

**SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
ACADEMIC AFFAIRS
COMMITTEE RECOMMENDATION**

SUMMARY

Substantive Program Application

Western Dakota Technical College

Associate of Applied Science (AAS) in Radiology Technology

COMMITTEE RECOMMENDATION

The Committee on Academic Affairs and Institutional Effectiveness (“Committee”) met on 3/7/2024 to consider the merits of the above application. After review, the Committee makes the following action recommendation to the Board of Technical Education:

- Approval
- Disapproval
- Deferral
- Other:

PROGRAM DESCRIPTION

Institution	Western Dakota Technical College
Program Identifier Code (If applicable)	N/A
Program Title	Radiology Technology
Program Award Level: Check all that apply	<input type="checkbox"/> Short-Term Certificate <input type="checkbox"/> Long-Term Certificate <input type="checkbox"/> Diploma <input checked="" type="checkbox"/> Associate of Applied Science
CIP Code (6 Digit)	51.0911
Projected Implementation Date	1/6/2025
Location	<input checked="" type="checkbox"/> Main Campus <input type="checkbox"/> Other:

SUMMARY

Type of Substantive Change	<input checked="" type="checkbox"/> New Program (B.1.1) <input type="checkbox"/> Significant Curriculum Modification (B.1.2) <input type="checkbox"/> Other:
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Describe the change the institution is seeking approval of.

Western Dakota Technical College (WDTC) is seeking approval to start a new academic program. The Associate of Applied Science in Radiology Technology will provide students with a base foundational knowledge of radiological concepts to prepare students for entry-level positions in the Radiology field. The degree curriculum will meet guidelines set by industry professionals through the program advisory board and other collaborative industry partnerships.

This will be a rigorous program of study that follows the curriculum standards set by the American Society of Radiologic Technologists and recommended by the American Registry of Radiologic Technologists. Students will apply to the college and complete one semester of prerequisite courses before applying for acceptance into the core technical radiology courses. In the prerequisite semester, students will complete the following prerequisite courses::

- Must be completed with a "C" or better or be in progress at the time of application to the technical radiology courses.
 - HC 114 – Anatomy & Physiology
 - HC 116 – Anatomy & Physiology Lab
 - HC 213 – Medical Terminology
 - MATH 105 – Mathematical Reasoning
 - CMST 101 – Fundamentals of Speech
 - PSYC 101 – General Psychology
- Pass the Test of Essential Academic Skills (TEAS) Exam with a minimum composite score of 60
- Immunization requirements as determined by clinical sites
- Criminal background check
- Current American Heart Association Healthcare Provider BLS CPR certification

Once the program is completed, graduates will be eligible to sit for the American Registry of Radiologic Technologists (ARRT) national certification examination. Upon approval for this new academic program, WDTC also plans to begin initial work to earn programmatic accreditation through the Joint Review Committee on Education in Radiologic Technology (JRCERT).

CRITERION 1: MISSION

The program aligns with the system's mission and strategic priorities.

1.1. The program aligns with the system's mission of preparing a technically skilled workforce prepared to serve the state of South Dakota and its regions.

1.2. The program aligns with the system's strategic priorities.

1.1. Describe how the proposed program aligns with the system's mission.

The mission of Western Dakota Technical College (WDTC) is to prepare students to be highly skilled professionals through accessible, career-focused programs to improve their lives while adapting to community workforce needs and positively impacting our economy. WDTC works with industry partners to train and prepare students for high-demand careers. The Radiology Technology program will allow WDTC to meet the growing demand for radiology professionals. WDTC has identified workforce needs by working closely with our industry and academic partners, along with reviewing state labor market trends.

The attached proposal for the Radiology Technology program will assist in filling a gap in the South Dakota workforce and provide additional resources to meet the demand for skilled radiology professionals in our West River communities.

CRITERION 2: DEMAND

The program leads to meaningful employment, adequate student enrollment, and/or fulfills needs not being met by existing education and training providers.

- 2.1. The program leads to high-wage occupations that have an average/mean wage greater than the median wage across all occupations.
- 2.2. The program leads to high-demand occupations that have project annual openings (a measure of demand for workers) greater than the average across all occupations or is shown as an economic and/or labor market emerging field for the state of South Dakota and its regions.
- 2.3. The program's student enrollment is adequate to justify program existence.
- 2.4. The program fulfills a demand not being met by existing education and training providers in the region and/or state.

2.1. Describe the wage projections for occupations associated with the proposed program by completing Appendix 2.A.

2.2. Describe the demand projections for occupations associated with the proposed program.

A. Complete Appendix 2.A.

B. If an emerging field for the state of South Dakota, describe the field. Letter(s) of support, detailing demand, should be attached as appendices.

This is not an emerging career field.

2.3. Describe projected student enrollment for the proposed program by completing Appendix 2.B.

2.4. Describe how the proposed program fulfills a demand not being met by existing education and training providers in the region and/or state.

A. Identify closely related program(s) that currently exist at other public higher education institutions in the system or state. If none, write "None."

Mitchell Technical College has an Associate of Applied Science degree program in Radiologic Technology. Avera McKennan School of Radiologic Technology has a 24-month program that can articulate to an Associate of Arts or a Bachelor of General Studies from South Dakota State University.

B. If applicable: Describe the ways in which the demand is not currently being met by the aforementioned program(s) and provide justification as to why the program should be approved by addressing the following conditions that warrant duplication ([BP 303.2](#)). Select all that apply.

- Unmet Demand (C.5.1.1)
 Industry Partnership (C.5.1.2)

- Increases Student Access (C.5.1.3)
 Other:

I. For each condition selected above, provide a brief justification.

Unmet Demand (C.5.1.1) – This proposed program would meet an unmet local, regional, and state demand. WDTC was initially approached by Monument Health, Black Hills Surgical Hospital, and Black Hills Orthopedics to discuss

their high need for Radiology Technologists. Both organizations described how they have had challenges filling vacant positions for radiology technologists and that this problem increased significantly with the closing of the previous Regional Health Medical Radiology Program. Both organizations also stressed that their employee needs are not currently being met by the MTC program. The majority of students from MTC's program who complete clinical hours in the Rapid City area return to their East River roots when securing employment.

Industry Partnerships (C.5.1.2) – This proposed program is supported by local and regional industry partnerships. Monument Health, Black Hills Surgical Hospital, and Black Hills Orthopedics are the largest healthcare employers on the western side of the state. These organizations have been instrumental in discussions for the development of this program, the design of a radiology lab on the college campus, the commitment to accept students within their facilities for clinical hours, and the networking with vendors to seek discounted equipment and laboratory outfitting.

Increase Student Access (C.5.1.3) - The proposed program increases access for location-bound students. Having one Radiology Technology program within the system on the eastern side of SD limits access for West River students who cannot relocate to connect with higher education opportunities.

CRITERION 3: DESIGN

The program's learning assessment strategy, program of study, and delivery methods are designed to provide students with the necessary competencies, as demonstrated through program learning outcomes.

- 3.1. The program is aligned to competencies, as demonstrated through program learning outcomes, that are developed with and continually validated by relevant stakeholders.
- 3.2. The program has a learning assessment strategy to validate student mastery of the program learning outcomes.
- 3.3. The program has an integrated program of study designed to develop and reinforce the program learning outcomes.
- 3.4. The program, when appropriate, includes a work-based learning component that develops and reinforces the program learning outcomes.
- 3.5. The program, when appropriate, offers flexible delivery methods to increase student access.

3.0. Describe the proposed program's alignment with the program award level requirements established in [BP 301.1](#).

A. Does the program align with the requirements?

- Yes
 No (Requesting Exemption)

B. If no: Provide a detailed rationale for program exemption. Specify which requirement(s) in BP 301.1 are not met; cite specific policy sections (e.g., B.3.4), when appropriate. If external organizations are involved (accreditation, regulatory, licensure, etc.), reference the organization name(s), specific requirements (including citations), and a justification for why the exemption should be approved.

3.1. Describe the program learning outcomes.

A. Provide a list of program learning outcomes for each proposed award level. Learning outcomes should be specific to the program.

Critical Thinking - Exhibit problem-solving and critical thinking by analyzing diagnostic images for radiologic quality and assessing patient needs to adapt technical modifications and imaging procedures.

Technical Knowledge and Skills – Demonstrate technical knowledge and skills by utilizing proper radiation protection safety principles and manipulating radiographic technical factors to produce quality images.

Communication - Apply appropriate interpersonal communication skills by explaining imaging procedures to patients in clear and understandable terms and relaying image findings in a concise manner with all healthcare members.

Professionalism - Exhibit personal accountability and professionalism by modeling an ethical standard of care including patient confidentiality and advocacy, identifying the importance of continued professional development, and exhibiting professionalism in a clinical environment.

B. Describe the how the program learning outcomes were developed and validated.

Program Learning Outcomes are used to inform students, employers, and other constituents what the student should be able to perform when they have completed the program. The main stakeholder in Program Learning Outcomes is the program; however, outside constituents influence them based on industry trends. When developing new Program Learning Outcomes, WDTC starts by utilizing O*Net Online which is a web resource that provides detailed job and industry information including key job skills and knowledge required for a specific career area. WDTC also researches the Program Learning Outcomes of other established programs to compare with information gathered on O*Net

Online to draft preliminary Program Learning Outcomes. From there, the draft outcomes are vetted by industry professionals who are assisting with the development of the program.

Once students are enrolled in a program, assessment of student learning results may influence changes to Program Learning Outcomes, as learning targets assigned to Program Learning Outcomes are continuously met or not met. If a change is to be implemented, it should be completed by the program through the official curriculum change process which includes review by the program's advisory board and WDTC's Assessment Committee. New Program Learning Outcomes are then submitted to the Curriculum Committee for tracking purposes.

3.2. Describe the program's learning assessment strategy.

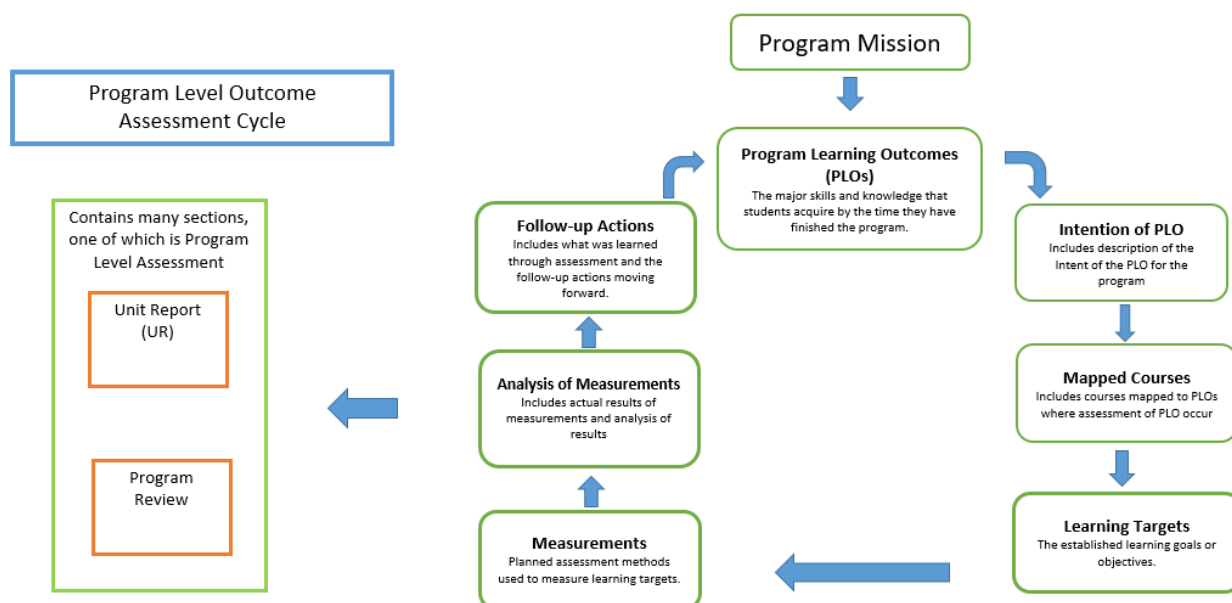
- A. Describe how students will demonstrate mastery of the program learning outcomes. Description should be specific to the program's learning assessment plan vs. the institutional assessment plan.

Assessment of student learning is conducted on an annual basis. Program faculty develop an assessment plan at the beginning of the academic year that focuses on one Institutional Learning Outcome (ILO) and one Program Learning Outcome (PLO). Assessment activities are conducted, and data is collected throughout the year. All assessment planning and results are documented in WDTC's online planning and assessment program, Strategic Planning Online (SPOL). At the end of the assessment year, program faculty compile an Annual Assessment Report that includes data results, analysis, and follow-up plans. Results of annual assessments guide necessary program changes that strengthen the program and ensure that graduates have learned what they need for success in their career.

Program Directors work with WDTC's two Assessment Coordinators to further define the Program Learning Outcomes (PLOs) and establish the following two assessment documents: 1) Course Map, which shows how the PLOs are developed throughout the curriculum with Introductory, Developed, and Mastered curriculum and 2) Program Competencies linked to PLOs, which documents how competencies link to the PLOs.

New faculty become immersed in the program curriculum and teaching their first two semesters at WDTC. Assessment of Course Learning Outcomes (CLOs), and PLOs, begin during a new faculty member's 3rd semester. Faculty begin with completing the online course: ED 115 – Introduction to Program Assessment. This course instructs all new faculty on the foundations of assessment at WDTC and guides them through the assessment cycle. Then, during the 4th semester, faculty work one-on-one with Assessment Coordinators to plan and implement their first PLO and CLO assessment activities. After the 4th semester, they are then ready to complete all assessment activities on schedule with experienced faculty. This onboarding process to assessment allows new faculty to attain curriculum experience first, which gives them the foundation for better assessment success.

Assessment Cycle



B. Is the program preparation for a professional licensure and/or certification examination?

- Yes (Detail in Appendix 4: Section 3)
 No

3.3. Describe the program of study by completing Appendix 3.

3.4. Describe the program's work-based learning component.

A. Does the program have a work-based learning component? If so, select all that apply.

- | | |
|---|--|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> Clinical |
| <input type="checkbox"/> Apprenticeship | <input type="checkbox"/> Capstone |
| <input type="checkbox"/> Internship or Externship | <input type="checkbox"/> Other: |

B. If none, describe why.

3.5. Describe the program's delivery methods.

A. Select the program's primary delivery method(s)¹. Select all that apply.

- | | |
|---|---|
| <input checked="" type="checkbox"/> On Campus | <input type="checkbox"/> Apprenticeship |
| <input checked="" type="checkbox"/> Online | <input checked="" type="checkbox"/> Other: Clinical |
| <input type="checkbox"/> Blended | |

B. Describe how flexible delivery methods are being leveraged to increase student access.

Classes for the Radiology Technology Program will be offered in a variety of formats. The General Education courses all have face-to-face and online delivery options. The face-to-face courses provide a traditional learning environment for students who learn best in a physical classroom, and the online format will provide students with flexibility around work and family schedules. The core program courses will be offered as face-to-face didactic and laboratory courses. These courses will require students to attend classes in person and will not be offered in an online or hybrid format. The program will also include five clinical courses where students will be assigned to complete a minimum number of hours within a local radiology department as part of their learning process.

¹ **In Person:** 100 percent of courses are available in-person. **Online:** 100 percent of courses are available via distance learning. Delivery is only via the Internet. **Blended:** Delivery includes a required combination of both in-person and online courses. If a student has the option to take courses online, but is not required to do so, the program is not necessarily considered blended.

CRITERION 4: ALIGNMENT

The program is vertically aligned to an education and training pathway.

- 4.1. The program is vertically aligned to an education and training pathway, reflecting efficient articulation of:
 - 4.1.1. Non-degree credential/industry certification
 - 4.1.2. Certificate to diploma
 - 4.1.3. Diploma to associate of applied science
 - 4.1.4. Associate of applied science to baccalaureate

4.1. Describe the alignment of the proposed program along an education and training pathway.

A. Complete Appendix 4.

B. Describe the projected alignment between the proposed program and existing academic programs within the technical college system.

The 2-year associate of applied science degree in Radiology Technology includes a core technical curriculum for a strong foundation in the radiology field. Graduates may continue in advanced studies to attain additional certificates for mammography, computed tomography, cardiac-interventional radiography, bone densitometry, and MRI.

Students may transition to a different program at WDTC and transfer credits from the Radiology Technology program if other admissions criteria are met. The Radiology Technology program aligns with various programs at WDTC to meet our region's industry needs and enhance graduates' versatility in employment.

C. As applicable: Insert any additional comments here.

CRITERION 5: CAPACITY

The institution demonstrates the internal and external resources necessary to develop, implement, and sustain the program.

- 5.1. The institution demonstrates the financial resources necessary to develop, implement, and sustain the program.
- 5.2. The institution demonstrates appropriately certified and qualified faculty are in place with expertise in content, pedagogy, and related industry to develop and validate the program learning outcomes.
- 5.3. The institution's physical facilities (e.g., classrooms, laboratories) reflect current industry and/or occupational standards necessary to develop and validate the program learning outcomes.
- 5.4. The institution's equipment and technology resources reflect current industry and/or occupational standards necessary to develop and validate the program learning outcomes.
- 5.5. The institution demonstrates the ability of the program to meet institutional and programmatic accreditation standards, as applicable.

5.1. Describe the institution's financial capacity to develop, implement, and sustain the proposed program.

A. Complete Appendix 5.

B. Describe the proposed program's anticipated local fee structure. Description of fee structure should be specific to the program.

The anticipated fee structure for the Radiology Technology Program would align with WDTC's current fee structure including institutional fees of \$89 per credit and program fees of \$31 per credit.

C. What is the proposed program weight factor (funding formula)?

- Standard Cost (1)
- High Cost (3)
- High Cost, Low Density (5)

I. Provide rationale related to the selection of proposed program weight factor.

The proposed program aligns with the state-level guidance for the High-Cost program weight factor.

D. Describe the contingency plans in case anticipated enrollments, income, or resources do not materialize.

WDTC does not anticipate low enrollment in the Radiology Technology Program. WDTC's Admissions Department already received numerous inquiries on whether the college offers a Radiology Technology program. Because of the high need for Radiology Technologists in West River, the college foresees strong industry support in terms of equipment and supply donations, clinical placements, and job placement for graduates. WDTC is also currently seeking grant opportunities to offset some of the construction and equipment costs for a laboratory space on campus. WDTC's local industry partners are also seeking vendors who will offer discounted rates on equipment and supplies.

WDTC is committed to regularly monitoring enrollment, income, and resource trends to identify any potential shortfalls or deviations from expected levels. All WDTC programs closely monitor expenses and identify where cost-saving measures may be implemented.

5.2. Describe how the institution will ensure the appropriate certified and qualified faculty are in place with the expertise in content, pedagogy, and the related industry to develop and validate the program learning outcomes.

A. Describe the necessary qualifications of faculty who will be involved in the program.

WDTC is committed to hiring expert faculty members to deliver academic excellence within all programs and follows the requirements of the Higher Learning Commission and the state of South Dakota as outlined in the SD Postsecondary Technical College Instructor Credential Policy. Meeting these requirements are applicable to all full-time, adjunct, and off-site faculty members. Additionally, for the Radiology Technology Program to earn accreditation, faculty members must also meet the credential requirements set forth by the Joint Review Committee on Education in Radiologic Technology (JRCERT). Upon hire, official transcripts are documented, current credentials are verified, and reference and background checks are completed.

Faculty positions are posted on the college website. Applications are submitted online through our secure NEOGOV system and are reviewed and scored by a hiring committee. Based on scores, the top 3-4 applicants are interviewed by the same committee who then makes a recommendation to the top 1-2 applicants to the President. Lastly, the President conducts an interview and decides to offer the position to the top applicant.

New faculty members receive one week of orientation from the VP for Teaching and Learning and the Director of Instructional Design & Professional Development. This orientation also includes trainings by Human Resources, IT, Registrar's Office, and the Student Success Center. New faculty members then enter a one-year mentorship program facilitated by the VP for Teaching and Learning, the Director of Instructional Design & Professional Development, and Team Leaders. As part of the mentorship, new faculty members also complete two teaching methodology courses: ED 211 Methods of Lesson Planning and Instruction (2 credits) and ED 215 Methods of Instructional Design (2 credits). As part of these two courses, new faculty members are introduced to student-centered learning methods, lesson planning, assessment tools, adult learning theories, classroom management strategies, and ADA guidelines to assist with student accommodations. Upon completion of the mentorship and methodology courses, new faculty members receive their 5-year SD Post-Secondary Teaching Credential.

Continued support is provided for faculty members by the VP for Teaching and Learning, the Director of Instructional Design & Professional Development, Assessment Coordinators, and Team Leaders. WDTC schedules 15 faculty development days within the academic calendar for various trainings. Faculty members are also able to submit requests for professional development within their respective professions.

B. Does the instructorship(s) currently exist in the roster of Instructor Salary Support market value determinations?

- Yes
 No

I. If no: Describe the SOC(s) codes and titles that will need to be added.

5.3. Describe the existing and/or new physical facilities that will be utilized or needed to reflect current industry and/or occupational standards. Outline short- and long-term investments in physical facilities.

WDTC has an existing lecture classroom space that can be converted into a Radiology Technology laboratory space. Local industry partners have viewed the space and agree it is more than adequate for the planned cohort size. These partners have also provided feedback on the equipment and supplies needed for the space and have connected the college with vendors who will assist in the design of the space. Short-term investments (over the next 2 years) will include renovations of the classroom space to make it safe for radiology image taking and installation of radiology equipment.

5.4. Describe the existing and/or new equipment and technology resources that will be utilized or needed to reflect current industry and/or occupational standards. Outline short- and long-term investments in equipment and technology resources.

Basic radiology equipment will be needed to deliver the curriculum. This will provide foundation skills on patient interactions, positioning, and radiation safety in a controlled laboratory learning space. Students will have the opportunity to learn about more specialized radiology equipment throughout five clinical courses within the program. The current Learning Management System (MLS) will be utilized in delivery of course content throughout the program.

5.5. Describe the institution's and proposed program's ability to meet institutional and programmatic accreditation standards, as applicable.

A. Specify Higher Learning Commission (HLC) requirements.

- Notification Only
- Approval Required
- None
- Other:

B. Is there an accrediting or professional organization that has established standards for the program?

- Yes
- No

C. If yes: Describe the ability of the proposed program to meet professional accreditation standards. If the program does not or cannot meet those standards, describe the area(s) in which it is deficient and indicate steps needed to qualify the program for accreditation. Provide the date by which the program would be expected to be fully accredited.

If the institution does not plan to seek specialized accreditation, provide a rationale for not seeking.

Upon BoTE approval of the Radiology Technology Program, WDTC will begin initial accreditation work with the Joint Review Committee on Education in Radiologic Technology (JRCERT). The JRCERT is recognized by both the US Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA). The JRCERT accreditation standards incorporate many of the regulations required by the USDE for accrediting organizations to assure the quality of education offered by higher education programs. The JRCERT accreditation process is a means of assuring the public that a program meets specific quality standards.

WDTC has a long history of holding programmatic accreditations for various academic programs. The college does not foresee any issues in meeting JRCERT accreditation standards. WDTC has started reviewing accreditation standards as part of planning for curriculum, facilities, and faculty hiring. The college will strive to have the program fully accredited within two years of the program start.

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
 Appendix 2.A: Labor Market Information

Western Dakota Technical College
 Radiology Technology - Associate of Applied Science

SOUTH DAKOTA									
SOC* CODE	SOC* TITLE	AVERAGE ANNUAL OPENINGS	2018 EMPLOYMENT	2028 EMPLOYMENT	NUMERIC CHANGE: 2018-2028	PERCENT CHANGE: 2018-2028	MEDIAN: ANNUAL WAGE (2020)	AVERAGE: ANNUAL WAGE (2020)	
29-2034	Radiologic Technologists and Technicians	84	973	1,098	125	12.85%	\$61,210	\$58,900	

NATIONAL									
SOC* CODE	SOC* TITLE	AVERAGE ANNUAL OPENINGS	2019 EMPLOYMENT	2029 EMPLOYMENT	NUMERIC CHANGE: 2019-2029	PERCENT CHANGE: 2019-2029	MEDIAN: ANNUAL WAGE (2020)	AVERAGE: ANNUAL WAGE (2020)	
29-2034	Radiologic Technologists and Technicians	13,100	222,800	235,000	12,200	5.50%	\$65,14	\$70,240	

SOURCE: South Dakota Department of Labor and Regulation, Labor Market Information Center (LMIC) (<https://dlr.sd.gov/lmic/>)
 DATE: 11/17/23

NOTES:

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION

Appendix 2.B: Student Demand Projections

Western Dakota Technical College

Radiology Technology - Associate of Applied Science

	YEAR 1	YEAR 2	YEAR 3
Student Full-Time Equivalent (FTE)	14	28	28
Headcount: Full-Time	14	28	28
Headcount: Part-Time			
Headcount: Total	14	28	28
Total Program or Site Capacity	14	28	28

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
Appendix 3: Program of Study

Western Dakota Technical College
 Radiology Technology - Associate of Applied Science

MONTHS:	
SEMESTERS:	6
TOTAL CREDITS:	79

PREFIX AND NUMBER	TITLE	CREDITS	DESCRIPTION	EXISTING COURSE
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I. GENERAL EDUCATION CORE

CMST 101	Fundamentals of Speech	3	Introduces the study of speech fundamentals and critical thinking through frequent public speaking practice, including setting, purpose, audience, and subject.	Y
CSC 105 or HUM 100	Microcomputer Software Applications OR Introduction to Humanities	3	This course is an introductory course in software applications, which includes basic technical concepts, as well as hands-on experience. The utility of the computer is demonstrated by introducing Windows, word processing, spreadsheet, database and presentation software to the student. OR This interdisciplinary course introduces students to humanistic knowledge, inquiry, and values by focusing on connections among humanities disciplines (such as art, languages, literature, music, philosophy, and religion).	Y
ENGL 101	English Composition I	3	This course instructs students in reading critically and writing clearly, correctly, and persuasively. Students will study principles of grammar, rhetoric, and logic in order to analyze and compose text effectively. This includes work on personal, expository, and research essays.	Y
MATH 105	Mathematical Reasoning	3	This course is designed to develop the student's ability to reason with quantitative information to help them succeed in their careers and personal life. Topics include logic and problem solving with an emphasis on linear algebraic applications, operations on polynomials, quantitative information in everyday life, and topics selected from probability and statistics or modeling.	Y
PSYC 101 or SOC 100	General Psychology OR Introduction to Sociology	3	This course is an introduction survey of the field of psychology with consideration of the biological bases of behavior, sensory and perceptual processes, learning and memory, human growth and development, social behavior, and normal and abnormal behavior. OR Comprehensive study of society with analysis of group life and other forces shaping human behavior.	Y
SUBTOTAL OF GENERAL EDUCATION CREDITS:		15	TOTAL NEW COURSES:	0

II. PROGRAM CORE

HC 114	Anatomy & Physiology for the Health Professions	3	Students will gain an introductory understanding of the structure and function of the human body. This course emphasizes concepts essential for student success in health program curriculum as well as in practical, work-related environments.	Y
HC 116	Anatomy & Physiology for the Health Professions Lab	1	This is the study of the structure in relation to function of the human body at the cellular, tissue, and organ levels. Major systems studied will include the skeletal, nervous, circulatory, respiratory, digestive, endocrine, urinary, and reproductive systems. The laboratory will include use of dissections, human models, preserved specimens, slides, and the human skeleton.	Y
HC 213	Medical Terminology	3	Students will be taught the basic techniques of medical word building. These techniques will be applied to acquire an extensive medical vocabulary. The course introduces students to medical terms relating to the anatomy and physiology of body systems, pathology, diagnosis, medical treatments, and procedures.	Y
RAD 115	Patient Care in Radiologic Sciences	4	An introduction to radiology science, patient care skills, and the ethical and legal responsibilities appropriate to the radiographer's scope of practice. Students will demonstrate skills in professional communication, monitoring, protection, and physical care for the patient while in the radiology department. Pharmaceuticals, radiopharmaceuticals, IVs, and contrast reactions will also be covered.	N

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION

Appendix 3: Program of Study

Western Dakota Technical College
 Radiology Technology - Associate of Applied Science

RAD 120	Radiologic Procedures I	4	This course is designed to introduce the student to the anatomy and positioning of radiographic examinations. Specifically, the student learns positioning skills for the chest, abdomen, upper extremity, lower extremity, spine, and pelvis. Simulation lab and the beginning of the image evaluation to understand a quality radiograph will occur in this course.	N
RAD 125	Imaging Physics	3	This course is designed to develop a foundation and foster an understanding of radiographic equipment, quality, and technique. Basic physical principles will be introduced and expanded upon in the areas of measurement, energy, atomic structure, electricity, magnetism, and how they are applied to the production of radiation. These topics lead to how the x-ray machine produces x-radiation. Basic essentials of radiographic exposure formulation, manipulation of techniques, and how to adjust technical factors to maintain quality due to different patient conditions will be discussed.	N
RAD 130	Digital Image Acquisition & Display	3	Digital Image Acquisition & Display is a course that creates a foundation to understand the key concepts, terminology, quality, and applications of digital imaging and how it is utilized in radiologic technology and advanced imaging. The key areas of focus will be digital imaging acquisition, display, and archiving which includes Picture Archiving and Communication Systems (PACS) and medical imaging informatics Quality components and technical factor adjustments will also be discussed. Fluoroscopy and surgical imaging fundamentals of equipment and operation will be discussed. Other advanced imaging modalities will be introduced.	N
RAD 135	Radiologic Procedures II	4	This course is designed to introduce the student to the anatomy and positioning of the gastrointestinal (alimentary canal), skull, pediatric, geriatrics, trauma, surgical, and other advanced areas of positioning. Simulation lab and the beginning of image evaluation to understand a quality radiograph will also occur.	N
RAD 140	Image Evaluation	2	Students evaluate radiographic images and predict the effects that various technical factors, including equipment, technical factors (i.e. kVp and mAs), and accessory devices. Evaluation of images of all learned radiographic projections for quality will also be completed. Evaluations include density, contrast, rotation, marker placement, and other image quality factors.	N
RAD 175	Radiology Clinical I	4	Adaptation to the hospital environment with rotating shifts and assignments. Correlation of classroom theory with competently performing the basic radiographic exams and procedures learned in RAD 120. Active participation in the Radiology Department's radiographic and fluoroscopic rooms with radiation safety practices.	N
RAD 180	Radiology Clinical II	4	Supervised clinical practice and patient care with rotating shifts and site assignments. Competency evaluation including radiographic exams and procedures learned in RAD 120 and RAD 135.	N
RAD 199	Radiology Clinical III	4	Supervised clinical practice and patient care with rotating shifts and site assignments. Competency evaluation including routine chest, upper limb, lower limb, abdomen, urinary system contrast studies, surgery, contrast and GI imaging, spine, thorax and ribs, cranial, and pediatrics.	N
RAD 225	Principles of Imaging & Ethics	3	This course will discuss quality assurance programs, quality control testing, and preventative maintenance on imaging equipment. Ethical and legal principles will be discussed to create a high level of understanding of these topics and how they relate to our professional Code of Ethics and governing societies.	N
RAD 230	Radiologic Pathology	3	Introduction to pathologies that are imaged in a radiology department. Anatomy, physiology, additive and destructive pathologies, and congenital abnormalities will be discussed. Application of patient care techniques including communication according to pathology.	N
RAD 235	Advanced Modalities	3	Overview of equipment, procedures, techniques, anatomy, sterile technique, and imaging protocols of specialty areas such as sonography, computed tomography MRI, nuclear medicine, radiation therapy, cardiovascular/interventional, mammography, and DEXA.	N

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
Appendix 3: Program of Study

Western Dakota Technical College
 Radiology Technology - Associate of Applied Science

RAD 240	Radiation Biology & Protection	3	Overview of the nature of radiation interaction with matter and the effects of radiation exposure. Students will discuss patient and personnel radiation protection practices, limiting standards, units of measurement, regulatory agencies, and effects of radiation on the body.	N
RAD 245	Registry Review	2	This course will be taken concurrently with Radiology Clinical V. It is intended to serve as a comprehensive review in preparation for the national certification exam in radiology technology.	N
RAD 275	Radiology Clinical IV	5	Supervised clinical practice and patient care with rotating shifts and site assignments. Performance of venipuncture, vital signs, and sterile technique. Competency evaluation including advanced chest and abdomen exams, upper extremity, lower extremity, spine, bony thorax, cranial, pediatric, trauma, mobile, advanced GI and GU contrast procedures, and surgery exams.	N
RAD 280	Radiology Clinical V	6	Supervised clinical practice and patient care with less assistance to foster increased proficiency and responsible decision-making which will include rotating shifts and site assignments. Performance of venipuncture, vital signs, and sterile technique. Competency evaluations of advanced chest and abdomen exams, upper extremity, lower extremity, spine, bony thorax, cranial, pediatric, trauma, mobile, advanced GI, GU, and orthopedic contrast procedures, and surgery exams.	N
SUBTOTAL OF PROGRAM CREDITS:		64	TOTAL NEW COURSES:	16

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION
Appendix 4: Alignment Projection

Western Dakota Technical College
 Radiology Technology - Associate of Applied Science

TOTAL CREDITS IN PROPOSED PROGRAM:

79

I. STACKABLE OPPORTUNITIES							
PROGRAM NAME							
Registered Nursing		Short-term Certificate	X	Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
		Long-term Certificate		Forthcoming			
		Diploma					
	X	AAS					
					18		
Surgical Technology		Short-term Certificate	X	Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
		Long-term Certificate		Forthcoming			
		Diploma					
	X	AAS					
					18		
		Short-term Certificate		Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
		Long-term Certificate		Forthcoming			
		Diploma					
		AAS					
		Short-term Certificate		Existing	If Forthcoming: Projected Timeline	Total Credits in Stackable Program	How many PROPOSED PROGRAM credits are in this stackable program opportunity?
		Long-term Certificate		Forthcoming			
		Diploma					
		AAS					

II. ARTICULATION AGREEMENTS (BACCALAUREATE)							
PROGRAM NAME	COLLEGE OR UNIVERSITY						
				Existing	If Forthcoming: Projected Timeline	Total Credits in Bachelor's Degree	How many PROPOSED PROGRAM credits are projected to be accepted in the articulation agreement?
				Forthcoming			
				Existing	If Forthcoming: Projected Timeline	Total Credits in Bachelor's Degree	How many PROPOSED PROGRAM credits are projected to be accepted in the articulation agreement?
				Forthcoming			
				Existing	If Forthcoming: Projected Timeline	Total Credits in Bachelor's Degree	How many PROPOSED PROGRAM credits are projected to be accepted in the articulation agreement?
				Forthcoming			

III. LICENSURE AND CERTIFICATION OPPORTUNITIES		
<i>The PROPOSED PROGRAM will qualify students to pursue the following licensure and/or certification opportunities:</i>		
LICENSURE/CERTIFICATION	OVERSIGHT ORGANIZATION	Will the licensure/certification require reporting per SDCL 13-1-61?
American Registry of Radiologic Technologists (ARRT) exam in Radiography	American Registry of Radiologic Technologists	Yes

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION

Appendix 5: Financial Projections

Western Dakota Technical College
 Radiology Technology - Associate of Applied Science

	YEAR 1	YEAR 2	YEAR 3
Student FTE	14	28	28

I. PROJECTED EXPENDITURES

A. ONE-TIME

New/Renovated Facilities	\$ 175,000.00	\$ -	\$ -
Equipment	\$ 100,000.00	\$ 150,000.00	\$ -
Other	\$ -	\$ -	\$ -
Sub-Total: One-time	\$ 275,000.00	\$ 150,000.00	\$ -

B. RECURRING

B.1. PERSONNEL

FTE (Faculty and Staff)	1	2	3
Salary & Benefits	\$ 111,698.00	\$ 203,393.00	\$ 208,345.00

B.2. OPERATING

Rental / Lease	\$ -	\$ -	\$ -
Contractual Services	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 50,000.00	\$ -
Supplies	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
Travel	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00
Other	\$ 10,000.00	\$ 5,000.00	\$ 5,000.00
Sub-Total: Operating	\$ 22,000.00	\$ 67,000.00	\$ 17,000.00
Total: Recurring	\$ 133,698.00	\$ 270,393.00	\$ 225,345.00

TOTAL EXPENDITURES (A + B)	\$ 408,698.00	\$ 420,393.00	\$ 225,345.00
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II. PROJECTED REVENUE

Tuition	\$ 52,080.00	\$ 104,160.00	\$ 104,160.00
State Fees	\$ 17,640.00	\$ 35,280.00	\$ 35,280.00
Local Fees	\$ 56,000.00	\$ 112,000.00	\$ 112,000.00
Location-Based Fees	\$ -	\$ -	\$ -
State Sources	\$ -	\$ 80,880.66	\$ 161,761.32
Federal Sources	\$ -	\$ -	\$ -
Private Grants or Gifts	\$ 150,000.00	\$ -	\$ -
Other (Perkins)	\$ 212,000.00	\$ 300,000.00	\$ -

TOTAL REVENUE	\$ 487,720.00	\$ 632,320.66	\$ 413,201.32
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REVENUE - EXPENDITURES	\$ 79,022.00	\$ 211,927.66	\$ 187,856.32
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**Projections are held constant based on current fiscal year. Inflation or rate changes are not factored.*

SOUTH DAKOTA BOARD OF TECHNICAL EDUCATION

Appendix 5: Financial Projections

Western Dakota Technical College

Radiology Technology - Associate of Applied Science

Notes:

Personnel - Year 1 = Program Director Salary + Benefits, Year 2 = Program Director + One FT Faculty Salaries + Benefits, Year 3 = Program Director + One FT Faculty Salaries + Benefits + One Adjunct Instructor (Benefits = Life-Health-Dental-SS/Medicare-Retirement-Work Comp-Unemployment)



November 29, 2023

Rapid City Medical Center, LLP
Genae Adams, Radiology Manager
2820 Mt. Rushmore Road
Rapid City, SD 57701
adamsgl@rcmed.net
605-721-8160

South Dakota Board of Technical Education
800 Governors Drive
Pierre, SD 575436

South Dakota Board of Technical Education Members:

I am a born and raised South Dakota native and have been apart of the medical field for almost six years. I started my education through Black Hills State University to obtain my associate degree and then went on for my Radiologic Technologist certification through Rapid City Regional Medical Radiography program. I completed the two-year program in 2018. After completion of the program, I moved to Sioux Falls, South Dakota and worked for the Orthopedic Institute. In 2019 I moved back to Rapid City and began working with Rapid City Medical Center where I was able to further my career by becoming certified in Mammography. In 2022 I advanced my career by becoming Rapid City Medical Centers, Radiology Manager.

I would fully support another Radiologic Technologist program. I was in the midst of completing my Radiologic Technologist certification when it was announced they would be shutting down the program at Monument Health. I saw firsthand the emotional effect it had on many x-ray technologists, supervisors, directors, and management. Being in a management role now, I have also seen the effects. It has taken as long as 6 months to even have an applicant apply for an open position. Being short staffed can affect patient care, as we can't staff at all our clinics, which delays care. Rapid City Medical Center currently offers care at seven different locations, and four of those locations offer Radiology services. Our Mount Rushmore clinic offers the following services; DEXA Bone Density scans, Ultrasounds, Mammography, CT, and X-Ray. This would provide a broad spectrum of education for students with all the services we offer.

At Rapid City Medical Center, we strive to keep employees. The past five years, we have seen as many as seven technologists move on from us. We hope to keep this number to a minimum, but of course, we will be seeing retirements, others wanting to advance in careers, etc. I would expect within the next five years to fill at least 3-5 positions. We currently offer PRN, part-time (24-hours), and full-time (40-hours) positions. Given the experience of the individual, we could see a wage range from anywhere between \$22.00/hr to \$25.00/hr.

Sincerely,

Genae Adams RT (R) (M)

Genae Adams

November 10, 2023

Black Hills Surgical Hospital
Greg Loos, President and Chief Operating Officer
216 Anamaria Drive
Rapid City, SD 57701

South Dakota Board of Technical Education
800 Governors Drive
Pierre, SD 575436

South Dakota Board of Technical Education Members:

Radiology / Medical Imaging is an important and necessary step in diagnosing and treating various diseases, pathology, and ailments. There are many specialty modalities under the Radiology umbrella including Ultrasound, Nuclear Medicine, MRI, CT, Interventional Radiology, Mammography, Radiation Therapy, Dosimetry, and Dexascan. Radiology also serves the greater community and provides imaging services to Emergency Departments, ICU, OR, Urgent Care, Cancer Care, and outpatient procedures. When a person is experiencing pain, providers look to diagnostic radiology to provide answers to solve what the problem is. It's a critically important technical field that has far-reaching implications in the quality and experience of a patient's healthcare journey.

Black Hills Surgical Hospital is consistently recognized as one of the top hospitals in the entire country, including being named the #1 Hospital for Major Orthopedic Surgery for 2023. Accolades of this caliber are because of the efforts made by our highly trained and compassionate staff. That includes our Radiological Techs who are on the front-line capturing the images that help ensure we provide exceptional quality and high standards of care. BSHS has grown in number of patients served, and this results in an increase number of Rad Techs, CT techs, and MR techs; as well as additional equipment. Needed surgery cases cannot be done without rad techs in case.

For many years, Rapid City Regional Hospital offered a Radiologic Technologist Program where students had opportunity to train in the Rapid City area and find jobs locally. This program closed approximately 4 years ago. Currently there isn't a Radiology school within hundreds of miles. Casper, Wyoming is 252 miles away; Mitchell, South Dakota is 276 miles away; Scottsbluff, Nebraska is 194 miles

This program closure has led to a shortage of technologists entering the job market in our area. In addition, we have lost technologists due to retirement or taking jobs elsewhere, with no replacements available. This has left existing staff working longer days, overtime shifts, extra call, and weekend shifts causing challenges with work / life balance, increase stress to family, physical and mental exhaustion.

High school students, who have expressed interest in Radiology, have commented they find this career choice unappealing due to not having a program locally so they either leave the area, or pursue other career fields entirely.

BSHS has had open Rad Tech positions for nearly a year and has promoted \$15,000.00 sign-on bonuses and paid housing. Those perks are in addition to our class-leading wages. The shortage of Rad Techs in

our area has limited the applicant pool to nearly zero, and efforts to recruit Rad Techs from other states is a difficult and costly endeavor. With Rapid City and the Black Hills experiencing explosive population growth, we expect to continue to see an increase in patient volume and imaging care needed. We anticipate the need to hire 6 technologists within the next 5 years due to growth and expected turnover.



Monument Health Rapid City Hospital | Administration | 353 Fairmont Blvd. | Rapid City, SD 57701 | 605-755-1000

October 10, 2023

South Dakota Board of Technical Education
800 Governors Drive
Pierre, SD 57501

Dear Members of the South Dakota Board of Technical Education,

I am writing to you on behalf of Monument Health, a prominent healthcare organization serving the people of South Dakota and beyond. I am honored to present our commitment to and partnership with Western Dakota Technical College, outlining the rationale behind our support for the Radiologic Technology program at the college and providing evidence of the substantial occupational demand for trained radiologic technologists.

Monument Health has been at the forefront of providing exceptional healthcare services to the residents of South Dakota for several decades. With a legacy of excellence in patient care, we have continually strived to uphold the highest standards of medical practice and patient satisfaction. Our organization comprises numerous hospitals, clinics, and healthcare facilities across the region, collectively working towards the well-being of our communities.

We take immense pride in our longstanding partnership with Western Dakota Technical College. This collaboration exemplifies our commitment to education, training, and workforce development within the healthcare sector. Western Dakota Technical College has proven to be a reliable source of well-trained healthcare professionals, and we are dedicated to ensuring its programs remain aligned with the evolving needs of the healthcare industry.

Our rationale for supporting a Radiologic Technology program at Western Dakota Technical College is rooted in the growing demand for radiologic technologists in the healthcare industry. As medical technology advances and the population ages, the need for skilled radiologic technologists becomes increasingly critical in diagnosing and treating a wide range of medical conditions. By supporting this program, we aim to address the following key points:

- a) **Addressing Workforce Shortages:** Monument Health, like many healthcare organizations across the country, has been experiencing difficulties in recruiting and retaining qualified radiologic technologists. Currently, we have nine full-time openings for radiologic technologists that have remained unfilled for an extended period.

- b) Meeting Patient Needs: These workforce shortages directly impact our ability to provide timely and high-quality patient care. Delayed or compromised diagnostic imaging services can negatively affect patient outcomes and satisfaction.
- c) Investing in Local Talent: By partnering with Western Dakota Technical College to train radiologic technologists locally, we are investing in the development of our own workforce, fostering a sense of community, and contributing to the economic growth of our region.
- d) Supporting Educational Excellence: We believe in the quality of education offered by Western Dakota Technical College and have confidence in their ability to produce highly skilled graduates who will meet the rigorous standards of the healthcare industry.

The demand for trained radiologic technologists is not limited to Monument Health but is indicative of a broader industry need. This demand is evidenced by the persistent job openings within our organization and the competitive wages offered to attract newly graduated radiologic technologists. Currently, newly graduated radiologic technologists can expect to start their careers with a competitive wage of approximately \$25 per hour. This competitive compensation reflects the urgency with which healthcare organizations like Monument Health are seeking to secure qualified professionals to meet patient needs.

In conclusion, our commitment to supporting the Radiologic Technology program at Western Dakota Technical College is driven by the urgent need to address workforce shortages in our industry, improve patient care, and invest in the future of our community. We kindly request the South Dakota Board of Technical Education's consideration and support for this essential initiative.

Thank you for your time and attention to this matter. We look forward to further discussions and collaboration in ensuring the success of the Radiologic Technology program at Western Dakota Technical College.

Sincerely,



Mark Schulte, FACHE
Vice President Operations
Monument Health Rapid City Market



South Dakota Society of Radiologic Technologists (SDSRT)
Nan Bradeen MS RT(R)(M)(QM) (ARRT); Chairman of the SDSRT Board
PO Box 862
Custer, SD 57730
nbradeen2@gmail.com
605-431-4279

South Dakota Board of Technical Education
800 Governors Drive
Pierre, SD 57501

South Dakota Board of Technical Education Members:

The South Dakota Society of Radiologic Technologists (SDSRT) is the governing board for the radiologic technologists and radiation therapists for the state of South Dakota. The board represents all radiologic technologists and radiation therapists across the state and at the national level with the American Society of Radiologic Technologists (ASRT). Our society has been around for over 75 years and is active at the state and national level supporting our technologists.

Staffing issues are plaguing our facilities across the nation and when a program closure occurs, this exacerbates the problem. Since 2019, Monument Health closed their radiology program and in May of 2023 Presentation College has also closed their radiology program. With the closure of both programs, there is an educational program shortage in Western South Dakota. Currently Mitchell Technical College uses some Monument Health facilities as clinical education sites; however, since most of the students are from east river they return after their schooling is completed thus needs are not being met. We also miss out on students that cannot move and/or travel to Mitchell for the first year of school and these students are from West River and want to stay in West River. By educating our own population of students, we have investment in the community and long-term workers in the area. The cost of bringing travelers in is taking its toll on budgets, especially in the current financial environment and travelers are not sustainable. There could be a focus and dollars spent on educating and supporting radiology students in our area. Another area of concern is that a non-registered person will have on-the-job training to perform a registered technologist's job. This could happen due to availability of radiology technologists to fill the positions and the cost of a traveler technologist is too high. By implementing non-registered personnel to perform x-rays, safety and quality become a major concern and the patient will suffer.

The SDSRT is in support of this program being developed to meet the needs of West River communities. Our society is here to ensure patient safety and high-quality images are being performed by educated registered technologists. The SDSRT believes that when all facets of a community work together to ensure proper education and care for patients, this is a formula for success. The SDSRT mission is to advance the profession of medical imaging and radiation therapy, to maintain high standards of education, to enhance the quality of patient care and to further the welfare and socioeconomics of radiology technologists in the state of South Dakota. The radiography program proposal at WDT fits the mission of the SDSRT.

The SDSRT is a volunteer board that has members across the state and shortages are everywhere. Students are hired and being recruited months before their schooling is completed and the job picked will be the highest bidder. There are currently over 30 jobs for radiologic technologists in the Rapid City area. In 2023, Mitchell Technical Institute had 5 students that completed clinicals at Monument Health and 2 of the 5 stayed in the region. This is not sustainable for our profession. There is also a generation of technologists that are getting close to retirement, and this will add to the shortage West River. By diversifying the educational opportunities for students seeking radiologic technology, there will be a great opportunity for program growth.



November 8, 2023

Black Hills Orthopedic and Spine Center
Tracey Mann, Clinical Tech Supervisor
7220 Mt Rushmore Rd
Rapid City, SD 57702
traceymann@bhosc.com
605-341-1414 ex 2189

South Dakota board of Technical Education
800 Governors Drive
Pierre, SD 57501

South Dakota Board of Technical education members:

Black Hills Orthopedic and Spine Center was founded in 1976 by orthopedic surgeon David W. Boyer, MD and has remained the premier orthopedic practice in the region for nearly 50 years. We have 18 board-certified and fellowship-trained specialists who provide the highest level of specialty healthcare in orthopedic surgery and advanced nonsurgical methods to keep our Black Hills community strong.

With over 30 providers including physicians and physician assistants we see over 70,000 patients yearly. Of those 70,000 nearly all need radiology services. We employ over 25 radiology techs in our practice and have had difficulty filling positions with retirements, advancement of career and relocation of staff. This challenge increased with the closing of Monument Health Radiology program nearly 4 years ago. Having a radiology program local to Rapid City would not only help our organization but would also help the entire community and those that surround it.

We currently have 2 open positions for Radiology technologists and expect to have several more in the next 3-5 years as we have added MRI services to our organization. We are staffing our MRI machine with contract employees as we do not have enough staff to run our own MRI system. Our organization is continuing to grow, and we expect to add Radiology services and need the staff to be able to run the equipment needed to take care of the 30,000 patients we are seeing annually.

For the student searching for a vital and meaningful profession, Radiologic Technology provides an affordable, quality education. This challenging profession provides a wide variety of opportunities and financial prospects to our community without requiring relocation to the eastern side of the state. New graduates of this program would start at \$25 an hour within our organization.

Sincerely,

A handwritten signature in blue ink that reads "Tracey Mann BS RT R M MR CT".

Tracey Mann BS RT R M MR CT