MONTANA UNIVERSITY SYSTEM

Mission Review

of

Montana Tech

September 22, 2010

Memorandum of Understanding

This document serves as a Memorandum of Understanding between the Montana Board of Regents, the Montana University System Office, and Montana Tech of The University of Montana as a depiction of institutional role, characteristics, and system and statewide contributions. This agreement helps guide the system and the institution in developing strategic directions that build on distinctive strengths and the leadership role that Montana Tech of The University of Montana contributes to the Montana University System.

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Stephen Barrett, Chair
Montana Board of Regents

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Sheila M. Stearns, Commissioner
Montana University System

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W. Franklin Gilmore, Chancellor
Montana Tech

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George M. Dennison, President
The University of Montana

MISSION STATEMENT

To meet the changing needs of society by supplying knowledge and education through a strong undergraduate curriculum augmented by research, graduate education and service.

Vision Statement

To be a leader for undergraduate and graduate education and research in the Pacific Northwest in engineering, science, energy, health, information sciences and technology.

1.0 INSTITUTIONAL CHARACTERISTICS

1.1 Profile

Montana Tech of The University of Montana's (Montana Tech) world-renowned reputation is based on the successes of over 100 years of graduates in the university's heritage programs in the extractive engineering fields and associated science fields. While the campus continues to receive recognition regarding its heritage programs, the growth of programs in areas such as Safety/Industrial Hygiene, Business, Energy, and Healthcare characterizes Montana Tech as a truly diversified campus. Montana Tech offers degrees at the certificate, associate, bachelor, and master degree levels. In addition, Doctoral-level education and research occurs on the Tech campus through collaborative programs with the University of Montana-Missoula.

1.2 Role

Montana Tech is a regional leader in Science, Technology, Engineering, and Mathematics (STEM) education. The campus plays an integral role in education, research, and economic development within the state and region. The campus is strategically positioned within the Montana University System to assist the Montana Board of Regents in addressing their three strategic goals: 1. Increase educational attainment of Montanans; 2. Assist in the expansion and improvement of the economy; and, 3. Improve institutional efficiency and effectiveness. The campus is also home to the Montana Bureau of Mines and Geology (MBMG) whose governmental mandate is to collect and publish information on Montana's geology to promote orderly and responsible development of the energy, ground-water, and mineral resources of the State of Montana.

1.3 Distinct Characteristics & Strengths, NWCCU Core themes, and Academic Strategic Plan

Montana Tech is the only institution in the United States that maintains the full range of minerals and energy engineering degree programs that are accredited by the Accreditation Board for Engineering and Technology (ABET). All of Montana Tech's engineering programs are ABET accredited. Many of Montana Tech's engineering programs are unique to the region or may be one of only a few in the country. Table 1.3.1 illustrates a few examples of Montana Tech's unique engineering program offerings:

Academic Program	Number of Schools with ABET accreditation offering the same program
Geophysical Engineering	2
Metallurgical Engineering	9
Mining Engineering	12
Software Engineering	13
Geological Engineering	13
Petroleum Engineering	13

Table 1.3.1 Engineering Programs Unique in the Pacific Northwest to the Montana Tech campus

In addition to those engineering programs identified in table 1.3.1, Montana Tech also offers non-engineering degree programs that are not offered by other units of the Montana University System. These include, but are not limited to the Healthcare Informatics, Professional and Technical Communications, and Pre-Apprentice Lineman degree programs. A number of Montana Tech's non-engineering programs have specialized accreditation/certification from entities such as the American Chemical Society (ACS) and The National League for Nursing Accreditation Committee (NLNAC), among others.

NWCCU Core Themes: Montana Tech has identified the following "core themes" in compliance with the new NWCCU requirements:

1. **Education & Knowledge:** More than the study of a discipline, education grows into knowledge through a learning-centered exploration of the science, technology and values which inform our lives and communities.

2. **Integration & Application:** Through cutting-edge, faculty and student research, as well as through an engaged and engaging faculty, knowledge is integrated into meaningful applications, thereby developing the skills needed to lead increasingly diverse communities in an interdependent world.

3. **Traditions & Innovations:** Recognizing the historical and contemporary significance of the valuable minerals of this location, as well as recognizing the resultant environmental issues, educator researchers look at this world and its many challenges from new and innovative perspectives.

4. **Student -Focused & Engaged Educators:** Professional, reflective, interdisciplinary, scholarly, value-centered, service learning, civic engagement and effective both interpersonally and as leaders in organizations, helping students learn ways of thinking that will be useful to them as active citizens and lifelong learners.

(Note: these themes are currently under development by the campus and have yet to be approved by the faculty and staff).

Montana Tech's Strategic Plan (http://www.mtech.edu/about/strives.html) delineates the six goals that continually drive the campus in its pursuit of excellence.

1.4 Peer Institutions

Because of its truly distinct nature, there are no peer institutions within the Montana University System or the Pacific Northwest for Montana Tech. Please see Appendix A for a list of peer institutions. The campus uses these peer institutions as comparators for salary, tuition and other profile characteristics.

2.0 ACADEMIC PROFILE

2.1 Academic Programs

Table 2.1.1 identifies Montana Tech's program array at the two-year, undergraduate, and graduate levels.

	CERTIF	AA	AS	AAS	BAS	Minor	BS	MS
Number	**10**	**1**	**2**	**14**	**3**	**16**	**48**	**20**

Table 2.1.1 Montana Tech Program Array

Montana Tech's general education program is similar to the general education programs offered at most of the four year campuses in the MUS system. The general education program at Montana Tech requires students to pass 6 credits of coursework in a communications core, 6 credits of coursework in a humanities core, 6 credits of coursework in a mathematics core, 6 credits of coursework in a social sciences core, and 6 credits of coursework in a physical and life sciences core, which must include one credit of laboratory experience. The general education core additionally requires students to complete an upper division writing requirement in their major.

One of the hallmarks of a Montana Tech education is the personalized attention that students receive from their professors. Student/Faculty ratios on the Tech campus (Fall 2009 – 15:1, Fall 2008 – 14:1) enable students and faculty to interact in a manner not commonly found at larger universities. Table 2.1.2 at the right provides section size data for undergraduate classes for the Fall 2009 semester.

TABLE 2.1.2 – Fall 2009

Section Size	Number of Sections	Percent of Sections
2-9	**174**	**33%**
10-19	**139**	**26%**
20-29	**103**	**19%**
30-39	**32**	**6%**
40-49	**28**	**5%**
50-99	**52**	**10%**
100+	**4**	**1%**
Total	**532**	**100%**

See appendices B1, B2, and B3 for degree recipient and faculty data.

2.2 Technology and Instruction

In April 2010, an accreditation team from the Northwest Commission for Colleges and Universities (NWCCU) gave the Montana Tech campus the following commendation:

> "*The committee commends Montana Tech for its commitment to building and maintaining the technological infrastructure which supports its mission and focus, including widely available computer access for students, faculty, and staff, technology-enriched classrooms, distance education platforms, and resource sharing among Montana's libraries.*"

As a leader in the Northwest in the area of STEM education, Montana Tech believes that it is paramount that the campus continue to be one of the leading technologically -prepared institutions in the MUS and the campus continually provides resources to this area. The Montana Tech campus is excited about the potential of the new Health Information Technology (HIT) certificate program. Montana Tech's Health Care Informatics Department is leading a consortium of Montana colleges in the development and offering of a 15-18 credit undergraduate HIT certificate program. The member colleges in the Montana consortia include Montana Tech, MSU-GF, FVCC, and UM-HCT.

2.3 Alternative scheduling

The campus has begun preliminary analysis of the efficacy of a three-year baccalaureate degree in select areas of the university's program array. In addition, the campus has also embarked on a prefatory analysis of the advantages and disadvantages of operating the campus at or near 100% capacity for 12 months, compared to the current nine-month practice. Montana Tech is still assessing the feasibility of the Math and Science Academy and the campus will also examine the possibility of a residential STEM College.

Montana Tech's College of Technology has submitted a grant to the Department of Labor requesting funds to create an evening and weekend division. This new program, if funded, would offer courses/programs that may match the COT student's needs in formats not currently offered by the campus (e.g. summer, weekend, compressed).

3.0 STUDENTS

3.1 Student Characteristics and Student Services

Appendices C1 and C2 present data describing the student mix at Montana Tech. Montana Tech has experienced demonstrable growth in the area of international students. These students experience a suite of specialized student services programming designed to honor their cultures and ease their transition to the United States.

3.2 Retention and Graduation Rates

Montana Tech is focused on growth and committed to the vision outlined in the campus' Vision 2025 document. In order to reach the levels prescribed in this vision, student retention is critical. Montana Tech's student services are organized to maximize student access to institutional resources so as to achieve the greatest level of service to the students and ultimately contribute to the overall retention rate. Specifically, the Tech campus supports a first-year experience (FYE) model which targets programming, outreach and student engagement during the students' first two semesters on campus. Increasing third semester retention is the goal of Montana Tech's FYE team.

The Montana Tech campus has recently reallocated resources to a number of unique programs that are designed to assist the campus in increasing its retention and graduation rates. The *Baccalaureate Prep* program was developed to assist those students that are marginally prepared for a college education. The program has advisors that assist the students in their matriculation from high school to college and these students are mentored in areas that should ensure their success at Montana Tech.

The *Foundations of Engineering and Science Program* (FESP) was developed in 2009 to serve those students that are too advanced for the Baccalaureate Prep program, but are not ready to enroll in entry-level engineering and science courses. The FESP program is designed to prepare students for the calculus-based courses that are common entry level courses in the engineering and science programs. FESP students receive focused advising to assist them in their preparation for future coursework.

Appendix C3 provides a five-year summary of fall-to-fall retention rates and six-year graduation rates.

3.3 Student Satisfaction and Student Learning

Montana Tech employs a number of assessment "tools" as part of a continuous improvement mindset on campus. Examples include, but are not limited to the following:

- Every course offered on the Montana Tech campus is required to be evaluated by the students enrolled in the course. These student evaluations allow faculty to incorporate student feedback in the development of future course offerings;
- Many faculty use the *Small Group Instructional Diagnosis* (SGID) technique to receive real-time recommendations from their students. Student recommendations obtained from an SGID can be implemented immediately by the faculty member instructing the course and thus affect the students currently enrolled in the course;
- The Student Satisfaction Inventory (SSI) survey has been administered every odd-numbered year since 1997. This survey plays an important role in assessing various programs offered at Montana Tech in the areas of advising, instruction, financial aid, and physical facilities (among others). An example of how Montana Tech "closes the loop" on assessment to strengthen student satisfaction is demonstrated by the new parking lot on campus that was funded due, in part, to the results of the SSI; and
- Every student that graduates from Montana Tech's four year programs is required to take the *Measure of Academic Proficiency and Progress* (MAPP) exam (now called the *ETS Proficiency Profile*). Table 3.3.1 identifies the MAPP percentiles for Montana Tech students for the 2006-2009 period. The MAPP exam is one of the assessment tools that the Tech campus employs to assess the effectiveness of the campus's General Education Program. The percentiles presented in Table 3.3.1 indicate the percentage of academic institutions whose students taking the MAPP exam scored below Montana Tech's students. An example of how Montana Tech employs a campus-wide continuous improvement model of assessment to strengthen academic programs is the notion that based on the MAPP results the campus has reallocated resources to hire a writing coordinator to lead the campus in this area.

		Total score	Critical Thinking score	Reading score	Writing score	Math score	Humanities score	Social Sciences score	Natural Sciences score
Master Comprehensive (118 schools, 150,910 students)	2008-09	94%	98%	94%	86%	99%	95%	97%	99%
	2007-08	97%	98%	94%	97%	99%	95%	97%	99%
	2006-07	96%	99%	94%	94%	99%	93%	97%	99%
Doctoral I & II (30 schools, 62,992 students)	2008-09	87%	93%	87%	73%	90%	87%	87%	97%
	2007-08	90%	93%	87%	90%	93%	87%	87%	97%
	2006-07	92%	96%	92%	88%	96%	92%	96%	96%

Table 3.3.1 Measure of Academic Proficiency and Progress Percentiles

3.4 Enrollment trends, projections, and challenges

Appendix C-5 demonstrates student headcount by "new" student status. This table demonstrates the fact that the number of first time freshman declined slightly from 2008 to 2009. Despite considerably fewer high school seniors entering the college pipeline, Montana Tech has maintained a relatively high number of first-time freshmen. The decrease in the number of traditional freshmen entering Montana Tech has been offset by a large increase in transfer students. The greatest impact on this transfer number was from the Canadian transfer students entering Montana Tech to complete their four-year degree in Petroleum, Mining, or Geological Engineering.

The *key factors that influence Montana Tech's enrollment projections* are the graduation numbers of the high schools in southwest Montana, the graduation numbers of the remaining Montana high schools, inquiries and applications, the general economic condition (specifically in the extractive minerals industry), current career trends, graduate school availability, financial aid programs and incentives, federal and industrial research grants, historical trends, and international students relations with sponsoring entities.

The *challenges or barriers that might prevent Montana Tech from reaching its projected enrollment goals* are a change in the economic conditions favoring work over school, limited on-campus housing for freshmen, a decrease in scholarship or financial aid resources available, and general budgetary pressures that limit Montana Tech's ability to serve existing and future students.

Appendices C4, C5, and C6 contain student/degree data.

3.5 Student Finances

The impact of eroding state support for higher education is impacting Montana Tech's students. Over the course of the last five years, the average student loan for an undergraduate has grown from $4,383 to $5,767 per year. A similar growth pattern can be found for our graduate students. The increases in the maximum Pell Grants for eligible students have assisted those in need by making it easier for them to attend Montana Tech. Table 3.5.1 provides Pell Grant information for both the North Campus as well as the College of Technology. Montana Tech effectively uses the Federal Work Study program to assist qualified students.

Tuition costs for in-state students on the Montana Tech campus have been flat for the past three years. Over this timeframe, the use of Pell Grants on the campus has remained relatively stable. The use of Pell Grants is substantially higher for the students attending the College of Technology when compared to those students enrolled on the North Campus.

	North Campus					South Campus			
	Undergraduates receiving Pell Grants		Full-Time First-Time Freshmen receiving Pell Grants			Undergraduates receiving Pell Grants		Full Time First Time Freshmen receiving Pell Grants	
	%	Average Amount	%	Average Amount		%	Average Amount	%	Average Amount
07-08	27%	$3,163	26%	$3,058	07-08	45%	$3,203	49%	$2,960
08-09	25%	$3,601	27%	$3,395	08-09	50%	$3,531	57%	$3,703

Table 3.5.1 Montana Tech Pell Grant Activity

PUBLIC OUTREACH, RESEARCH, & TECHNOLOGY TRANSFER

4.1 Outreach programs

The Outreach Office works to provide elementary and secondary teachers and students with college-based programs that enrich statewide science, engineering, and technology education. Program offerings range from short-duration workshops during the academic year to extended residential camps in the summer time. All Outreach efforts are designed to build on strengths in mathematics, engineering sciences, and environmental restoration while making use of existing campus resources.

Today, the Outreach Office has secured 28 federal, state and private grants, for an annual operating budget of $2,204,262. The Outreach efforts are accomplished through a staff of 20 full-time and an additional 10 part-time professional educators and scientists. Outreach programs have formal memorandums of understanding with over 20 K-12 school districts and serves additional districts with less formal relationships. In 2009, Outreach served 14,322 students from 261 Montana communities. External Advisory boards, campus oversight infrastructure, and a campus committee minimize the risk of mission drift and protect the Office's sustainability.

A number of Outreach programs exist outside of the Outreach Office umbrella. Examples of these are: athletic camps for youth sponsored by the Athletic Department, a welding competition for high school students sponsored by the Metals Fabrication Program, the Bright Prism program (science teacher professional development and undergraduate scholarship program) sponsored by the School of Mines and Engineering, and the Phage-digging Program sponsored by the Biology Department.

4.2 Funded research/sponsored projects program profile

In 1927, the Board of Education assigned Montana Tech a research mission. This mission continues today. Research on the Montana Tech campus occurs at both the undergraduate and graduate levels. The campus's *Get into It* tagline is indicative of how involved Montana Tech students are in the research arena. In April 2010, the campus received a commendation from NWCCU which read:

> "*The committee commends Montana Tech for fourteen years of successful operation of the Undergraduate Research Program. This "learning by doing" program constitutes a winning scenario for students, faculty, and the entire institution."*

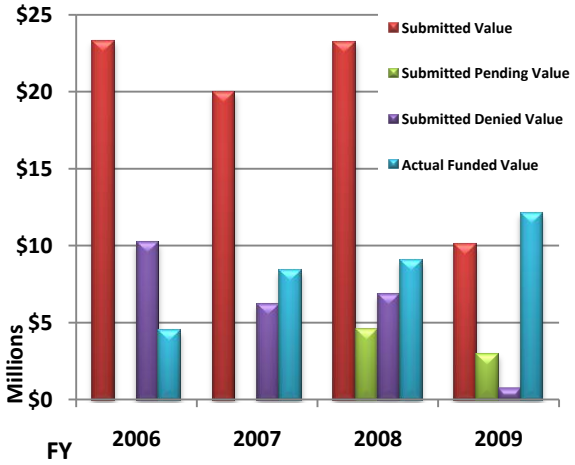
Undergraduate student research occurs through sponsored programs on both the North Campus (Undergraduate Research Program (URP)) and the South Campus (Research, Creative, and Scholarly Activities (RCSA) program).

Montana Tech has worked to expand its research activity over the last 15 years. Key elements in this plan have been systematic reinvestments in the research enterprise, recruitment and retention of new active research faculty, and increasing the quality and numbers of graduate students.

These strategies have been successful and several metrics track this success.

- New grant funding received in a given year measures the grant writing success of the faculty during the current and preceding years. Figure 4.2.1 shows the trend for the last four years. Since FY 2006, new awards have steadily grown from $4.5 M per year to $12 M per year.
- Expenditures from these research related activities have grown to $8.5 M in FY 2009 and have shown a growth rate since 1990 of approximately 12 percent/year, from $1 M in FY 1990 to $8.5 M in FY 2009.

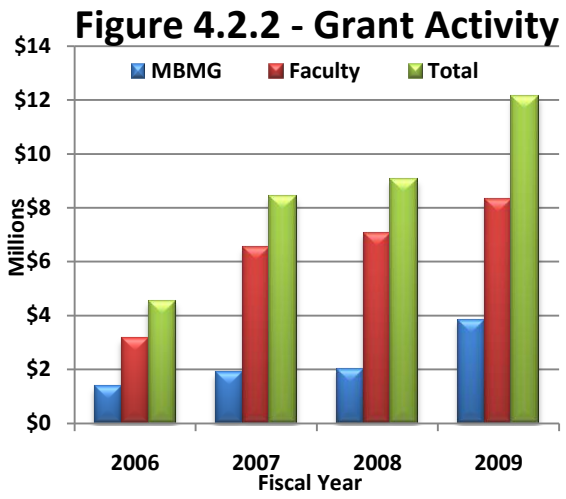
Figure 4.2.1 - Grant Writing Success



Montana Tech receives research support from most Federal and State Agencies with major support coming from the Department of Energy, the Department of Defense, the National Science Foundation, the National Institutes of Health, and the Montana Department of Environmental Quality. Funded research is a primary source of the monies used to purchase and maintain the expensive instrumentation required in many of Montana Tech's programs. These funds have also provided significant assistance in helping faculty travel to meetings and conferences and stay current in their fields.

Faculty efforts drive the research enterprise on the campus. They prepare the grant applications, do or oversee the work, and document the findings of their research in the open literature.

- Grant writing by the faculty is essential to growing the research activity on campus. Although the value of submitted proposals has been variable, the average value of successfully funded proposals has shown a continual increase during the last four years. Figure 4.2.2 illustrates the funded, pending and denied proposals in January of the following year since FY 2006. Submitted values are used for the categories of Submitted, Pending and Denied. Primary Amount Awarded values are used for the funded category.



- The Office of Research compiles a self-reported list of publications associated with research and scholarship. The number of peer-reviewed publications has increased from 55 in 2003 to 107 in 2009.

Please see appendix D for additional research data.

4.3 Inventions, patents, and spin-off companies

In early 2000, Montana Tech began a systematic effort to encourage faculty inventorship. This effort, coupled with strategic hires of more senior faculty, has improved the filing of invention disclosures by our faculty. The current inventory of intellectual property is:

- Invention Disclosures 30
- US Provisional Patents Filed 9
- US Patents Filed 7
- US Patents Issued (active) 2
- Active Licenses 2
- Active Licenses to Montana Companies 1

Major licensing efforts are now underway on electric vehicle technology, advanced gold processes, and biologically based purification systems. Potential licensing opportunities include mercury removal from coal power plants and self replicating inorganic nanostructures.

4.4 Community engagement

Montana Tech has strong relationships with local, regional, state, national, and international communities. Campus faculty, staff, and students give of their time in service on numerous civic, economic development, educational, and health care boards of directors. The campus recently implemented a new chapter of *Engineers Without Borders* that has had a great impact on the community in a relatively short period of time. The campus hosts forums, invited lectures, guest speakers, and athletic events. Faculty and staff from the Mining Engineering Department have

developed the underground mine exhibit for the World Museum of Mining and, in return, are able to use the exhibit for instructional and research needs.

4.5 Special recognition

Montana Tech is continually recognized by periodicals such a *U.S. News & World Report* and *The Princeton Review* as one of the top colleges in the United States. The campus has seen a number of its faculty recognized as Montana *Case Professors of the Year* and a number of faculty have been chosen as Fulbright Scholars. Montana Tech's student academic teams continually garner national and international recognition (and championships) in competitions such as Environmental Engineering Design, Steel Bridge, Concrete Canoe, Cyber-defense, Mining, Petroleum, and Business competitions.

4.6 Peer comparisons

Appendix A contains peer comparison data. The four institutions listed in Appendix A have been used for years as peer institutions for Montana Tech due, in part, to the following:

- These institutions are math, science, and engineering schools;
- These campuses are the schools that Tech's out-of-state (and some in-state) students consider;
- Montana Tech competes against these schools when hiring new faculty; and
- Montana Tech's graduates compete against these schools' graduates for employment.

5.0 SYSTEM COLLABORATION

5.1 Collaborations with K-12

The Outreach Office currently collaborates with over 30 K-12 school districts in Montana. The Upward Bound program serves Butte, Anaconda, Helena, Whitehall, Twin Bridges, Sheridan, Ennis, Harrison, Alberton, Superior, Thompson Falls, and Plains districts. The Educational Talent Search program serves Butte, Anaconda, Helena, and Deer Lodge districts. The Clark Fork Education program serves the students, and the Math Science Partnership program serves the teachers, in the Butte, Anaconda, Deer Lodge, Philipsburg, Drummond, Bonner, and Missoula districts. The Jump Start program is serving students in the Butte, Anaconda, Red Lodge, Ennis, Deer Lodge, Butte Central, Plains, Whitefish, and Great Falls schools. Formal agreements are in place to document these collaborations. Less formal collaborations exists with other Outreach programs. Examples include: the AmeriCorps program placing volunteers in after school tutoring programs in Butte, Anaconda, and Whitehall, and the Public Service program bringing Montana Tech's portable planetarium to any school that requests this wonderful resource.

5.2 Program Partnerships

Montana Tech has been very active in program partnerships/collaborations with academic institutions at the state, regional, national and international levels. Examples include, but are not limited to:

- Montana Tech and The University of Montana – Missoula are in the process of developing a joint Ph.D. program in Materials Science.
- The Business and Information Technology (BIT) Department offers upper division courses on the UM-Helena campus in support of the *Helena Business Program*.

- The Health Care Informatics Department offers their courses via distance delivery to universities in West Virginia and Indiana.
- Montana Tech is the lead institution in the multi-state consortia implementing the Healthcare Information Technology (HIT) certificate program.
- The University of Montana Western offers Secondary and Elementary Education courses on the Tech campus, enabling Tech students to work towards education certification.
- A minor in Addiction Treatment Services as well as a Certificate in Addiction Treatment Services is available through online coursework offered by the University of Nevada – Reno.
- In 2010, Montana Tech signed a MOU with the Western Transportation Institute creating the *Western Transportation Institute/Montana Tech.*
- Rocky Mountain Supercomputing Centers Incorporated (RMSC) has designated Montana Tech as a *Center of Excellence* for high-performance computing.
- Montana Tech has exchange agreements with universities in Canada, South America, China, Australia, Japan, Ireland, and Scotland.

The continued growth in funded research on the Montana Tech campus, as described in section 4, provides expanded opportunities for students interested in MS and Ph.D. degrees. Montana Tech currently has active collaborative PhD programs with the University of Montana – Missoula, and will be developing specific new collaborative programs which reflect the growing research and technology development programs on both campuses. The Center for Advanced Mineral and Metallurgical Processing (CAMP) has played, and will continue to play an integral role in this endeavor.

5.3 Participation in System Initiatives

Montana Tech has participated and will continue to participate in MUS initiatives. Examples of the Montana Tech's participation in system initiatives include, but are not limited to: the College!Now (formerly Making Opportunities Affordable) initiative, the Common Course Numbering (CCN) initiative, and EPSCoR. The campus also participates in initiatives within the affiliated campuses of The University of Montana. Examples of activities in this area include the selection of a new Learning Management System (LMS) and continued collaboration with the University of Montana – Missoula in technology enhancement.

5.4 Support/Collaboration with other campuses (CC's, Tribal Colleges, other)

Montana Tech has articulation agreements with Montana's Community, Tribal and Colleges of Technology. Other collaborative agreements include, but are not limited to:

- Montana Tech's Radiologic Technology program offered at Miles Community College.
- An agreement with the University of Montana – Missoula College of Technology in Pharmacy Technology.
- An agreement with the University of Montana – Missoula College of Technology in Surgical Technology.
- Montana Tech's involvement in the Energy Consortium with the Colleges of Technology in Great Falls and Billings as well as Montana State University – Northern.

6.0 OPERATING BUDGET

REPORTING METRIC
EXPENDITURES PER STUDENT

Campus	FY 05 Actual	FY 06 Actual	FY 07 Actual	FY 08 Actual	FY 09 Budgeted	Growth Rate
University of Montana						
UM - Missoula	$ 8,904	$ 9,369	$ 9,799	$ 10,354	$ 10,851	5.1%
UM - MT Tech	9,341	10,192	10,443	10,903	11,198	4.6%
UM - Western	8,302	8,561	9,298	9,794	10,412	5.8%
UM - Helena COT	6,177	6,815	6,793	7,671	7,677	5.6%
Montana State University						
MSU - Bozeman	9,692	10,370	11,242	12,090	12,429	6.4%
MSU - Billings	7,568	7,897	8,375	8,786	9,133	4.8%
MSU - Northern	9,143	9,839	10,498	11,826	12,521	8.2%
MSU - Great Falls COT	6,504	6,734	7,071	7,656	7,772	4.6%
Community Colleges*						
Dawson	6,423	6,881	8,319	8,939	9,316	9.7%
Flathead Valley	6,267	7,027	7,820	8,328	8,208	7.0%
Miles	7,095	8,412	9,265	10,698	11,229	12.2%

Source: Individual campus reporting metric worksheets for "Expenditures per Student FTE"

*FY 08 was the first year this information was reported for Community Colleges.

APPENDICES

Appendix A – Institutional Characteristics

A-1 - List of Peer Institutions

- Colorado School of Mines
- South Dakota School of Mines
- Missouri University of Science and Technology
- New Mexico Institute of Mining and Technology

Institution	Montana Tech and College of Technology	Colorado School of Mines	Missouri University of Science and Technology	New Mexico Institute of Mining and Technology	South Dakota School of Mines and Technology
FTE enrollment: Academic year 2007-08	2,140	4,485	5,323	1,451	1,740
Expense per FTE Student (Fiscal Year 2008)					
Instruction	$6,120	$9,221	$11,012	$10,662	$7,408
Research	$4,780	$7,101	$5,292	$5,151	$5,480
Public service	$2	$0	$620	$1645	$610
Academic support	$1,354	$2,257	$1,294	$1,442	$2,825
Institutional support	$1,480	$1,940	$1,688	$4,067	$2,759
Student services	$1,440	$717	$2,437	$2,074	$1,664
Other core expenses	$4,719	$5,744	$4,815	$13,457	$3,137

Appendix B – Academic Profile

B-1 - Undergraduate Degree Recipients by College, 2008-09

College/Department	#	%
College of Technology	93	25
College of Letters, Sciences and Professional Studies	123	33
School of Mines and Engineering	159	42

B-2 - Graduate Degree Recipients by College, 2008-09

College/Department	#	%
Graduate School	41	100

B-3 - Faculty Characteristics and Faculty Productivity

Summary of Full-Time Faculty Characteristics													
Rank or Class	Full-Time Faculty												
	Number	Number of Terminal Degrees					Gender	Fall 2009 Credit Load	Ethn.	Ten.	Years at Tech	Number of Pubs	Number of Funded Grants
	Full Time	Dr	M	B	Prof Lic	Less than Bac	% Female	Median	% White	%	Med.	Average Over Last 5 Years	Average Over Last 5 Years
Professor	40	40	0	0	11	0	15	10	95	98	19	5	3
Associate Professor	24	14	10	0	5	0	42	10	100	62	14	3	2
Assistant Professor	41	22	19	0	8	0	37	9	95	5	5	4	1
Adjunct	12	1	9	1	1	0	25	3.5	100	0	10	< 0.5	0
Inst. I	6	1	2	1	1	2	20	12	100	0	2.5	1	< 0.5
Inst. II	10	0	3	7	1	0	70	16	100	30	11	< 0.5	< 0.5
Inst. III	7	0	6	1	0	0	71	15	100	100	16	< 0.5	2
Research	30	8	20	2	1	0	27		97	7	17.5	7	3
Visiting Faculty	6	1	3	1	1	1	33	9	100	0	2.5	1	0

Appendix C – Students

C-1 – General description of student body (headcount distribution for major demographic variables) ex. gender, residency, level, ethnicity, age, FT/PT.

	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009
Technical (CT)	319	421	429	447	422	507
Undergraduate (UG)	1,770	1,720	1,843	1,796	1,871	2,053
Graduate (GR)	99	93	85	104	109	134
TOTAL	**2,188**	**2,234**	**2,357**	**2,347**	**2,402**	**2,694**

	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009
Male	1,204	1,237	1,326	1,381	1,444	1,624
Female	984	997	1,031	966	958	1,070
% Male	55%	55%	56%	59%	60%	60%
% Female	45%	45%	44%	41%	40%	40%

	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009
Full-time	1,798	1,771	1,885	1,920	1,952	2,232
Part-time	390	463	472	427	450	462
% Full-time	82%	79%	80%	82%	81%	83%
% Part-time	18%	21%	20%	18%	19%	17%

	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009
Students 18-24 Years Old	1,346	1,407	1,540	1,580	1,632	1,750
% Students 18-24 Years Old	62%	63%	65%	67%	68%	65%

Source: OCHE Reports AA and F

	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009
International Students	61	73	87	106	164	209
Black/non-Hispanic	7	11	10	12	15	17
American Indian or Alaska Native	30	24	35	29	41	62
Asian or Pacific Islander	17	16	11	13	11	18
Hispanic	30	33	37	41	39	47
White non-Hispanic	1,857	1,880	1,988	1,935	1,921	2,128
Unknown	186	197	189	211	211	213
Total	2,188	2,234	2,357	2,347	2,402	2,694
% Minority	7%	7%	8%	9%	11%	13%
% Unknown	9%	9%	8%	9%	9%	8%
% Minority[1]	7%	8%	8%	9%	12%	14%

[1]Calculation based on students with reported race/ethnicity only

Source: IPEDS Fall Enrollment Survey

C-2 - *Freshmen ACT scores distributed by ranges (<18, 18-20, 21-24, 25-29, 30+)/ same for SAT; % of entering class requiring remediation, in either English, in math, or both*

North Campus first-time full-time degree seeking standardized test scores

	ACT Composite		ACT English		ACT Math	
	2008	2009	2008	2009	2008	2009
30-36	8%	7%	7%	5%	14%	12%
24-29	44%	37%	30%	31%	50%	46%
18-23	45%	50%	52%	48%	33%	36%
12-17	2%	6%	11%	15%	3%	6%
11-6	0%	0%	1%	1%	0%	0%
Below 6	0%	0%	0%	0%	0%	0%

	SAT Verbal/Critical Reading		SAT Math	
	2008	2009	2008	2009
700-800	4%	2%	9%	3%
600-699	22%	21%	30%	34%
500-599	40%	30%	39%	37%
400-499	28%	39%	19%	24%
300-399	5%	8%	3%	1%
200-299	1%	0%	0%	1%

Source: Common Data Set

C-3 - Retention & Graduation Rate of First-time, Full-time Freshmen

	2004	2005	2006	2007	2008	2009
Fall to Fall Retention Rate	60%	69%	67%	75%	69%	72%
Six year Graduation Rate	40%	42%	38%	41%	38%	42%

Source: IPEDS Fall Enrollment and Graduation Rate Surveys

C-4 - Student FTE by Residency & Level

North Campus

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Resident Total	1,436	1,398	1,464	1,426	1,485
Undergraduates	1,375	1,356	1,405	1,377	1,434
Graduates	61	42	58	49	51
Non-resident Total	255	281	320	366	404
Undergraduates	111	133	156	201	265
WUE	119	122	137	135	107
Graduates	26	26	28	30	32
Total FTE	1,692	1,679	1,784	1,791	1,889

South Campus

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Resident Total	264	289	288	324	305
Undergraduates	264	289	288	324	305
Graduates	0	0	0	0	0
Non-resident Total	16	14	17	24	26
Undergraduates	8	8	13	16	20
WUE	8	6	4	9	6
Graduates	0	0	0	0	0
Total FTE	280	303	304	349	331

Total

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Resident Total	1,700	1,687	1,752	1,750	1,790
Undergraduates	1,639	1,645	1,693	1,701	1,739
Graduates	61	42	58	49	51
Non-resident Total	271	295	337	390	430
Undergraduates	119	141	169	217	285
WUE	127	128	141	144	113
Graduates	26	26	28	30	32
Total FTE	1,972	1,982	2,088	2,140	2,220

Source: http://mus.edu/data/enrollment/Detailed%20Enrollment%20Record%20(FY97-FY09).pdf

C-5 - Student Headcount by New Student Status

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
First-time Freshmen*	399	398	463	445	501	491
New Transfer Students	138	148	173	181	159	233
First-time Graduate Student	20	12	16	18	19	23
First-time Non-degree*	122	192	143	117	146	162
Total New Students	679	750	795	761	825	909

Source: OCHE Report AB
*Jump Start students included in Non-degree category

C-6 - Degrees Award by Type

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Certificates	2	12	11	11	5	32
Associate Degrees	130	97	105	128	106	87
Bachelor Degrees	269	287	211	262	263	256
Master Degrees	28	31	25	35	30	41
Total Degrees	429	427	352	436	404	416

Source: IPEDS Completion Survey

Appendix D – Research and Outreach