as an addendum to Radiologic Science, (X-Ray) School or any other allied health education.
- 4) The essential elements to the growth of MRI are highly trained technologists and maintaining the high level of patient safety that properly trained technologists brings to MRI.
- 5) ARMTRIT continues to be the world leader in the certification of highly trained and certified MRI Technologists.

A Comparison of MRI to Other Medical Imaging Modalities.

RADIOGRAPHY (X-Ray)

Unit of Energy:	Ionizing X-Radiation.
Principle Contrast Mechanism:	Electron Density.
Approximate Exams/Year:	Over 100 Million.
Main Applications:	Bony detail, lung disease, 1 st level screening, breast (mammography).
Short-term potential for patient harm:	Low Typically low radiation dose.
Long-term potential for patient harm:	Medium-High. Cumulative radiation dose linked to increased cancer risk later in life.

Imaging Options for an X-Ray Tech (RT)

- 1) Peak kilovolts
- 2) Amperage
- 3) Distance
- 4) Time

COMPUTED TOMOGRAPHY (CT)

Unit of Energy:	Ionizing X-Radiation.
Approximate Exams/Year:	70 Million.
Principle Contrast Mechanism:	Electron Density.
Main Applications:	Bony detail, lung disease, 2 nd -3 rd st level screening, brain, angiography, large bowel, 1 st level coronary screening.
Short-term potential for patient harm:	Medium. Higher radiation dose than radiography. Misuse of system can lead to over radiating the patient.
Long-term potential for patient harm:	Medium-High. Cumulative radiation dose shown to increase cancer risk later in life through over-use.

Imaging Options for an CT Tech (RT)

- 1) Kvp
- 2) Milli Amps
- 3) Time
- 4) Slice thickness
- 5) Pitch (table speed)
- 6) FOV

A Comparison of MRI to Other Medical Imaging Modalities (continued)

ULTRASONOGRAPHY (U/S)

Unit of Energy:	High Frequency Sound Energy.
Approximate exams/year:	90 Million.
Principle contrast mechanism:	Tissue Sound (Reflection and Scattering) Absorption.
Main Applications:	Abdomen, Echocardiography, Obstetrics/GYN, Ophthalmic, Musculoskeletal, Neuro-Sonology, Vascular, Color Flow and Tissue Doppler.
Short-term potential for patient harm:	Extremely low. In extreme circumstances, cavitation and/or tissue heating may occur.
Long-term potential for patient harm:	Extremely low. None shown to date.

Imaging Options for an Ultrasonographer

- Application Type Selection, Transducer Type Selection, Frequency Selection.
- Imaging mode selection:
 - 2D Imaging
 - M-mode
 - Color Flow Doppler
 - PW or CW Doppler
 - Tissue Doppler
 - Contrast Harmonics
 - Strain Imaging
 - 3D Imaging
- Imaging Window and Imaging Plane Selection
 - Abdominal (Sagittal, Coronal)
 - Pelvic (Sagittal, Coronal)
 - Cardiac: Parasternal (Long Axis, Short Axis), Apical (4-chamber, 5-chamber, 2-chamber, Long Axis), Subcostal (Long Axis, Short Axis, IVC), Suprasternal (Long Axis, Short Axis), Right Parasternal.
 - Vascular (Long Axis, Cross-section)
 - Ophthalmic, Musculoskeletal, Neurosonology (Sagittal, Coronal)
- Image Optimization Decisions:
 - Depth
 - Gain
 - Pre-processing
 - Post-processing
 - TGC
 - Persistence
 - Dynamic Range
 - Focus
 - PRF
 - Doppler baseline
 - Doppler velocity scale
 - Doppler gain
 - Doppler transmit
- Measurements:
 - Distance, Circumference, Surface Area, Volume, Velocity, VTI, Time Intervals

A Comparison of MRI to Other Medical Imaging Modalities (continued)

NUCLEAR MEDICINE (NM)

Unit of Energy:	Ionizing Isotope Radiation.
Principle Contrast Mechanism:	Tissue Uptake.
Approximate Exams/year:	18 Million.
Main Applications:	2 nd level cardiac, cancer staging (Includes PET).
Short-term potential for patient harm:	Low. Rapid Half-Lives pose little if any short term harm.
Long-term potential for patient harm:	Low. Theoretical risk of increased cancer risk but no link has been shown yet due to the lack of over-use.

Imaging Options for a Nuclear Medicine Tech

1) Height 2) Weight 3) Dose 4) Collimator 5) Scope (head/body) 6) Dynamic vs. Non-dynamic

MAGNETIC RESONANCE IMAGING (MRI)

Unit of Energy:	Radio Frequency Transmission in a Large Main Magnetic field.
Principle Contrast Mechanism:	Tissue Equilibrium Rates.
Approximate Exams/Year:	30 Million.
Main Applications:	Cancer staging, Central Nervous System (Brain/spine), Musculoskeletal, 3 rd level breast, 2 nd -3 rd level cardiac.
Short-term potential for patient harm:	High. If improperly employed, RF burns are the most common injury. Instant death can occur due to magnetic or ferrous objects. Several deaths have been documented.
Long-term potential for patient harm:	Low. No adverse effects from MRI even with multiple and repeated use has ever been shown.

Imaging Options for an MRI Tech

- Imaging Mode Decisions:
 - 2D acquisition, 3D acquisition, 4D acquisition
- Surface Coil Selection
- Plane: Axial, Sagittal, Coronal, Oblique
- Pulse Sequence Decisions
 - Spin Echo
 - Inversion Recovery
 - STIR
 - Fast (Turbo) Spin Echo: FSE-IR, FSE Fast Recovery, Phase-sensitive IR, Single Shot FSE (HASTE)

A Comparison of MRI to Other Medical Imaging Modalities (continued)

- FLAIR: T2 FLAIR, T1 FLAIR
- Gradient Echo
 - GRE
 - Fast (Turbo) GRE (SPGR)
 - Spoiled GRE
 - Fast (Turbo) Spoiled GRE
 - In/Out of Phase GRE
- Echo Planar Imaging (EPI)
 - GRE-EPI
 - SE-EPI
 - IR-EPI
 - Multi-shot EPI
 - Single Shot EPI
 - MS-IR-EPI
 - SS-IR-EPI
 - Susceptibility-weighted
 - Diffusion-weighted
 - Diffusion-Tensor: # of directions
- Vascular
 - Time-of-Flight
 - Phase Contrast (PC)
 - CINE
 - CINE PC
 - TOF-GRE
 - TOF-SPGR
 - CE MRA
- Acquisition Timing Decisions
 - Time-to-Echo (TE)
 - Min TE, Min Full TE, Number of echoes
 - Repetition Time (TR)
 - Inversion Time (TI)
 - Number of Excitations (NEX) or Number of Single Averages (NSA)
 - < than 1 Fourier Transform steps (0.5, 0.75. etc)
 - Receive Bandwidth
 - Echo-Time Length (ETL)
 - Flip Angle
- Image Resolution Decisions
 - Field of View
 - Slice Thickness
 - Inter-slice skip factor
 - Phase Encoding steps
 - Frequency Encoding Steps
 - Phase/Frequency direction

A Comparison of MRI to Other Medical Imaging Modalities (continued)

- General Imaging Options
 - Spatial RF Saturation pulse
 - Default, Placement, Thickness
 - Gradient Moment Nulling
 - Frequency Direction, Slice direction, Both
 - Magnetization Transfer
 - Sequential slice ordering
 - Interleaved slice ordering
 - Parallel Imaging
 - Acceleration factor
 - Anti-Aliasing
 - Respiratory Compensation
 - Resp re-ordering, Resp-triggering
 - Cardiac Gating
 - R-R interval
 - Delay Time
 - Trigger Window
 - ECG gating vs. Peripheral
 - Views per Segment
 - Vascular
 - Contrast Bolus detection
 - Manual timing
 - Computer-assisted
 - Real-time “Fluoro-triggering”
 - Time-Resolved Kinetics (IE:TRICKS)
 - Fat Suppression
 - Fat Saturation, Spectral Fat Suppression, 3pt Dixon
 - Local Field Shimming
 - Auto, Selection Volume
- Image Prescription Decisions
 - Number of slices
 - Slice/Volume coverage
- Image Reconstruction Options
 - Zero-filling interpolation: In-plane, Through-plane
 - Surface Coil intensity correction
 - Auto-Image subtraction
 - Image Filtration
 - Image Add/Subtract
 - ADC Map
 - FA Map
 - Perfusion Maps
 - rCBV, rCBF, rMTT
 - Auto-Reformation
 - Maximum-Pixel Intensity
 - Minimum-Pixel Intensity

ARMRIT BOARD OF DIRECTORS

<u>President & Executive Director:</u>	James F. Coffin, ARMRIT, Delray Beach, FL
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O*NET OnLine Updated 2017 **Summary Report for:** Bright Outlook

29-2035.00 – Magnetic Resonance Imaging Technologists

Operate Magnetic Resonance Imaging (MRI) scanners. Monitor patient safety and comfort, and view images of area being scanned to ensure quality of pictures. May administer gadolinium contrast dosage intravenously. May interview patient, explain MRI procedures, and position patient on examining table. May enter into the computer data such as patient history, anatomical area to be scanned, orientation specified, and position of entry.

Sample of reported job titles: Chief Magnetic Resonance Imaging Technologist (Chief MRI Technologist), Magnetic Resonance Imaging Coordinator (MRI Coordinator), Magnetic Resonance Imaging Director, Magnetic Resonance Imaging Quality Assurance Coordinator (MRI Quality Assurance Coordinator), Medical Imaging Director, MRI Specialist (Magnetic Resonance Imaging Specialist), MRI Supervisor (Magnetic Resonance Imaging Supervisor), MRI Technologist (Magnetic Resonance Imaging Technologist), Staff Technologist, Technologist.

Source: Visit: <https://www.onetonline.org/link/summary/29-2035.00>

View report: Summary Details Custom

Tasks I Technology Skills I Tools Used I Knowledge I Skills I Abilities I Work Activities I Detailed Work Activities I Work Context I Job Zone I Education I Credentials I Interests Work Styles I Work Values I Wages & Employment I Job Openings I Additional Information

Tasks: 5 of 23 displayed

- Operate Magnetic Resonance Imaging (MRI) scanners.
- Select appropriate imaging techniques or coils to produce required images.
- Inject intravenously contrast dyes, such as gadolinium contrast, in accordance with scope of practice.
- Position patients on cradle, attaching immobilization devices if needed, to ensure appropriate placement for imaging.
- Conduct screening interviews of patients to identify contraindications, such as ferrous objects, pregnancy, prosthetic heart valves, cardiac pacemakers, or tattoos.

Technology Skills: 5 of 6 displayed Show 32 tools used

- **Internet browser software** — Web browser software
- **Medical software** — Electronic medical record EMR software; Medical image processing software;
 - MEDITECH software tif• ; Radiology information systems (RIS)
 - **Office suite software** — Microsoft Office
 - **Spreadsheet software** — Microsoft Excel
 - **Word processing software** — Microsoft Word 44/ Hot Technology — a technology requirement frequently included in employer job postings.

Knowledge: 5 of 9 displayed

- **Customer and Personal Service** — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.
- **English Language** — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- **Medicine and Dentistry** — Knowledge of the information and techniques needed to diagnose and treat human injuries, diseases, and deformities. This includes symptoms, treatment alternatives, drug properties and interactions, and preventive health-care measures.
- **Biology** — Knowledge of plant and animal organisms, their tissues, cells, functions, interdependencies, and interactions with each other and the environment.
- **Computers and Electronics** — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.

Skills: 5 of 18 displayed

- **Active Listening** — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- **Reading Comprehension** — Understanding written sentences and paragraphs in work related documents.
- **Monitoring** — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- **Speaking** — Talking to others to convey information effectively.
- **Operation Monitoring** — Watching gauges, dials, or other indicators to make sure a machine is working properly.

Abilities: 5 of 23 displayed

- ❖ **Oral Comprehension** — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- ❖ **Oral Expression** — The ability to communicate information and ideas in speaking so others will understand.
- ❖ **Near Vision** — The ability to see details at close range (within a few feet of the observer).
- ❖ **Problem Sensitivity** — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- ❖ **Written Comprehension** — The ability to read and understand information and ideas presented in writing.

Work Activities: 5 of 32 displayed

- **Assisting and Caring for Others** — Providing personal assistance, medical attention, emotional support, or other personal care to others such as coworkers, customers, or patients.

Source: Visit: <https://www.onetonline.org/link/summary/29-2035.00>

29-2035.00 – Magnetic Resonance Imaging Technologists

- **Interacting With Computers** — Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.
- **Getting Information** — Observing, receiving, and otherwise obtaining information from all relevant sources.
- **Documenting/Recording Information** — Entering, transcribing, recording, storing, or maintaining information in written or electronic/magnetic form.
- **Performing for or Working Directly with the Public** — Performing for people or dealing directly with the public. This includes serving customers in restaurants and stores, and receiving clients or guests.

Detailed Work Activities: 5 of 18 displayed

- ✓ Operate diagnostic imaging equipment.
- ✓ Create advanced digital images of patients using computer imaging systems.
- ✓ Administer medical substances for imaging or other procedures.
- ✓ Position patients for treatment or examination.
- ✓ Collect medical information from patients, family members, or other medical professionals.

Work Context: 5 of 30 displayed

- **Face-to-Face Discussions** — 85% responded “Every day.”
- **Indoors, Environmentally Controlled** — 93% responded “Every day.”
- **Importance of Being Exact or Accurate** — 74% responded “Extremely important.”
- **Sounds, Noise Levels Are Distracting or Uncomfortable** — 77% responded “Every day.”
- **Telephone** — 74% responded “Every day.”

Job Zone:

Title Job Zone Three: Medium Preparation Needed

Education Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate’s degree.

Related Experience Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.

Job Training: Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. A recognized apprenticeship program may be associated with these occupations.

Job Zone These occupations usually involve using communication and organizational skills to: **Examples** coordinate, supervise, manage, or train others to accomplish goals. Examples include hydroelectric production managers, travel guides, electricians, agricultural technicians, barbers, court reporters, and medical assistants. **SVP Range** (6.0 to < 7.0)

Education: Percentage of Respondents Education Level Required

44 Associate’s degree, **37** Post-secondary certificate, **7** Bachelor’s degree

Credentials:

Find Training – Visit: <https://www.onetonline.org/link/summary/29-2035.00>

Find Certifications - Visit: <https://www.onetonline.org/link/summary/29-2035.00>

Find Licenses – Visit: <https://www.onetonline.org/link/summary/29-2035.00>

Interests: All 3 displayed

Interest code: **RCS** Want to discover your interests? Take the O*NET Interest Profiler at My Next Move.

- ❖ **Realistic** — Realistic occupations frequently involve work activities that include practical, hands-on problems and solutions. They often deal with plants, animals, and real-world materials like wood, tools, and machinery. Many of the occupations require working outside, and do not involve a lot of paperwork or working closely with others.
- ❖ **Conventional** — Conventional occupations frequently involve following set procedures and routines. These occupations can include working with data and details more than with ideas. Usually there is a clear line of authority to follow.
- ❖ **Social** — Social occupations frequently involve working with, communicating with, and teaching people. These occupations often involve helping or providing service to others.

Source: Visit: <https://www.onetonline.org/link/summary/29-2035.00>

Work Styles: 5 of 16 displayed

- ✓ **Dependability** — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- ✓ **Attention to Detail** — Job requires being careful about detail and thorough in completing work tasks.
- ✓ **Concern for Others** — Job requires being sensitive to others' needs & feelings & being understanding & helpful on the job.
- ✓ **Integrity** — Job requires being honest and ethical.
- ✓ **Self Control** — Job requires maintaining composure, keeping emotions in check, controlling anger, and avoiding aggressive behavior, even in very difficult situations.

Work Values:

- **Achievement** — Occupations that satisfy this work value are results oriented and allow employees to use their strongest abilities, giving them a feeling of accomplishment. Corresponding needs are Ability, Utilization, and Achievement.
- **Working Conditions** — Occupations that satisfy this work value offer job security and good working conditions. Corresponding needs are Activity, Compensation, Independence, Security, Variety and Working Conditions.
- **Support** — Occupations that satisfy this work value offer supportive management that stands behind employees. Corresponding needs are Company Policies, Supervision: Human Relations and Supervision: Technical.

Wages & Employment Trends:

- **Median wages (2017)** \$33.62 hourly, \$69,930 annual
- **Local State wages 4%** salary info
- **Employment (2016)** 37,000 employees
- **Projected growth (2016-2026)** Faster than average (10% to 14%)
- **Projected job openings (2016- 2026)** 2,500)

State trends: Employment Trends – Visit: <https://www.onetonline.org/link/summary/29-2035.00>

Top industries: (2016) Health Care and Social Assistance

Source: Bureau of Labor Statistics 2017 wage data g and 2016-2026 employment projections E. “Projected growth” represents the estimated change in total employment over the projections period (2016-2026). “Projected job openings” represent openings due to growth and replacement.

Job Openings on the Web: Find Jobs – Visit: <https://www.onetonline.org/link/summary/29-2035.00>

Sources of Additional Information: All 5 displayed

Disclaimer: Sources are listed to provide additional information on related jobs, specialties, and/or industries. Links to non-DOL Internet sites are provided for your convenience and do not constitute an endorsement.

- **American Registry of Magnetic Resonance Imaging Technologists**
- **American Society of Radiologic Technologists**
- **Occupational Outlook Handbook: Radiologic and MRI technologists**
- **Society for MR Radiographers and Technologists, A Section of the International Society for Magnetic Resonance in Medicine**
- **The American Registry of Radiologic Technologists**

Source: Visit: <https://www.onetonline.org/link/summary/29-2035.00>

ARMRIT Code of Ethics

Magnetic Resonance Imaging Technologists, as Certified Technologists of an allied health care profession, must endeavor to always practice their specialty with the highest ethical standards in mind. The American Registry of Magnetic Resonance Imaging Technologists' Board of Directors adopted and enacted the following Guidelines:

- 1) The MRI technologist shall provide quality service and patient care with empathy, respect and concern for the rights, privacy and safety of the patient.
- 2) The MRI technologist shall always be aware of the precautions necessary and available to anyone in the MRI environment in order to safeguard the patient and others.
- 3) The MRI technologist shall respect the confidentiality and never divulge patient information to anyone not directly related to the care of the patient as allowed by law.
- 4) The MRI technologist shall adhere and comply with statutes, laws, regulations or specifications that govern the medical imaging modality of magnetic resonance imaging technology under federal, state and local law.
- 5) The MRI technologist shall perform their assigned duties responsibly, accurately and competently, and professionally.
- 6) The MRI technologist shall always endeavor to enhance and improve their knowledge of the specialty and skills annually through formal and informal continuing education.
- 7) The MRI technologist shall not violate any laws.
- 8) The MRI technologist shall promote community awareness of the importance of quality health care and participate in related activities, whenever possible.

Mission Statement

The mission of the American Registry of Magnetic Resonance Imaging Technologists (ARMRIT) is to recognize individuals qualified as specialists in the use of Magnetic Resonance Imaging (MRI) Technology which employs non-ionizing radiation, to promote high standards of patient care and safety in the diagnostic medical imaging modality of MRI Technology, including interventional MRI, cardiovascular MRI, functional MRI, and MRI breast imaging. The Registry is open to all qualified technologists in all imaging fields who have documented MR clinical experience and/or formal education completed through schools dedicated to MRI Technologists.

Mission Objectives

- Promote high standards of MRI education and clinical training prior to entering the profession;
- Promote high standards of professionalism required by a diagnostic medical imaging specialty;
- Administer competency examinations that measure the theoretical knowledge and clinical skills necessary to competently perform the tasks of a MRI specialist.

ARMRIT Certified MRI Technologist's Responsibilities

- 1) Frame and display your certificate proudly at your place of employment. (CMS & ACR perform unannounced site-visits).
- 2) File your Score Sheets in a safe place.
- 3) Adhere to the Code of Ethics set forth by the ARMRIT Board of Directors.
- 4) Attain the required Continuing Medical Education credits in MRI Technology, currently eight (8) per year, a total of twenty-four (24) per three-year period & sign the MRI CME Statement on your Renewal Form.
- 5) Inform the Registry immediately of any changes of address, contact phone number, MRI employer, MRI equipment experience, and promotions.
- 6) Pay the triennial renewal fee of \$300 on-time for the next three calendar years.
- 7) Your support of the ARMRIT helps protect your right to be employed in MRI and is recognized by all four Centers for Medicare and Medicaid (CMS) designated accrediting organizations, the American College of Radiology, Inter-societal Accreditation, the Joint Commission, and RadSite.

Visit www.armrit.org regularly.

Certified Tech's Resume' (CV) – On-Line

All Registry Active Certified Technologists are encouraged to post their resume (CV) on the ARMRIT Webpage at: www.armrit.org

- 1) Click on **'MRI Tech Resume' (CV)** at the top of the homepage.
- 2) Scroll down to the bottom and click on: **'Click here to post your Resume (CV)'**.
- 3) Enter your Login: use your e-mail address.
- 4) Enter a password.
- 5) Enter all relevant information and click on **Submit**.
- 6) Remember your Login, Password, and Listing Number.
- 7) If you forget your Login, Password, or Listing Number, enter a new listing and the Web Manager will remove the old listing.

MRI CME Requirement Policy

ALL Certified MRI Technologists: are required to renew their certification for the next three-year period and ***sign a Statement of Completion of a total of twenty-four (24) CME credits in **MRI Technology** as awarded by the AHRA, ACCME , AMA, ASRT or other qualified CME granting organization. Your Renewal Form will contain the MRI CME Statement.

Sample Statement:

***MRI Continuing Medical Education Statement:**

I certify that I have completed a total of **24 MRI CME Credits** some time in **2021, 2022, or 2023** and have them in my possession & available to present for unannounced Site-Visits by CMS, ACR, or other MRI Accrediting Organizations, and audits by the ARMTRIT.

Signed: _____ **Date:** _____

Important: an ARMTRIT MRI Technologist who cannot document completion of the required CME credits upon demand is subject to immediate revocation of their certification.
Do not send Transcripts/Certificates to ARMTRIT unless audited by ARMTRIT.

Note: a Certificate & ID card will not be released until the MRI CME Statement is signed and Renewal Form is submitted!

****MRI CME Topics:** Continuing Medical Education credits must be derived from topics related to **Magnetic Resonance Imaging Technology**, “MRI” must be in the title.

Recommended Sources for MRI Continuing Medical Education



International Center for
Postgraduate Medical Education

To earn CME Credit, visit www.icpme.us

Visit: icpme.us/ARMTRIT

All ARMTRIT Meeting Lectures are acceptable for Renewal!

ARMRIT MRI Technologist Examination Overview

(New Version)

STRUCTURE: The exam consists of two-hundred and twenty-five (225) multiple choice questions, based on one right/or best answer. The cut score is 75.

MR Physics: Basic, Intermediate and Advanced physics, Precession, Nuclear Alignment, Electromagnetism, Signal Generation, Molecular Formation, Nuclear Alignment, Chemical Shift, Susceptibility.

Clinical Applications: Pulse sequences, Image Parameters, Spatial Localization, Image Quality, Tissue Characteristics, Signal to Noise, Spatial & Temporal Resolution, Enhancement Agents, types of MR magnets, Coils, Artifacts. Contrast Agents.

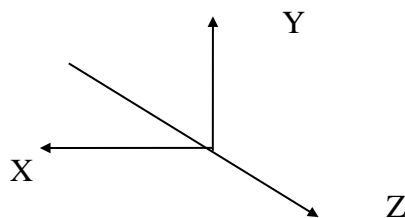
Bioeffects, Safety and Patient Care: Screening Forms, ACR Zones, Magnetic Field Strength, Specific Absorption Rates, Thermal Injuries, Peripheral Nerve Stimulation, Implants, Translation Forces, Contrast Agents.

MR Cross-Sectional Anatomy: Brain, IAC, Pituitary, Brain-Stem, Circle of Willis, Carotids, Renal & Femoral Arteries Cervical/Thoracic/Lumbar Spine, Shoulder, Elbow, Wrist, Hip, Knee, Ankle, Foot, Thorax/Heart, Abdomen, Pelvis.

TOTAL EXAM TIME: Four (4) hours.

Multiple Choice Questions: There is only one right and/or best answer to every question, there are no “multiple, multiple choice” questions (i.e., A and B; C and D). Candidates are advised to use all time allotted to ensure all questions have been answered.

In many MRI textbooks and manuals, the main static magnetic field will be symbolized B_0 , the radiofrequency (RF) B_1 and the components of the net magnetization vector, M_z in the longitudinal plane and M_{xy} in the transverse plane. The orthogonal (mutually perpendicular) axes of the gradient magnetic fields are oriented in the following directions (horizontal for simplification):



The logical (for educational purposes) gradient directions are; Slice Select gradient is G_z , phase encoding gradient is G_y and the frequency encoding gradient is G_x (the “read out” gradient). Understanding how the gradients are physically (actually) employed during a pulse imaging sequence is important to image quality, the management of motion artifact, flow effects and certain artifacts such as aliasing, chemical shift artifact, magnetic susceptibility, respiratory and cardiac activity. Understand the four tissue characteristics; Hydrogen concentration, T1 effects, T2 effects, and velocity (flow) effects, and the various pulse sequences that bring out these properties. The following pulse sequences are covered: Spin-echo, Gradient -echo, Inversion recovery, MRA, FLAIR, etc. Included in this review package is recommended reading material.

Valid as of 08/01/2023

American Registry of Magnetic Resonance Imaging Technologists (ARMRIT) Chooses ExamSoft for Remote Exams

A National & International entity to deliver remote exams using ExamSoft and remote proctoring technology in the new year.

Dallas, TX – December 2, 2021 – ExamSoft is pleased to announce the addition of a new client in the credentialing and licensure space: American Registry of Magnetic Resonance Imaging Technologists.

Founded in 1991, ARMRIT provides certification to MRI Technologist Candidates who successfully pass a comprehensive exam. The exam counts toward licensure in five states – North Dakota, New Hampshire, New Mexico, Oregon, and West Virginia – with more states expected to consider licensing soon.

The organization plans to introduce several changes in the new year, including an updated exam format and remote testing. The new exam format will consist entirely of multiple-choice questions, with one right and/or best answer, some incorporating images of MRI Cross-Sectional Anatomy from actual MRI Images, using the ExamSoft platform. The exam will also transition away from on-site testing centers through ExamSoft’s remote proctoring technology, enabling flexibility and efficiency for Candidates.

James F. Coffin, President of the American Registry of Magnetic Resonance Imaging Technologists, is looking forward to a quick ExamSoft implementation and beginning to reap some of the benefits of the technology early next year.

“We've been around for 30 years, and we have been certifying MRI Techs for that long, but now we want to move on to something much more forward thinking, much more diverse as far as the possibilities,” Mr. Coffin said. “For example, we’re looking to better serve the International community. The reason they have not taken the test to date is that the testing sites are so few and far between in their respective countries. Candidates have to travel extreme distances to take the exam, and that’s just outdated now. So, remote testing will be a big, big benefit for them.”

Britt Nichols, Senior Vice President of marketing and sales for ExamSoft, said, “As we continue to expand our presence in the credentialing and licensure market, we’re thrilled to bring on new partners like ARMRIT that integrate into our own vision of transforming learning for everyone, everywhere.”

About ARMRIT

American Registry of Magnetic Resonance Imaging Technologists (ARMRIT) was founded in 1991 and is the first and only Registry that provides certification solely for MRI technologists Nationally & Internationally, including Canada, South America, England, South Korea and countries in the Middle East. ARMRIT also provides a voluntary accreditation program for MRI schools in the United States. The organization, based in Florida, has more than 2,350 members, mostly in the United States and around the world. ARMRIT’s mission is to support MRI Technologists, the MRI Profession and MRI Education across the country and internationally.

About ExamSoft

ExamSoft, part of the Turnitin family, is an education technology company based in Dallas, Texas, that builds scalable software solutions that provide a high level of exam security and integrity to education and certification institutions across a variety of verticals, settings and modalities. ExamSoft software gives educators and test-takers actionable data to improve performance and create meaningful efficiencies in grading, exam-building, psychometrics and overall assessment. The ExamSoft mission is to deliver superior assessment solutions to increase learning performance for every student, instructor and institution. ExamSoft currently serves more than 2,100 prominent academic, certification and licensing programs and has successfully administered over 75 million exams.

Media Contacts:

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ARMRIT

Nici Sandberg nsandberg@examsoft.com
ExamSoft

Accredited MRI Programs

Commission on Accreditation - COA

of the

American Registry of Magnetic Resonance Imaging Technologists

- ❖ **American Institute of Medical Sciences & Education**, Piscataway, NJ
Phone: 908-222-0002 **Associate Degree Program.** www.aimsedu.com

- ❖ **Apprenticeship - USDOL**, Washington, DC
MRI Technologist O*NET Code: 29-2035.00
Phone: 866-487-2365 **18 Month Certificate Program.** www.dol.gov/apprenticeship

- ❖ **Aquarius Institute of Computer Science**, Des Plaines, IL
Phone: 847-296-8870 **18 Month Certificate Program.** www.aquariusinstitute.com

- ❖ **Career Networks Institute (CNI College)**, Santa Ana, CA
Phone: 714-437-9697 **Associate Degree Program.** www.cnicollege.edu

- ❖ **Casa Loma College**, Van Nuys, CA
Phone: 818-785-2726 **Associate Degree Program.** www.casalomacollege.edu

- ❖ **Med College**, Hialeah, FL
Phone: 786-792-3350 **Associate Degree Program.** www.medacademy.education

- ❖ **Midwestern Career College**, Chicago, IL
Phone: 312-236-9000 **Associate Degree Program.** www.mccollege.edu

- ❖ **Midwestern Career College**, Naperville, IL
Phone: 630-536-8679 **Associate Degree Program.** www.mccollege.edu

Continued on Page 22

Accredited MRI Programs (continued)

Commission on Accreditation - COA

of the

American Registry of Magnetic Resonance Imaging Technologists

- ❖ **National Polytechnic College, Lakewood, CA**
Phone: 888-243-2493 **Associate Degree Program.** www.npcollege.edu

- ❖ **Pulse Radiology Institute, Saint Augustine, FL**
Phone: 904-404-9008 **Associate Degree Program.** www.pulseradiologyinstitute.com

- ❖ **Tesla Institute of MRI Technology, Fairfax, VA**
Contact: admissions@teslamrinstitute.org **18-Month Certificate Program.** www.teslamrinstitute.org

- ❖ **Smith Chason College, dba WCUI, Los Angeles, CA**
Phone: 310-289-5123 **Associate Degree Program.** www.wcui.edu

- ❖ **Smith Chason College, dba WCUI, Ontario, CA**
Phone: 909-483-3808 **Associate Degree Program.** www.wcui.edu

- ❖ **Smith Chason College, dba WCUI, San Marcos, CA**
Phone: 760-418-4200 **Associate Degree Program.** www.wcui.edu

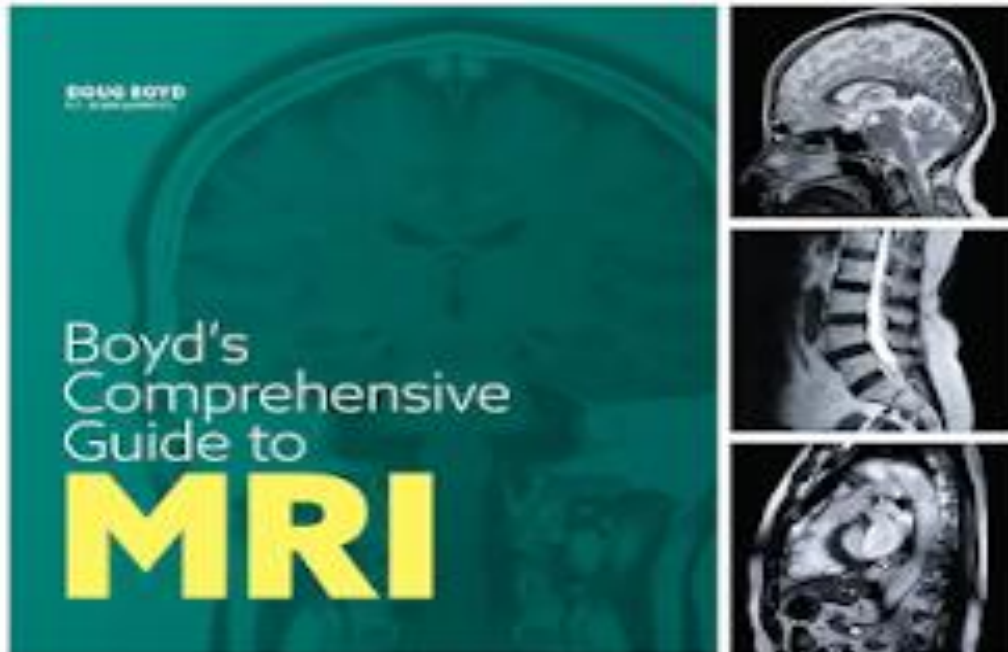
- ❖ **Smith Chason College, dba WCUI, Phoenix, AZ**
Phone: 602-954-3834 **Associate Degree Program.** www.wcui.edu

Valid as of 08/01/2023

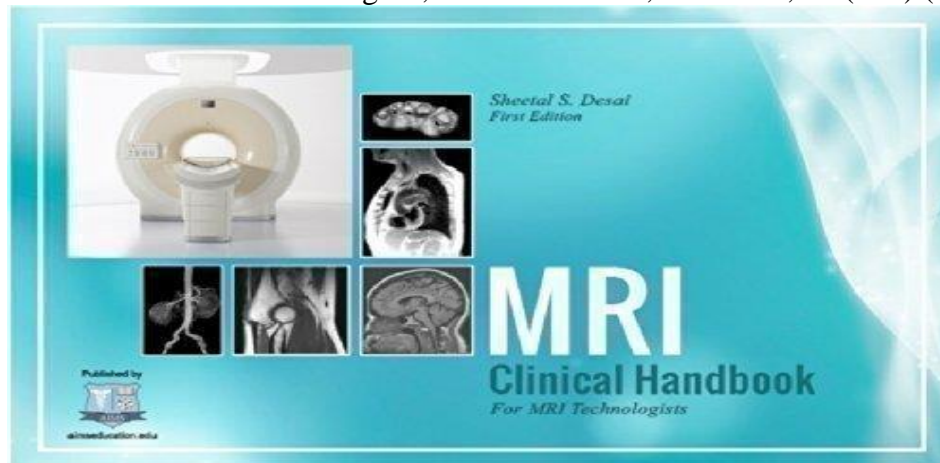
Recommended Sources for MRI Information

Soft cover books:

- Boyd's Comprehensive Guide to MRI <https://boydsimaging.com/>



- MRI Clinical Handbook for MRI Technologists, Sheetal S. Desai, ARMRIT, RT(MR) (Amazon)



- MRI for Technologists, modules 1-6, Bayer, contact your Bayer Sales Representative.
- MRI for Technologists, Peggy Woodward / Roger Freimarck, McGraw Hill
- Pocket Atlas of Cross-Sectional Anatomy, Torsten B. Moller & Emil Reif - Theime Flexibook

Hard cover books:

- Clinical Magnetic Resonance Imaging, 3rd Edit., Robert R. Edelman, MD, John R. Hesselink, MD, W.B. Saunders Company
- Magnetic Resonance Imaging, 2nd Ed., David D. Stark, MD & William G. Bradley, MD (Mosby)

On-Line: www.MRIsafety.com

Practice Tests: www.armrit.org

Study Guide: "MRI Technologist Quick Reference & Study Guide" compilation of the principles of MRI Physics, Instrumentation, Clinical Applications, Bio-effects-safety & Cross-sectional anatomy. *Price: \$50.00 (Non-refundable).

Provided as a "pdf" file only. Not required for certification.

Visit: www.armrit.org and click on 'ARMRIT Services' and scroll to 'Study Guide'.

ELIGIBILITY CRITERIA for CANDIDATES of the ARMRIT MRI TECHNOLOGIST EXAMINATION

- 1) **Graduate of an ARMRIT Accredited MRI Program:** (within three (3) years of date of graduation).
Completion of an ARMRIT approved Certification or Degree program that includes at least 1,000 hours of Documented MRI Clinical training (see pages 21 & 22).
- 2) **Graduate of an MRI Registered Apprenticeship Program:** (within three (3) years of date of graduation).
Graduates must document a minimum of 2,000 hours of MRI Clinical training from an approved Registered Apprenticeship program. Registration may be by the U.S. Department of Labor, Office of Apprenticeship, or by a State Apprenticeship Agency recognized by the Office of Apprenticeship (see page 21).
Magnetic Resonance Imaging (MRI) Technologist O*NET Code: **29-2035.00** Rapids Code: **1115**
- 3) **Graduate of a Non-ARMRIT Accredited MRI Tech Program:** (within three (3) years of date of graduation).
Completion of a Non-ARMRIT approved Certification or Degree program of at least one (1) year of Allied Health Education that includes at least 2000 hours of Documented MRI Clinical training and is licensed by their State.
- 4) **Medical Imaging or Allied Health Field Cross-Trainers:**
Individuals from another medical imaging modality or allied health field and have at least 1700 hours of documented MRI Clinical experience such as:
 - Cardio Vascular Technologist (CVT).
 - EEG Technologists.
 - Electro-Physiology and Evoked Potential Technologists.
 - Emergency Medical Technician (EMT).
 - Foreign Medical Graduate (see below for U.S. evaluators).
 - Medical Assistants Diploma and/or Certification.
 - Nuclear Medicine Technologists certified by the NMTCB or ARRT.
 - Nurses (RN, LPN, and LVN, CNA).
 - Physical Therapist (PT).
 - Physical Therapy Technician/Assistant (PT).
 - Physicians (MD, DO, DC, DPM).
 - Physician Assistants (PA).
 - Radiographers certified by the ARRT, LRT, CRT or State license.
 - Surgical Technician with National Certification.
 - Ultrasonographers certified by the ARDMS or CCI.
- 5) **Equivalency Clause:**
On The Job Trained: applicant must prove four (4) years or 6240 hours of documented full-time MRI clinical experience or possess a Associates Degree and 2000 hours of full-time MRI Clinical experience.

Evaluation of Foreign Academic Credentials

Eligibility based on a degree from a foreign educational institution, official transcript(s) must be evaluated. Listed below are acceptable agencies:

- **A&M Logos International**-40 Rector ST., Suite 1504, NY, NY 10006
Ph.: 212-233-7021 Email: www.amlogos.com
- **Globe Language Service**-319 Broadway, 2nd Floor, NY, NY 10007
Ph.: 212-227-1994 Email: info@globelanguage.com
- **The Trustforte Corporation**-271 Madison Avenue, Third Floor, NY, NY 10016
Ph.: 212 481-4870 Email: info@trustfortecorp.com
- **World Education Services**-Bowling Green Station, P.O. Box 5087, NY, NY 10274
Ph.: 212-966-6311 Email: www.wes.org
- **Educational Credential Evaluators** -PO Box 514070, Milwaukee WI 53203
Ph.: 414-289-3400 Email: eval@ece.org

Valid as of 08/01/2023

Applications Must Include the Following Documentation:

Note: Apply only if you are ready now to challenge & sit for the exam!

Eligibility Categories:

Graduate of an ARMTRIT Accredited MRI Technologist Program (see pages 21 & 22):

- 1) Application, Completely fill-out (**incomplete Applications will be returned!**).
- 2) Application fee of **\$300.00, Non-Refundable!**
- 3) Copy of Certificate or Diploma within three (3) years of graduation.
- 4) Resume/Curriculum Vitae (CV). **Sample on page 27.**
- 5) Copy of Drivers License or Non-Drivers (Government Issued) Picture ID.

Graduate of an MRI Technologist Registered Apprenticeship Program (see page 21):

- 1) Application, Completely fill-out (**incomplete Applications will be returned!**).
- 2) Application fee of **\$300.00, Non-Refundable!**
- 3) Copy of Certificate or Diploma within three (3) years of graduation.
(Magnetic Resonance Imaging (MRI) Technologist - O*NET Code: 29-2035.00 Rapids Code: 1115)
- 4) Original Letter of recommendation, dated within the last twelve (12) months, from your MRI Clinical Supervisor stating you have at least 2000 hours of MRI Clinical training and are competent as an MRI Technologist. **Sample on page 29**
- 5) Resume/Curriculum Vitae (CV). **Sample on page 27.**
- 6) Copy of Drivers License or Non-Drivers (Government Issued) Picture ID.

Graduate of a Non-ARMTRIT Accredited MRI Technologist Program:

- 1) Application, Completely fill-out (**incomplete Applications will be returned!**).
- 2) Application fee of **\$300.00, Non-Refundable!**
- 3) Copy of Certificate or Diploma within three (3) years of graduation.
- 4) Original letter, dated within the last twelve (12) months, from your current Medical Director or Reading Physician stating you have at least 2000 hours of MRI Clinical training and are competent as an MRI Technologist. **Sample on page 28.**
- 5) Original Letter of recommendation, dated within the last twelve (12) months, from your MRI Clinical Supervisor stating you have at least 2000 hours of MRI clinical training and are competent as an MRI Technologist. **Sample on page 29.**
- 6) Resume/Curriculum Vitae (CV). **Sample on page 27.**
- 7) Copy of Drivers License or Non-Drivers (Government Issued) Picture ID.

(Continued on Page 26)

Applications Must Include the Following Documentation (continued):

Note: Apply only if you are ready now to challenge & sit for the exam!

Eligibility Categories:

Cross-Trainer from an Allied Health Field & Foreign Medical Graduates:

- 1) Application, Completely fill-out (**incomplete Applications will be returned!**).
- 2) Application fee of **\$300.00, Non-Refundable!**
- 3) Copy of Certificate and/or License in the Allied Health Field you cross-trained from.
- 4) Original letter, dated within the last twelve (12) months, from your current Medical Director or Reading Physician stating you have at least 1700 hours of MRI Clinical experience and are competent as an MRI Technologist. **Sample on page 28.**
- 5) Original Letter of recommendation, dated within the last twelve (12) months, from your MRI Clinical Supervisor stating you have at least 1700 hours of MRI Clinical hours and are competent as an MRI Technologist. **Sample on page 29.**
- 6) Evaluation of Foreign education by a U.S. organization for Foreign Graduates.
- 7) Resume/Curriculum Vitae (CV). **Sample on page 27.**
- 8) Copy of Drivers License or Non-Drivers (Government Issued) Picture ID.

On The Job Trained – Equivalency Clause:

- 1) Application, Completely fill-out (**incomplete Applications will be returned!**).
- 2) Application fee of **\$300.00, Non-Refundable!**
- 3) Copy of Certificate or Diploma – Associate or Bachelor Degree.
- 4) Original letter, dated within the last twelve (12) months, from your current Medical Director or Reading Physician stating you have at least four (4) years or 6,240 hours of full-time MRI Clinical experience and are competent as an MRI Technologist or possess an Associate Degree and at least 2000 hours of full-time MRI Clinical experience. **Sample on page 28.**
- 5) Original Letter of recommendation, dated within the last twelve (12) months, from your MRI Clinical Supervisor stating you have at least four (4) years or 6,240 hours of full-time MRI Clinical experience and are competent as an MRI Technologist or possess an Associate or Bachelor Degree and at least 2000 hours of full-time MRI Clinical experience. **Sample on page 29.**
- 6) Resume/Curriculum Vitae (CV). **Sample on page 27.**
- 7) Copy of Drivers License or Non-Drivers (Government Issued) Picture ID.

Sample MRI Resume:

**John / Jane Doe, ARMRIT
111 Main Street, Apt. 1a
Anywhere, NY 11234**

Objective: To obtain a position as a MRI Technologist commensurate with my MRI experience and MRI education.

Work Experience:

- January 2003 – present **ACME Imaging, PC**, Brooklyn, NY
MRI Technologist performing MRI studies on 12 patients/day.
Working with a Hitachi MRP5000 0.2T permanent magnet.
- April 2001 – January 2003 **Parts Production, Inc.**, Queens, NY
Assistant Manager.
- October 1995 – April 2001 **Smith and Smith, Inc.**, New York, NY
Sales Representative.

Education:

- May 2002 – May 2003 **Institute of Medical Imaging Professions**, New York, NY
at **Hospital Medical Center**, Queens, NY
MRI Technologist Program with Clinical training.
- September 1993 – June 1995 **City Community College**, Brooklyn, NY
Associates Degree in Applied Sciences.

Certification:

ARMRIT Registry Active # 9999
BLS, AHA expires May 2010
IV Insertion Techniques, Hospital Certificate.

References available upon request.

Valid as of 08/01/2023

Sample MD's Letter:

Date: _____

From: MD's Name
MRI Facility
Address
City, State, Zip

To: ARMTRIT Board of Directors

Re: **Full Name Candidate**

ARMTRIT Board of Directors,

This letter attests to the MRI Clinical Experience (hours) of **Full Name Candidate**.

Full Name Candidate has at least **1700 or 2000 or 6240 hours** (whichever is applicable) of MRI Clinical Experience and is competent and qualified as at least an entry-level MRI Technologist.

Without reservation, I recommend **Full Name Candidate** for the ARMTRIT MRI Technologist Certification Examination and would recommend **Full Name Candidate** for a position as an addition to any MRI team.

Sincerely,

Signature: _____

Print MD's Name: _____

License Number: _____ State of License: _____

Sample MRI Supervisor's Letter:

Date: _____

From: **MRI Supervisor's Name**
MRI Facility
Address
City, State, Zip

To: ARMRIT Board of Directors

Re: **Full Name Candidate**

ARMRIT Board of Directors,

This letter attests to the MRI Clinical Experience (hours) of **Full Name Candidate**.

Full Name Candidate has at least **1700 or 2000 or 6240 hours** (whichever is applicable) of MRI Clinical Experience and is competent and qualified as at least an entry-level MRI Technologist.

Without reservation, I recommend **Full Name Candidate** for the ARMRIT MRI Technologist Certification Examination and would recommend **Full Name Candidate** for a position as an addition to any MRI team.

Sincerely,

Signature: _____

Print MRI Supervisor's Name: _____ **Credential:** _____

Application & Examination Process

READ CAREFULLY!!!

Note: Apply only if you are ready now to challenge & sit for the exam!

***Important!:** You have six (6) months to sit for the exam (all three (3) attempts) from the date you receive the Secure Email.

- 1) Complete all of the MRI Technologist Exam Application: [Incomplete Applications Will Be Returned!!!](#)
- 3) Pay the Fee of \$300 (Non-Refundable) by **check, credit card, or pay online** at 'ARMRIT Services' on www.armrit.org.
- 4) Include all required documentation (see pages 24-29, evaluation of foreign education (if applicable) **See page 24 for acceptable agencies.**
- 4) Send documentation to: **ARMRIT** 2444 NW 8th St. Delray Beach, FL 33445 **Do Not Send Certified!**
- 5) Documentation will be received & reviewed, the Applicant will receive **either** a 'Review Letter' or a **Secure No- Reply Email** will be sent from **ExamSoft**, verifying the Candidate's Authorization to sit for the exam. ***You have six (6) months to sit for exam (all 3 attempts) from the date of the Secure Email.**
- 7) A 'Review Letter' informs the Applicant that documents were not included in their application package.
- 7) A Secure Email will provide information to **ExamSoft**, and **ExamSoft**, will contact the Candidate by Email with **instructions to schedule their exam online** (check Junk/Spam). **See pages 31 & 35.**
Note: [ExamSoft fees are separate.](#) **Note-Every January 1st, the ExamSoft fee must be paid again.**
- 8) Upon completion of the exam, you will receive a score sheet from the **ARMRIT, with your Score and Categories breakdown**
- 10) Successfully passing the exam, a certificate & ID card will be processed, if all documents are complete.
- 11) If the exam is failed, the Candidate will be **Authorized to sit for the next attempt in thirty (30) days.**
- 12) **Maximum attempts to are three (3). Failure to pass in three (3) attempts requires the Candidate to complete a MRI Review Course & Start the Application process over, including the Fee.**

ExamSoft & Remote Proctoring

Remote Proctoring allows the Registry Candidate to sit for the ARMRIT MRI Exam on their own Computer, that is compatible with the Minimum System Requirements (MSRs) at a convenient time and place that meets ExamSoft's Remote Proctoring criteria. Examplify works with most modern computers, both Mac and Windows operating systems.

See pages 31-35 for details.

ExamSoft: Exemplify & the Remote Proctoring Process

1. Download and read the files in the email, ExamSoft New User Guide, Minimum System Requirements (MSRs), Secure Exam Best Practices (See pages 33-35)
2. Check your email for the registration email from "noreply@examsoft". (check your Spam/Junk mail also)
3. **Complete these steps using Google Chrome or Firefox only!!!**
4. Click "Join Your Peers" within the registration email from noreply@examsoft.
5. You will be asked to create an account password.
6. Then you will be asked to select your Institution - type and select: **American Registry of Magnetic Resonance Imaging Technology ARMRIT**.
7. Then you will be directed to the **payment page**, and then to your **Student Portal** where you can download the **Exemplify** Application.
Note - Every January 1st, the ExamSoft fee must be paid again.
8. **Review MSRs to ensure your device can run the software.**
9. Download & install **Exemplify** on the Computer you will take the exam with.
10. After you Launch Exemplify, enter your Institution Name: **ARMRIT**
American Registry of Magnetic Resonance Imaging Technologists
11. Then enter your 4-digit User ID: **XXXX** (provided by ARMRIT)
and your account password (that you set up in the registration email from "noreply@examsoft.com") **Write down the Password!**
12. You should now be within your **Exemplify Application Dashboard**.
13. Download both Readiness Mock Exams: "**Technical**" & "**Tutorial**", these exams are meant to teach you how to navigate the Exemplify Application and to test your device's compatibility with the secure software.

(continued on Page 32)

ExamSoft: Exemplify & Remote Proctoring Process (contined)

14. Ensure you've **disabled any antivirus programs** prior to the beginning of any exam, once you've submitted your exams, **you may re-enable your antivirus program.**
15. Ensure your device's microphone and camera are functional.
16. Review the Exam Best Practices.
17. Prepare your environment; you will be asked to take a verification photograph and you will be monitored through your device's video and audio tools.
18. Put away any unauthorized materials or device. Save and close any work, close other internet browsers, or any other application. The software will make other apps and browsers inaccessible for the duration of a secure exam. It is intended to function this way for security purposes.
19. You will reconnect back to the internet and can access other apps once an exam has been submitted.
20. The answer files and video files may continue to upload in the background, **do not close the application during this process.**
21. Select either exam to accomplish first (**Technical or Tutorial**). For both exams, enter the **exam password: ARMRITmock23**
22. Once completed submit your exams.
When completed, Email the Registry: ARMRIT@msn.com

Frequently Asked Questions: about the New ARMRIT MRI Exam offered by ExamSoft.

1. Are there any changes in the test fee?

Answer: The Computer Based Testing fee is \$46

Note - Every January 1st, the ExamSoft fee must be paid again.

The Fee includes the Mock Exam, both parts (Technical & Tutorial), and the ARMRIT MRI Exam, and up to two (2) Retakes within a calendar year.

Email (armrit@msn.com) or call the ARMRIT (561-450-6880) when you complete the Mock Exam, both parts.

2. Once a student downloads the test, how long it will be available before the student can take it?

Answer: After the Student completes the Mock Exam, both parts (Technical & Tutorial), they will be receive an Email authorizing them to sit for the ARMRIT MRI Exam. They decide when to take the Exam but the whole process, including two (2) Retakes **must be completed within 6 months from the authorization email.**

ExamSoft: Exemplify & Remote Proctoring Process (continued)

4. If technical difficulties out of the control of the student happen during the test and the test closes, can the students resume it later? What is the process?

Answer: Students must adhere to the Best Practices during the Exam, which is 3 hours & 30 minutes long. Any deviation from the Best Practices will cause them to be locked out of the system.

For Technical Issues they can call the ExamSoft Assistance number: 866-429-8889. If their Computer meets the Minimum System Requirements-MSRs, this is very unusual.

5. Once that the test is completed, how long it takes to know the score?

Answer: Once the Exam has been "Submitted", ExamSoft will provide a score.

The Passing Score is 75%. If the Student fails, ARMTRIT will provide them with a Score Report with a breakdown of the MRI Categories so they can see what areas they need to focus on.



Exemplify Setup Instructions

- Administrators will send you an email invitation to activate your ExamSoft student account. This email is from noreply@examsoft.com. It may be filtered into your spam folder.
*Be sure to open this invitation on a computer and **not a cell phone.***
- Within the invitation email, you'll be prompted to create a personal account password. Then you will be asked to select your Institution. Type and select: "ARMTRIT" American Registry of Magnetic Resonance Imaging Technology"
- You will then be asked to review the [Minimum System Requirements](#) and pay the "Exemplify usage license fee"...

A screenshot of the ExamSoft Exemplify License setup page. The page has a dark blue header with the ExamSoft logo and "Event Team Demo University". The main content area is white and contains the following text: "Exemplify License", "Event Team Demo University requires that you use Exemplify in order to take assessments on your personal computer. To use Exemplify, you will need to purchase a software license from ExamSoft.", "Before purchasing the license, please make sure your computer meets [Minimum System Requirements](#).", a checkbox labeled "My device meets the minimum system requirements." which is checked, a "License Pay Period" dropdown menu, and two paragraphs of legal text at the bottom: "By purchasing this license, ExamSoft grants a non-exclusive, non-transferable, fully paid limited right and license to use the software within the applicable pay period." and "By purchasing the software license, it is understood that the license fee is charged for the right to use the software regardless of whether the software is used or assessments have been taken. As such, this license fee is non-cancelable and non-refundable."


ExamSoft: Exemplify & Remote Proctoring Process (continued)

- Once you have paid, you will enter your "Student Portal" where you may download Exemplify to your computer using **Chrome** or **FireFox only!**
Before downloading Exemplify, remember to check that your device meets the: [Minimum System Requirements](#).
- Once the download is complete, install Exemplify.
- Once the installation is complete, launch Exemplify.
- Start typing the name of your institution:** "ARMRIT" American Registry of Magnetic Resonance Imaging Technology" and then select it from the dropdown menu. Click the green **next** button.
- Enter your 4-digit student ID and the account password you chose in the registration email from noreply@examsoft.com.
- Once you have entered your credentials, select **Sign In**.

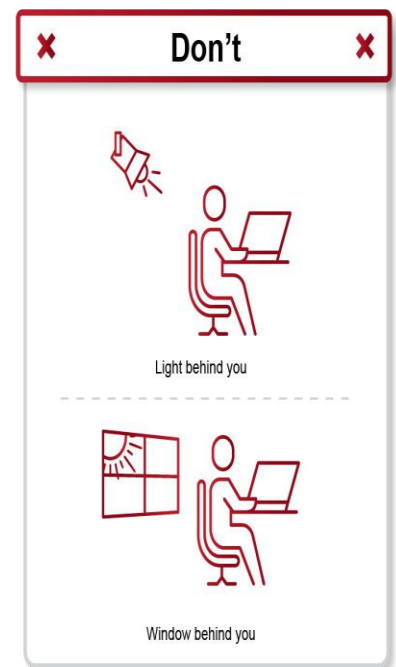
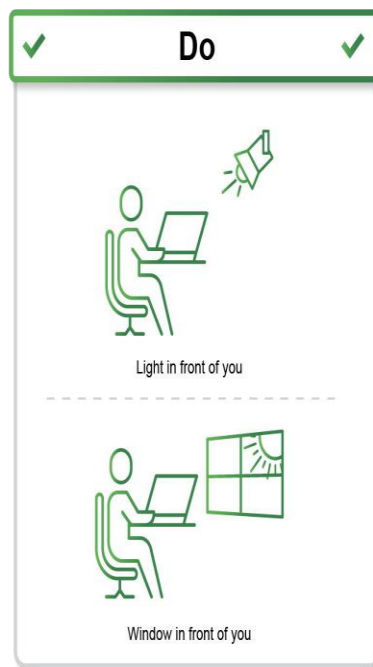
Exemplify: Minimum System Requirements (MSRs) for Windows & Mac

Students and exam-takers downloading the test-taking software, Exemplify, should review these Minimum System Requirements (MSRs) to ensure their devices are supported. Exemplify works with most modern computers, both Mac and Windows operating systems. Exemplify **will not run on Chromebooks, Android, or Linux** operating systems.

ExamSoft Best Practices: Camera Lighting Guide for ExamID




- Students take
- Future exams have baseline photo.
- photoverification.
- Once photo is verified, students can take the exam.
- Instructors review photo verification on Exam Integrity web app.

















ExamSoft: Exemplify & Remote Proctoring Process (contined)

Student Guide for ExamMonitor:



- ExamID auto-enabled with ExamMonitor
- Captures webcam, screen, and microphone recording while student is securely testing
- A.I./remote proctoring services
- Enables exam admins to review incident reports and recordings on Exam Integrity web app

✓ Do ✓	✗ Don't ✗
 <p>Make sure your device meets the Minimum System Requirements</p>	 <p>Leave the View of the Camera</p>  <p>Use Unauthorized Materials</p>
 <p>Download the Exemplify™ application and test your device's camera and microphone</p>	 <p>Move in an Unusual or Excessive Way</p>  <p>Use External Devices</p>
 <p>Reserve a quiet, <u>well-lit space</u> with a comfortable chair</p>	 <p>Look Away from the Screen</p>  <p>Have Other People in the Room</p>
 <p>Close all applications and web browsers and turn off your phone</p>	 <p>Wear Hats, Head Coverings, or Headphones</p>  <p>Speak or Have Any Background Noise</p>
 <p>Follow instructions provided</p>	
 <p>Position your camera so your face is centered in the frame</p>	









Remote Testing Policy

Students need to:

- Test their microphone at the start of the exam to ensure audio will record.
- Ensure their face is in screen by selecting the “monitor” button on the top middle.
- Keep their eyes on the screen.
- Be alone in a quiet, well-lit room.

Students are not permitted to:

- Wear headphones or hoods.
- Read the test out loud.
- Leave the camera view.

✗ Don't ✗	
 <p>Leave the View of the Camera</p>	 <p>Use Unauthorized Materials</p>
 <p>Move in an Unusual or Excessive Way</p>	 <p>Use External Devices</p>
 <p>Look Away from the Screen</p>	 <p>Have Other People in the Room</p>
 <p>Wear Hats, Head Coverings, or Headphones</p>	 <p>Speak or Have Any Background Noise</p>

ARMRIT MRI TECHNOLOGIST EXAMINATION APPLICATION

Note: Apply only if you are ready now to challenge & sit for the exam!

You have 6 months to sit for the exam (all 3 attempts) from the date of authorization.

(Print clearly in ink - INCOMPLETE APPLICATIONS WILL BE RETURNED!!!)

Name: _____ M or F: _____ DOB: _____
First M.I. Last

Home/Mailing Address: _____ E-Mail: _____
Include: Ave., St., Dr., Rd., Blvd., PO Box Apt#/Unit# Mandatory: used for testing purpose.

City: _____ State: _____ Zip Code: _____ Phone: _____

Soc. Sec. # (Last 4 digits): _____ MRI Clinical Experience (years or hours): _____

MRI Employer or MRI Clinical Facility: _____

Address: _____ City: _____ State: _____ Zip Code: _____

Employer Phone: _____ Medical Director or Supervisor: _____

Name of MRI School, City, State: _____

MRI Equipment Experience (manufacturer, model, field strength): _____

Have you ever been convicted of a *felony or Misdemeanor? (Circle one) YES or NO

If YES, submit details for review by the Board of Directors.

***A Felony requires a Criminal Background Check for review by the ARMTRIT Legal Counsel.**

Important - I have read the ARMTRIT Candidate Handbook. (Circle one) YES or NO

I, _____, attest that all information included in this
(Print Full Name)

Application Form is true and accurate.

Signature of Applicant: _____ Date: _____

Fee: \$300 (Non-refundable)(Does not include Testing Fees).

Payment Options: Check ___ Money Order ___ made payable to: **ARMTRIT**

**Note: Computer Based Testing Company fees are separate. Mail Application to: (Do Not Send Certified!)
 2444 NW 8th Street
 Delray Beach, FL 33445**

Pay by Credit Card: (check one) MasterCard ___ Visa ___ American Express ___ Discover ___

Card Number: _____ Expiration Date: _____ Verification Code: _____
(On Back of Card)

Print Name on Card: _____

Authorized Signature: _____ Date: _____

To Pay On-Line, Visit: **www.armrit.org** Paid On-Line (Check here) _____

For Office Use only: Payment Method: Check#/MO#/CC Approval #: _____ Transaction Date: _____ Processed by: _____

Valid as of 08/01/2023

