

MONTANA UNIVERSITY SYSTEM

Mission Review

of

Montana Tech



November 21, 2014

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.

Paul Tuss, Chair
Montana Board of Regents

Clayton Christian, Commissioner
Montana University System

Donald M. Blacketter, Chancellor
Montana Tech

Royce Engstrom, 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, master, and doctorate degree levels.

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	8
Geological Engineering	13
Mining Engineering	14
Petroleum Engineering	17

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 Accreditation Commission for Education in Nursing (ACEN), among others.

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

1. Education and Knowledge
2. Student Achievement
3. Engaged Faculty
4. The Montana Tech Community

These core themes were approved by the Montana Board of Regents at the March, 2014 meeting.

In addition to the four core themes that are recognized by NWCCU, Montana Tech’s Strategic Plan, *A Philosophy of Excellence*, identifies six themes that continually drive the campus in its pursuit of excellence. These themes are:

1. Be a national leader in educating undergraduate and graduate students
2. Support and grow research, scholarship, and technology transfer
3. Respond to industry, community and state needs
4. Improve our recognition and reputation in the state, nation, and world
5. Secure resources that support excellence
6. Create a culture and workplace environment that fosters engaged citizenship across local, national, and global communities.

The complete Strategic plan can be found at: www.mtech.edu/about/strategic-plan/index.htm

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	BS	M or MS	Minor
Number	11	0	2	15	3	52	11	18

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/fine arts core, 6 credits of coursework in a mathematics core, 6 credits of coursework in a social sciences core, and 6-7 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 2013 – 15:1) enable students and faculty to interact in a manner not commonly found at larger universities. Table 2.1.2 provides section size data for undergraduate classes for the Fall 2014 semester.

Section Size	Number of Lecture Sections	Percent of Lecture Sections
2-9	111	21%
10-19	192	36%
20-29	97	18%
30-39	49	9%
40-49	40	7%
50-99	44	8%
100+	4	1%
Total	537	

Table 2.1.2 Fall 2014 Class Section

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

2.2 Technology and Instruction

In March 2014, an accreditation team from the Northwest Commission for Colleges and Universities (NWCCU) gave the Montana Tech campus the following commendation:

“The evaluation team commends Montana Tech’s Library and Information Technology (IT) departments for their support of student learning as evidenced by the high level of satisfaction expressed by faculty, staff, and students. These departments provide depth and breadth in supportive resources, access and utilization through various technologies, and highly supportive personnel and systems.”

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.

2.3 Alternative Scheduling

During the 2014-15 Academic Year, Highlands College of Montana Tech is piloting a program designed after University of Montana – Western’s (UMW) block scheduling (Experience One) program. Highlands College faculty/staff met with their counterparts at UMW to design a “block schedule” for students that require remediation in mathematics. By scheduling remedial mathematics courses in blocks, rather than in the usual semester-long format, our students will be able to complete their remedial courses faster, and thereby reduce the time to graduation. Highland College faculty have presented their findings to the Bill & Melinda Gates Foundation and we are working on a grant submission to the foundation in

support of expanding this remedial education pilot program. The University of Montana – Western is to be commended for working with us on this project.

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' Strategic Plan 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 *Associate of Science* assists 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 Freshman Engineering Program was developed in 2014 to serve the first- time engineering students. This program, designed after similar programs at Purdue and Virginia Tech, exposes students to all of the different engineering majors at Montana Tech during their first year of college. Students declare their specific engineering major after completing the Freshman Engineering Program.

And, Montana Tech has identified resources to hire a Director of Student success for the campus. The Director is responsible for overseeing our 20th day and 45th intrusive advising programs. In addition, the Director of Student success oversees our Academic Center for Excellence (ACE) and is actively involved in student advising.

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 *ETS Proficiency Profile*. Table 3.3.1 identifies the ETS percentiles for Montana Tech students for the 2013-2014 period. The ETS 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 ETS 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 ETS results, the campus reallocated resources and hired a writing coordinator to lead the campus in this area.
- In 2012, Montana Tech administered the National Survey of Student Engagement (NSSE); and, Highlands College administered the Community College Survey of Student Engagement (CCSSE) as part of the institutional assessment program. Some NSSE results are published on the Montana Tech College Portrait, http://www.collegeportraits.org/MT/MTECH/student_experiences

	Total score	Critical Thinking score	Reading score	Writing score	Math score	Humanities score	Social Sciences score	Natural Sciences score
124,588 Seniors from 252 Doctoral/Research I & II, Master’s Comprehensive I & II, and Liberal Arts I & II Institutions	94%	97%	94%	77%	100%	94%	92%	98%

Table 3.3.1 2013-2014 Measure of Academic Proficiency and Progress Percentiles

3.4 Enrollment trends, projections, and challenges

Appendix C-5 demonstrates student headcount by “new” student status. 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.

Last year, Montana Tech devoted resources to retain a Higher Education Marketing firm (Spectrum) to assist the campus in employing a more systematic, or targeted, recruitment strategy for first-time freshmen. Preliminary data suggest that this change in recruiting will make a positive impact on campus enrollment.

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

3.5 Student Finances

Tuition has remained steady for the last three years with only fees increasing and allowing our in-state students to keep the direct costs for higher education relatively low. That being said, we do serve a needy population with 39% of our overall population with 69% of our full-time, first-time freshman at Highlands College receiving Pell Grants for academic year 2012-2013. Because our state does not provide much in need-based funding, as shown by various groups ranking Montana near the bottom, we are often limited to offering student loans to help fill the gap. This has led to an increase in student loan debt.

To help students manage their debt a Financial Literacy Education Program has been implemented on our campus that is supported by the Montana College Access Challenge Grant. We are currently piloting a variety of initiatives including mandatory use of Transit, peer to peer learning via student financial ambassadors, media outreach (KMSM public service announcements and Facebook page), and education programs (classroom visits, incorporating financial literacy into the Tech Success courses, and workshops). All of these will be assessed in May 2015 and the aim is that if the initiatives are successful over the long term we will see decreases in default rates and increases in student retention and could be used as a statewide model.

PUBLIC OUTREACH, RESEARCH, & TECHNOLOGY TRANSFER

4.1 Outreach programs

Montana Tech's Institute for Educational Opportunities 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 of the Institute's outreach efforts are designed to build on strengths in mathematics, engineering sciences, and environmental restoration while making use of existing campus resources.

Today, the Institute has secured 15 federal, state and private grants, for an annual operating budget of \$1,922,479. The outreach efforts are accomplished through a staff of 16 full-time and an additional cadre of part-time professional educators and scientists. Outreach programs have formal memorandums of understanding with over 15 K-12 school districts and serves additional districts with less formal relationships. In 2013, the Institute served 14,00 students and teachers from over 200

Montana communities. External Advisory boards, campus oversight infrastructure, and a campus committee minimize the risk of mission drift and protect the Institute’s sustainability.

A number of Outreach programs exist outside of the Institute 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 Code Montana scholarship 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. In 2014, this mission continues to build on a strong century-plus heritage in engineering, science, and technology: blending theory with practice to meet the changing needs of society and the responsible development and use of natural resources.

Montana Tech’s research takes place in laboratories, in field locations throughout Montana, and through modeling and simulation—including using Montana’s ~12 TFLOP High Performance Computer Cluster, located on campus. Undergraduate students, graduate students, faculty, staff, and the Montana Bureau of Mines and Geology (MBMG) are all involved. Research, design projects, and other creative and scholarly activities involving students are prominent on both the North Campus and at Highlands College, which hosted Montana’s first student research symposium for two-year schools in spring 2013.

True to its mission and heritage, Montana Tech’s \$11.1 million research portfolio (Figure 4. 1) continues to focus on engineering, the geosciences, and the environment. Major areas of research expertise and activity include: water, energy, natural resources, earth and environmental sciences and engineering, extractive metallurgy, mineral processing, materials and manufacturing, and high-performance computing. Smaller efforts involve restoration ecology, health, and safety. The strategic research vision is to engage students and faculty in advancing and applying knowledge and technologies for society’s benefit on issues related to natural resources, energy, and sustainability.

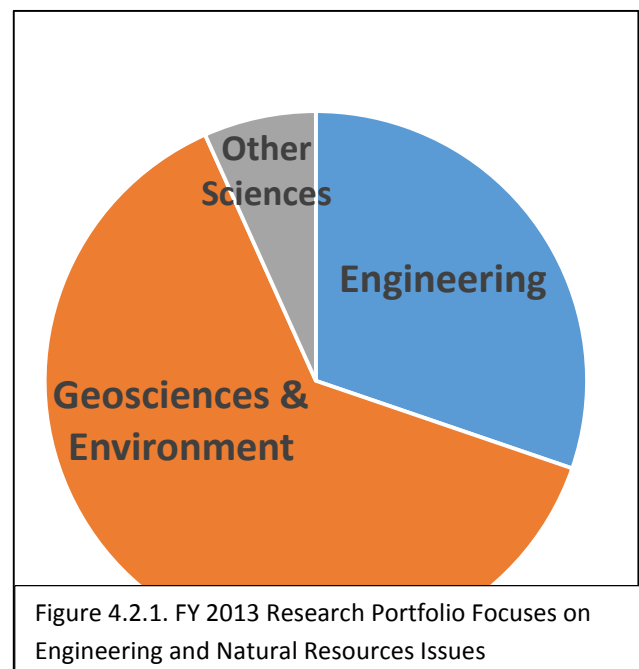
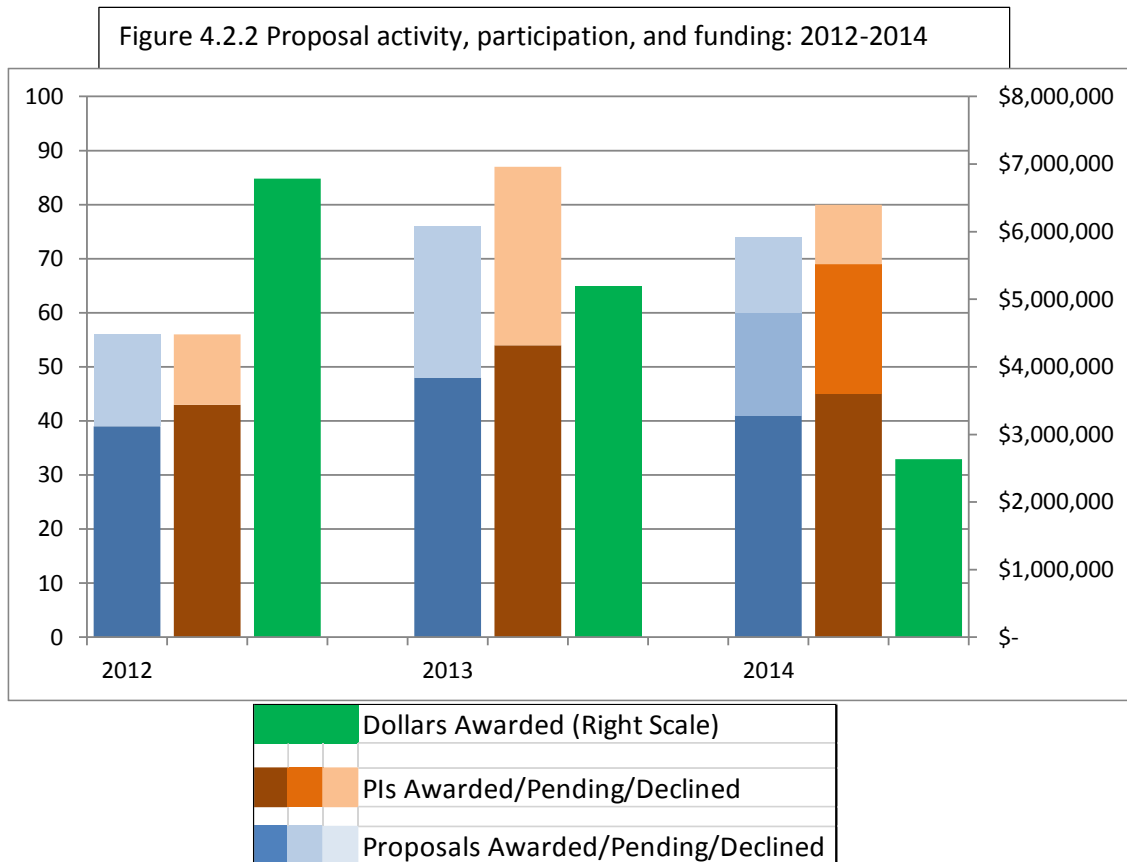


Figure 4.2.1. FY 2013 Research Portfolio Focuses on Engineering and Natural Resources Issues

To enable more research and scholarly activities than can be pursued with operating funds, Montana Tech encourages faculty to seek grant and contract funding from the federal government, state agencies, and businesses. Figure 4.2 shows grant seeking activities for 2012-2014. The blue bar shows the total number of proposals submitted, with the darker color showing the number funded. The brown bar shows the number of different principal investigators and co-principal investigators involved in the proposals, with the darker color showing the number involved in funded projects. The intermediate

color shade in 2014 indicates the number of proposals and investigators with pending proposals. The green bar shows the dollar value of the funded grants.

Through the efforts of faculty, Montana Tech receives research support from numerous Federal and State Agencies, among them the Department of Interior, the Department of Energy, the Department of Defense, the National Science Foundation, the National Institutes of Health, and the Montana Department of Environmental Quality. Sponsored projects support student research and the acquisition of expensive instrumentation required in many of Montana Tech’s programs, contributing to the University’s ability to prepare graduates who are in demand and succeed in diverse professions.



4.3 Intellectual Property Development

Between 2010 and 2013, Montana Tech faculty and staff produced several invention disclosures and some resulted in patent activity and licensing.

- Invention Disclosures 12
- US Provisional Patents Filed 4
- US Patents Filed 2
- US Patents Issued (active) 1
- Active Licenses 1
- Active Licenses to Montana Companies 1

Patents and licensing efforts are being pursued in such diverse areas as advanced gold processing techniques, battery diagnostics, mercury removal, nanoparticles, and electrospinning.

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. Montana Tech is fortunate to have hosted the *Montana Economic Summit* on a number of occasions. 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 as *U.S. News & World Report*, *Money Magazine*, and *The Princeton Review* (among others) 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, , 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, Montana State University - Bozeman and The University of Montana – Missoula are offering a joint Ph.D. program in Materials Science.
- Montana Tech is an active participant in rounds three and four of the TAACT grant. Most recently, Montana Tech has been identified to serve the four-year component of nursing education in the state in support of TACCT.
- The Business and Information Technology (BIT) Department offers upper division courses on the Helena College 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 (among others).

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 in Pharmacy Technology.
- An agreement with the University of Montana – Missoula College in Surgical Technology.
- Partnership with UM-Western for the delivery of education courses on the Tech Campus.
- Collaborative PhD in Materials Science.
- Rounds three and four of the TAACT initiative.

6.0 OPERATING BUDGET

Montana University System
MUS Operating Budget Metrics

Current Unrestricted Expenditures
source: BUD 200/230, CHE 113, & Official Enrollment Report

MT Tech
(includes Highlands College)

	Actual						Budgeted	FY14 to F15	
	FY09	FY10	FY11	FY12	FY13	FY14	FY15	#	%
Current Unrestricted Faculty/Staff FTE									
Contract Faculty FTE CU	136.5	141.5	144.2	148.4	158.5	159.7	174.4	14.7	9%
Contract Admin FTE CU	8.2	8.2	8.2	8.9	7.7	8.3	8.3	0.0	0%
Contract Professional FTE CU	36.2	35.4	38.3	37.8	37.5	42.5	43.5	1.0	2%
Classified FTE CU	67.4	69.2	73.1	72.3	75.1	74.7	81.8	7.1	10%
Current Unrestricted Expenditures									
Total Expenditures	26,063,710	28,324,623	29,424,679	29,678,288	29,726,024	31,184,511	32,851,848	1,667,337	5%
Instructional Expenditures	13,775,638	15,273,206	14,786,286	15,287,559	15,794,635	17,188,065	18,571,648	1,383,583	8%
Waivers	1,717,978	2,078,081	1,820,495	1,960,056	1,997,941	1,921,090	2,075,213	154,123	8%
Student FTE (Fiscal Year Average)									
	2,220	2,491	2,614	2,519	2,505	2,548	2,648	100.0	4%
Expenditures per FTE									
CU Expenditures per Student FTE	11,741	11,370	11,258	11,783	11,867	12,239	12,406	167	1%
Instruction Expenditures per Student FTE	6,206	6,131	5,657	6,070	6,305	6,746	7,013	268	4%
Instruction Expenditures, % of Total Exp	52.9%	53.9%	50.3%	51.5%	53.1%	55.1%	56.5%	1.4%	-
Waivers \$\$ per Student FTE	774	834	697	778	798	754	784	30	4%
Waivers \$\$, % of Total Expenditures	6.6%	7.3%	6.2%	6.6%	6.7%	6.2%	6.3%	0.2%	-
Student to Faculty/Admin/Staff Ratios									
Student FTE to Contract Faculty Ratio	16.3	17.6	18.1	17.0	15.8	16.0	15.2	-0.8	-5%
Student FTE to Contract Admin/Pro Ratio	50.1	57.2	56.2	53.9	55.4	50.2	51.1	0.9	2%
Student FTE to Classified Employee Ratio	32.9	36.0	35.8	34.8	33.4	34.1	32.4	-1.8	-5%

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

Appendix B – Academic Profile

B-1 - Undergraduate Degree Recipients by College, 2013-14

Number of Undergraduate Awards by Level/College
(2013-2014)

College/Department	Certificates (N)	Associate (N)	Bachelor (N)	Total (N)	Percent (%)
Highlands College	44	81	0	125	26%
College of Letters, Sciences & Professional Studies	0	44	114	158	33%
School of Mines & Engineering	0	0	202	202	42%
Total	44	125	316	485	

B-2 - Graduate Degree Recipients by College, 20013-14

College/Department	#
Graduate School Awards	44
Masters Degrees	43
Post Baccalaureate Certificate	1

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	Program		Ethnicity	Tenured	Years at Tech	Number of Publications	Number of Funded Grants
	Full Time	Dr	M	B	Prof Lic	Less than Bac	% Female	4 Yr	2 Yr	% White	%	Median	Average Over Last 5 Years	Average Over Last 5 Years
Professor	38	38	0	0	13	0	15.9	38	0	95.7	100	23	4.8	2.3
Associate Professor	34	26	8	0	14	0	41.1	34	0	85.3	58.9	8	4.4	1.8
Assistant Professor	42	21	21	0	19	0	33.3	42	0	83.3	4.8	4	2.1	0.7
Instructor I	7	1	1	2	0	3	4.3	3	4	100	0	3	0	0
Instructor II	9	0	3	6	2	0	44.4	3	6	100	33.3	23	0.33	0.67
Instructor III	7	0	4	3	0	0	57.1	3	4	100	71.4	14	0.14	0
Instructor IV	3	0	3	0	0	0	100	0	3	100	100	27	0	0
Research	45	7	33	5	4	0	26.7			97.7	0	7	2.5	1.8
Visiting Faculty	4	1	1	1	0	1	0	3	1	100	0	2	0	0
Total	189	94	74	17	52	4	30.3	126	18	92.2	37.6	8	2.8	1.4

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 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014
Technical (CT)	507	560	726	786	913	860
Undergraduate (UG)	2053	2153	1925	1860	1844	1891
Graduate (GR)	134	151	152	170	166	194
TOTAL	2694	2864	2803	2816	2923	2945

	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014
Male	1624	1721	1657	1685	1770	1798
Female	1070	1143	1146	1131	1153	1147
% Male	60%	60%	59%	60%	61%	61%
% Female	40%	40%	41%	40%	39%	39%
	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014
Full-time	2232	2313	2267	2249	2255	2297
Part-time	462	551	536	567	668	648
% Full-time	83%	81%	81%	80%	77%	78%
% Part-time	17%	19%	19%	20%	23%	22%

	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014
Students 18-24 Years Old	1750	1826	1739	1725	1756	1810
% Students 18-24 Years Old	65%	64%	62%	61%	60%	61%

Source: OCHE Reports AA and F

	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014
International Students	209	228	210	168	188	224
Black/non-Hispanic	17	18	25	17	22	29
American Indian or Alaska Native	62	70	55	70	56	54
Asian or Pacific Islander	18	26	25	25	23	31
Hispanic	47	62	64	64	54	53
White non-Hispanic	2128	2194	2196	2290	2400	2379
Two or more races, non-Hispanic				3	1	1
Unknown	213	266	228	179	179	174
Total	2694	2864	2803	2816	2923	2945
% Minority	13%	14%	14%	12%	12%	13%
% Unknown	8%	9%	8%	6%	6%	6%
% Minority ¹	14%	16%	15%	13%	13%	14%

¹Calculation 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	
	2013	2014	2013	2014	2013	2014
30-36	6%	7%	8%	6%	11%	12%
24-29	49%	56%	31%	39%	60%	65%
18-23	44%	37%	50%	46%	28%	22%
12-17	1%	1%	10%	8%	1%	0%
11-6	0%	0%	0%	1%	0%	0%
Below 6	0%	0%	0%	0%	0%	0%

	SAT Verbal/Critical Reading		SAT Math	
	2013	2014	2013	2014
700-800	4%	3%	13%	3%
600-699	26%	20%	46%	41%
500-599	44%	48%	31%	42%
400-499	25%	23%	10%	14%
300-399	0%	5%	1%	0%

200-299	0%	0%	0%	0%
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Source: Common Data Set

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

	2008	2009	2010	2011	2012	2013
Fall to Fall Retention Rate	69%	72%	66%	68%	66%	69%
Six year Graduation Rate	38%	40%	48%	40%	48%	49%

Source: IPEDS Fall Enrollment and Graduation Rate Surveys

C-4 - Student FTE by Residency & Level

North Campus

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Resident Total	1615	1685	1623	1603	1619
Undergraduates	1549	1617	1555	1534	1548
Graduates	66	68	69	69	71
Non-resident Total	495	553	508	491	544
Undergraduates	327	375	323	292	315
WUE	127	128	142	148	177
Graduates	40	50	43	52	52
Total FTE	2109	2238	2131	2094	2162

South Campus

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Resident Total	353	343	362	391	372
Undergraduates	353	343	362	391	372
Graduates	0	0	0	0	0
Non-resident Total	29	33	25	20	14
Undergraduates	23	17	18	14	9
WUE	6	15	8	6	5
Graduates	0	0	0	0	0
Total FTE	382	376	388	411	386

Total

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Resident Total	1968	2028	1985	1994	1991
Undergraduates	1902	1960	1917	1925	1920
Graduates	66	68	69	69	71
Non-resident Total	524	586	533	511	558
Undergraduates	350	392	341	306	324
WUE	133	143	150	154	182
Graduates	40	50	43	52	52
Total FTE	2491	2614	2519	2505	2548

[Source:](#)

[http://mus.edu/data/Enrollment/MUS%20Fiscal%20Year%20FTE%20\(FY04-FY14\)%20-%20Detail.pdf](http://mus.edu/data/Enrollment/MUS%20Fiscal%20Year%20FTE%20(FY04-FY14)%20-%20Detail.pdf)

C-5 - Student Headcount by New Student Status

	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014
First-time Freshmen*	488	474	430	441	451
New Transfer Students	192	197	202	226	216
First-time Graduate Student	13	31	31	25	35
First-time Non-degree*	190	192	176	242	283
Total New Students	883	894	839	934	985

Source: OCHE Report AB

*Jump Start students included in Non-degree category

C-6 - Degrees Award by Type

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Certificates	32	21	40	41	40	45
Associate Degrees	87	103	93	112	127	125
Bachelor Degrees	256	221	314	278	310	316
Master Degrees	41	18	50	49	44	43
Total Degrees	416	363	497	480	521	529

Source: IPEDS Completion Survey

Appendix D – Research and Outreach

Research & Development Expenditures	
FY 2009	\$8,408,515
FY 2010	\$9,656,552
FY 2011	\$9,296,423
FY 2012	\$11,765,000
FY 2013	\$11,000,000

Source: http://www.mus.edu/data/StratPlan/12_Goal_2_Research_Development_2014.pdf