Objectives and Needs

1. Centrality to or enhancement of the institution's approved mission and institutional objectives.
The University of Montana-Missoula College of Technology and Montana Tech of The University of Montana College of Technology Radiologic Programs are central to the ongoing mission of the Colleges in preparing individuals to perform well in a professional health care field—radiologic technology. This educational effort, in concert with area and Montana health care organizations, provides a vital involvement in a partnership that builds community, improves lives, affects economies, and prepares a highly qualified professional cadre of Radiologic Technologists to serve Montana residents.

This proposal reflects the response by campuses to the education and employment needs of Montana. University-based educational paths for Radiologic Technologists are emerging in Montana. This program represents an initial path toward opportunities for individuals to become Registered Radiologic Technologists. This proposal also offers a base from which collaboration within the state may grow.

Description of the program

The University of Montana - Missoula

To better serve the interests and needs of students, hospitals, clinics and other health care groups, the University of Montana-Missoula College of Technology seeks approval from the Montana Regents of Higher Education to convert the currently approved Level I, Associate of Applied Science program in Radiologic Technology, to an approved Level II program.
Admissions requirements for applicants for the Radiologic Technology program requires documented completion of the Health Core curriculum with a minimum GPA of 2.75, a letter of application describing interest in the program, two letters of recommendation from faculty, and completion of an interview with the Health Professions Admissions Committee.

Montana Tech of The University of Montana

Montana Tech of The University of Montana College of Technology proposes a Level II approval for a Radiology Program working with The University of Montana – Missoula College of Technology to develop a collaborative program and maximize resources through shared online courses.
Admission requirements for applicants for the Radiologic Technology program require documented completion of the first semester pre-health core courses with a cumulative GPA of 2.75 or better. Other selection criteria may be added in the future. Entrance into the RT Program is spring semester. The successful graduate of the Radiologic Technology Associate of Applied Science program will be eligible to sit for the national certification examination through the American Registry of Radiologic Technologists (ARRT).

a. goals and objectives

The goal of the Radiologic Technologist program is to meet individual, professional, hospital, and other health professional needs in Montana.
Objectives include:

(1) To open educational opportunities for students wishing to become Radiologic Technologists.
(2) To maximize cooperative use of local resources by partnering with local health care providers.
(3) To pave the way for additional radiologic technology professional development.

b. intellectual basis for the curriculum

Radiologic Technology has moved from an apprentice model of education to one with broader academic scope because today's technologists require greater knowledge, including mathematics, writing, ethics, and an understanding of human interactions in order to practice client-centered health care. This program has been developed with a solid groundwork of general education as well as the theories and knowledge needed to prepare skilled, knowledgeable practitioners. Clinical experiences are designed to develop the required clinical skills along with the critical thinking skills that will allow transfer of knowledge to new experiences.

In Missoula, all courses are approved through UM-M Faculty Senate's academic review process. In Butte, programs and courses are approved through the curriculum review committee with full faculty approval.
The curriculum leading to a radiologic technology certification is a very demanding and rigorous program of study. Standards are set forth by the American Society of Radiologic Technology (ASRT) guidelines for the essentials of radiology education. All courses are approved through both campuses review process.

c. course of study

The University of Montana - Missoula

Completion of the pre-health core of courses qualifies a student to apply for entry into the Radiologic Technology program. Applicants must have a 2.75 cumulative GPA (CGPA), and at least a C in each health-core class, except SCN 119N, which requires a B. Twenty applicants who have met the prerequisites, have met or exceeded the required CGPA, and who have a personal interview with the admissions committee will be offered acceptance. Applicants must demonstrate computer literacy before admission, either by taking CRT 101 (Introduction to Computers) or passing a challenge examination. Entrance to the program is spring semester.

UM-MCOT Pre-Health Core and Radiology Program

Radiologic Technology		
Pre-Health Core		Credits
Fall Semester		
SCN 119N Anatomy and Physiology	7	
SCN Intro to Physical Science	4	
Mat 100 Intermediate Algebra	3	
CRT 101 Intro to Computers	2	
Total		16
Spring Semester		
RAD 110TIntroduction to Imaging	3	
RAD 111T Radiographic Procedures I	3	
RAD 121T Radiographic Imaging I	3	
RAD 131 T Radiographic Physics	3	
RAD 151T Clinical Education or Clinical Ed I	4	
Total		16
Summer Semester		
RAD 161T Radiographic Clinical Ed II	10	
Total		10
Autumn Semester		
RAD 211T Radiographic Procedures II	3	
COM115 Technical Writing	3	
RAD 122T Radiographic Imaging II	3	
RAD 251T Radiographic Clinical Ed II	6	
Total		15
Spring Semester		
RAD 245T Radiographic Analysis	2	
COM 160A Oral Communications	3	
RAD 261T Radiographic Clinical ED IV	6	
PSY 110 Organizational Psychology	3	
195 Science Learning: to be completed Winter Session	1	
Total		15
Total Credits		**72**

Montana Tech of The University of Montana

MT-COT Pre-health Core and Radiology Program

Fall Semester	**Course**	**Credits**
BIOL TBA	Anatomy/Physiology Part 1	4
IT 1416	Microcomputer Software	3
ENGL 1046	English Composition	3
MATH 0102	Intermediate Algebra	3
PSYC 1000	General Psychology	3
SCN TBA	Integrated Sciences	2
	TOTAL	**18**
Spring Semester		

BIOL TBA	Anatomy/Physiology Part 2	3
RAD 0110	Introduction to Imaging	3
RAD 0111	Radiographic Procedures I	3
RAD 0121	Radiographic Imaging Physics	4
RAD 0151	Clinical Ed I	4
	TOTAL	**17**
Summer Semester		
RAD 0161	Radiographic Clinical Ed II	10
	TOTAL	**10**
Fall Semester		
RAD 0211	Radiographic Procedures II	3
RAD 0122	Radiographic Imaging II	3
RAD 0251	Radiographic Clinical Ed III	6
HCI 1106	Language of Healthcare	3
	TOTAL	**15**
Spring Semester		
RAD 0245	Radiographic Analysis	2
RAD 0261	Radiographic Clinical Ed IV	6
HSS 1216	Principles of Speaking	2
RAD 0219	Advanced Imaging	1
	TOTAL	**11**
Total credits		**71**

Plans for expansion include putting the following courses on-line within the first year: RAD 0110, RAD 0111, RAD 0121, and RAD 0122.

d. prospective instructional methods or delivery by telecommunications

(1) ***IF*** telecommunications will be used, indicate: the types or levels of, the % of total credits for the program, major, major subset, or minor, estimated frequency and duration of face-to-face contact.

Four web-based courses will be offered in collaboration with both campuses. Two web-based courses will be offered from each campus with students from both campuses enrolled. For each web-based course lab experiences are provided in the community health care institutions that provide face-to-face interaction with clinical coordinators, lab instructors, clinical preceptors, and between the students enrolled in the courses. Development of the courses for on-line delivery is paid through the grant funding.

(2) ***IF*** the program exists on campus, and is proposed for delivery off-campus, indicate any differences in the curriculum from that offered on-campus

On campus and distance delivery (telecommunications) courses are no different in goals, objectives, identified competencies, expectations for reaching competencies, assessment of individuals, assessment of courses, or access to web-based resources.

2. Need for program

a. student interest or demand; with data on enrollment trends, outreach interest

The UM-M College of Technology has had a large number students interested in Radiologic Technology over the past two years, necessitating a waiting list of interested students. Local demand and national statistics on health care needs are expected to add to this on a continuing basis. Because students with a “limited license” can be hired at a rate equaling $33,000 or more per year, interest in the program is expected to remain strong. One health care provider has already indicated a desire to hold spots and hire a number of graduating students this year. Student placement continues to be high, and all students who successfully complete the program and certification boards have many employment opportunities. The American Hospital Association reports a vacancy rate of radiologic technologists at 15.3% (17% in the west). The U.S. Department of Labor reports that the country will need 55,000 more technologists by 2008. The Montana Hospital Association is currently surveying the shortages of statewide facilities. With the continual increase in technology, additional pressure will be placed on facilities and exacerbate the shortage.

b. cultural, artistic, and intellectual growth of student, and enrichment to campus community

Intellectual growth in the program is substantial because the highly science-based curriculum requires that growth. Students are very committed to their chosen field, which allows them to be single-minded in their

studies. The required B in all RAD courses reinforces faculty and student commitment to the level of expertise college faculty, and future employers, expect from the graduates.

c. economic growth and development

Students completing the radiology program will earn an average salary of $33,000 a year. The radiology program provides an excellent employment option throughout the state. The 30 graduates each year will be compensated approximately $990,000 each year in salary, which will have an effect on the local economy. In Butte, the 15 graduates will generate analogous local investment.

d. changes in occupation/profession, or advances which require an "updated" approach

The field of Radiologic Medicine has become extremely diverse, with new technology requiring more sophisticated technologists. There is little likelihood that this trend will change. As a result, educational models for Radiologic Technology must emulate the advances made in other medical fields such as nursing. Classroom and clinical experiences and faculty selection of these experiences are designed to develop the clinical skills needed, along with the critical thinking skills that will allow transfer of knowledge to new experiences.

e. manpower needs of local industry; new graduates or "retrained" current employees; and

Radiology manpower needs in Montana and around the nation are increasing. In addition, there has been a change in the approved curriculum that changes the focus from a hospital based to a University based course of study. In many instances this need is being met by out of state institutions such as Weber State University in Ogden, Utah and Apollo College in Spokane, Washington, taking students out of Montana. In short, Radiologic Technology training is needed in Montana to meet health industry needs.

f. reciprocal benefits to the institution--e.g., internships, research funds or opportunities.

There are many reciprocal benefits to the University. The clinical and practical experiences that the students receive through the close partnerships with local health care providers are mutually beneficial to both students and health care facilities. In addition, students at all levels will realize financial gains and the campuses will enhance their reputation as agents for education and community change and growth.

3. New Courses

UM-MCOT - No new courses will be introduced

MT- COT – The 45 radiology credits parallel the UM-MCOT curriculum. Fourteen of the radiology credits will be shared between the campuses through web-based delivery. The program is built on the strength of the cooperative agreement with UM Missoula to utilize their core curriculum and shared responsibility for the development of online courses. In Butte, faculty are reviewing the available Anatomy and Physiology courses to determine what changes need to be made to accommodate this curriculum as well as existing health programs.

Adequacy, Accreditation and Assessment Issues

1. Adequacy of present faculty, facilities, equipment, and library holdings in support of program...

UM-MCOT - The program has two full-time faculty, a program director and a clinical director, both with significant experience in the field. Clinical preceptors are also available. All facility, equipment, and library holdings are adequate. Students have access to the St. Patrick Hospital library as well as the Mansfield Library. MT-COT – Grant dollars from the Workforce Investment Act – Governor's Discretionary funds will provide development of online courses, operational dollars, and staffing for a project coordinator from April 2004 to December 2005. Spring of 2005 a half time person will be hired as an instructor and coordinator of the program. Montana Tech library has adequate Radiologic Technology resources available within the library electronic system for students who use the on campus computers. Montana Tech received an award through the National Network of Libraries of Medicine to complete a needs assessment related to linking the resources of the partner libraries and developing a network that can be accessed from off campus computers. Once the needs recommendations are completed, the COT will pursue further grant funds to implement the recommendations.

2. If special **accreditation** will be sought, timetable and costs associated…

The American Registry of Radiologic Technologists (ARRT) recognizes the Northwest Colleges and Universities Accreditation as an approved body for program accreditation. The Joint Review Committee on Education in

Radiologic Technology (JRCERT) routinely accredits programs at the hospital level and at some College and University based programs, but it is not mandatory.

3. Assessment plan: how the program will "fit" within the institution's internal, approved assessment process and specifically address the major assessment components of academic performance and program relevancy…

a. **entry level preparedness**

The Radiologic Technology program supports the philosophy of providing students with opportunities that will match student strengths with program direction. The Health Care core, COMPASS assessment, and GPA requirements all combine to prepare students to succeed. This approach maximizes student success, program openings, clinical assignments, faculty productivity, program cost effectiveness and student retention and graduation rates.

b. intermediate assessment of student performance by quantitative and qualitative measures

For intermediate assessment, after 3 semesters students may take the Montana State limited scope test. Although this is not a requirement, students who pass the exam may be offered opportunities to work as a licensed technologist at various facilities while completing their studies to become a certified Radiologic Technologist. Additionally, success in the health core, radiology focused classes and clinical assignments will provide positive reinforcement to students as they progress through the program.

c. end-of-instruction assessment

Students must pass certification requirements.

d. student/alumni satisfaction

UM-MCOT - The program will be graduating the first class in May 2004.
MT-COT – The program will be graduating the first class in May 2006.

e. employer satisfaction; and

The Radiologic Technology program fosters strong relationships between health care partners and the campuses. Those relationships will be strengthened as opportunities to collaborate in training clinical students are realized, and expanded as graduates staff those facilities. Letters of support from Missoula and Butte are part of the appendix of this proposal.

f. program review.

Program review is mandated by the campuses on a regular basis. The Faculty Senate's academic governance provides measures for ongoing review of courses and changes to programs. This program and all others at the campuses are reviewed by the Northwest Assoc. of Schools and Colleges every 10 years. Program effectiveness is also shown by graduates' success on their registry examinations.

Impact on Faculty, Facilities, Costs, Students, and Other Departments and Campuses

1. Additional faculty requirements, including qualifications, salary, and recruitment. Details may include:

a. names and qualifications (i.e., rank, employment status, highest degree earned, % of effort …)

The University of Montana - Missoula

Full time Faculty:
Karen Hill, RN, MA, Doctoral Candidate, Department Chair
Anne Delaney RT(R), MBA Full time Program Director and faculty
Allen LeCasse RT(R,MR), BS Full time instructor, 18 Cr Hr

Montana Tech of The University of Montana Tech

Administration
Karan Kunz, RN,BSN Program Development Liaison
Faculty
Vacant position - Lead instructor

b. for necessary **faculty recruitment**, qualifications, projected availability, and anticipated salaries; and

The UM-MCOT is fortunate that in the Missoula metropolitan area, high quality faculty that meet and exceed the qualifications required are available. A major concern is whether competitive salaries can be offered to these individuals who have many attractive opportunities in the health field.
MT-COT is currently in the hiring process pending Board of Regents approval.

c. profile of regular faculty to be hired full-time or part-time, as well as adjuncts.

The same faculty staffing pattern continues for the subsequent years as long as enrollment remains static. The enrollment projections are 20 radiologic technologists at UM-MCOT and 15 at MT-COT. Increasing enrollment would necessitate hiring additional clinical adjunct faculty. Clinical adjunct faculty need not be baccalaureate prepared as long as they are registered in good standing with the ARRT. The Director must be Master prepared.

2. Impact on facilities. Details may include:

a. library--major purchases and services needed to support a new program.

The Missoula College of Technology library and skills laboratory are adequate for radiology program students. Students will require additional use of St. Patrick's Hospital and the Mansfield library. One available service is the interlibrary loan and document delivery program through Mansfield library. Current Mansfield holdings also include a sizeable collection of professional references. Current library holdings are adequate.
Butte College of Technology has adequate online resources available for student use from campus computers. Students may also access St. James Healthcare Medical Library.

b. computer services-major purchases of software and hardware, as well as related services, needed;

There may be a slight increase in students to the College through the health core and the RT programs but present facilities will be able to handle the increase.

c. telecommunications--major purchases of equipment and the availability of systems and air-time;

No major purchase of equipment is necessary. Systems and access to web-based media (Blackboard) are available to faculty and students at both institutions.

d. equipment --new equipment, equipment repair and maintenance;
No new equipment, repair or maintenance above what is already provided is foreseen.

e. space/capital requirements--e.g., new facilities, building modifications, or renovations…

No new space, facilities, or renovations are needed.

f. support services--other services necessary to support the program.

Student services located on both campuses are presently staffed to meet the needs of the program.

3. Costs, to be submitted in detail for the first year, for the biennium, with an estimate of continuing costs of the program over a five year period.

The University of Montana -Missoula College of Technology Radiology Program

PROGRAM	No.	Fall 04	Spr 05	Sum 05	Fall 05	Spr 06	Sum 06	Fall 06	Spr 07	Sum 07	Fall 07	Spr 08
						ENROLLMENT						
Pre-Health Core (Gen.ed)		20	20	20	20	20	20	20	20	20	20	20
Radiology Prog Enrol		15	35	20	20	40	20	20	40	20	20	40
Total Radiology Students		15	35	20	20	40	20	20	40	20	20	40
Total Students		35	55	40	40	60	40	40	60	40	40	60
Clinical Site Posit.		15	45	30	30	60	30	30	60	30	30	60
						CREDIT HOURS						
Program Sem Hours												
Health Core	16	320	320	200	320	320	200	320	320	200	320	320
Radiology Program (13sem)	56	195	560	160	260	520	160	260	520	160	260	520
Total Radiology	**72**											
Total Stu Cr Hrs		515	880	360	580	840	360	580	840	360	580	840
Billiable Cr Hrs (<12)		420	660	360	480	720	360	480	720	360	480	720
Cr hrs over 12		95	110		100	120		100	120		100	120
						REVENUE						
Tuition cr.hr	$89	37,296	58,608	31,968	48,000	72,000	31,968	48,000	72,000	31,968	48,000	72,000
>12 cr hr	7	665	770		700	840		700	840		700	840
Hospital Support		15,000	15,000		15,000	15,000						
Shared Faculty		7,000	7,000		7,000	7,000		7,000	7,000		7,000	7,000
Student Prog Fee	200		4,000	4,000	4,000	8,000	4,000	4,000	8,000	4,000	4,000	8,000
Total Revenue		**$ 59,961**	**$ 85,378**	**$ 35,968**	**$ 74,700**	**$ 102,840**	**$ 35,968**	**$ 59,700**	**$ 87,840**	**$ 35,968**	**$ 59,700**	**$ 87,840**
						EXPENSES						
Radiology Faculty	2.00	30,000	30,000	30,000	30,000	30,000	30,000	30,900	30,900	30,900	31,827	31,827
Adjunct Faculty (Gen Ed)		4,500	4,500		4,500	4,500		4,500	4,500		4,500	4,500
Benefits		6,800	6,800	8,180	6,800	6,800	6,180	7,080	7,080	6,180	7,265	7,265
Travel		200	200	500	200	300	500	300	300	500	300	300
Communication		100	100	50	100	100	50	100	100	50	100	100
Equipment		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Supplies		500	500	500	500	500	500	500	500	500	500	500
Rentals		100	100	100	100	100	100	100	100	100	100	100
Misc		100	100	100	100	100	100	100	100	100	100	100
Total Expenses		**$ 43,300**	**$ 43,300**	**$ 40,430**	**$ 43,300**	**$ 43,400**	**$ 38,430**	**$ 44,580**	**$ 44,580**	**$ 39,330**	**$ 45,692**	**$ 45,692**
						SUMMARY						
Annual Revenue*			145,339			213,508			183,508			183,508
Annual Expense			(86,600)			(127,130)			(127,590)			(130,714)
Net			58,739			86,378			55,918			52,794

*Does not include 04 Sum

Radiology Faculty
Adjunct Faculty
Benefits

Montana Tech of The University of Montana
AAS – Radiologic Technology

		Fall 04	Spr 05	Sum 05	Fall 05	Spr 06	Sum 06	Fall 06	Spr 07	Sum 07	Fall 07	Spr 08
PROGRAM	No					**ENROLLMENT**						
Radiology Program Enrollment		spr intake	15	15	15	30	15	15	30	15	15	30
Total Radiology Students			15	15	15	30	15	15	30	15	15	30
Total Students			15	15	15	30	15	15	30	15	15	30
Clinical Site Posit.			15	15	15	15	15	15	15	15	15	15
						CREDIT HRS						
Program Sem Hours	**71**		14	10	12	23	10	12	23	10	12	23
Radiology Courses SCH	**53**		210	150	180	345	150	180	345	150	180	345
Total Stu Cr hr w/ GenEd		270	255	150	345	345	150	345	420	150	345	420
FTE		18	17	10	23	23	10	23	28	10	23	28
						REVENUE						
Tuition Rate 12 cre flat spt		$1,340	$1,420	$1,125	$1,420	$1,420	$1,125	$1,420	$1,420	$1,125	$1,420	$1,420
Tuition		$20,097	$21,303	$16,868	$21,300	$42,600	$16,868	$21,300	$42,600	$16,868	$21,300	$42,600
Program Fee	**200**		$3,000	$3,000	$3,000	$6,000	$3,000	$3,000	$6,000	$3,000	$3,000	$6,000
Total Revenue		**$21,437**	**$25,723**	**$20,992**	**$25,720**	**$50,020**	**$20,992**	**$25,720**	**$50,020**	**$20,992**	**$25,720**	**$50,020**
						EXPENSES						
MTech Faculty		$7,500	$23,500	$12,500	$25,000	$27,000	$12,500	$24,500	$27,000	$12,500	$24,500	$27,000
Shared Faculty			$ 7,000		$ 7,000	$ 7,000		$ 7,000	$ 7,000		$ 7,000	$ 7,000
Benefits		$1,875	$5,875	$3,125	$6,250	$6,750	$3,125	$6,125	$6,750	$3,125	$6,125	$6,750
Travel		$100	$100	$100	$100	$300	$300	$300	$400	$400	$400	$400
Communication		$100	$100	$50	$100	$100	$50	$100	$100	$50	$100	$100
Equipment		equip fee										
Supplies		$200	$200	$100	$200	$200	$100	$200	$200	$100	$200	$200
Rentals		$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Misc		$100	$100	$50	$100	$100	$50	$100	$100	$50	$100	$100
Total Expenses		**$9,975**	**$36,975**	**$16,025**	**$38,850**	**$41,550**	**$16,225**	**$38,425**	**$41,650**	**$16,325**	**$38,525**	**$41,650**
						SUMMARY						
Annual Revenue			$47,160			$96,732			$96,732			$96,732
Annual Expense			$46,950			$96,425			$96,300			$96,500
Net			$210			$307			$432			$232

Professional liability insurance for the radiology technology students will be a pass through fee. The cost is $17.50 per student each semester they are in clinicals.

b. contractual services, with major services itemized;

UM-M COT – This is a cooperative program within the University of Montana and faculty and expertise will be shared between the UM-MCOT and MT-COT campuses.
MT-COT – A contractual agreement will be required in the initial stages of the program for development and coordination. During the summer, faculty will be contracted for oversight of the clinical experiences.

c. non-contractual goods and services, including library and computer time costs

No non-contractual goods or services are needed for this program.

d. travel, itemized by purposes;

Because there will be some expansion of clinical sites to meet the demands of area health care facilities, some travel expenditures for local travel to sites has been planned.

e. equipment, with major purchases itemized;

No major purchases of equipment are needed. Continued cooperation with our health care partners will garner used equipment as needed.

f. capital construction or renovation; and

No capital construction or renovation will be needed.

g. telecommunications, with major expenditures itemized.

No major telecommunications expenditures will be needed.

4. Impact on enrollment, numbers of students (both graduate and undergraduate) with lower and upper division course breakdowns, and the number expected to graduate over a ten-year period.

a. planned student/faculty ratios;

Classroom work will be 15-35:1 while clinical will be 5:1

b. any special admission standards or enrollment limits; special procedures to recruit and retain students from under-represented populations;

All students must have writing and computation skills assessed as part of the admission process. With this assessment, students will be advised into courses that suit their needs. The expectation of the health core is that it will foster higher retention because students will receive the requisite remediation prior to admission into a health program. This contributes to the efficiency of the program and the well-being of students. This approach is expected to enhance individual abilities that will allow success. We are eager to have students from diverse backgrounds. UM-M COT current associations with Salish-Kootenai College may lead to more collaborative efforts that will support the tribal health care system. We anticipate the diversity of age and background seen in the COT population.

c. profile of the student, including projected employment opportunities and normal length of study;

A student in the Radiologic program is a student whose academic preparation ranges from holding a GED to holding a Masters degree. The student population will be diverse, including males and females, a wide age-range of individuals, traditional, nontraditional, and returning professionals. Both place-bound students and others currently have potential to find employment opportunities in the health care industry. Planned length of study is 2 years. Preliminary preparation required for individual students may lengthen a program plan to 3 years. Student preparation and retention are key elements of the entire program.

d. projected size of the program as measured by enrollments; student credit hours (by lower and upper divisions, and graduate courses) for full and part-time students by academic year, annually…

UM-M COT - The program will move from its initial trial stage to a full program and incorporate distance learning options for other colleges and allied health institutions in the state. The traditional program will enroll 20 students each spring. The ongoing health core program will enroll 20 students each semester.
MT-COT – The program will intake 15 students each spring. The ongoing health core program will enroll an unlimited number of students each semester.

e. critical mass (full & part-time) needed to keep program academically sound and financially viable; and

UM-M COT - The program has been organized to intake 20 health core students each semester, and 20 Radiologic Technology Program students each spring semester. The spring semester will be largest, with 60 students total.
MT-COT – The program has been organized to take in an unlimited number of health core students each semester and 15 Radiologic Technology Program students each spring.

f. if program will be delivered **off-campus or by telecommunications**, differences between the on- and off-campus students' profile and/or student services.
Student profiles remain the same because the collaboration effort which includes distance learning also includes access to the post secondary institutions and health care institutions. Student services will be available on both post secondary institution sites and are equivalent**.**

5. Relationship to other programs on campus, including inter-departmental implications of this program's addition to the curriculum, and the role other departments play in contributing courses.

There will be additional enrollments in our general education program to facilitate increased enrollment in the health core, which will be covered by general adjunct pool dollars and increased class access through the University's quality improvement program.

6. Relationship to other institutions, including:

a. duplication-describing similar existing programs in the State or region, locations, number of graduates in the last 3 biennia, and similarities between the proposed program and its competitors;

Other MUS programs include: Flathead Valley Community College, Kalispell, Montana with an annual enrollment of 5 students and Montana State University, Billings College of Technology with an annual enrollment of 12 students beginning Fall 2004. Currently, Benefis Hospital in Great Falls has 5 students and they may transfer their program to the College of Great Falls.
Prior to 2002, all Radiologic Technology programs in Montana were affiliated with hospitals. St. Patrick Hospital, Missoula, routinely graduated 4 to 5 students per year. Great Falls Benifis Hospital graduated 5 to 6 students per year and St. Vincent Hospital Billings graduated 5 students per year. The program at Saint Vincent Program Billings will be closing by Fall semester 2004. All hospital-based programs were accredited through JRCERT.

b. uniqueness of the program--i.e., qualities or conditions that distinguish it from similar programs;

This program is one of only two programs with currently enrolled students based in a College or University setting. The UM-MCOT program is the only program that is recognized as an approved program by the ARRT.

c. provisions for articulation between program, appropriate feed programs, or subsequent receiver educational programs.

There is not an avenue for articulation within the field of Radiology at this time.

6. Relationship to other institutions, including:

This is a collaborative program between The University of Montana—Missoula College of Technology and Montana Tech College of Technology.

Process Leading to Submission of Proposal
Indicate how the recommendation to submit this proposal to the Board of Regents was formulated. Include information about process followed, faculty involvement, employer or community input, market demand for graduates, employment prospects and starting salaries, as well as other justifications.

UM-M COT - This program proposal recommendation has been developed in a process that the UM-MCOT has orchestrated for over two years. The process started first with dialogue with our allied health care partners, conversations with students, input from professionals working in the region and faculty research into programs that would best meet student needs. Advisory committees were consulted and proposals brought forth to peer groups around the state. It was apparent that a Radiologic Technology program was needed to meet the needs of a constantly changing health care environment.
MT-COT – This program was developed to parallel UM-M COT's current radiologic program. This is a new program to Montana Tech, in cooperative effort with UM-M COT and with St. James Healthcare and surrounding hospitals to support off-campus clinical sites.

1. Please name **faculty committees** or councils that have reviewed and approved the program.
UM-M COT - The program has been reviewed by the faculty at the COT in concert with area professionals. Additionally, it was reviewed by the University Faculty ASCRC and Senate during its trial stage. The present proposal was approved by the ASCRC April 13, 2004.
MT-COT – The program will be reviewed by the curriculum review committee April 23 and full faculty approval April 30.

2. If **outside consultants** have been employed, please list.
No outside consultants were employed for this program development activity.

APPENDIX

A. Letters of Support

NORTHERN MONTANA *Health Care* *P.O. Box 1231 30 Thirteenth Street Havre MT 59501*

March 3, 2004

Board of Regents of Higher Education
Montana University System
2500 Broadway
Helena MT 59620

Dear Board of Regents:

The purpose of this communication is to voice my support for the Radiologic Technology program at the University of Montana, College of Technology in Missoula. To introduce myself, I am VP of Professional Services at Northern Montana Hospital in Havre. I am also Imaging Manager as well as a Radiologic Technologist since 1967. Additionally, I currently serve as the Chairman of the Board of Directors of the State of Montana Board of Radiologic Technologists. As we are all aware, the shortage of health care professionals in all areas of health care has been one of the most contentious issues facing medical facilities in Montana as well as the nation. Many, if not most, of the medical professions have responded to these health care professional shortages by recruiting students and creating educational programs where none existed or were in insufficient quantity to alleviate the shortages. One of these new programs is the Radiologic Technology Program at the University of Montana, College of Technology. In my conversations with Anne Delaney, Program Director, I have been given new hope that Imaging Departments in Montana will have available to them more sufficient numbers of new Radiologic Technologists who have had a superior education and clinical experience to accompany a good old fashioned Montana work ethic. The program that is being developed by Anne and others provides for a reasonable growth in numbers of students to accompany the cultivation of qualified clinical settings for these students of Radiologic Technology to learn and apply the skills of their profession.

It is my hope, that as this program at the University of Montana College of Technology grows, and their needs change, that you, as the Board of Regents of Higher Education, will support this program and provide the resources necessary to insure both the success of this program and ultimately, the solution to providing skilled, compassionate health care workers caring for Montanans.

Sincerely,

Match 3, 2004

Bone & Joint Surgery Center
2360 Mullan Road, Suite B
Missoula, Montana 59808
Phone: (406) 542-9695
Fax: (406) 542-9703

3/3/04

Anne Delaney
909 So. Ave. West Missoula, Mt 59
801

Dear Anne,

I am enjoying the students that have done their clinical rotation at our facility, Missoula Bone and Joint. I know that we are a new member to your program and I hope beneficial to your students.

I have been very impressed with the quality of the students that I have met so far. I find them very energetic, excited about learning and professional. Their educational base appears to be right on mark for their current status in the program.

My hat's off to you Anne, I think you are doing a wonderful job. As you know, I come from a hospital base radiologic program from "way back when" and T do not have much experience with the university base program, but so far the students from the College of Technology have had adequate training. Thank you for giving us the opportunity to assist you, we all are enjoying the challenge.

Sincerely,

Bonnie J. Doerfler, R.T.

Montana's Most Comprehensive
Orthopedic Specialty Group

2360 Mullan Road, Suite C
Missoula, Montana 59808
(406) 721-4436
1-866-721-4436
Fax: (406) 721-6053
www.missoulaboneandjoint.com

Mark A. Channer, M.D.
Total Joint Orthopedic Surgery
General Orthopedic Surgery

Glenn J. Jarrett, M.D.
Foot & Ankle Surgery
General Orthopedic Surgery

Cary H. Mielke, M.D.
Pediatric Orthopedic Surgery
Scoliosis & Spinal Deformities
General Orthopedic Surgery

Christopher R. Price, M.D.
Sports Medicine
General Orthopedic Surgery

P. Andrew Puckett, M.D.
I land and Microvascular Surgery General
Orthopedic Surgery

Mark F. Rotar, M.D.
Arthroscopic Joint Reconstruction
Athletic & Shoulder Injuries
General Orthopedic Surgery

Robert J. Seim, M.D.
Independent Medical Evaluations

Colin G. Sherrill, M.D.
Sports Medicine & Arthroscopy
General Orthopedic Surgery

Lawrence J. Toder, M.D.
Medical Director

Open Extremity MRI
(406) 721-0327

Anne Delaney
College of
Technology 909
South Avenue
Missoula, MT 59801

Dear Anne,

As you well know, there is a tremendous shortage of Radiologic Technologist nationwide. It is a constant and ever expanding field and requires technologists with a wealth of knowledge.

A program such as yours is very necessary to meet the demands of our profession.

Your students have come with an eagerness to learn. They have asked knowledgeable questions
and are sincerely interested in everything that we do. They are willing to jump right in and help in any capacity.

Several students have asked to spend time with us after they have done their required rotation. I think that speaks well of the training they are receiving because it has sparked their curiosity to know more about our occupation.

By having the students go to the different sites it will increase their knowledge of the diversity of the x-ray field. This will show them that there is more than one way to do an exam.
It gives them hands on experience which is so very important while being supervised.

Keep up the good work.

Sincerely,

Pat Hirsch RT, M

Bone & **Joint Surgery Center**
2360 Mullan Road, Suite B
Missoula, Montana 59808
Phone: (406) 542-9695

03/03/04

Anne Delaney, MBA, RT(R)
Radiologic Technology Program Director
College of Technology

Dear Anne,

We, at Community Medical Center Radiology Department, would like to express our support and committment to providing you with a confident, reliable, and diverse clinical training site for the radiology program students. We feel we can provide training in all aspects of radiology, plain films, surgery, c-arm, fluoro, etc. We provide services to many pediatric physicians, as well as have our own NICU, which gives the students an opportunity to work with infants and children on a daily basis. Other facilities in the Missoula area don't provide this.
We take pride in our role in the community, and strive to provide our patients with the highest quality care available. We hope to continue to provide the College of Technology the same quality attention and training, now, and in the future.

Sincerely,

Janice Schultz, Clinical Manager
Diagnostic Imaging
Community Medical Center
Missoula, MT 59801
327-4090

ST. PATRICK HOSPITAL AND HEALTH SCIENCES CENTER

500 West Broadway, P.O. Box 4587
Missoula, Montana 59806
406/543-7271
www.saintpatrick.org

3/2/04

Anne Delaney, MBA
Program Director
Radiologic Technology Program
University of Montana — College of Technology

Dear Anne,

First of all, I want to thank you for all of your hard work in developing and continuously improving on this new program. I see great strides being made.

St. Patrick Hospital is in full support of your efforts and of the COT program. We are in full support of the students from the program. The students are doing and excellent job and are a valuable asset to St. Patrick Hospital now, and when they graduate they will be a valuable asset not only to St. Patrick Hospital, but to many hospitals in the State of Montana.

Diagnostic Imaging is the fastest growing segment of hospital services. That fact, coupled with the national shortage of programs and technologists makes programs like yours a vital strategic planning tool for hospitals such as ours.

Thomas McGuire, Ph.D.
Director of Radiology and Radiation Oncology

St. James Healthcare

Sisters of Charity of Leavenworth Health System

April 1, 2004

Jane Baker
Dean
Montana Tech College of Technology
25 Basin Creek Road
Butte, MT 59701

Dear Dean Baker:

This letter is being sent as a letter of support for the establishment of a Radiologic Technologist Program at the Montana Tech College of Technology.

I am currently the Director of Human Resources at St. James Healthcare in Butte, Montana. I have been an employee of St. James for the past 24 years. My career at St. James began as a Medical Technologist in 1980, and I served in this capacity until 1986. In 1986, I changed career paths and entered the Human Resource field here at St. James and served as Employment Supervisor until 1993 when I was promoted to my current position as Human Resource Director. In my current capacity, I am a member of the Senior Administrative Council for the Hospital. My clinical background, coupled with the administrative experience I have gained over the past 11 years, has given me a unique perspective on the healthcare industry.

Healthcare is a trillion dollar industry. Healthcare spending in 2001 was 1.4 trillion dollars. Growth rate for years 1999-2001, was 6.1%{'99}, 7.4%{'00}, and 8.7%{01}) Currently, the U.S. health care sector employs over 11 million people with approximately 6.2 million of those individuals classified as professionals. According to the U.S Department of Labor, nine of the nation's 20 fastest growing occupations are in health services. Providing healthcare services to much of America, however, has become increasingly difficult in recent years. This is especially true in rural America. In order to survive, the healthcare industry must, on an ongoing basis, develop new strategies for meeting the ever-increasing healthcare needs of the American public.

The crisis of today is being driven by a broad set of factors which make it far more complex than anything that has ever been seen. These forces acting within and upon the healthcare system have served to put tremendous pressure upon costs and the overall viability of the system. These factors include:

- **An aging population**. The greatest challenge for the U.S. health care system over the next few decades is caring for the aging baby boomer generation. There are dangers, of course, in any straight-line projection of resource use, but by any estimation, as the boomers enter their elder years, when consumption of health care resources rises, they will tax the health system as it is currently arrayed.

400 South Clark Street P. O. Box 3300 Butte, MT 59702 406-723-2500

- **Fewer workers**. The reverse side of the aging boomers is a contraction in the relative size of the generation that immediately follows them. This smaller cohort is already driving a "war for talent" throughout every part of the U.S. economy as businesses prepare themselves to compete not just for workers, but for those workers who have the basic technological skills to make the organizations successful. The combination of fewer workers and greater demands for their skills will create shortages at every level of health care.

Numerous studies by various organizations have indicated that the burden of care has demonstrably increased since 1990. While the burden of care has increased, work saving technologies that could ease the multitude or routine tasks for health care professionals have not been implemented, adding to dissatisfaction. At the same time, health care organizations face increased regulation and documentation, taking health care professionals away from patient care. This formidable combination of work environment factors serves to complicate and aggravate both recruitment and retention challenges and these studies expect these to continue for several decades, particularly in acute and long-term care institutions, unless they are adequately addressed.

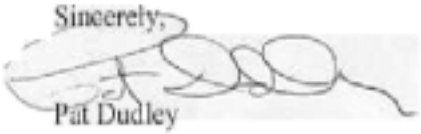
Simply put, the greatest challenge that faces healthcare today is having adequate professional staff to provide services to an ever increasing patient population. The professional manpower shortages that we are experiencing in healthcare today are at crisis levels, and this crisis is predicted to last well into the future. Much media attention has been placed upon the nursing shortage that the country is experiencing, but in reality, there is an even more severe shortage of Radiologic Technologists. A current study which was conducted by the American Hospital Association indicates that nationally, there currently is an 11% vacancy rate for Registered Nurses (the percent of unfilled, budgeted positions). In comparison, there is currently an 18% vacancy rate for Radiologic Technologists nationwide. What is exacerbating this shortage is the fact that there are limited training programs available nationally for Radiologic Technologists.

To this end, St. James Healthcare not only fully supports the creation of a Radiologic Technologist at The Montana Tech College of Technology, we are also fully prepared to make a larger commitment to the establishment of this program by offering to provide a clinical rotation site for students enrolled in the program and the clinical oversight of these students by our Director of Radiology; Kristi George, as well as oversight by our staff Radiologic Technologists. The clinical rotation would not only include St. James Healthcare Radiology Department but would also include Southwest Montana Radiology, which is an outpatient radiology center owned by St. James.

If we are to survive as an industry, we in the industry must get involved in solutions for the future. We are fully supportive of the establishment of this program and would be fully committed to making this program a success.

If I can provide any additional information, or be of any future assistance. Please feel free to contact me.

Sincerely,



Pat Dudley
Director, Human Resources

St. Peter's Hospital
2475 Broadway • Helena, Montana 59601 • (406) 442-2480

Thursday, April 1st, 2004

Jane Baker, Dean
Montana Tech
College of Technology
25 Basin Creek Road
Butte, MT 59701

Dear Dean Baker,

Please accept this letter as support for the Associate of Applied Science Degree in Radiologic Technology to be established at Montana Tech College of Technology in Butte. This type of a program is desperately needed in this region of Montana due to cyclic shortages of qualified applicants to fill vacant radiology technologist positions. Here in Helena, we have experienced recent shortages in both our radiology technologist and specialty technologist staffs. During this time, we have had to rely on temporary traveling workers to fill our needs. With the continued growth of the diagnostic imaging field, our future need for qualified radiology technologists remains great.

St. Peter's Hospital has an established Radiology Department with sophisticated , modern equipment. Our staff is committed to sharing their clinical expertise with Radiologic Technology students from Montana Tech College of Technology in Butte. This new program will provide local access to a quality Radiologic Technology program which will help strengthen the hospitals in Helena and surrounding communities.

We welcome the opportunity to be a part of the Radiologic Technology program of Montana Tech College of Technology in Butte. I would be happy to discuss St. Peter Hospital's commitment to this program in greater detail if necessary.

Sincerely,

James B. Kirkbride, BS RT
Director of Diagnostic Imaging
St. Peter's Hospital
Helena, MT 59601
(406) 444-2304
jkirkbride@stpetes.org

B. Clinical Sites

Montana Tech College of Technology
Radiologic Technology Program
Potential Clinical Sites

1.	St. James Healthcare, Butte	5 students	(confirmed site)
2.	SW MT Radiology, Butte	1 student	(confirmed site)
3.	Rocky MT Radiology, Butte	1 student	(confirmed site)
4.	Mercury Street Clinic, Butte	1 student	(confirmed site)
5.	Ruby Valley Hospital, Sheridan	1 student	(confirmed site)
6.	Butte Radiology, Butte	1 student	(confirmed site)
7.	St. Peters Hospital, Helena	6 students	(confirmed site)
8.	Barrett Hospital, Dillon	2 students	(proposed site)
9.	Powell County Hospital, DeerLodge	2 students	(confirmed site in 18 months)
10.	Anaconda Community Hospital	2 students	(proposed site)
11.	Broadwater Health Center, Townsend	1 student	(proposed site)
12.	Granite County Hosp, Phillipsburg	1 student	(proposed site)