Return to Karen Monahan

Montana Tech Self-Study Report April 2000

Prepared for:

The Northwest Association of Schools and Colleges

MontanaTech
THE UNIVERSITY OF MONTANA

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THE UNIVERSITY OF MONTANA

Office of the Chancellor

February 29, 2000

Dr. Sandra E. Elman
Executive Director
Northwest Association of Schools and Colleges
11130 N.E. 33rd Place, Suite 120
Bellevue, WA 98004

Dear Dr. Elman:

The enclosed **Institutional Self-Study Report** represents the efforts of faculty, staff, students and administration of Montana Tech of The University of Montana. While the faculty contributed substantially to this Self-Study, none of the groups named dominated the study. This is truly an institutional self-study that represents the efforts of all constituencies of Montana Tech.

The Northwest Association of Schools and Colleges Commission on Colleges has 25 essential eligibility requirements for accreditation. Montana Tech of The University of Montana continues to meet all these 25 essential eligibility requirements.

Montana Tech was chartered as the Montana State School of Mines by the third Montana Legislature on February 17, 1893. The Montana University System is governed by the Montana Board of Regents of Higher Education that has constitutional authority to operate public higher education in Montana. Montana Tech has a Chancellor that serves as the full-time executive officer. The Chancellor reports to the President of The University of Montana and through the President to the Commissioner of Higher Education and the Board of Regents. Montana Tech is fully authorized to award degrees at the associate, bachelor, and master levels, as well as certificates in several curricular areas.

We routinely engage in strategic planning. The mission and vision of the institution was revised during the fall of 1998 and were approved by the Board of Regents in the spring of 1999. The institution is completing the final year of a plan titled *Project 2000* and a new plan titled *Building the Future while Honoring our Heritage* is being developed. Planning and policy formulation involves faculty, students, staff, administration, the community and, where appropriate, the Board of Regents.

Montana Tech strongly believes that students are first. The education, interest and well being of our students are the primary purposes of the institution. Our financial resources are dedicated to these purposes.

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The majority of our programs require two or more years for completion and lead to degrees. Our degree programs require an appropriate and substantial coherent component of general education. Our general education courses, as well as other courses, do not have any limits on freedom of inquiry or expression and faculty are encouraged to require students to do independent work, analyze what they learn and to deal with both abstract and concrete concepts. We clearly define and publish program requirements. Our programs require an appropriate foundation and we admit students based on appropriate criteria. Admission standards are set to be appropriate for the specific program the student wishes to enter.

Montana Tech has an outstanding faculty. We have full-time core faculty for every degree program. The environment at Montana Tech is one that encourages faculty-student interaction. Indeed, in our survey, *Tell It To The Chancellor*, the most commonly cited thing that students like is the availability of faculty for assistance or discussions. We deal with all individuals on our campus in a humane and nondiscriminatory manner.

Our library facilities are excellent for our focused mission, and the larger and broader holdings of the Mansfield Library of The University of Montana-Missoula are now available through electronic means.

The catalogue of Montana Tech is current and all our advertising properly describes our regional and professional accredited status. Our admission policies are followed and are appropriate for the programs offered.

Montana Tech operates in a highly efficient and financially responsible way. While the financial support from the state is below the national average (this is especially true in view of the high-cost programs that make up the core of our offerings), the institution has managed the financial resources well and provides outstanding education at an affordable cost. Our financial records are audited annually and an opinion on the financial statement is issued.

Principal educational programs of this institution have been in operation for more than one year and all of our programs currently have students pursuing these programs.

Montana Tech accepts the policies and standards of the Commission on Colleges and the Northwest Association of Schools and Colleges and agrees to comply with these standards and policies as currently stated or as modified in accordance with due process. We will disclose to the Commission on Colleges any and all information as the Commission may require to carry out its evaluation and accreditation function. Montana Tech understands and agrees that the Commission on Colleges may, at its discretion, make known to any agency or members of the public that may request such information, the nature of any action, positive or negative, regarding the institution's status with the Commission.

Montana Tech meets all the eligibility requirements for continued membership in the Northwest Association of Schools and Colleges and invites the Commission on Colleges to conduct an evaluation to ascertain our qualifications for reaffirmation of regional accreditation.

Sincerely,

W. Franklin Gilmore

W. Franklin Gilmore
Chancellor

WFG:jm

Enclosure

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Sincerely,

W. Franklin Gilmore

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Chancellor

WFG:jm

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THE UNIVERSITY OF MONTANA

The Restructured Institution
Fall 1999

By

George M. Dennison
President

INTRODUCTION

The four campuses of The University of Montana will undergo a deciennial accreditation review during spring 2000. In preparation, each campus has conducted a separate self-study and identified areas of strength and weakness. In this effort, those responsible have sought to provide the information needed by the four site visit teams to reach reasonable judgments about the quality and responsiveness of the four campuses. The accreditation process recognizes each of the four campuses as separate institutions.

To provide a context for these separate reviews, this background statement appears as a preface to each of the four self-studies. The University of Montana has become a multi-campus institution, but each of the campuses continues to function as an accredited entity. The simultaneous accreditation review does not suggest or imply the University seeks accreditation as a single entity. Rather the University seeks to gain as much insight and guidance as possible concerning multi-campus functioning while still respecting campus distinctiveness and integrity.

In 1994, the University provided the Commission an explanation of the restructuring implemented by the Montana Board of Regents aligning the several campuses within two Universities: The University of Montana, with campuses in Missoula, Butte, Dillon, and Helena; and Montana State University, with campuses in Bozeman, Billings, Havre, and Great Falls. The Presidents of the two Universities also serve as the campus chief executive officers on the Missoula and Bozeman campuses, with Chancellors on the Butte, Dillon, Billings, and Havre campuses and Deans on the Helena and Great Falls campuses as campus chief executive officers reporting to the two Presidents, and through them to the Commissioner of Higher Education and the Board of Regents. Each University has a series of councils bringing together the various sector officers for policy making and coordination. However, each campus retains its own distinctive array of academic programs and maintains its own procedures and standards concerning faculty appointments and performance.

Two years ago, the University conducted a strategic planning process to identify and chart the direction for the future. Over 180 representatives from the four campuses participated in the process that consumed the better part of a year. To fulfill the purpose, the task forces identified best practices and visited campuses around the country to become better informed about those practices. In addition, some task forces brought consultants to the State to participate in the

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- The Master of Business Administration offered in Billings, Bozeman, Butte, Helena, Missoula, Kalispell, and Great Falls by the participating faculties and staffs from the Missoula, Butte, and Helena campuses of The University of Missoula; the Billings, Bozeman, and Great Falls campuses of Montana State University; and Flathead Valley Community College.
- The Master of Science in Project Engineering and Management offered in Butte and Bozeman by participating faculties and staffs from the Butte campus of The University of Montana and the Bozeman campus of Montana State University.
- The Ph.D. in Wildlife Biology offered in Missoula and Bozeman by the participating faculties from the Missoula campus of The University of Montana and the Bozeman campus of Montana State University.
- The Bachelor of Liberal Studies offered in Kalispell by the participating faculties from the Missoula campus of The University of Montana and Flathead Valley Community College.

These examples of cooperation and collaboration reveal the potential of restructuring for academic programming.

VISION

The Strategic Directions for The University of Montana also provides a vision for the future of the multi-campus University. In accordance with that vision, The University of Montana will capitalize on its unique strengths to create knowledge, provide an active learning environment to students, and offer programs and services responsive to the current and future needs of the State's citizens. The University delivers education and training on its four campuses and through telecommunications to sites inside and outside of Montana. With public expectations on the rise, the University asks more of its students through service learning and community building on and off the campuses. The University maintains its programs through continuous quality review and improvement and remains fully accountable to the citizenry through annual audits, periodic program reviews, and performance evaluations. In brief, the University seeks to offer service of the highest quality with the most efficient use of available resources.

Six core values guide the actions of The University of Montana:

- Affordable access to higher education for Montanans;
- Learning experiences of high quality designed to allow students to realize their full potential;
- Contributing to knowledge and meeting the needs of the State, region, nation, and world through basic and applied research;
- Promoting diversity and community among students, faculty, and staff;
- Effective and efficient use of resources and full accountability for all funds; and
- Service to citizens, communities, regions, business, industry, and State.

The University of Montana will pursue six strategic goals during the planning period from 1998 through 2003:

- Sustain and enhance the quality of student life through:
  1. Continuous improvement of undergraduate education;
  2. Improved advising and counseling services;
  3. More effective recruitment and retention; and
  4. Diversity in student services and life.
- Attract, retain, support and develop a diverse and excellent faculty and staff;
- Strengthen, develop, enhance, and broaden graduate and research programs;
- Provide comprehensive information technology and related services;
- Develop the campuses and continuously maintain the physical plants; and
- Provide a stable financial environment, enhance resource acquisition, and assure equitable distribution of resources.

MISSION AND ASPIRATIONS

The University of Montana has developed and adopted aspiration statements that relate to the multi-campus institution and each of the four campuses. In addition, each campus has a mission statement to guide its planning and actions. The mission statements appear in the individual self-studies and not in this section. The aspiration statements follow.

- *The University of Montana*, a single University with four campuses in Montana, aspires to regional, national, and international recognition as a Research II University and for its ability to deliver the right programs to the right people in the right place at the right time. The University will maintain its focus upon the development of student, faculty, and staff potential; its distinctive array of programs appropriate to the four campuses; the integration of curricular and co-curricular programming; the responsiveness to external constituencies; the full use of information technology and telecommunications to meet the needs of the campuses and communities they serve; the commitment to economic and community development on and off the campuses; and full accountability for the use of resources and funds.

- *The University of Montana in Missoula* aspires to national and international recognition as a mid-sized "Public Ivy" University in the West characterized by a special emphasis upon educating students as engaged citizens of an increasingly diverse, technological, and global society; faculty and student involvement in research and creative activities; selective admissions; occupational, technical, undergraduate, professional, and graduate programs grounded in the liberal arts and sciences; creative use of resources to accommodate a rich student academic experience; and distinctive geographical assets and student life programs.

- *Montana Tech of The University of Montana* aspires to national and international recognition as a comprehensive science and engineering institution characterized by

special emphases upon resource engineering, general and environmental engineering, materials science, natural science, information technology, business, and technical communication; occupational, technical, undergraduate, professional, and graduate programs in these related areas; selective admissions; geographical assets that enhance its distinctive program array; and distinctive student life programs.

- *Western Montana College of The University of Montana* aspires to regional recognition as a small college characterized by special emphases upon professional education, rural education, interdisciplinary studies, technology, and business strongly grounded in the liberal arts and sciences; competitive admissions; occupational, technical, and undergraduate programs in liberal studies and selected professional fields; field-based experiential learning; and a developmental focus in student life programs.

- *The Helena College of Technology of The University of Montana* aspires to recognition in the State as a comprehensive community-technical college characterized by an array of occupational and technical programs responsive to the needs of business, industry, and government in Montana and persons seeking new opportunities in the workplaces of the State; two-year general education programs that accommodate place-bound students preparing to enter baccalaureate programs elsewhere; selected graduate programs offered by University of Montana faculties from remote locations; and student life programs designed to serve the needs of a diverse student population.

CONCLUSION

During the planning period from 1998 through 2003, The University of Montana will pursue the strategic directions, goals, and values identified in the strategic planning process. As a direct result, we anticipate a strengthened and much more collaborative and coordinated University in 2003 than exists today. In a very real sense, this direction reflects our conclusions about the needs of the State and the means that the University can most effectively respond.

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STANDARD ONE
INSTITUTIONAL MISSION & GOALS, PLANNING AND EFFECTIVENESS

OVERVIEW

Montana Tech of The University of Montana was chartered as the Montana State School of Mines in 1893. In 1889, at the time of statehood, Montana was granted by the United States 100,000 acres of land for the establishment and maintenance of a school of mines. Montana Tech currently has 59,606 acres held in trust by the State Land Board. The first building, Main Hall, was completed in 1900 utilizing funds from bonds backed by the trust lands. The first class of 37 men and 2 women started classes in Main Hall in September 1900 and the first class graduated in 1903. The institution has undergone several name changes with the most recent occurring in 1994 when the Montana University System was restructured to create The University of Montana and Montana State University. As part of restructuring Butte Vo-Tech Center was merged with Montana College of Mineral Science and Technology to form Montana Tech of The University of Montana as one of four affiliated campuses of The University of Montana. In the restructuring documents the merger of Butte Vo-Tech Center with Montana College of Mineral Science and Technology was described as follows: *Merger is the fusion of one institution into another with the result that the merged institution ceases to have an independent existence.* The relation of the affiliated campuses to the two universities was described as an administrative merger which is defined as follows: *Administrative merger in higher education means the sharing of a president and other administrative personnel between two institutions. The integrity of both merged institutions' purposes and support functions is maintained.*

In 1997, Phase Two of restructuring was initiated. In Phase Two the Regents directed all units to replace their role and scope statements with mission statements. Mission statements were described as follows: *The Regents expected the mission statements to portray the identity, values, and uniqueness of a particular campus but not be mechanisms of institutional advancement or determinators of academic turf.*

MISSION AND GOALS

During the Fall Semester of 1997, all campuses of The University of Montana were involved in a planning process that resulted in a document titled **The Strategic Directions For the University of Montana 1998-2003.** This document outlines aspiration statements for each affiliated campus. The aspiration statement for Montana Tech reads as follows: *Montana Tech of The University of Montana aspires to national and international recognition as a comprehensive science and engineering college characterized by special emphasis upon resource engineering, materials science, natural science, information technology, business, and technical communication; occupational, technical, undergraduate, professional, and graduate programs in these related areas;*

selective admissions; geographical assets that enhance its distinctive program array; and distinctive student life programs.

During the Fall of 1998 and Spring of 1999 Montana Tech articulated its Mission and Vision which was approved by the Board of Regents at its May 1999 meeting. Montana Tech's Mission Statement and Vision are as follows:

Preamble

Originally chartered as The Montana State School of Mines, Montana Tech of The University of Montana has evolved into a dynamic institution composed of four colleges (School of Mines and Engineering; Technology; Mathematics and Sciences; and Humanities, Social Sciences and Information Technology) and the Montana Bureau of Mines and Geology.

Mission

Montana Tech of The University of Montana provides graduates with the knowledge and skills necessary for successful lives and careers, conducts basic and applied research, and provides related services to the citizens of Montana and beyond.

Vision

Maintaining a close association with the mineral and other industries and alumni allows Montana Tech to blend high quality formal instruction with hands-on learning, team projects, research, relevant work experience and co-curricular activities. As a result, graduates are firmly grounded in general education and well prepared to pursue their chosen careers after graduation. While honoring our heritage, we will constantly evolve our programs to meet the needs of the future.

As illustrated above, the institution's mission statement was developed by and is widely understood by the campus community and it was adopted by the Board of Regents. In the past, the mission statement (role and scope statement) had been review as needed. In the future, the mission statement and goals of the institution will be reviewed and modified, if necessary, every two years to ascertain their continuing validity.

The mission statement will be published in the 2000 - 2001 catalog that is currently being printed. It will also be published in other literature of the institution.

The accomplishments of the institution are reported to constituencies in a variety of ways. Each year, progress towards accomplishment of the six goals outlined in Project 2000 is reported to the Board of Regents. As the new five-year plan is initiated, this practice of reporting progress towards accomplishment of the stated goals will be continued. The Chancellor reports accomplishments and other matters to the faculty and staff at faculty and staff meetings held each semester. The Director of Public Relations is responsible for ensuring that the accomplishments of the students, faculty and staff are covered by newspapers around the state, as well as by local radio and television.

The goals of the institution have been based on its mission (role and scope) and its resources. The goals being articulated in the current planning process are based on the mission, vision, and resources of the institution and are consistent with Strategic Directions of The University of Montana.

Montana Tech uses its mission and vision, as well as its current goals, in allocation of resources and to guide its educational activities. For example, during the summer of 1998 and continuing since, funds were allocated for a full-time faculty advisor for advising first-year students during the summer. This is consistent with goal four of Project 2000. A goal adopted in the spring of 1998 was to achieve reaccreditation of all programs to be reviewed during 1998-99. To assist in achieving this goal funds were allocated for faculty positions in programs where this was a critical accreditation issue.

Montana Tech has a long history of public service. The Montana Bureau of Mines and Geology (MBMG) was establish in 1919 with the specific mission of furnishing unbiased scientific data for the people of Montana and their government. Records of all water wells drilled in Montana are maintained in a database by MBMG. This database can be accessed by citizens, contractors or others needing information on ground water resources. Montana Tech is involved in Campus Compact and through this has students involved in tutoring in local high schools as well as many other service learning projects. Faculty are encouraged to serve as consultants on projects that assist local communities in solving problems that require the technical expertise available among our diverse group of employees. A good example of this occurred last year when Professor Susan Patton advised the community of Bonner, Montana in solving a problem involving mine tailings.

Montana Tech has reviewed all *Substantive Changes* with the Commission on Colleges of the Northwest Association of Colleges and Schools. The 1994 restructuring was reviewed fully with the Commission. More recent changes in the locations where programs are offered and changes in the delivery method of programs have been reviewed with the Commission. A substantive change on distance delivery is included in Standard Two.

PLANNING AND EFFECTIVENESS

General

Goals for the institution have been established in several ways. In September 1995, the institution adopted **Project 2000,** *A Plan To Enhance Teaching and Learning.* In 1998, with the arrival of a new chancellor, specific goals for 1998-2000 were outlined. During the Fall Semester of 1998, review of the mission of the institution was initiated as the starting point of establishing a new five-year plan. This plan titled: **Building The Future While Honoring Our Heritage,** *A Plan for Entering the Twenty-First Century* is currently under development and should be completed by April 2000.

A Strategic Planning Committee composed of 27 members of students, faculty, staff, administration, alumni and community leaders is currently active. Although the membership will change over time, this will be a standing committee charged with the responsibility of maintaining current goals for the institution. Through consultation with constituencies, the Strategic Planning Committee establishes the goals for the institution. These goals are then used by each budget unit to develop action plans, time lines and evaluation procedures to show how the unit will contribute to achieving the goals of the institution. Unit annual reports will outline the progress towards completing the action plans. These annual reports will be summarized as the institutions annual report.

Planning and evaluation of teaching, research and public service have a long history at Montana Tech; however, this has not always been systematic. A coordinated Assessment Plan that links Assessment Policies to Evaluations (data collection) to Data Analysis to Planning and Program Modification is being developed. The primary purpose of this Assessment Plan is to achieve institutional improvement in a systematic manner. Our assessment plan is shown schematically in Figure I-1.

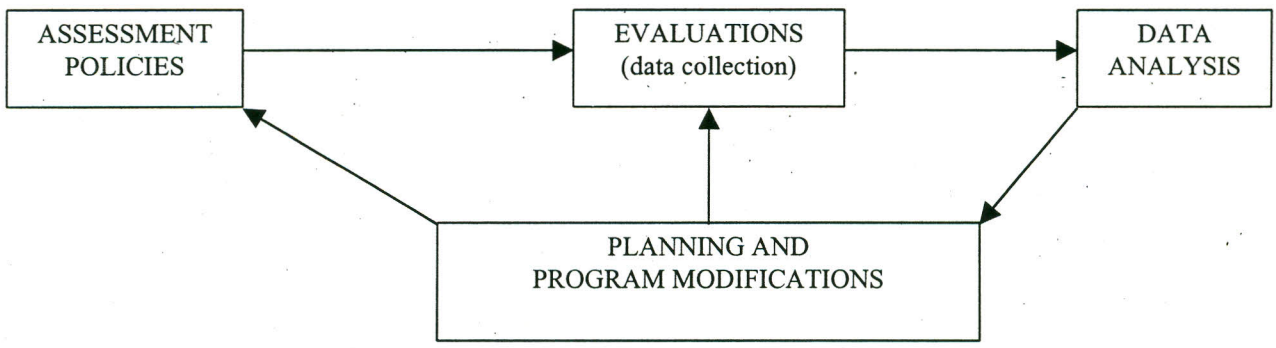


Figure I-1 Assessment Process

Planning and Assessment Coordination

Assessment is the overall responsibility of the Executive Committee led by the Chancellor. The results of assessment (data collection followed by analysis) are presented to the Chancellor' Cabinet or to the Executive Committee. The Executive

Committee determines what action, if any, is appropriate. If the required action modifies institutional goals, the issue is referred to the Strategic Planning Committee. If the required action changes the action plans of one or more budget units, the issue is referred to the units with a suggested time line for implementation. In most cases the budget unit will have collected and analyzed the data and will forward an action plan with the assessment data. If the required action modifies the curriculum of a department or degree program, the issue is referred to the appropriate curriculum committee for action. In all cases action plans that require modification of resources are considered by the Budget Committee.

Institutional Effectiveness

Institutional effectiveness is evaluated through several surveys, some of which can be compared to national data; professional accreditation reviews; national standardized examinations; advisory council reviews; and rankings in national publications. Major evaluations used to furnish data for the various forms of assessment include the following:

1. Graduate Survey. This is an annual employment and starting salary survey done with recent graduates. In most cases 100% of our graduates respond.
2. Student surveys. These include the student satisfaction survey for which a national standardized instrument is used and student evaluation of teaching (see documentation for Standard 3).
3. Employee Satisfaction Survey. This is in progress in the spring of 2000.
4. Survey of Student, Faculty and Staff volunteer services to Butte and surrounding area.
5. National rankings.
   U.S. News and World Report
   America's Best Colleges
   Princeton Review's *Best 311 Colleges, 1999 Edition*
   Barron's, *Best Buys in College Education*
   America's 100 Best College Buys
6. Self-studies for Accreditation Board of Engineering and Technology and Computer Science Accreditation Board.
7. Self-study for the Commission on Colleges of the Northwest Association of Colleges and Schools.

Educational Outcomes Assessment

The primary purpose of Montana Tech's Educational Outcome Assessments is to assist in improving the institution's academic programs. The academic program outcome assessment plans are the heart of our Educational Outcome Assessments. As an example, the assessment plan for Geological Engineering is shown in Figure I-2.

FIGURE I-2 GEOLOGICAL ENGINEERING PROGRAM ASSESSMENT PLAN

GEOLOGICAL ENGINEERING PROGRAM
MISSION, OBJECTIVES, OUTCOMES, AND ASSESSMENT
DECEMBER 14, 1999

MISSION: The mission of the undergraduate degree program in Geological Engineering, which is accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET), is to provide a quality education that blends theory with practice and enables graduates to embark upon and successfully pursue careers in the field of Geological Engineering.

EDUCATIONAL OBJECTIVES AND OUTCOMES;

1. Graduates will be prepared to assume positions as Geological Engineers upon graduation. As minimum outcomes they will be required to demonstrate the competencies required by ABET/EAC for Geological and similarly named programs, which are:

    a. Demonstrated proficiency in the engineering sciences, including statics, properties/strength of materials, and geo-mechanics.

    b. Demonstrated ability to be able to apply mathematics through differential equations, calculus-based physics, general chemistry, and probability and statistics through application to geological engineering applications.

    c. Demonstrated proficiency in geological science topics that emphasize understanding of geological principles and processes, the identification of minerals and rocks, elements of geophysics, field geology, and the ability to visualize and solve geological problems of a three-dimensional nature.

    d. Demonstrated ability to apply the principles of geology to design solutions to geological engineering problems which include one or more of the following considerations: The physical properties of materials of the earth's crust, including hydrogeology; the effects of the processes that form the earth's crust; and the impacts of construction projects, exploration and exploitation of resources, disposal of wastes, and other activities of society on these materials and processes, as appropriate to the program objectives.

2. In common with outcomes formulated by ABET for all engineering programs, Geological Engineering graduates will have demonstrated:

    a. an ability to identify, formulate and solve engineering problems.

b. an ability to apply knowledge of mathematics, science, and engineering

c. an ability to design and conduct experiments, as well as to analyze and interpret data.

d. an ability to design a system, component, or process to meet desired needs.

e. an ability to function on multi-disciplinary teams.

f. an ability to communicate effectively.

g. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

3. Geological Engineering graduates will understand the roll of engineering in society and their obligations to their profession and society by demonstrating:

   a. an understanding of professional and ethical responsibility.

   b. an understanding of the impact of engineering solutions in a global and societal context.

   c. a recognition of the need for, and the ability to engage in, life-long learning.

ASSESSMENT PLAN: The Geological Engineering Department uses the following assessment methods to evaluate the effectiveness of its instructional programs and to continuously strive to improve them:

1. Regular graded exercises, projects and examinations that incorporate new and integrate previous knowledge.

2. Standardized Examinations – Fundamentals of Engineering (FE) Examination

3. Regular EAC/ABET Program Evaluations

4. Job Placement Surveys

5. Student Course Evaluations

6. Graduating Senior Exit Surveys

7. Student Satisfaction Surveys

8. Student feedback, from summer employment

9. Alumni surveys

10. Faculty feedback, from biannual EAC/ABET Program Evaluator training.

11. Faculty feedback, from attendance at professional conferences

12. Faculty feedback, from the annual Mineral Schools Department Heads Meeting

13. Faculty feedback, from consulting activities

14. Periodic comparison with similar programs

15. Industry Advisory Board

Because the Geological Engineering program produces less than 10 graduates per year, it requires at least three years to assemble a statistically significant set of data from graduating senior and alumni surveys to analyze with respect to the need for major changes in the curriculum. However, data input is analyzed by the Department Head and the results made know to the faculty on an as-received basis. The last major curricular changes were formulated in 1996 and instituted in 1997, as a result of a Board of Regents requirement to reduce the number of credits in the undergraduate degree program from 144 to 136. At that time, the number of elective geological science courses in the curriculum was reduced significantly, but the engineering content of it was strengthened. A draft of the revised curriculum was circulated to members of the department's Industry Advisory Board for review and comment before action was taken upon it. The design of the curriculum was praised by the program's ABET Evaluator during the Evaluation Team's exit interview in October 1998.

During the spring of 2000, a committee composed of two officers of the "Geology Club" and two faculty members will be formulated to review the present curriculum and recommend changes to it, if necessary or desirable. As in the past, these recommendations will be circulated to the members of the department's Industry Advisory Board for review and comment. It is noted that because of the broad scope of Geological Engineering and the geographic dispersal of its alumni, it is extremely difficult to arrange a physical meeting of the department's Industry Advisory Board.

Present plans for enhancing the curriculum include development of an option in Petroleum Reservoir Engineering and formalizing five-year curriculums for dual degrees in Geological and Petroleum Engineering and in Geological and Mining Engineering.

The planning process was described above. Students, faculty, staff, administrators, Foundation members, alumni and community leaders are actually involved in establishing the plan. Board of Regents members are involved in that they approve the plan.

Project 2000, *A Plan to Enhance Teaching and Learning* has influenced the allocation of resources during the period 1995 - 2000. **Building the Future While Honoring our**

Heritage, *A Plan for Entering the Twenty-first Century 2000-2005* the strategic plan that is under development is specifically designed to drive the budgeting process.

Evaluation and planning are used to identify priorities for improvement. For example, the recently-completed Student Satisfaction Survey analysis will be presented to the Chancellor's Cabinet. Any areas that have declined since the last survey (1997) or any areas that appear not to be consistent with institutional standards will be identified. Priorities will be assigned for addressing these identified areas.

Montana Tech does not have an office of Institutional Research. The functions of institutional research are carried out by several offices. Information relative to personnel is handled by the Director of Budgets and Human Services, information on students is handled by the Registrar, the Director of Information Services furnishes computer expertise to accomplish institutional research, and the Vice Chancellor for Academic Affairs and Research provides institutional research for academic programs and research. Funding is provided for national surveys and other assessment tools.

In the five-year strategic plan currently in development, research and service are integrated as part of the planning process. A special committee to review the status of research faculty is reviewing the missions and goals of bureaus, centers and institutes as well as the role of research faculty.

During the preparation of this self-study, the institution has reviewed its institutional research efforts, its evaluation processes, and its planning activities. This review will be repeated every two years. A workshop for all department heads and deans on faculty evaluations had been scheduled for January 2000; however, due to a conflict the presenter was unable to present the workshop. This has been rescheduled for August 2000.

The public relations office at Montana Tech makes excellent use of the results of planning and evaluations. For example, each year the Graduate Survey (placement) analysis is published in newspapers around Montana and it is presented to the Board of Regents (see documents for Standard 1).

Strengths of Planning and Evaluation

- The fact that over 50% of the students at Montana Tech are in ABET accredited programs means that many of the academic programs are thoroughly reviewed every six years. This same rigorous review carries over to non-ABET accredited programs.
- The institution makes decisions based on assessment.
- Commitment of the institution to use assessment results to achieve improvements.
- The extensive involvement of the institutional community in planning and evaluation.

Challenges for Planning and Evaluation

- Planning must be maintained in a systematic manner. This is currently on track and must remain so. A Title III Planning Grant will be sought to prepare for applying for a Development Grant under the Strengthening Institutions Program of the U.S. Department of Education.
- Academic outcomes assessment and institutional effectiveness assessment have a few soft spots that must be firmed up. These soft spots were discovered during the course of this self-study and work is currently in progress to firm up these soft spots.
- Institutional Research needs to be more coordinated and resources must be identified to achieve this.

EXHIBITS

I-1 Graduate Surveys
I-2 Project 2000
I-3 The Strategic Directions of The University of Montana
I-4 Annual Progress Reports for Project 2000
I-5 News Releases
I-6 National Listings
I-7 Student Satisfaction Surveys (See Standard 3 documents)

STANDARD TWO
EDUCATIONAL PROGRAM AND ITS EFFECTIVENESS

GENERAL

Montana Tech of The University of Montana offers a broad array of undergraduate degree programs, principally in earth resources engineering, technology, and related sciences. Two-year technology programs are offered through Montana Tech's College of Technology in business, nursing, engineering technology, GIS/GPS technology, drafting, welding, and automotive areas. Bachelor of Science degrees are offered in environmental, geological, geophysical, mining, metallurgical and petroleum engineering, as well as in general engineering and software engineering. Additional B. S. degrees include mathematics, computer science, biological science, chemistry, general science, occupational safety and health, professional and technical communications, and liberal studies. In addition to a B. S. degree, a new and innovative Bachelor of Applied Science degree is offered in business and information technology, professional and technical communications, and biology. Master of Science degrees are offered in environmental, mining, metallurgical, petroleum, and general engineering, in addition to geoscience, industrial hygiene, technical communications, and project engineering and management. Enrollments in all degree programs for the past ten years are given in Table II-I and graduation rates for the past five years in Table II-II. Montana Tech provides essential educational services through an array of transfer, evening, workshop and continuing education programs. Some of these programs and courses are offered via electronic delivery over the internet, via correspondence, or by face-to-face delivery at remote locations.

All of Montana Tech's bachelor-level engineering degree programs, except for the new software engineering program, are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET), who last conducted an on-site evaluation of them in October 1998. The bachelor degree program in computer science is accredited by the Computer Science Accreditation Board (CSAB) and the B. S. degree in chemistry is certified by the American Chemical Society. The practical nursing program is accredited by the Montana State Board of Nursing and the registered nursing program has also received preliminary approval by the Montana State Board of Nursing. Also, the masters degree program in Industrial Hygiene is accredited by the Related Accreditation Commission (RAC) of ABET.

Department Heads, in concert with their faculty, are responsible for the design and implementation of the curriculum for programs within their departments. A rigorous instructional faculty review and approval process for new courses, curriculum changes, and addition of new degrees, degree options, and minors is in place (see Standard Four – Faculty: Academic Planning, Curriculum Development and Review). Final approval of new degrees, degree options, and minors is vested in the Montana Board of Regents of Higher Education.

TABLE II - I
ENROLLMENT HISTORY

Program Title	Option	Type of Degree	CIP #	93-94	94-95	95-96	96-97	97-98	98-99	99-00	5Yr Average
Applied Science	**(total)**	**BAS**									
	Business		52.1299	n/a	n/a	n/a					
	Biology		26.0101	n/a	n/a	n/a	7	34	62		34.3
	Technical Communication		30.1501	n/a	n/a	n/a					
Computer Science		**BS**	**11.0701**	219	191	172	167	152	145	147	165.4
		(m)									
General Engineering	**(total)**	**BS**	**14.1301**	217	213	221	220	219	242	247	223.0
	No option										
	Mechanical Engineering			n/a	n/a	n/a	n/a	n/a	n/a		
	Control Systems Engineering										
	Welding Engineering										
	Civil Engineering			n/a	n/a	n/a	n/a	n/a	n/a		
	Discontinued options										
General Engineering		**MS**	**14.1301**	9	9	7	6	5	6	8	6.6
	Control Systems Engineering										6.6
Environmental Engineering		**BS**	**14.1401**	391	348	297	234	157	138	120	234.8
Environmental Engineering		**MS**	**14.1401**	29	29	26	26	21	20	21	24.4
Geological Engineering	**(Total)**	**BS**	**14.1501**	50	56	54	46	43	40	41	47.8
	No Option										
	Engineering Geology										
	Hydrogeology										
	Mining Geology										
	Hydrogeology	m									
Geophysical Engineering		**BS**	**14.1601**	24	26	22	26	26	26	22	25.2
Metallurgical Engineering		**BS**	**14.2001**	53	45	36	45	51	48	42	45.0
Metallurgical /Min. Proc. Eng.		**MS**	**14.2001**	17	10	9	10	8	8	6	9.0
Mining Engineering		**BS**	**14.2101**	75	73	68	79	86	79	67	77.0
Mining Engineering		**MS**	**14.2101**	6	4	2	5	7	5	2	4.6
Petroleum Engineering		**BS**	**14.2501**	85	79	108	135	155	164	162	128.2
Petroleum Engineering		**MS**	**14.2501**	8	11	16	11	4	4	12	9.2
Project Engineering & Management		**MS**	**14.3001**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	7		7.0
Software Engineering		**BS**	**14.9999**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**1**	
Technical Communication		**MS**	**23.1101**	**n/a**	**n/a**	**n/a**	**n/a**	11	16	10	13.5
Biology		**(m)**	**26.0101**								
Biological Sciences		**BS**	**26.0101**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**70**	

TABLE II - I
ENROLLMENT HISTORY - Continued

Program Title	Option	Type of Degree	CIP #	93-94	94-95	95-96	96-97	97-98	98-99	99-00	5Yr Average
Mathematics		**BS**	**27.0101**	26	26	18	15	15	14	15	17.6
	Applied										
	Pure										
Society & Technology		**BS**	**30.1501**	70	73	108	104	121	126	25	106.4
	Liberal Studies									63	
	Professional & Technical Communication									59	
Chemistry		**BS**	**40.0501**	39	42	39	56	51	42	33	46.0
	Professional--ACS										
	Geology-Geochemistry										
	Environmental Chemistry										
		(m)									
Geosciences		**MS**	**40.0699**	4	7	21	25	20	23	20	19.2
	Geological Engineering										
	Geochemistry										
	Geology										
	Mineral Economics										
	Hydrogeology										
	Geophysical Engineering										
	Hydrogeological Engineering										
Nursing/Registered		**AS**	**51.1601**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**		
Occupational Safety & Health		**BS**	**51.2206**	154	155	172	166	163	145	141	160.2
	Applied Health Science										
	Science & Engineering										
		(m)									
Industrial Hygiene		**MS**	**51.2206**	21	21	18	22	16	12		17.8
Business Administration		**(m)**	**52.0101**								
Business & Info Tech		**BS**	**52.1299**		69	68	176	229	228	208	154.0
	Tech & Business Development										
	Management Info. Tech.			n/a	n/a						
	Business Info Systems			n/a	n/a						

TABLE II - I
ENROLLMENT HISTORY - Continued

Program Title	Options	Type of Degree	CIP #	93-94	94-95	95-96	96-97	97-98	98-99	99-00	Average
Automotive Technology		AAS	47.0604	18	23	19	17	17	24	17	19.0
Engineering Technology		AAS	15.9999			NEW	15	17	21	15	17.0
	Environmental Tech				NEW	31	34	10	1		19.0
	Petroleum Tech							1			1.0
Geographical Info/Global Positioning		AAS	15.1101			NEW	22	23	20	18	20.8
Drafting Technology		AAS	48.0101	29	33	26	32	33	37	32	31.7
Combination Welding		C	48.0508	21	12	6	8	10	6	11	10.6
Nursing/ Practical		AAS	51.1613	49	52	61	60	50	60	95	61.0
Office Technology		AAS	52.0401								
	Medical Secretary		52.0401	28	30	32	29	32	25	22	28.3
	Legal Secretary		52.0401	28	22	16	21	20	14	9	18.6
	Administrative Assistant		52.0401	13	12	16	17	16	12	12	14.0
Accounting Technology		AAS	52.302	32	47	29	32	33	26	30	32.7
	Human Resources		52.0302					NEW	17	8	12.5
InformationProcessing		AAS	52.0407	78	48	38	41	54	49	37	49.3
	Geographic Information Systems		52.0407					NEW	1	9	5.0
Networking Technology		AAS	11.0301						NEW	19	19.0
Certificate Programs*											
Office Assistant		C	52.0401	0	0	0	1	0	1		0.3
Drafting Technician		C	48.0101								
Nursing/Certified Nurse Assistant		C	51.1614								
Bookkeeping		C	52.0302						1		1.0
Medical Receptionist		C	52.0404								
Network Technician		C	11.0301								
Computer Assistant		C	11.0301						NEW	2	2.0

*These certificate programs are considered stop out points in AAS programs. Enrollment is not generally encouraged.

TABLE II - II
DEGREE PRODUCTIVITY

Program Title	Option	Type of Degree	CIP #	93-94	94-95	95-96	96-97	97-98	98-99	5Yr Average
Applied Science	**(total)**	**BAS**		**n/a**	**n/a**	**n/a**		**3**	**2**	**3** **2.7**
	Business		52.1299	n/a	n/a	n/a		0	0	1 0.3
	Biology		26.0101	n/a	n/a	n/a		3	2	2 2.3
	Technical Communication		30.1501	n/a	n/a	n/a	0	0	0	0.0
Computer Science		**BS**	**11.0701**	**42**	**29**	**25**	**28**	**15**	**17**	**22.8**
		(m)		1	1	0	0	4	3	1.6
General Engineering	**(total)**	**BS**	**14.1301**	**30**	**28**	**30**	**33**	**32**	**42**	**33.0**
	No option			14	15	13	20	12	18	15.6
	Mechanical Engineering			n/a	n/a	n/a	n/a	n/a	n/a	
	Control Systems Engineering			7	5	7	3	9	16	8.0
	Welding Engineering			2	3	7	5	4	6	5.0
	Civil Engineering			n/a	n/a	n/a	n/a	n/a	n/a	
	Discontinued options			7	5	3	5	7	2	4.4
General Engineering		**MS**	**14.1301**	**4**	**2**	**3**	**3**	**1**	**1**	**2.0**
	Control Systems Engineering			0	0	0	0	0	0	0.0
Environmental Engineering		**BS**	**14.1401**	**48**	**66**	**73**	**70**	**38**	**36**	**56.6**
Environmental Engineering		**MS**	**14.1401**	**7**	**15**	**9**	**9**	**9**	**10**	**10.4**
Geological Engineering	**(Total)**	**BS**	**14.1501**	**7**	**0**	**7**	**8**	**9**	**6**	**6.0**
	No Option			3	0	4	3	3	4	2.8
	Engineering Geology			0	0	0	0	1	0	0.2
	Hydrogeology			4	0	3	4	5	2	2.8
	Mining Geology			0	0	0	1	0	0	0.2
	Hydrogeology	(m)		n/a	n/a	n/a	n/a	n/a	1	1.0
Geophysical Engineering		**BS**	**14.1601**	**2**	**3**	**2**	**3**	**4**	**4**	**3.2**
Metallurgical Engineering		**BS**	**14.2001**	**11**	**9**	**6**	**6**	**10**	**11**	**8.4**
Metallurgical /Min. Proc. Eng.		**MS**	**14.2001**	**7**	**5**	**7**	**5**	**2**	**5**	**4.8**
Mining Engineering		**BS**	**14.2101**	**17**	**14**	**8**	**12**	**15**	**18**	**13.4**
Mining Engineering		**MS**	**14.2101**	**2**	**2**	**1**	**1**	**6**	**2**	**2.4**
Petroleum Engineering		**BS**	**14.2501**	**17**	**8**	**11**	**28**	**14**	**25**	**17.2**
Petroleum Engineering		**MS**	**14.2501**	**1**	**3**	**3**	**5**	**1**	**3**	**3.0**
Project Engineering & Management		**MS**	**14.3001**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	

TABLE II - II
DEGREE PRODUCTIVITY - Continued

Program Title	Option	Type of Degree	CIP #	93-94	94-95	95-96	96-97	97-98	98-99	5Yr Average
Software Engineering		**BS**	**14.9999**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	
Technical Communication		**MS**	**23.1101**	**n/a**	**n/a**	**n/a**	**n/a**	**1**	**6**	**3.5**
Biology		**(m)**	**26.0101**	**n/a**	**n/a**	**n/a**	**4**	**1**	**0**	**1.7**
Biological Sciences		**BS**	**26.0101**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	
Mathematics		**BS**	**27.0101**	**6**	**7**	**6**	**3**	**3**	**6**	**5.0**
	Applied			4	4	4	1	1	2	**2.4**
	Pure			2	3	2	2	2	4	**2.6**
		(m)		n/a	n/a	n/a	n/a	n/a	18	**18.0**
Society & Technology		**BS**	**30.1501**	**9**	**11**	**10**	**23**	**14**	**17**	**15.0**
	Liberal Studies			7	8	5	17	9	11	**10.0**
	Professional & Technical Communication			2	3	5	6	5	6	**5.0**
		(m)		n/a	n/a	n/a	n/a	n/a	0	**0.0**
Chemistry		**BS**	**40.0501**	**5**	**6**	**5**	**6**	**7**	**9**	**6.6**
	Professional--ACS Geology-Geochemistry Environmental Chemistry									
		(m)		4	5	9	6	6	4	**6.0**
Geosciences		**MS**	**40.0699**	**3**	**8**	**4**	**5**	**7**	**6**	**6.0**
	Geological Engineering			0	1	0	0	2	0	**0.6**
	Geochemistry			0	2	1	2	2	4	**2.2**
	Geology			0	1	0	0	0	0	**0.2**
	Mineral Economics			1	0	0	0	0	0	**0.0**
	Hydrogeology		0	0	0	1	3	1	2	**1.4**
	Geophysical Engineering			1	2	2	0	1	0	**1.0**
	Hydrogeological Engineering			1	2	0	0	1	0	**0.6**
Nursing/Registered		**AS**	**51.1601**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	
Occupational Safety & Health		**BS**	**51.2206**	**20**	**26**	**29**	**22**	**34**	**20**	**26.2**
	Applied Health Science			3	1	3	5	6	10	**5.0**
	Science & Engineering			17	25	26	17	28	10	**21.2**
		(m)		n/a	n/a	n/a	n/a	1	1	**1.0**
Industrial Hygiene		**MS**	**51.2206**	**8**	**8**	**6**	**11**	**8**	**5**	**7.6**
Business Administration		**(m)**	**52.0101**	**22**	**31**	**24**	**45**	**5**	**10**	**23.0**
Business & Info Tech		**BS**	**52.1299**	**13**	**13**	**13**	**33**	**32**	**41**	**26.4**
	Tech & Business Development			13	13	11	17	7	9	**11.4**
	Management Info. Tech.			n/a	n/a	0	6	7	13	**6.5**
	Business Info Systems			n/a	n/a	2	10	18	19	**12.3**

*Programs subject to numerical review are highlighted.

TABLE II - II
DEGREE PRODUCTIVITY - Continued

Program Title	Options	Type of Degree	CIP #	93-94	94-95	95-96	96-97	97-98	98-99	99-00	Average
Automotive Technology		AAS	47.0604	4	6	6	5	5	8		5.7
Engineering Technology		AAS	15.9999				NEW PROG	5	3		4.0
	Environmental Tech					NEW PROG	25	4	2		10.3
	Petroleum Tech						NEW PROG	0	1		0.5
Geographical Info/Global Positioning		AAS	15.1101				NEW PROG	4	9		6.5
Drafting Technology		AAS	48.0101	6	10	11	6	14	9		9.3
Combination Welding		C	48.0508	15	9	6	5	4	6		7.5
Nursing/ Practical		AAS	51.1613	17	20	26	28	21	22		22.3
Office Technology		AAS	52.0401								
	Medical Secretary		52.0401	10	10	8	6	12	8		9.0
	Legal Secretary		52.0401	4	2	8	3	7	1		4.2
	Administrative Assistant		52.0401	5	5	1	8	7	6		5.3
Accounting Technology		AAS	52.302	5	14	10	12	13	20		12.3
	Human Resources		52.0302					NEW PROG	9		9.0
InformationProcessing		AAS	52.0407	18	16	10	13	19	15		15.2
	Geographic Information Systems		52.0407				NEW PROG		1		
Networking Technology		AAS	11.0301							NEW PROG	
Certificate Programs*											
Office Assistant		C	52.0401	2	0	3	1	0	2		1.3
Drafting Technician		C	48.0101	0	1	0	1	1	1		0.7
Nursing/Certified Nurse Assistant		C	51.1614						NEW PROG		
Bookkeeping		C	52.0302	2	4	0	0	0	2		1.3
Medical Receptionist		C	52.0404	0	2	0	2	0	0		0.7
Network Technician		C	11.0301							NEW PROG	
Computer Assistant		C	11.0301	1	0	3	1	3	2		

***These certificate programs are considered stop out points in AAS programs. Enrollment and completion is not generally encouraged.**

At Montana Tech, a credit represents 50 minutes of lecture instruction, or three hours of laboratory exercises, per week during one semester of 15 weeks (including one week for final examinations) in the fall and 16 weeks (including one week for final examinations) in the spring. Except for the 128 credit, non-option degree in general engineering and the new software engineering degree, Montana Tech's bachelor-level engineering degree programs require 136 credits of approved coursework. With the exception of the 128 credit occupational safety and health program, all B. S. degree programs require 120 credits. These are the maximum number of credits allowed by the Montana Board of Regents of Higher Education. All associate degrees require a minimum of 60 semester credits. Requirements for all undergraduate degrees are detailed in the Montana Tech Catalog, pp. 24-25. Master of Science degrees require a minimum of 30 credits, including 9 credits for a thesis. Some M. S. degrees do not require a thesis, or have non-thesis options. Details of graduate degree requirements are given in the Montana Tech Catalog, pp. 109-115.

EDUCATIONAL PROGRAM PLANNING AND ASSESSMENT

In terms of educational program planning and assessment, Montana Tech is not a top-down driven organization. For the most part, educational program planning and assessment takes place at the department level, where the program-specific expertise resides. At minimum, all degree programs employ graduate placement surveys, student satisfaction surveys, course evaluations, graduating senior surveys, and alumni surveys as tools in their individual assessment plans, which will be available for examination during the evaluation team's visit.

All four-year degree programs were last extensively revised by their faculty, reviewed by the Curriculum Review Committee and approved by the Instructional Faculty during the 1995-96 Academic Year, in response to credit limitations imposed by the Montana Board of Regents of Higher Education. All four-year engineering degree programs were evaluated by ABET during the fall of 1998. Also, in the fall of 1998, the computer science four-year degree program received its initial evaluation by the Computer Science Accreditation Board (CSAB) and the masters degree program in industrial hygiene received its initial evaluation by the Related Accreditation Commission (RAC) of ABET. The written results of these program-specific evaluations will be available for examination during the evaluation team's visit.

At the request of the Board of Regents of Higher Education, the productivity of all degree programs was reviewed in the fall of 1999. As a result of that review, the institution decided to discontinue its Associate of Arts degree program. Copies of program reviews for Geophysical Engineering (BS), Mining and General Engineering (MS) will be available for review during the visit.

UNDERGRADUATE PROGRAMS

GENERAL EDUCATION

The degree programs offered by Montana Tech focus on technical and career-oriented education. Yet, each student's education should include certain common qualities. The general education core curriculum at Montana Tech is designed to familiarize students with the diverse ways of knowing embraced by the Humanities, Mathematics, Physical and Life Science, and Social Science. In addition to these general areas of knowledge, a Communications requirement ensures that students acquire effective written and oral communication skills.

Montana Tech requires all students, except those enrolled in certificate and associate of applied science degree programs in the College of Technology, to complete a minimum of 30-credits of core coursework in general education. Of these 30 credits, six credits must be completed in each of the following areas:

Communications
Humanities
Mathematical Sciences
Physical and Life Sciences
Social Sciences

Approved general education courses are listed on page 29 of the Montana Tech Catalog. This general requirement does not imply that all students may simply select six credits of courses from each area. Each degree program has some element of specificity in terms of its own general education core, which is designed by its faculty to meet the program's objectives as published in the Montana Tech Catalog. Engineering degree programs contain the most specific and menu-driven general education cores, while liberal studies and professional and technical communications represent the other end of the spectrum.

All engineering degree programs require the following courses from the general education core:

Communications:	ENGL 1046, English Composition (3 credits) ENGR 3216, Scientific and Technical Writing (3 credits) A 4000 level designated writing course (W), which should be the capstone design course in the student's major field.
Mathematics:	MATH 1520, Calculus I (3 credits) MATH 1530, Calculus II (3 credits) MATH 2510, Calculus III (4 credits)

Physical and Life Sciences: CHEM 1056, General Chemistry I (3 credits)
CHEM 1066, General Chemistry II (3 credits)
PHYS 1046, General Physics-Mechanics (3 credits)
PHYS 2076, General Physics-Heat, Sound, Optics (3 Credits)

The objective of the Humanities and Social Science core for engineering students is to instill an understanding of human interaction, economics, western traditions and/or an appreciation of foreign cultures. If engineers understand these topics, they will more likely understand the impact of their professions and actions in a global and societal context. They also will be able to understand the contemporary issues important to their disciplines, jobs, and society. Therefore, engineering majors are required to take the following courses:

1. ECON 2606, Principles of Economics (3 credits) or ECON 2556, Macroeconomics, plus ECON 2566, Microeconomics (6 credits, total).

2. Six credits of social science chosen from three possible themes, government, human systems, or technology and science:

   Government:
   HSS 1756, Introduction to Political Science (3 credits), and one of the following courses:
   HSS 2836, American National Government (3 credits)
   HSS 3396, Political Parties and Pressure Groups (3 credits)
   HSS 4816, International Relations (3 credits)

   Human Systems:
   PSYC 1006, General Psychology (3 credits) and one of the following courses:
   PSYC 3576, Industrial Psychology (3 credits)
   PSYC 3506, Social Psychology (3 credits)

   Technology and Science:
   STS 1396, Introduction to Logic (3 credits) and STS 3596, Politics of Technical Decisions (3 credits)

   STS 2016, Technology and Society (3 credits) and PTC 4426, History of Technology and Communications (3 credits)

3. Six credits of Humanities from one of four possible themes; western traditions, foreign language and cultures, ethics and philosophy, and literature:

   Western Traditions:
   HIST 1616 and HIST 1626, Survey of the History of Western Civilization (6 credits, total)
   HIST 2216 and HIST 2226, American History (6 credits, total)

HIST 2856 and HIST 2866, The World in the 20th Century (6 credits, total)

Foreign Language and Culture:
Six credits of any foreign language

Ethics and Philosophy
Choice of two courses from HSS 2076, Ethics (3 credits), HSS 3376, Professional Ethics (3 credits), HSS 2396, Introduction to Philosophy (3 credits), and HSS 3476, History of Philosophy (3 credits)

Literature
ENGL 1116 and ENGL 1126, Introduction to Literature (6 credits, total)
ENGL 2116 and ENGL 2126, British Literature (6 credits, total)
ENGL 2216 and ENGL 2226, American Literature (6 credits, total)
ENGL 2316 and ENGL 2326, World Literature (6 credits, total)
ENGL 3116 and ENGL 3126, Shakespeare (6 credits, total)
ENGL 3416 and ENGL 3426, Survey of French Literature (6 credits, total)

The Montana Board of Regents of Higher Education requires that all campuses of the Montana University System recognize the integrity of the general education program of the other campuses, as well as of the three publicly supported community colleges in the state. Students who have completed 30-45 lower division credits of an approved general education program at one institution will be deemed to have met the lower division general education requirements of another campus for transfer purposes. However, this does not mean that the student necessarily meets specific lower division requirements for the program of study of their choice at Montana Tech, which are published in the Montana Tech Catalog.

Associate of Applied Science degree programs and certificate programs of a year, or more, in length within the College of Technology contain a minimum of 12 credit hours of related instruction. The related instruction includes at least one course in each of the following areas: communication, computation, and human relations.

TRANSFER OF CREDIT

Credit transfers are tightly regulated at Montana Tech and are conducted in accordance with its *Transfer Credit Policy*, published in the Montana Tech Catalog, pp.10-12. In general, all college or university credits earned at a recognized, regionally accredited post-secondary institution are considered to be eligible for transfer credit; however, not all may apply to a student's chosen program of study at Montana Tech. Credit is not granted for coursework taken at any institution that is not accredited by a recognized

regional accrediting association. Credit will be granted for coursework undertaken at an institution which is a candidate for accreditation, only after the student has successfully completed 30 credits of coursework at Montana Tech.

The Registrars Office establishes articulation agreements and maintains and updates transfer guidelines with all campuses of the Montana University system, numerous regional community colleges and a number of technical institutes in Canada. It has also established and maintains articulation agreements with a number of Montana's high schools through the *Tech Prep* program.

To facilitate the transfer of credits between the campuses of The University of Montana, a new, common course numbering system will begin to be implemented in the Fall Semester of the 2000-2001 Academic Year. Under this system, remedial courses will be numbered from 10-99, technical courses from 100-999, and bachelor and masters level courses from 1000-9999. Under this system, course numbers ending in zero are courses that are common to Montana Tech, Western Montana College and the University of Montana, Missoula. Course numbers ending in the digit six are exclusive to Montana Tech.

A maximum of 30 credits may be granted for correspondence, extension and continuing education courses from a regionally accredited institution. The transfer of extension credits must be approved by the academic department head responsible for the same, or similar, courses at Montana Tech. Based on the American Council of Education's A Guide to the Evaluation of Educational Experiences in the Armed Services and the National Guide to Educational Credit for Training Programs, credit may be granted for courses or training received while in the military. In general, however, Montana Tech does not accord credit for prior experiential learning.

Montana Tech also accepts as baccalaureate transfer credits most Subject Examinations under the College Level Examination Program (CLEP) for scores at or above the 60th percentile. CLEP General Examinations, however, are accepted for credit only for technical-level courses. Similarly, Montana Tech generally accepts the Advanced Placement (AP) Examination from The College Board for transfer credit, if the student has scored at least 3 or above on the appropriate AP examination. Some courses require a minimum score of 4 for AP credit to be granted (see the Montana Tech Catalog, page 11). Students may also receive course credit and advanced placement from the International Baccalaureate program, which is similar to the AP program, on a course-by-course basis. The Registrars Office maintains current information pertaining to all of these programs.

Students may earn college credits for courses offered at Montana Tech without formal enrollment by demonstrating mastery of the subject, only if such mastery is accomplished on the student's own initiative and time. Furthermore, the student must obtain the permission of their advisor and department head, the instructor for the course, and the Dean of the college in which the course is offered to take a comprehensive examination in the subject matter of the course. Only full-time students registered in one of Montana

Tech's degree programs may request such a challenge examination. Activity courses, courses for which a grade has already been received, or which have been taken for no credit, may not be challenged. Also, one cannot obtain credit by challenge examination for a course that is a prerequisite to a second course after the second course has been completed.

REMEDIAL COURSEWORK

Remedial coursework does not count towards graduation in any program offered by Montana Tech. Developmental or remedial work is not required for admission to Montana Tech or any of its degree programs, but may be required to meet acceptable levels of knowledge to undertake specific courses within them. Placement in the proper level mathematics course is of particular concern for entering students. The protocol for doing so is contained in the Faculty Advisors Handbook.

EXPERIENTIAL LEARNING

Montana Tech does not grant credit for prior experiential learning, but credit may be granted for courses or training received while in the military based on recommendations of the American Council of Education's A Guide to the Evaluation of Educational Experiences in the Armed Services and the National Guide to Educational Credit for Training Programs (see Montana Tech Catalog, p.12).

Up to 8 credits may be granted for academic work done in conjunction with approved work experiences related to a student's degree program. Such formal internships are coordinated by the Career Services office through designated advisors in each academic program. Some programs do not accept internship credits for completion of degree requirements, while others do.

ACADEMIC ADVISING

Department Heads are responsible for the academic advising of students enrolled in their department's degree programs. The Department Head appoints members of the department's faculty to serve as academic advisors to its undergraduate and graduate students based on their expertise and experience, workload, and willingness to serve in this capacity. The Department Head is responsible for the initial training of advisors (usually on a one-to-one basis) and for keeping them informed of new requirements and changes to existing ones. A Faculty Advisors Handbook is furnished to each faculty advisor and updated, as necessary, by the Vice Chancellor for Academic Affairs and Research (VCAAR). New students are assigned faculty advisors in their major department by the undergraduate student admissions component of the Office of College Relations and Marketing. Department Heads are responsible for providing the Office of College Relations and Marketing with an up-to-date list of faculty advisors for their departments.

Non-degree seeking students enrolled for 7 credits, or less, are not required to have a faculty advisor.

Further details of the academic advising process are discussed under **Standard Four – Faculty**.

COLLEGE OF HUMANITIES, SOCIAL SCIENCE, AND INFORMATION TECHNOLOGY

In addition to supplying general education courses in support of the institution's various programs, the College of Humanities, Social Science and Information Technology has as its mission to provide quality degrees in the areas of Liberal Studies, Communications, Business and Information Technology, as well as to offer a strong curriculum as the foundation of each of these degrees.

The College of Humanities, Social Science, and Information Technology is composed of the departments of Business and Information Technology, Liberal Studies, and Professional and Technical Communications. The college provides students unique and diverse educational choices. The faculty of the college is highly qualified to prepare students for careers in business, public policy, human values, and technical communications. Beyond the rigor of its formal academic programs, the college provides its students with the flexibility created by a variety of liberal arts and professional courses.

Business and Information Technology

Mission and Objectives: The Business and Information Technology program's mission is to provide a baccalaureate education that enables its graduates to provide a lifelong contribution to society by combining a firm interdisciplinary business curriculum with current information technology in a manner responsive to changing market demands.

In support of this mission, the Business and Information Technology (BIT) program is committed to the following objectives:

1. Provide an education program of studies that integrates business areas with technology to enable our graduates to have the necessary knowledge to succeed professionally.

2. Encourage and support the need for continuing education of working professionals.

3. Develop and promote an evening program of studies that allows non-traditional students in southwest Montana the opportunity to earn associate and baccalaureate degrees.

Guided by the program's mission and objectives, faculty members work individually and as a team to provide students with educational services and experiences which will develop their skills, knowledge, and ultimately the competencies expected and needed by business professionals within the industry.

Special Accreditation: None available.

Department/Program Size and Organization: The department employs six full-time faculty (6.1 FTE) and five adjunct faculty (Table II-III).

The adjunct faculty employed by BIT all teach courses within their area of expertise. For example, a full-time lawyer is employed to teach Business Law I and II. The adjunct faculty are a valuable resource for the department because they are all active practitioners within the field in which they teach. In addition to being dedicated faculty members, the full-time BIT faculty are actively involved in consulting and other outside professional activities. The BIT faculty analysis (Table II-III) indicates the diversity of research/consulting activities with the department, which Montana Tech encourages to keep its faculty current in the practices of their specific area of interest.

Established in 1993, the Business and Information Technology (BIT) program has grown to become one of the two largest academic programs at Montana Tech. There are currently over 225 students enrolled in the BIT program.

Design of the Undergraduate Curriculum:

Students enrolled in the 120 credit Business and Information Technology (BIT) B. S. degree program can choose one of three options: Business Information Systems (BIS), Management and Information Technology (MIT), and Technology and Business Development (TBD). The BIS option is designed for students interested in pursuing a career in accounting, and the MIT option is designed for individuals interested in management, marketing, or sales. The TBD option is designed for students interested in careers in entrepreneurship or finance. An overview of the 89 core credits common to all three options, as well as the option-specific requirements may be found in the Montana Tech Catalog on pages 33-34.

The Business option of the Bachelor of Applied Science degree is designed primarily for students who have earned an Associate of Applied Sciences and who wish to continue on in a baccalaureate degree program. This degree allows students to transfer their Associate of Applied Science degree and credits toward a baccalaureate degree without significant loss of time or credit. In most cases, a student may transfer a maximum of 53 credits (AAS transfer) towards this degree and must complete a minimum of 39 credits of

TABLE II - III
BUSINESS DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Kasperick, Joe	Prof.	FT	MA	U of Cal, Riverside, 1967	6	35	32	N.A.	AEA, WEA NAFE	Low	High
Abbott, Doug	Assoc. Prof.	FT	MBA	U of Montana, 1988	8	12	12	N.A.	WEA, NAFE	Med.	Med.
DeDominic, Robert	Assoc. Prof.	FT	MBA	U of San. Fran., 1966	32	5	5	N.A.	SBI Directors Assoc.	Low	Low
Kober, Tim	Assoc. Prof.	FT	MBA	U of Montana, 1985	8	13	11	CPA,MT CMA, CFM	AICPA, IMA	Low	Med.
Rutland, John	Assoc. Prof.	FT	Ph.D.	U of Washington 1983	5	23	2.5		Academy of Mngmt, SMS, AEA	Med	High
Solko, Denise	Assoc. Prof.	FT	MBA	USD, 1976	6	21	11	CPA- Mt Assoc. CFE	Butte CPA's St CPA, Nat. AICPA	None	Low
Bristol, Robert	Instr.	PT	B.A.	U of Montana, 1981	15	11	11	CPA - MT	None	NA	NA
Kasperick, John	Instr.	PT	MS	MSU, 1991	8	9	9	N.A.	MT Economists IAEE	High	Low
Murray, Bill	Instr.	PT	JD	LSU, 1974	26	15	15	Atty.	ABA, ATLA, MTLA	Low	Low
Nugent, John	Instr.	PT	MPA	U of S.D., 1976	38 gov. 5 ind.	20	20	N.A.	CUPA – high SHRM- high	Low	Low
Woy, Jim	Instr.	PT	BS	U of Montana, 1980	20	12	12	CPA	AICPA	NA	NA

upper division (300-400 level) classes to meet Bachelor of Applied Science (BAS) degree requirements. For additional information, consult the Montana Tech Catalog, page 35. More general information on BAS degrees may be found in the catalog on page 25. A minor in Business Administration is also available to students not enrolled in the two degree programs offered by the BIT department. Details pertaining to this minor are to be found in the Montana Tech Catalog on page 35.

The Business and Information Technology Department's Industrial Advisory Board meets periodically with faculty members to discuss the BIT curriculum. The board is comprised of professionals who in the fields/industries in which BIT graduates will be employed. The primary responsibility of the board is to identify future directions for their individual industries and counsel the BIT Department on possible changes in the curriculum to better prepare its students to successfully compete for entry level positions. One example of how the department implements suggestions from board members is the emphasis of preparing students and making them aware of the Certified Management Accountant (CMA) examination. Current members of the BIT Department Advisory Board are:

Bob Gannon – Chairman and CEO, Montana Power Company
Bill Robinson – Chief Financial Officer, MSE-TA, Inc.
Dan Sullivan – Computer Services Director, Montana Power Company
Perry Cole – Accounting Director, Touch America, Inc.
Pat Connors – Sr. Vice President, D. A. Davidson Investment Corporation

The following challenges and future plans for the BIT Department's degree program have been identified:

1. Rename the options available within the BIT program.

2. Re-establish the evening business program to better serve working individuals in southwest Montana.

3. Provide opportunities for place bound students in the Helena area.

4. Provide a more 'seamless" transition for South Campus, College of Technology students entering the North Campus' BIT programs.

Assessment of Program Objectives: The Business and Information Technology Department uses the following assessment methods to evaluate its instructional program:

1. Student Satisfaction Survey
2. Graduate Placement Survey
3. Graduating Senior Survey
4. Alumni Survey
5. Industry Advisory Board

Graduate Programs: None

Exhibits: Program Self-Study, all course syllabi, required texts, samples of student work and projects will be available for examination.

Liberal Studies

Mission and Objectives: The mission of the Liberal Studies program is varied and multifaceted. With its array of qualified professionals trained in a variety of disciplines, the Liberal Studies program is uniquely suited to discharge its co-mission, which is to provide a broad, general education in the Humanities and Social Sciences to all students attending Montana Tech. More specifically, the mission of the Liberal Studies program encompasses the following objectives:

1. To provide a quality, marketable degree option in Liberal Studies.
2. To provide necessary transfer and elective courses for non-Liberal Studies majors.
3. To offer pre-professional programs.
4. To offer the community life-long learning opportunities by providing courses of interest.
5. To offer quality courses in all areas by emphasizing outcomes assessment, integrated career planning, and service based learning.
6. To provide public service to the community.
7. To engage in scholarly research and activity as part of the national academic community of scholars.

Special Accreditation: None

Department/Program Size and Organization: There are presently seven full-time, tenure-track faculty in the Liberal Studies Department and five (5) Adjuncts (see Table II-IV, Liberal Studies Faculty Analysis). At the inception of the Liberal Studies program (at that time an option of the Bachelor of Science degree in Society and Technology) in November of 1997, there were only 5 students enrolled in it. By April 1999, however, this number had grown to 65 students.

TABLE II - IV
LIBERAL STUDIES DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Gonshak, Henry	Prof.	FT	Ph.D.	University of Denver 1986	None	19	11	None	MLA PCA Med	High	None
Holdsworth, Robert	Prof.	FT	MS	MSU 1962	None	35	35	None	None	None	None
Jacobson, Larry	Prof.	FT	Ph.D.	University of Minnesota 1973	None	25	22	None	None	Med.	None
Ray, John W.	Prof.	FT	Ph.D.	University of Wisconsin 1974	None	25	25	None	Med. ILA	Med.	Med.
Ray, Roberta K.	Prof.	FT	Ph.D.	University of Southern Calif. 1969	None	27	25	None	Med. ILA	Med.	Med.
Waring, George	Prof.	FT	MA	University of Washington 1967	None	33	33	None	American Historical Assoc.	Med.	None
Ziegler, Robert	Prof.	FT	Ph.D.	Cornell Univ. 1973	None	26	26	None	MLA NCFS Med.	High	None

TABLE II - IV
LIBERAL STUDIES DEPARTMENT FACULTY ANALYSIS – Continued

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Lester, Tom	Prof.	PT	Ed.D.	University of Marquette 1974	None	37	33	None	None	None	None
Crowley, Jack	Asst. Prof.	FT	MA	University of Montana 1986	None	16	12	None	None	High	Low
Davis, Char	Adj.	PT	MA	Leslie College Cambridge 1994	None	3	3	None	None	None	Med.
Harrington, Jim	Adj.	PT	MA	University of Montana 1969	None	11	10	None	Montana Historical Society	Med.	None
Hendricks, Jill	Adj.	PT	BA	University of Montana 1988	None	4	4	None	None	Med.	None
Mott, Sandee	Adj.	PT	MA	Fort Hayes St. 1995	None	3	3	None	None	None	None
Sullivan, Don	Adj.	PT	MA	Western Montana Coll. 1979	None	1	1	None	None	None	None

Design of the Undergraduate Curriculum: The challenge faced in designing the Liberal Studies degree was to offer a comprehensive degree in the humanities and social sciences for Montana Tech students not interested its technical degree areas and for people in southwest Montana who cannot, or do not wish, to travel to other campuses. The Liberal Studies Degree combines all the features of a traditional liberal arts degree: systematic exposure to the arts, humanities and social sciences, along with a strong and unique emphasis on developing the personal competencies which are marketable to employers in today's global economy: oral and written communication ability, skill at working in groups, listening ability, and the ability to think analytically and critically. The Liberal Studies Degree offers maximum academic flexibility along with integrated career planning. Coursework requirements are tabulated in the Montana Tech Catalog on page 37. Additional courses have been recently developed in health and environmental communications and global studies. A new writing skills course was first offered in September of 1998. The Department is also committed to offering service courses in the areas of art and music.

Offering quality courses demands that courses have clearly delineated goals, strategies for achieving those goals and ways of assessing whether or not the goals have been achieved. To that end, the Liberal Studies Department has developed an assessment program for its introductory writing and speech communication courses. The Liberal Studies Department decided to focus initially on writing and speech communication because these are fundamental courses, not only for its own students but, also, for all students at Montana Tech. Basic competency in speaking, writing, and listening is essential for success in any profession. The following skills will be assessed:

1. Basic writing skills:
   a. Grammar
   b. Diction
   c. Syntax
   d. Punctuation

2. Basic oral communication skills:
   a. Delivery
   b. Organization
   c. Listening

The approach used is standardized pre- and post-tests, both of which are mandatory. Those students scoring in the bottom 25% of the English Composition pre-test are offered remedial work in English 100 (Standard Usage and Grammar). A common handbook is now used as the basic text in all English Composition courses and a standardized text is used in all introductory Speech Communication courses. Instructors have the freedom to use any supplemental texts that they choose and are free to use the instructional methodology of their choice. The pre- and post-tests provide a basis for comparison and an objective basis to determine the level of improvement of students in each course. Using pre- and post-testing also facilitates the determination of the efficacy of the remedial English course. Instructors are informed as to areas of weakness of their

students, so that those areas can be emphasized in their instruction. The speech communication courses will make extensive use of video taping.

Assessment of Program Objectives: The Liberal Studies Department uses the following assessment methods to evaluate its instructional program:

1. Standardized tests, where applicable
2. Test scores
3. Course Evaluations
4. Student Satisfaction Surveys
5. Graduating Senior Surveys
6. Graduate Placement Surveys
7. Employer evaluation surveys
8. Alumni evaluation surveys

Graduate Programs: None

Exhibits: Liberal Studies Department Self-Study, faculty resumes, course syllabi, textbooks, samples of student work and examinations, assessment instruments and results.

Professional and Technical Communications

Mission and Objectives: The Professional and Technical Communications (PTC) program's mission is to provide a formal, practical course of study that prepares students to understand and communicate the relationship between individuals and a technology-oriented information society and leads to an undergraduate degree. In addition, some students choose to add two or three semesters to their PTC program to culminate their studies at Montana Tech with a master's degree in Technical Communications.

The Professional and Technical Communications program's objectives are:

1. To prepare students for employment in a variety of technical areas with the knowledge and skills required to succeed in the technological world.

2. To prepare students to be confident enough to accept the challenge of communicating professional and technical information in any discipline and for any audience.

3. To provide instruction via current-generation technologies, as they become available to the institution, so that students model the communication expertise expected of program graduates.

Special Accreditation: Not available.

TABLE II - V
PROFESSIONAL AND TECHNICAL COMMUNICATIONS DEPT. FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Other Teaching	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Carter, David	Prof.	FT	Ph.D.	Univ. of Calif. 1981	2 teaching 3 military	21	19	None	Society for Teaching Psychology	Low	Low
Cortese, Joanne	Prof.	FT	Ed.D.	Nova South-eastern U. 1990	25	18.5	18.5	NA	STC	Low	Low
Macgregor, William	Prof.	FT	Ph.D.	University of Colorado – Boulder, 1981	10 teaching 1 consulting	26	15	None	CPTSC Invis. Cdl Campus Compact	High	High
Munday, Pat	Assoc. Prof.	FT	Ph.D.	Cornell, 1990	Industry 5	11.5	9.5	NA	APPE, BJHS SHOT	Med.	None
Van der Veur, Paul	Assoc. Prof.	FT	Ph.D.	Ohio Univ. 1996	7	12	7	NA	ASA AEJMC	Med.	Med.
Coffey, Michael	Adj. Instr.	PT	M.A.	LSU, 1993	13	3	2	NA	STC SME	Med.	NA
Van der Veur, Shirley	Adj. Instr.	PT	Ph.D.	Ohio Univ. 1997	6	5	5	NA	Low	Low	Low

Department Program Size/Organization: There are five full-time, tenure track faculty members in the Professional and Technical Communications Department (see Table II-V, Professional and Technical Communications Faculty Analysis). During the 1998-99 Academic year, approximately 50 students were enrolled in the department's programs. The Bachelor of Science-level program had been an option within the B. S. degree in Society and Technology since 1977, but a separate B. S. degree in Professional and Technical Communications was approved by the Montana Board of Regents of Higher Education at its November 1999 meeting. Concurrently, the option was eliminated since it had become redundant. Students enrolled in the program pursue careers with communications dimensions, although a number of those enrolled are place-bound and may, therefore, modify their post-graduation goals.

A Bachelor of Applied Science (BAS) degree in Technical Communications is also available. This degree program allows students with two-year Associate of Science degree to transfer a block of credits from a College of Technology, or related two-year program, into a BAS degree from Montana Tech (see the Montana Tech Catalog, pages 25 and 40).

Design of the Undergraduate Curriculum: Since its inception in 1997, the curriculum has focused on incorporation of multimedia into teaching and learning. Students and faculty use multimedia and similar tools regularly in their presentations. Some students pursue expertise in video editing. Computing and use of sophisticated computer software is the norm for teaching and learning in PTC. The 120-credit curriculum includes writing, editing, formatting, and electronic communication courses; along with the required core curriculum and courses to introduce students to a variety of academic and community experiences. The curriculum for the B. S. degree and the BAS degree are published in the Montana Tech Catalog on pages 39 and 40, respectively.

Assessment of Program Objectives: Student assessment of the Professional and Technical Communications (PTC) program is required at the completion of the student's second and fourth years in the program. This evaluation was first required in the Spring of 1999, at which time the first students in the newly constituted PTC Department completed their second year of study.

Students are required to prepare and maintain a portfolio of their work in the PTC program and to present their portfolios publicly during their final semester. The first of these presentations will likely occur in Spring 2000, and definitely in Spring 2001.

Additionally, Course Evaluations, Student Satisfaction Surveys, Graduating Senior Surveys, Graduate Placement Surveys, and Alumni Surveys are/will be used as assessment tools.

Graduate Programs: A 31-credit Master of Science degree in Technical Communications was approved in 1997. Ten students enrolled in the program in Fall 1997 and another six in Fall 1998. Two of the first ten dropped out, but all others continued. One third of the students in these initial groups have now graduated from Montana Tech.

During 1998-99, a five-year Masters degree program, as well as a 13-credit post-baccalaureate certificate in the practice of technical communications, was approved.

Exhibits: The following exhibits will be available for examination during the accreditation visit:

PTC Program Self-Study
Course descriptions/syllabi
Required textbooks
Samples of student work, including examinations
Curricula for all degree and certificate programs
Completed graduate (MS) projects
Completed undergraduate formal papers and multimedia projects
Program-Evaluation forms completed in Spring 1999 and 2000

COLLEGE OF MATHEMATICS AND SCIENCES

The College of Mathematics and Sciences includes the Departments of Biological Sciences, Chemistry and Geochemistry, Computer Science and Software Engineering, and Mathematics. These disciplines not only provide the fundamental mathematics and science courses needed by other majors at Montana Tech, but also offer their own degrees which prepare students for careers in business, industry, education, or government.

The Biological Sciences Department's proposal to offer a Bachelor of Science degree in biological science was approved by the Montana Board of Regents of higher Education in May 1999. This degree augments a Bachelor of Applied Science degree in Biology, which had been in place since 1997. The Department of Chemistry and Geochemistry offers an American Chemical Society certified Bachelor of Science degree in Chemistry. Within this degree, students can pursue options in Environmental Chemistry, Geology-Geochemistry, and Pre-Professional Health. The option in Environmental Chemistry is one of only five in the nation certified by the American Chemical Society. The department also offers a Master's degree in Geoscience with an option in Geochemistry. The Mathematics Department offers a Bachelor of Science degree in Mathematics, with options in Pure Mathematics or in Applied Mathematics. A proposal to change the degree name to Mathematical Sciences with options in Mathematics and Statistics is currently being reviewed by the Board of Regents and will be on their action agenda for the regular meeting in May 2000. The Computer Science and Software Engineering Department offers a Bachelor of Science degree in Computer Science with electives emphases in either Systems Control, Mathematical Science, or Business Applications. A Bachelor of Science degree in Software Engineering was approved by the Board of Regents in May 1999. This new degree program will not graduate its first student until 2001. A new, interdisciplinary Bachelor of Science Degree in General Science was

approved by the Board of Regents in November 1999, but will not graduate its fist student until 2001. Minors are available in biology, chemistry, and computer science.

Biological Sciences

Mission and Objectives: The mission of the biological sciences program is to provide a quality education in biological sciences through close student-faculty interaction and by involving students with research opportunities. Although the field of biology is expansive, and everything it encompasses cannot be taught, students will learn how to pursue the process of seeking knowledge through:

1. Use of traditional and innovative classroom techniques.

2. Ample laboratory and research experience.

3. Appropriate advising.

The Biological Science Department also endeavors to carry out its service responsibilities with high quality, up-to-date biology courses.

Special Accreditation: None available.

Department/Program Size and Organization: The Department of Biological Sciences consists of three full-time faculty members and a laboratory director who also teaches laboratory sections (see Table II-VI). Each semester, 8-12 credits of classes are taught by two full-time faculty members from other departments and three or four part-time (Adjunct) instructors teach as many as 18-20 credits per semester. Over ¾ of these credits are taught for the newly developed nursing program. To varying degrees, full-time faculty members are expected to carry out funded research.

The Department of Biological Sciences administers two degree programs, a Bachelor of Applied Sciences (BAS) degree with an emphasis in Biological Sciences and Bachelor of Science degree in Biological Sciences. The BAS degree has been in place for three years and its purpose is to allow students with an Associate of Applied Science degree to earn a bachelor's degree with a minimum of additional college coursework. The Bachelor of Science degree in Biological Sciences was approved by the Montana Board of Regents of Higher Education in the spring of 1999. By design, it takes advantage of Montana Tech's strengths in science and mathematics while utilizing biology courses that were already being taught. This conventional BS degree prepares students for graduate and professional schools, or for immediate employment in various biological science disciplines.

The department presently has 70-75 undergraduates in its degree programs. Additionally, the department provides service courses for students in nursing, occupational safety and health, and environmental engineering; as well as General Education science courses for

TABLE II - VI
BIOLOGICAL SCIENCES FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Douglass, Richard J.	Prof.	FT	Ph.D.	Montana State Univ. 1973	10	18	17	Cert.Wildlife Biologist	MAS, Wildlife Soc. - med	High	Low
Sawyer, Paul T.	Prof.	FT	Ph.D.	Montana State Univ. 1970	0	31	31	None	MAS, Hasting Center, SER, MNPS – high	Low	Low
Spath, William	Prof.	FT	Ph.D.	U of Missouri-Columbia 1979	2	21	14	None	Med	Med	Low
Mitman, Grant G.	Assoc. Prof.	FT	Ph.D.	Dalhousie Univ. 1992	0	13	6	None	PSA, IME, IPS High	High	High
Gless, Elmer	Prof. Emeritus	PT	Ph.D.	Iowa State 1968	6	34	32	None	Low	Low	Low
Johnston, Angela	Adj. Inst.	FT	M.S.	Montana Tech 1999	0	5	5	None	Low	Low	Low
Minorsky, Nina	Inst.	PT	Ph.D.	Univ. of New Mexico, 1994	9	2	1	None	Med	Med	Low
Kuenzi, Amy		PT	Ph.D.	Univ. of Ariz. 2000	4	0	2	None	Wildlife Soc., ASM - Med	High	Low
Wilson, Tim		PT	M.S.	Southwest MO State Univ., 1997	0	0	3	None	MAS Med	High	Low
Dailey, Lynn	Inst.	PT	B.S.	Montana State Univ. 1994	6	1	1	Reg. Dietitian	Amer. Diet. Assoc. Low	Low	Low

all programs of the institution. During the last three academic years, eight students have earned Bachelor of Applied Science degrees with an emphasis in Biological Sciences. It is anticipated that the Biological Sciences degree program will produce 10-12 graduates per year in the near future and that the BAS program will be used by fewer students.

Design of the Undergraduate Curriculum: The undergraduate biological science curriculum at Montana Tech has a stronger emphasis in chemistry, mathematics, and statistics and less biology than most undergraduate biology degrees. Its biological components tend to emphasize ecology, genetics, evolution, and organisms. An added dimension of the program is that of learning science by doing research. This is accomplished by:

1. Requiring a thesis based on a small, original research project in the senior year.

2. Incorporating research activity in all of the laboratory segments of upper division classes.

3. Encouraging students to participate in Montana Tech's undergraduate research program and to work with faculty in their research activities.

Requirements for the Bachelor of Science degree and the Bachelor of Applied Science degree in Biological Science are published in the Montana Tech Catalog on page 43 and 44, respectively.

Graduate Programs: None

Assessment of Program Objectives: Since the program is new, there has been almost no assessment done with the exception of the design process needed to create the BS degree. In the future, assessment will be provided primarily through continuous evaluation with the aid of an advisory committee. Assessment tools will include course evaluations, student satisfaction surveys, graduating senior surveys, graduate placement surveys, and alumni surveys.

Chemistry and Geochemistry

Mission and Objectives: The mission of the Chemistry program is to provide quality education through close student-faculty interaction and research involving students. Enhancing the quality of education available to students through openness to innovation is a hallmark of the program. The Chemistry program serves students while recognizing their individual differences, responding to their individual needs, and recognizing their individuality.

The Chemistry program at Montana Tech seeks to maintain a high-quality program according to the approved standards of the American Chemical Society. A primary objective of the department is to provide undergraduate chemistry majors with a sound

understanding of the fundamentals of chemistry; not only in the traditional chemical sub-disciplines of inorganic, organic, analytical, and physical chemistry, but also in inter-disciplinary areas such as biochemistry. A secondary objective is to provide a sound grounding in the fundamentals of chemistry for students in other programs as required by their curricula.

Special Accreditation: The Bachelor of Science Degree in Chemistry, as well as the Environmental Chemistry Option within it, is certified by the American Chemical Society (ACS). The certification process involves annual reports to The Committee on Professional Training of the American Chemical Society followed by an in-depth evaluation every five years.

Department/Program Size and Organization: The department consists of five full-time faculty members, a laboratory director, a secretary, and generally one or two part-time instructors (see Table II-VII). At any one time there are approximately 40-50 undergraduate majors and 1-3 geochemistry graduate students. The department graduates roughly five undergraduate majors per year, which is typical for many of the 600 ACS certified chemistry programs, including many at much larger institutions.

Design of the Undergraduate Curriculum: Students graduating in the chemistry degree program should have a broad knowledge of modern concepts, methods, techniques, and instrumentation of chemistry and biochemistry. They are competent in experimental laboratory work, as well as being proficient in communication and computer usage. Students are prepared to become professional chemists or enter a variety of chemistry-related careers, directly or through graduate chemistry programs or professional schools. The curriculum is published on pages 46 and 47 of the Montana Tech Catalog.

Assessment of Program Objectives: Assessment is provided primarily through continuous self evaluation, five year external reviews by the American Chemical Society, and by testing at key points in a student's progress through the curriculum using nationally normalized examinations. Assessment tools include course evaluations, student satisfaction surveys, graduating senior surveys, graduate placement surveys, and alumni surveys.

Graduate Programs: The Chemistry and Geochemistry Department offers a Masters of Science degree in Geoscience with an option in Geochemistry.

Exhibits: American Chemical Society Program Evaluation, Program Self-Study, course descriptions/syllabi, samples of student work and examinations, and required textbooks. Tours of classrooms and laboratory facilities will be available.

TABLE II - VII
CHEMISTRY & GEOCHEMISTRY FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Coe, Doug	Prof.	FT	Ph.D.	Oregon St. Univ. 1974	0	25	19	None	ACS, AAAS, Sigma Xi	Low	Low
Cameron, Doug	Prof.	FT	Ph.D.	Purdue Univ. 1979	10	10	10	None	ACS, ASMS, Sigma Xi, Mont. Acad. Science	Med	Low
Drew, Doug	Prof.	FT	Ph.D.	Univ. of Wyoming 1971	0	27	23	None	ACS	Low/ None	Low
Stierle, Don	Prof.	FT	Ph.D.	U.C. Riverside 1978	0	21	20	None	ACS	High	Low
Hobbs, David	Assist Prof.	FT	Ph.D.	Univ. of New Mexico 1991	10	3	3	N/a	ACS, MAS Biophysics Soc.	High	Low
Parker, Steve	Adj. Inst	FT	MS	Indiana Univ. 1972	0	11	11	None	None	None	None
Stierle, Andrea	Res. Sci.	FT	Ph.D.	Montana State Univ. 1988	0	16	16		ACS, MAS Amer. Soc. Of Pharmacology	High	Low

Computer Science

Mission and Objectives: The mission of the computer science degree program is to teach students the practical techniques of computer programming, networking, data base management, and large scale software development; as well as the mathematical and theoretical foundations of problem solving with computer assistance. Objectives of the program are:

1. To prepare computer science majors for graduate study in computer science.

2. To provide students with an education that balances the theoretical and practical aspects of the discipline.

3. To provide instruction in the basic uses of the computer for all students who have a need for or interest in such instruction.

Special Accreditation: Accredited by the Computer Science Accreditation Commission.

Department/Program Size and Organization: The Computer Science and Software Engineering Department has four full time tenure track faculty and two visiting (temporary) faculty members (See Table II-VIII).

In addition to serving students majoring in computer science or software engineering, the department also provides instruction and laboratory experience to students from most of the other majors on the north campus. Enrollment in upper division courses averages 15 to 25 students, allowing for much closer supervision by the faculty. Lower division courses may have as many as 50 to 60 students, reflecting the service nature of these courses.

Over the past five years, the average enrollment in the computer science program has been 165 students. Presently there are 145 students enrolled in the program. Of the 164 students who graduated from the program between 1993 and 1998, 154 or 94% secured employment in the field of computer science. Many of these students were placed with businesses who regularly employ Montana Tech graduates, attesting to their satisfaction with them.

Design of the Undergraduate Curriculum: The undergraduate curriculum in computer science requires a number of courses in mathematics to promote strong problem solving skills. These courses include calculus, linear algebra, differential equations, and discrete mathematics, with the option of pursuing additional advance courses. The curriculum requires introductory courses in the various subfields of computer science, including but not limited to artificial intelligence, data structures, algorithms, database management, theory of computation, software engineering, and programming languages. The curriculum also includes courses in operating systems design and networking. Students

TABLE II - VIII
COMPUTER SCIENCE AND SOFTWARE ENGINEERING DEPT. FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Olson, Keith	Prof.	FT	Ph.D.	University of Utah, 1970	None	29	17	None	Med	Med	Med
Mannix, Gary	Assoc. Prof.	FT	MS	MT Tech, 1974	27	13	13	None	None	Low	Med
Schahczenski, Celia	Assoc. Prof.	FT	Ph.D.	University of Florida, Gainesville, 1990	2	7	7	None	Low	High	None
Michelotti, James	Assoc. Prof.	FT	MS	Washington State University 1972	4	29	26	None	None	None	Med
Lewis, Russ	Visiting Assist. Prof.	FT	MS	University of Central Florida 1989	10	3	1	None	Low	None	Low
Boroni, Chris	Instr.	PT	MS	Montana Tech, 1991	None	None	None	None	None	None	None
Boroni, Pat	Instr.	PT	MS	Montana Tech, 1996	7	8	3	None	None	None	None
Rossi, Debra	Instr	PT	MS	Oregon State University, 1987	2	12	6	None	Low	None	None
Uggetti, John	Instr	PT	MS	Montana State, 1988	1	18	3	None	None	None	None

are required to take an advanced writing course and to give both written and oral presentations in the software engineering course. Internships are encouraged. The curriculum is published on pages 49 and 50 of the Montana Tech Catalog.

Assessment of Program Objectives: The computer science program employs course evaluations, student satisfactions surveys, graduating senior surveys, Graduate Record Examination scores, graduate placement surveys, and alumni surveys as assessment tools.

Graduate Programs: None

Exhibits: Course descriptions/syllabi, required textbooks and manuals, samples of student work and projects, and program assessment data will be available for examination.

General Science

Mission and Objectives: To prepare students for graduate studies in interdisciplinary areas; such as, earth systems science, geochemistry, biophysics, biochemistry, materials science, etc.

Department/Program Size and Organization: General Science is an interdisciplinary degree housed in the College of Mathematics and Science. The degree is administered by a steering committee composed of one member from each of the departments offering a minor as part of the degree: Biology, Chemistry and Geochemistry, Computer Science and Software Engineering, Geological Engineering, Mathematics, and Professional and Technical Communications. The Steering Committee annually elects one of its members as its Chair, who reports to the Dean of the College of Mathematics and Science. Steering Committee members serve as faculty advisors to those students who have chosen a minor in the faculty member's program area.

Design of the Undergraduate Curriculum: The undergraduate curriculum in General Science addresses breath by including extensive lower division coursework in biology, chemistry, geoscience, and physics. Its advanced coursework requires the completion of two minors from either biology, chemistry, computer science, geoscience, mathematics or professional and technical communications to insure depth in at least two areas. Sequenced courses in algebra through calculus provide the mathematical tools necessary to understand and apply the knowledge gained in the required science courses. Additional emphasis is placed on statistics in the curriculum as an indispensable adjunct to this knowledge. Courses in computer application; e.g., spreadsheets and databases, provide additional skills applicable to the degree. Formal courses in writing are required, including a course in scientific and technical writing. Coursework in society and technology allows the knowledge gained in all these courses to be placed within a framework of larger societal needs.

The curriculum contains no special courses, but instead makes use of courses, faculty, and facilities with specific disciplinary programs. The curriculum is published in the Montana Tech Catalog on page 52.

Assessment of Program Objectives: The General Science degree was approved by the Board of Regents of Higher Education in November 1999 and will not be fully implemented until the Fall 2000 semester. The principal objective of the program is to prepare students for graduate work in interdisciplinary areas, the placement of qualified students in such graduate programs and their success in pursuing them will form the foundation for future program assessment.

Graduate Programs: None, but students meeting admissions standards could pursue graduate studies in Geoscience or Professional and Technical Communications at Montana Tech.

Exhibits: Since the program has yet to be implemented, there will be no exhibits.

Mathematics

Missions and Objectives: The Mathematics program at Montana Tech endeavors to teach students the methodology of mathematical thinking and to provide them with the fundamental mathematical literacy necessary in their respective fields of study.

Special Accreditation: None

Department/Program Size and Organization: The Mathematics Department is comprised of eight full-time faculty and two part-time members. These faculty members display a varied set of quality credentials and, as Table II-IX, Mathematics Department Faculty Analysis, shows, possess a wealth of teaching experience. Because the Mathematics Department serves both as a degree-granting department and as a service department to other programs, it offers a variety of courses that are differentiated according to the needs of mathematics majors versus the needs of students in other disciplines. Upper division classes for Mathematics majors have typical enrollments of 6 to 10 students and allow for individualized work. On the other hand, lower division service courses have typical enrollments of 30 to 50 students and utilize a lecture format.

Design of the Undergraduate Curriculum: In the discharge of its responsibilities in the service area, the Mathematics Department has been faced with the need to offer extensive remedial course work. To meet this need the department, in addition to traditional offerings of college algebra and trigonometry courses, instituted an Algebra Enhancement course, Math 1106, to be used as an adjunct to the freshman calculus sequence. In addition, the department works closely with the Montana Tech learning Center by providing excellent faculty and upper division students to serve as tutors and by coordinating courses with Learning Center services.

TABLE II - IX
MATHEMATICS DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Haley, Dennis R.	Prof	FT	Ed.D	Montana State, 1994	0	32	30	None	None	None	Low
Lupkiewicz, Janina	Prof	FT	Ph.D.	Kansas State, 1970	0	26	22	None	None	None	None
Handley, James L.	Assoc Prof	FT	M.S.	Michigan Tech,1983	0	16	15	None	Low	Low	Low
Hill, David E.	Assoc Prof	FT	M.S.	Colorado State, 1972	0	24	15	None	Med	None	None
Poole, Michael	Assoc Prof	FT	Ph.D.	Colorado, 1965	0	34	29	None	None	None	None
Rossi, Richard J.	Assoc Prof	FT	Ph.D.	Oregon State, 1988	0	15	5	None	High	Med	High
Toivonen, Virginia E.	Assoc Prof	FT	M.S.	Montana State, 1991	0	23	21	None	High	High	None
Johnson, Rebecca	Instr	PT	M.S.	Montana State, 1999	0	1	1	None	None	None	None
Leland, Susan	Instr	FT	M.S.	Montana State, 1977	0	14	6	None	None	None	None
Walker, Susan A.	Instr	PT	M.Ed	Lesley College, 1998	0	16	16	None	None	None	None

The Mathematics Department has the following objectives with attendant outcomes, strategies for implementation, and assessment methodologies. These are detailed in the department's Self-Study which will be available for examination during the evaluation team's visit.

Objective 1	To prepare mathematics majors for graduate school
Objective 2	To support success of students in freshman level mathematics courses
Objective 3	To provide, as a service department, an adequate preparation for students in other disciplines
Objective 4	To develop a reasonable mechanism for Mathematics majors to become certified to teach secondary level mathematics in Montana

The curriculum for the B. S. degree and minor in mathematics is contained on pages 54 and 55 of the Montana Tech Catalog.

Assessment of Program Objectives: Course evaluations, student satisfaction surveys, graduating senior surveys, placement surveys, and alumni surveys are all used as assessment tools.

Graduate Programs: None

Exhibits: At the time of the NWASC visit, the Mathematics Department will provide an expanded self-study. This study will include an expanded report that will include exhibits detailing the curriculum, course syllabi, representative student work, curriculum worksheet, faculty evaluation forms for tenure and promotion, and student evaluation forms for faculty.

Registered Nurse (RN) Program

Mission and Objectives: The mission of the registered nurse (RN) program is to provide an education that will enable its graduates to:

1. Practice a holistic approach to nursing.
2. Demonstrate substantial, specialized knowledge that would enable educational mobility.
3. Utilize the nursing process in formulating a nursing plan of care.
4. Perform basic and advanced nursing skills.

5. Demonstrate individual accountability to consumer for the quality of nursing care delivered.

6. Participate in continuing education.

7. Utilize interpersonal communication techniques in individual and group settings.

Special Accreditation: The program is new. The initial accreditation visit will occur in April 2000.

Program Size and Organization: The faculty assigned to the registered nurse program is shared with the AAS (LPN) program, see Table II-XI. Since the degree was just approved by the Board of Regents in May 1999, the program has no graduates. Note that this is an Associate of Science degree.

Design of the Undergraduate Program: The curriculum, which meets the accreditation requirements of the Montana Board of Nursing, focuses on care of individual and family across their life-span. Participants in the program must fulfill the requirements for the Associate of Applied Science (AAS) degree in Practical Nursing, offered by the College of Technology, before acceptance into the registered nurse program. See the Montana Tech Catalog, page 56, for additional information.

Assessment of Program Objectives: Since the program is new, insufficient data regarding its success or need for modification and improvements are available. Course evaluations, student satisfaction surveys, graduating student surveys, placement surveys, alumni surveys, and other means will be used in the future to evaluate its effectiveness.

Graduate Program: Not applicable.

Exhibits: Course outlines/syllabi, examples of student work and the program's assessment plan will be available for examination during the evaluation team's visit.

Software Engineering

Mission and Objectives: The mission of the software engineering program at Montana Tech is to teach students the practical techniques of large scale software development, the fundamentals of computer science, and the mathematical and theoretical foundations of problem solving with computer assistance while allowing students to gain a background in another technical field of their choice. The software engineering program has the following objectives:

1. To prepare software engineering majors for graduate study in software engineering.

2. To prepare students with experiences in large software development that will allow for application of the practical aspects of the discipline.

Special Accreditation: The program is new and is not eligible for accreditation until after it graduates its first major.

Department/Program Size and Organization: Presently, the faculty for the software engineering program are the same as those of the computer science program (see Table II-VIII). Since the degree was only approved in the spring of 1999, it has no graduates. In the Fall 1999 semester one first-time freshman was enrolled in the program.

Design of the Undergraduate Curriculum: The software engineering curriculum requires courses in calculus and discrete mathematics to promote strong problem solving skills. The curriculum requires introductory courses in the various sub-fields of computer science, including but not limited to data structures, algorithms, database management, software engineering, software architecture, human-computer interaction, requirements and specifications, and programming languages. Students will be required to take an advanced writing course and to give both written and oral presentations in the software engineering and project experiences. Coursework in project management is required, also.

Large programs will be required in the software engineering course. The development of these programs requires the use of typical software development models. All students will be required to complete a senior project and to present its results in oral and written form. For additional information, refer to pages 52 and 53 of the Montana Tech Catalog.

Assessment of Program Objectives: Since the program is new, no data regarding its success or need for modification and improvement are available. Course evaluations, student satisfaction surveys, graduating senior surveys, graduate placement surveys, and alumni surveys, together with employer surveys and the advice from the Industry Advisory Board, will be used to evaluate its effectiveness.

Graduate Program: None

Exhibits: Assessment plan.

COLLEGE OF TECHNOLOGY

Montana Tech's College of Technology believes that student success depends upon a philosophy that prepares students for the 21st Century by integrating technological skills, communication, problem solving, and informational literacy into the educational process. The College of Technology encourages diversity and strives to accommodate student needs through its educational programming and physical environment. Education is a life-long process that is facilitated by multi-entry/exit programs and enhanced by student government.

Business Technology Department

The Business Technology Department of the College of Technology is the "home" department for three distinct programs: Accounting Technology, Information Processing Technology, and Office Technology. Each is discussed separately, below. The qualifications of the department's faculty are summarized in Table II-X.

Accounting Technology

Mission and Objectives: The mission of the accounting technology program is to provide students with the communicative, technical, and problem-solving skills necessary to become and stay employable in an ever-changing business environment. It is the objective of the program to provide an education that will enable its graduates to:

1. Practice accounting and human resources skills in a diverse business environment.

2. Obtain a solid knowledge base conducive to educational mobility.

3. Utilize informational literacy in problem solving.

4. Demonstrate responsibility and accountability for decisions and actions taken in the work environment.

Special Accreditation: None

Department/Program Size and Organization: The accounting technology program has one full-time non-tenured faculty member and one adjunct instructor. In addition, seven full-time, tenured faculty members throughout the College of Technology's Business Department teach general business and computer technology courses which support the program. The program offers Associate of Applied Science degrees in Accounting Technology and Accounting Technology with a Human Resources Emphasis. It also offers a Certificate in Bookkeeping. There were 38 students enrolled in the program as of the Fall Semester 1999.

Design of the Undergraduate Curriculum: The accounting technology program provides students with education opportunities leading to positions as small-office managers, accounting clerks, accounting technicians, and human resource assistants. Students may also choose to take classes to achieve career advancement goals or to enhance current skills. Strong accounting and human resource curriculums are complimented by general education and extensive computer course work. The time from for earning an Associate

TABLE II - X
COT BUSINESS DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Brogan, Judith	Instr.	FT	MS+	WMC, 1976	5	27	27	None	None	None	None
Conklin, Carole	Instr.	FT	BS+	UM, 1968	3	14	11	ARMA, NALS	None	None	None
Field, Ann Marie	Instr.	FT	BSE	WMC	5	17	14	None	None	None	None
Granger, Linda	Instr.	FT	BS+	WMC, 1980	5	16	14	None	None	None	None
McDonough, Alice	Instr.	FT	MS+	NMC, 1990	5	30	13	None	None	None	None
Metesh, Edward	Instr.	FT	MS	NMC, 1990	2	21	21	None	None	None	None
Murray, Diane	Instr.	FT	MS+	MSU, 1976	5	30	28	None	None	None	None
Petritz, Vickie	Instr.	FT	BS+	MT Tech, 1996	18	3	3	SHRM	None	None	None

of Applied Science degree is usually two year. A Certificate in Bookkeeping is typically completed in one year. For additional information see the Montana Tech Catalog, pages 61 and 62.

Graduate Program: Not applicable.

Assessment of Program Objectives: A variety of assessment instruments are used in the program's courses, including; in-class presentations, hands-on assessments, group and individual projects, and written examinations. Annual placement surveys are conducted. Student course evaluations and graduate program evaluations are conducted, also. In the summer of 1997, a survey was sent to over 110 businesses in southwest Montana to determine the sills and knowledge that they were looking for in entry-level personnel.

Exhibits: Program Self-Study, course descriptions/syllabi, examples of student work, assessment plan.

Information Processing

Mission and Objectives: The mission of the information processing program is to provide students with the communicative and problem-solving skills and information literacy necessary to become and to stay employed in an ever-changing business environment.

Special Accreditation: None

Department/Program Size and Organization: The program has three, full-time, tenured faculty members. In addition, three other full-time, tenured and one full-time non-tenured faculty member in the Business Department teach general and related courses. The program offers Associate of Applied Science Degrees in Information Processing with two emphases; Business and Geographic Information Systems (GIS).

Design of the Undergraduate Curriculum: The basic (business) associates program is designed to provide students with the necessary skills to address the technological needs of today's financial, government, retail, media, and data processing industries. Students learn how to adapt the ways in which information is gathered, structured, represented, stored, accessed, manipulated, and communicated. The curriculum is described in detail on page 64 of the Montana Tech Catalog.

The Geographic Information Systems emphasis program focuses on the collection and spatial organization, manipulation, and analysis of geographic data, which is extending the analytical reach of organizations throughout the world. The curriculum is described in detail on page 65 of the Montana Tech Catalog.

Graduate Programs: Not Applicable.

Assessment of Program Objectives: Course evaluations, student satisfaction surveys, graduating student surveys, placement surveys, outcome assessment of student learning, and input from an advisory board are all used as assessment instruments.

Exhibits: Course descriptions/syllabi, examples of student work, program self-study and assessment plan.

Networking Technology Program

Mission and Objectives: The mission of the networking technology program is to provide students with the communicative, technical, problem-solving, and information literacy skills necessary to design, implement, and utilize current and emerging network technologies. The objectives of the program are to provide classroom and laboratory experience that:

1. Prepares students to build, maintain, and manage computer networks.

2. Prepares students to design networks and effectively communicate those concepts.

3. Prepares students for the Cisco Certified Network Assistant (CCNA) exam.

Special Accreditation: None

Department/Program Size and Organization: The program has one, full-time, tenured faculty member. In addition, six other full-time, tenured and one full-time, non-tenured faculty member in the Business Department teach general and related courses, as well as three part-time adjunct instructors. The program offers an Associate of Applied Science degree in Networking Technology as well as a Certificate as a Network Technician.

Design of the Undergraduate Curriculum: Montana Tech has been designated as a Regional Cisco Networking Academy. Through the Cisco curriculum, students are provided with classroom and laboratory experience in current and emerging networking technologies. The degree program builds on the Cisco core curriculum by providing the student with an additional background of general and specialized coursework dealing with basic communications skills and associated computing/networking technologies. While the Cisco core curriculum develops the skills to design and build computer networks, this program additionally empowers the student to actively assist in the management and maintenance of such networks (see Montana Tech Catalog, page 66).

Graduate Programs: Not Applicable.

Assessment of Program Objectives: Course evaluations, student satisfaction surveys, graduating student surveys, placement surveys, and outcome assessment of student learning are all used as assessment instruments. Possible attainment of industry

recognized certifications, including the Cisco Certified Network Assistant (CCNA) exam, Computing Technology Industry Association (CITA) A+ certification, Microsoft Office User Specialist (MOUS) certification, Microsoft Certified Systems Engineer (MCSE) certification, and Certified Novell Administrator (CAN) certification.

Exhibits: Course descriptions/syllabi, examples of student work, program self-study and assessment plan.

Health Department

Mission and Objectives: The mission of the Health Department and its practical nursing program is to provide an education that will enable the practical nurse to:

1. Practice a holistic approach to nursing.
2. Demonstrate basic knowledge that would enable educational mobility.
3. Utilize the nursing process in contributing to the plan of care.
4. Perform basic nursing skills
5. Participate in continuing education.
6. Utilize interpersonal communication techniques in individual and group settings.
7. Demonstrate responsibility and accountability for actions taken.

Special Accreditation: Montana State Board of Nursing, July1997-2001

Department/Program Size and Organization: The Health Department consists of five, full-time faculty. One faculty member serves full time as Department Head (Table II-XI). Annual contracts are developed with clinical affiliates in the community and southwest Montana. The practical nursing programs averages sixty students. Twenty new students are admitted twice a year.

Design of the Undergraduate Curriculum: The current Practical Nursing program has all related instruction (see Montana Tech Catalog, pages 70-71). Qualified instructors teach courses with expertise in the specific area. On July 8, 1999, the Board of Regents of Higher Education approved the addition of a one semester, Certified Nurse Assistant certificate program, which was implemented in August 1999.

Assessment of Program Objectives: A comprehensive nursing assessment plan has been developed and is divided into beginning, midterm and end of semester responsibilities. All faculty members conduct ongoing curriculum review and make appropriate revisions

TABLE II - XI
HEALTH DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest	Years of Experience			Professional Registration	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Amtmann, Kelly	Instr.	FT	MSN	Gonzaga, 1997	9 Yrs.	2-1/2 Yrs.	2-1\2 Yrs.	Mt.	MNA ANA	Low	Low
Brophy, Maureen	Instr.	FT	MN	MSU, 1996	20 Yrs.	10 Yrs.	10 Yrs.	Mt.	MNA ANA Sigma Theta Tau	Low	Medium
Melvin, Danette	Instr.	FT	BA	Carroll College, 1985	15 Yrs.	1-1/2 Yrs.	1-1/2 Yrs.	Mt.	MNA ANA	High	High
Klaboe-Russell, Judy	Instr.	FT	MN	MSU, 1997	32+ Yrs.	9-1/2 Yrs.	9-1/2 Yrs.	Mt.	MNA ANA Sigma Theata Tau	Low	High
Van da veer, Karen	Director of Nursing	FT	MN	MSU, 1996	21 Yrs.	11	11	MT	MNA ANA Sigma Theata Tau	Low	High

during the semester. Weekly faculty meetings are held and minutes taken. Documentation of advisory committee meetings and faculty meeting minutes are located in the Health Department's files.

Graduate Programs: Not Applicable

Exhibits: Health Department Self-Study, course descriptions/syllabi, textbooks used, examples of student work. Tours of department facilities are available.

Trades and Technical Department

The Trades and Technical Department of the College of Technology is the "home" department for five distinct programs: Drafting Technology, Engineering Technology, GIS/GPS Technology, Automotive Technology, and Combination Welding. Each is discussed separately, below. The qualifications of the faculty for all of these programs are given in Table II-XII.

Drafting Technology

Mission and Objectives: The mission of the Drafting Technology program is in line with the mission of the College of Technology; that is, to prepare students for the 21st Century by integrating technological skills, communication skills, problem solving skills, and informational literacy into the educational process, particularly as these skills relate to the drafting field.

Special Accreditation: None

Department/Program Size and Organization: The Drafting Technology faculty consists of two full-time and one part-time faculty members. All have adequate backgrounds in the drafting area, either through college training or work experience (see Table II-XII). Faculty members are encouraged to keep their skills current through attendance of seminars and other programs that help to promote their teaching/work skills. The physical resources required for Drafting Technology classes are adequate and more space is being provided for the Computer Aided Drafting (CAD) laboratory to accommodate increased enrollment. Budgets have been adequate, but continuing costs to update CAD software is a matter of some concern.

Design of the Undergraduate Curriculum: The Drafting Technology curriculum (see Montana Tech Catalog, page 74) is constantly being upgraded to meet the needs of industry and, also, to keep up with advancements in technology as they relate to upgrades of CAD software. The Drafting Technology program strives to integrate the latest CAD software into the curriculum, so students will be well prepared for employment upon graduation. Manual drafting is still embedded into the curriculum, however, mainly to put an emphasis on learning the theory of drafting manually. The general

TABLE II - XII

TRADES AND TECHNICAL DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution	(Indicate State)	Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Cohlhepp, John	Instructor	FT	MA	Northern Montana College 1990	3	25	25	NA	None	None	None
Dunstan, Thomas	Instructor	FT	MA	Northern Montana College 1990	2	30	30	NA	None	None	None
Frankovich, Mike	Instructor	FT	BT	Northern Montana College 1988	25	9	9	NA	None	None	None
Luft, Stephen	Instructor	FT	BS	Northern Montana College 1991	4	6	6	NA	Butte Society of Architects - Med	None	High
McManamon, Harry	Instructor	FT	MA	Western Montana College 1980	35	25	25	NA	None	None	None
Stodden, Don	Instructor	FT	BS	Northern Montana College 1984	32	22	22	NA	None	None	None
Andrews, Ben	Instructor	PT	BS	Montana State 1975	23	10	10	NA	None	None	Low
Browne, Barry	Lab director/ Instructor	PT	MS	Montana Tech 1999	20	2*	1#	NA	Society of Petroleum Engineers - Med	None	None
Riordan, Pat	Instructor	PT	BA	University of Montana 1990	9	5	3	Montana Teaching Cert.	Montana GIS Users Group - Med	Low	Med

education/related instruction goals of writing, speaking, computing, critical thinking, and social awareness are offered as separate classes within the curriculum, as well as being integrated into its drafting courses. Degree requirements for the program include course work in English, writing, speech, mathematics, employment strategies, and computer awareness. An effort is made to make students aware of the importance of these subjects and how they relate to future employment. In addition to preparing a student for the world of work, many of these courses are now transferable to four-year education programs in Montana, thereby enabling a student to take that route if they so desire upon completion of their education.

Students are not required to use the campus library resources extensively, because their drafting textbooks are the primary sources of information. However, some of the related coursework does require library research and use of the Internet.

The majority of classes in the Drafting Technology program are offered as daytime classes. Several CAD classes, however, are offered as evening classes to benefit those who work during the day and need such classes to upgrade their CAD skills. Several other classes are also offered on Montana Tech's north campus for students who are unable to take them at the times they are offered at the south campus.

Assessment of Program Objectives: The success of students in the Drafting Technology program is based upon a simple educational means. Students are provided, not only, with drafting/computer theory through the use of textbooks and classroom lecture, they are also required to complete many work assignments through either manual or computer drawings. Their ability to complete these drawings in a satisfactory manner and their ability to pass written examinations covering the various areas of drafting are the determining factors for grades in the program. Employers, as well as former students, are asked for their input regarding the training provided in an effort to determine program weaknesses and strengths. At present, this training appears to be adequate.

The Drafting Technology program is evaluated, constantly, by its faculty and Advisory Committee members. In addition, Career Services conducts annual placement and alumni surveys. Responses to these surveys have been mostly positive in nature.

Graduate Programs: Not Applicable

Exhibits: Drafting Technology Program Self-Study, course descriptions/syllabi, required texts, laboratory manuals, samples of student work, examinations, and projects. Tours of laboratory facilities will be available.

Engineering Technology

Mission and Objectives: The Engineering Technology program is focused on its primary mission: To prepare students for the 21st Century by integrating technological, communication, and problem solving skills and informational literacy in the educational process. The program encourages diversity and strives to accommodate students needs through educational programming and the physical environment.

Special Accreditation: None

Department/Program Size and Organization: The Engineering Technology faculty consists of one full-time and one contracted professional. Both have extensive backgrounds in the engineering/construction areas. Both have Bachelor of Science degrees (see Table II-XII). Faculty members are encouraged to keep their skills upgraded through continuing education seminars and work experience.

The Engineering Technology program utilizes computers that are provided in laboratories throughout the south campus building. There are also four computer notebooks, which are used for field courses. The surveying labs have adequate, although somewhat outdated, equipment. New equipment acquisitions have been a problem due to budget constraints. The budget, however, has been adequate to meet other instructional needs. Students are transported by van to field laboratory classes, which at times are quite a distance from the south campus. The present van is safe, but is reaching the stage where a replacement will be necessary.

Design of the Undergraduate Curriculum: The Engineering Technology program has been in existence for three years. The program answers the needs of industry in both the civil and petroleum engineering areas (see Montana Tech Catalog, page 75). Monitoring of these needs is accomplished through an Advisory Board. The program provides classroom instruction and hands-on laboratories, where students can apply the various concepts. The laboratory portion often involves students in real-life projects for area agencies; i.e., U. S. Forest Service, National Park Service, and the Montana Heritage Commission.

The general/related education goals of mathematics, writing, speaking, critical thinking, and computing are addressed both within and outside of the Engineering Technology program. Degree requirements include specific coursework in English, speech, mathematics and psychology. Activities designed t bolster these essential skills are woven through the Engineering Technology curriculum. Students are encouraged to use the library for on-line research. The library provides access to computers, which can be used for preparing assignments. Students are required to prepare homework assignments on the computer and to use the Internet for research papers.

The courses in the Engineering Technology program are conducted throughout the day, but some courses are offered in the evening.

Assessment of Program Objectives: Student competency in the use of surveying equipment is measured by return demonstration in the field. The instructor monitors the use of this equipment on a weekly basis. Assessment of the knowledge-based components of the curriculum is accomplished on a semester-by-semester basis via periodic written examinations.

The effectiveness of the program is also measured by student success in the workplace. A survey of the program's first graduating class revealed that four of the five graduates were employed. Not all, however, were employed in the engineering technology field. This may be attributed to the downsizing of the petroleum industry and the reluctance of graduates to leave the Butte area.

Members of the program's Advisory Board guide the Engineering Technology program. These members are from both the public and private sector, and from various areas of Montana. The curriculum is reviewed annually by the Advisory Board, which allows the faculty to make changes in a timely manner.

Graduate Programs: Not Applicable.

Exhibits: Engineering Technology Program Self-Study, course descriptions/syllabi, textbooks and laboratory manuals used, examples of student work and samples of projects. Tours of laboratory facilities will be available.

GIS/GPS Technology

Mission and Objectives: The GIS/GPS Technology program is focused on preparing students for the 21st Century by integrating technological, communication, and problem solving skills and informational literacy in the educational process. The program encourages diversity and strives to accommodate student needs through educational programming and the physical environment.

Special Accreditation: None

Department/Program Size and Organization: The GIS/GPS Technology faculty consists of one full-time and two contracted professionals. The contracted professionals are currently employed in the GIS field. The faculty holds Bachelor of Science degrees (see Table II-XII). Faculty members are encouraged to keep their skills upgraded through continuing education seminars and work experience.

The GIS/GPS program utilizes computers provided in labs throughout the south campus building. There are also four computer notebooks, which are used for field exercises. Field laboratory equipment is adequate, but somewhat outdated. Acquisition of new

equipment has been a problem because of budget constraints. The budget, however, has been adequate for other instructional needs.

Design of the Undergraduate Curriculum: The GIS/GPS Technology program has been in existence for four years. The program answers the needs of all industries as they transform written information into visual form. These needs are monitored by the program's Advisory Board. The program provides classroom lecture and hands-on laboratories where students can apply the various concepts. The laboratory portion often involves students in real world projects for area agencies.

The general/related education goals of mathematics, writing, speaking, critical thinking, and computing are addressed both within and outside of the GIS/GPS-specific coursework. Degree requirements include coursework in English, speech, mathematics, and computer literacy (see Montana Tech Catalog, page 76). Activities designed to bolster these essential skills are woven throughout the GIS/GPS curriculum. Students are required to prepare homework assignments on the computer and use the Internet for research papers. There is specialized software that must be mastered within the program. Students are encouraged to use the library for on-line research. Several GIS/GPS journals are available for use in research and job searches.

Assessment of Program Objectives: Student competency in the use of GPS equipment is measured by return demonstration in the field. The instructor monitors student equipment use on a weekly basis. Competency in the use of GIS software is demonstrated in the laboratory while it is being taught. Competency as this point is demonstrated by successful completion of a project. Assessment of the knowledge-based components of the curriculum is accomplished on a semester-by-semester basis via periodic written examinations.

The effectiveness of the program is also measured by student success in the workplace. A survey of the program's first graduating class revealed that four our of the four graduates were employed, but not all were employed in the GIS/GPS Technology field. This may be attributable to the graduate's reluctance to leave the area.

Member of the Advisory Board guide the GIS/GPS Technology program. Advisory Board members represent both the public and private sector and are from various part of the state. The Advisory Board reviews the curriculum each year. This allows changes to be made in a timely manner.

Graduate Programs: Not applicable

Exhibits: GIS/GPS Program Self-Study, course descriptions/syllabi, textbooks and laboratory manuals, examples of student work and projects will be available for examination. Tours of laboratory facilities will be available.

Automotive Technology

Mission and Objectives: The mission of the automotive Technology program is to prepare students for entry level employment in the automotive industry. In attaining this quality and comprehensive education, the students must develop appropriate attitudes and work habits desired in the workplace.

Special Accreditation: The Automotive Technology program is certified by the National Automotive Technicians Education Foundation (N.A.T.E.F.).

Department/Program Size and Organization: The Automotive Technology program has two full-time faculty members. One faculty member has a Bachelor of Science degree in Trade and Technical Education. The other faculty member has a B. S. degree in Industrial Arts and a Masters of Education degree in Vocational Education. One is a Master Technician; the other is certified in five Automotive Service Excellence (A.S.E.) areas (see Table II-XII). The faculty attends schools and seminars to stay current with technology. Program enrollment has averaged 25 students over the past five years.

Bold changes in automotive technology in the last ten years have made upgrades to the facility and equipment necessary on an annual basis.

Design of the Undergraduate Curriculum: The Automotive Technology faculty is responsible for the design, implementation, and revision of the program's curriculum (see Montana Tech Catalog, page 72). The Automotive Technology program is a competency-based program designed to teach students the basic operation and service procedures in eight areas of Automotive Service Excellence (A.S.E.) certification. The program stresses the relationship between the classroom and the workplace. Progress is measured by students' competency on A.S.E. high priority tasks and jobs. Tests similar to A.S.E. standardized tests are administered to assess student competencies. Students who complete the program can either enter the job market or transfer to Northern Montana College to complete a four-year B.A. degree.

Classes for students begin with a one-hour lecture, in which they have access to mockups, manufacturer's books, tapes, overheads, and handouts. After the lecture, students work in the laboratory for four hours. Projects and A.S.E. task lists make laboratory time a "hands-on" experience. Related instruction courses help students to acquire human relations, communications, mathematics, computer, and safety skills. Students use computers in two areas of the shop to access information they need to complete projects in their automotive technology and related classes. In other related classes, students are required to complete reports, make oral presentations, and interviews. The automotive shop has a small library that students also use to access information.

The Automotive Technology program curriculum is competency based and geared to N.A.T.E.F. standards. Course objectives and competency lists are being revised for the 1999-2000 Academic year.

Assessment of Program Objectives: Competency assessment is used in all program courses. Skill standards, course objectives, and tasks are identified from the N.A.T.E.F. handbook. Students are expected to perform these tasks to 70% proficiency to be considered basically skilled.

The program is assessed on an ongoing basis. The Automotive Technology Advisory Board is key to providing the feedback needed to maintain the integrity and effectiveness of the program. Of the 24 students who have graduated over the past five years, 12 have program related employment and six are employed in another area.

Graduate Programs: Not applicable

Exhibits: Automotive Technology Program Self-Study, course descriptions/syllabi, textbooks and laboratory manuals, examples of student work and projects. Tours of laboratory facilities will be available.

Combination Welding

Program Mission and Objectives: The mission of the Combination Welding program is to prepare its students to master the knowledge, technology, and skills need to obtain entry-level employment. The Combination Welding certificate program, with input from the Welding Advisory Committee is in the process of expanding the program to a two-year, Associate of Applied Science degree. The emphasis of the change will be geared toward layout, metal fabrication, blueprint reading, and machine shop. The proposed, revised program will be called Metal Fabrication.

Special Accreditation: The Combination Welding Program is in the process of seeking membership in the American Welding Society's "Schools Excelling National Standards Education (S.E.W.S.E.)" program. This innovative program offers the entry-level welder skill standard, a complete curriculum to be followed, and a complete welding educator's library. Students passing the final examination will receive the Entry level Welder Certificate from the American Welding Society (AWS).

Department/Program Size and Organization: The Combination Welding faculty consists of one instructor with experience and knowledge in all the welding processes offered; including, layout, metal fabrication, and blueprint reading (see Table II-XII). The instructor is seeking certification through the American Welding Society as a Certified Welding Educator (CWE).

Design of the Undergraduate Curriculum: Since the Combination Welding program was implemented, there have been significant changes in the needs of local industry and in

technology. The curriculum, equipment, and facilities have been upgraded to meet these needs. Based on the instructor's experience and with input from the Welding Advisory Committee, a competency-based curriculum has been established. The program also purchased a comprehensive, competency-based curriculum from the Miller Welding Company, called the "Miller Module Method". These two competency-based systems are the foundation of the welding curriculum. Related instructional skills in communication, computation, human resources, and safety play a very important role in employee-employer relationships, dealing with the public, teachers, and coworkers. (see Montana Tech Catalog, page 73). These skills enhance the employability of students after graduation.

Assessment of Program Objectives: The competency-based program assesses students at each skill level. The welding instructor designed the assessment system with input from industry, the Welding Advisory Committee, and the "Miller Module Method". Students work through a series of tasks which enable them to pass a standard guided bend test. This test sets the minimum standard to gain employment. Assessment of the knowledge-based components of the welding curriculum is accomplished by written examinations. Student success in the workplace is also a measurement of the effectiveness of the program.

Twenty-six students were enrolled in the program during the 1993-94 Academic Year. This number has declined, significantly, and has averaged 10-12 students for the past three years. Data shows that 54% of these students completed the welding program, but that only 43% of them have secured related employment.

Graduate Program: Not Applicable

Exhibits: Composite Welding Program Self-Study, course descriptions/syllabi, textbooks and other course materials, examples of student work and projects.

SCHOOL OF MINES AND ENGINEERING

The School of Mines and Engineering is composed of the departments of Environmental Engineering, General Engineering, Geological Engineering, Geophysical Engineering Metallurgical Engineering, Mining Engineering, Petroleum Engineering and Safety, Health, and Industrial Hygiene. The School of Mines and Engineering traces its history back to 1893 when the Montana State School of Mines was established at Butte. The School of Mines opened in 1900 and the first class graduated in 1903. Until 1922, the School of Mines graduated only mining engineers, but these engineers had a broad background in mining, geology, metallurgy, and mineral processing. In 1922, separate degrees in Mining Engineering and Metallurgical Engineering were first offered. In 1930, Geological Engineering was added as a separate degree. Masters degrees were first authorized in 1928.

Both bachelors and masters degrees are offered in all programs in the School of Mines and Engineering. The engineering programs are accredited by EAC/ABET. Graduates of the School of Mines and Engineering have a sound engineering foundation, excellent design skills and strong computer skills. They also have one extremely important additional trait, practical experience. Students in the School of Mines and Engineering are encouraged to find summer work in industry, prior to graduation.

Environmental Engineering

Mission and Objectives: The mission of the Environmental Engineering program is to provide the best possible learning experience in the field of environmental engineering for students to become productive, valuable, and beneficial participants of the local, national and global community.

The goal of the environmental engineering program is to provide the opportunity for students to gain fundamental understanding of environmental science and engineering principles.

The objective of the environmental engineering degree program is to enable students to integrate theory and practice to become problem solving environmental engineers and to enable students to understand the multi-medium, multi-disciplinary, and preventative approach to meet the environmental challenges in their careers. This is accomplished through a curriculum that incorporates theory, practice, and laboratory work with experienced faculty members to teach and advise students.

Special Accreditation: EAC/ABET accreditation on 9/99 for 6 years; no program deficiencies. The program is one of the oldest environmental engineering programs (twenty-six years) in the country.

Department/Program Size and Organization: The Environmental Engineering Department has 6.25 FTE faculty members and one laboratory director. Five of the faculty members are registered professional engineers and one additional member has passed the EIT examination. The faculty members are well qualified and have received national and campus awards for their outstanding achievements in teaching and research. Table II-XIII provides a further analysis of the faculty.

The department has adequate physical and laboratory facilities to meet the needs of the students. The computer laboratory is being remodeled to accommodate newer computers. The Montana Tech foundation provides adequate funding for new laboratory equipment to keep it up to date.

The Environmental Engineering Department has about 140 undergraduate students and 20 graduate students. Undergraduate enrollments seem to have stabilized in the 130-140 student range. Employment opportunities are very good. Recent placement reports show 100% placement for environmental engineering graduates.

TABLE II - XIII
ENVIROMENTAL ENGINEERING DEPT. FACULTY ANALYSIS SUMMARY

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt/ Industry Practice	Total Faculty	This Institu-tion		Professional Society (Indicate)	Research	Consulting/ Summer Work in Industry
Appleman, Rick	Prof	FT	Ph.D	Univ. of California 1978	4	20	18	PE Montana	WEF	Low	Med
Ganesan, Kumar	Prof	FT	Ph.D	Washington State University 1981	12	17	15	PE	ASME, AEEP, AWMA	Low	Med
James, Rodney A.	Prof	FT	Ph.D	Montana State University 1973	9	22	20	PE Montana	AWMA/ PNWS	High	Low
Waring, Tom	Prof.	FT	Ph.D	University of Pittsburgh, 1970	5	26	26	None	Sigma Xi/ MAS/ NAEP	None	Low
Drury, Bill	Assoc. Prof	FT	Ph.D	Montana State University 1992	6	8	6	PE Wisconsin	WEF AEEP	High	None
Gerbrandt, Butch	Assoc. Prof	FT	Ph.D	Univ. of New Mexico 1993	12	7	5	PE Montana	AEHS AEEP	Med	None
Peterson, Holly	Assoc. Prof.	FT.	Ph.D	Washington State University, 1989	1	9.5	7.5	EIT-Montana	AMS/Med. Soc of ASEE Women Eng/Med MAS/Med	High	None

Design of the Undergraduate Curriculum: The environmental engineering curriculum meets ABET criteria. The students must complete 136 credit hours to graduate from the program. The students take sixty-six credits of engineering science and design, which includes statics, fluid mechanics, thermodynamics, mechanics of materials, and hydrogeology.

Engineering design is built into the curriculum from the freshman year to the senior year. The engineering design component is built through ten different courses including the capstone design course, ENVE 4816, Environmental Design, in the senior year. In the capstone design course the students are given group, real-world, industrial projects. They work in a team of 3-4 students and complete the design under the guidance of designated faculty members. The students are evaluated for their technical design, presentation, writing, and communication skills. The curriculum is published in the Montana Tech Catalog on page 79.

The outcome of the design experience for the environmental engineering program is truly measured when its students compete in a national environmental engineering design competition. Montana Tech's environmental engineering students were the national champions for two years and have received awards every year. Their outstanding performance at the national level is one of the indicators of the quality of our students and of program outcomes.

Assessment of Program Objectives: Assessment of the environmental engineering program is ongoing, allowing for continual improvement. There are several methods by which this assessment is performed. The basic plan for the Environmental Engineering Department is to survey graduates, faculty, and students at their junior and graduation year, and to survey industry contacts that provide senior design projects.

The purpose of the assessment is to evaluate whether or not the objectives set forth for the environmental engineering program are met satisfactorily. The department evaluates its students' knowledge and their abilities through traditional examinations, graded exercises and reports, placement surveys, and feedback from alumni and employers. The high placement rate of 95 to 100% and the outstanding success of our alumni are indicators that we are meeting our program objectives. Montana Tech conducted student satisfaction surveys along with the University of Montana-Missoula campus. The Environmental Engineering Department's performance was well above UM-Missoula and Montana Tech averages. These results are included in the ABET Volume II (1998) report.

The assessment plan for Environmental Engineering is in place and the outcome will be used for continual improvement. This involves several steps: a) Evaluating the feedback information from surveys, etc., b) Identifying areas where improvement or change is required, c) Implementing necessary changes., and d) Re-evaluating to assess its success. The outcome assessment will be used in a closed loop system for continual improvement.

The decision to implement changes will include cost considerations and availability of other resources.

Graduate Program: The environmental engineering graduate program is one of the largest graduate programs at Montana Tech. The number of students enrolled in it varies from 20 to 25. The program does not have a non-thesis option, which means that every student must conduct research, write, and present their thesis results as a partial requirement for the MS degree. The graduate student pool consists mainly of outside students (70%) and students from the environmental engineering undergraduate degree program (30%). Employment opportunities are high and the students are of high caliber. The department requires minimum GRE scores and GPA for admission into the program. Faculty members who are involved in funded research projects support the students. Montana Tech's Graduate School also supports graduate students through teaching assistantships and fee-waiver programs.

Exhibits: ABET Volume II with final report of the EAC, all course descriptions/syllabi, required texts and laboratory manuals, samples of student work and design projects will be available for examination. Tours of laboratory facilities will be available.

General Engineering

Mission and Objectives: The objectives of the General Engineering Program are:

1. To provide the student with an interdisciplinary engineering education that emphasizes mechanical and electrical engineering fundamentals.

2. To provide the student with the ability to apply knowledge of mathematics, science, and engineering to formulate, design, and solve engineering problems with careful considerations given to economics, ethics, and the impact on society; and how to effectively communicate these solutions using oral, written, and graphical presentations.

The mission of the program is to prepare graduates to enter and continue the practice of engineering at a professional level and to provide a solid foundation for an advanced engineering degree.

Special Accreditation: EAC/ABET accreditation on 9/99 for 6 years; no program deficiencies.

Department/Program Size and Organization: The General Engineering Department has 7 full-time, tenure-track faculty and 1 laboratory director. It also uses a total of 1 F.T.E. faculty from other engineering departments on campus to teach engineering fundamental service courses, which reside in the department. Five of the faculty hold Ph.D. degrees and three are registered professional engineers (see General Engineering Faculty Analysis Table II-XIV). The department's laboratory facilities are housed on both campuses. The

TABLE II - XIV
GENERAL ENGINEERING DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Friel, LeRoy	Prof	FT	Ph.D.	GA Inst. Tech 1973	5	32	24	MT, ME, WV	ASCE ASEE	Low	High
Hilpert, Conrad	Prof	FT	Ph.D.	OK State U 1971	36	21	19	IL, OK, PA, AK, MT	ASME, SAE EIIE, NSPE	Low	Med
McGuire, John	Prof	FT	Ph.D.	U of Utah 1972	0	32	29	None	MMA MASS	Low	Med
Trudnowski, Dan	Asoc Prof	FT	Ph.D.	MT State U 1991	4	5	5	EIT (MT)	IEEE	High	Med
Johnson, Richard	Asoc Prof	FT	M.S.	MT Tech 1988 U Wisc 1978	4	21	19	None	SAE	Low	Low
Wahl, Neil	Asoc Prof	FT	M.S. ABD	MT State U 1974	16	13	13	MT	None	High	Med
Westine, David	Asoc Prof	FT	Ph.D.	ND State U 1991	5	11	9	EIT (ND)	IEEE ASEE	High	None
Donovan, Richard	Vist Asst	FT	Ph.D.	U of Wyo 1992	3	9	4	EIT (TX)	ASME ASCE	Med	Med
O'Leary, Paul	Inst	FT	B.S.	MT Tech 1976	30	21	21	EIT (MT)	AWS ASNT	Low	High

south campus is used for metal fabrication and welding labs and the north campus houses the remainder of the labs; which include fluid mechanics, mechanics of materials, instrumentation and control, electric circuits and machines, nondestructive examination, CAD-CAM, digital electronics, embedded control, feedback control, and thermodynamics. Facilities for lecture courses are on the north campus. Computer labs are distributed throughout the buildings on the north campus and the General Engineering Department has its own dedicated computer lab in the Engineering & Science Building. One of the strengths of the General Engineering Department's curriculum is that it requires as many applied laboratory and design experiences as possible within the number of credits required for graduation. This is accomplished by requiring the student to take the many labs corresponding to the core-engineering curriculum, and to work on design projects that require laboratory use of project construction.

The undergraduate program has a non-option degree plan requiring 128 credits for graduation. This plan gives the student and their advisor flexibility in choosing upper division technical electives. The program also has four degree option plans that require 136 credits for graduation. These options are civil engineering, control systems engineering, mechanical engineering, and welding engineering. Each option includes a specified list of upper division technical electives that correspond to the given discipline. Department faculty members advise students in and administer the option(s) that correspond to their area(s) of professional expertise.

Enrollment in the general engineering program was 227 total students for the 1999 spring semester and 255 for the 1999 fall semester. The 10 year trend in enrollment, based on spring enrollment figures, has been 14.6% growth.

Design of the Undergraduate Curriculum: The general engineering curriculum provides an interdisciplinary engineering education with a focus on mechanical and electrical engineering fundamentals. Students gain a broad training in science, mathematics, computers and engineering and are encouraged to select an area of specialization. Students are exposed to courses with laboratories that emphasize applied engineering concepts and others with the design aspects of engineering.

Nearly all engineering projects include components from mechanical systems, thermal systems, fluid systems, electrical and power systems, applied electronics, and material science. These subjects are covered in the General Engineering Department's core through the use of theory courses coupled with applied laboratory work. The student must also demonstrate a knowledge of how system parameters, important to an engineer, can be measured, quantified, and acquired, so that the process can be monitored or controlled to specifications using modern electronic equipment. This subject is introduced in a senior-level theory/laboratory course that also incorporates a design component. The faculty, alumni, current students, and an industry advisory board are used as input into the review process.

The curriculum in general engineering is subdivided into mathematics and basic sciences (including computer use), humanities and social sciences, economics, technical writing

and presentations, the engineering core with advanced engineering topics and laboratories, and the engineering design experience. The engineering core includes the study of mechanics, material science, thermodynamics, fluid mechanics, and electrical and electronic circuits and their application to process instrumentation and control. In addition, the student selects engineering elective courses to provide further depth and specialization. The *welding option* offers a sound education in welding processes, code and standards requirements, nondestructive examination and welding metallurgy. The *mechanical engineering option* provides education in the theory, design, and control of heating, ventilating, and air conditioning systems for residential, commercial, and industrial applications; stress specialized training in areas such as plant layout, electric distribution, fluid power machinery, machine design, and industrial organization leadership; and includes courses in mechatronics, concurrent engineering, and structural mechanics. The *control systems engineering* option provides a solid background in mechanical and thermal processes of mechanical engineering and couples that with a thorough understanding of the electronic instrumentation, data acquisition, feedback control, signal processing, and microprocessor-based embedded control of electrical engineering. The *civil engineering option* stresses structural design, water and waste water systems, and geotechnical subjects; such as hydrogeology, soil and mine waste remediation, and geomechanics. Program requirements are detailed in the Montana Tech Catalog on pages 82 and 83.

Assessment of Program Objectives: The General Engineering Department uses the following assessment methods to evaluate its instructional program:

1. Alumni Surveys
2. Standardized Examinations – Fundamentals of Engineering Exam (FE Exam)
3. Job Placement Surveys
4. Industry Advisory Board
5. Faculty feedback from attendance at professional conferences
6. Regular EAC/ABET Program Evaluations

General engineering graduates have enjoyed nearly 100% placement over the past six years. Students secure jobs in the degree area, with about 1/3 of them employed in Montana. Many employers start actively recruiting students from the General Engineering Department once they have hired a general engineering graduate. This indicates their satisfaction with the knowledge and work ethics that theses graduates possess. Nearly 80% of general engineering students pass the FE examination, which is slightly above the national average.

Graduate Programs: The General Engineering Department offers a Master of Science degree program in General Engineering and one option in Control Systems. The average number of masters degrees granted over the past seven years has been about 3 per year.

Exhibits: EAC/ABET Vol. II with final report of the EAC, all course syllabi, required texts, samples of student work, laboratory manuals, and samples of design projects will be available for examination. Tours of laboratory facilities will be available.

Geological Engineering

Mission and Objectives: It is the mission of the geological engineering degree program to provide a quality education that blends theory with practice and enables graduates to embark upon and successfully pursue professional careers in the field of geological engineering.

To accomplish this mission, the B. S. degree is founded upon a strong background in mathematics, physical and geological sciences and engineering fundamentals; as well as communications, economics and the humanities and social sciences – a background that will support changing career requirements and objectives and the pursuit of lifelong learning. To provide breadth and depth, all students are introduced to four fundamental areas of geological engineering during their junior and senior years: mining geology, hydrogeology, geomechanics, and engineering geology; and required to select an area of emphasis from them for completion of their degree, or to design a program of electives that better serves their personal interests and objectives. Students are encouraged and assisted in obtaining relevant summer work experience throughout their undergraduate careers.

Special Accreditation: EAC/ABET accreditation on 9/99 for 6 years; no program deficiencies.

Department/Program Size and Organization: The Geological Engineering Department has five full-time, tenure track faculty and one adjunct. All faculty members have Ph.D. degrees and all are licensed professionals (see Table II-XV, Geological Engineering Faculty Analysis). The department has adequate facilities and laboratory equipment to meet instructional needs. The computer laboratory, which is shared with and directed by the Mining Engineering Department, contains high-quality equipment and state-of-the art software for geotechnical, hydrogeological, and mining engineering related problem solving and design. A new geotechnical engineering laboratory room was remodeled and equipped in 1998.

The Geological Engineering Department typically has about 40 undergraduate students and 5 to 7 graduate students. Undergraduate enrollment has declined from a 12 year high of 54 students in 1995, while graduate student enrollment has remained quite constant. Placement has averaged 100% for both B. S. and M. S. graduates for the past seven years, or more.

Design of the Undergraduate Curriculum: The students of the geological engineering program receive their total engineering design experience by taking courses systematically, as defined by the curriculum published in the Montana Tech Catalog (pages 85 and 86) and on the advising form(s) used by their faculty advisor to guide and monitor their progress. As shown in Figure II - 1, courses in the geological engineering curriculum are arranged so that students move gradually toward higher levels of calculations and design concepts that integrate a progressively broader spectrum of basic

TABLE II - XV
GEOLOGICAL ENGINEERING FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Sholes, Mark	Prof.	FT	Ph.D.	Univ. Texas, Austin 1978	7 Yrs.	21.5 Yrs.	21.5 Yrs.	RG (WYO)	Low	Low	Low
Weight, Willis	Prof.	FT	Ph.D.	Univ. of WY 1989	6 Yrs.	11.5 Yrs.	11.5 Yrs.	PE (MT, ID)	NGWA, AWRA, -Low	Medium	Medium
Wolfgram, Diane	Prof.	FT	Ph.D.	UC, Berkeley 1977	23 Yrs.	8.0 Yrs.	8.0 Yrs.	EIT, RG (CA)	SEG-High SME-Med	Low	Medium
Gammons, Christopher	Assoc Prof.	FT	Ph.D.	Penn State 1988	2 Yrs.	5.5 Yrs.	3.0 Yrs.	RG (WYO)	Geochem. Soc.- Med	High	Medium
MacLaughlin, Mary	Asst. Prof.	FT	Ph.D.	UC, Berkeley 1997	1 Yrs.	4.5 yrs.	4.5 yrs.	EIT (MN)	Soc. Women Eng.- Low	Medium	Low
Elliott, Colleen	Adj. Asst. Prof	PT	Ph.D.	U . New Brunswick 1988	2 Yrs.	7.5 Yrs.	3.0 Yrs.	RG (WYO)	Low	Low	Low

knowledge in engineering and geological science topics, and related subjects. Although there is, of necessity, some interdigitation of course work, students in the program begin by taking basic mathematics, physics, and geological science courses, which lay the foundation for engineering topics and design, together with courses that develop their writing and computer skills. Students then take lower-level engineering topics courses, such as statics and mechanics of materials, more advanced topics in mathematics and geological science, and supporting subjects; such as, engineering economics and technical communications.

In the next stage, students take courses in four fundamental areas of geological engineering: 1) Engineering Geology, 2) Geomechanics, 3) Hydrogeology, and 4) Mining Geology where they integrate engineering fundamentals with geological science knowledge to define and solve geological engineering problems and embark upon geological engineering design projects of limited scope. Finally, teams of senior students undertake major geological engineering design projects in GeoE 4306, where their cumulative knowledge of engineering fundamentals, geological science, geological engineering topics, computer application, engineering economics, communications and other subjects is brought to bear upon a "real world" problem.

The resulting emphases are pertinent to meeting the program's objectives because they enable its graduates to embark upon and successfully pursue professional careers in geological engineering in a broad sense, not just in one specific area of it. Thus former students who, for instance, specialized in hydrogeology are successfully working as mining geologists, well-site petroleum engineers, as engineers on off-shore seismic survey crews, and even as civil engineers.

Additional information on the curriculum is contained in ABET Volume II, which will be available for review during the on-site visit.

Assessment of Program Objectives: The Geological Engineering Department uses the following assessment methods to evaluate its instructional program:

1. Regular graded exercises, projects and examinations that incorporate new and Integrate previous knowledge.

2. Standardized Examinations – Fundamentals of Engineering (FE) Examination

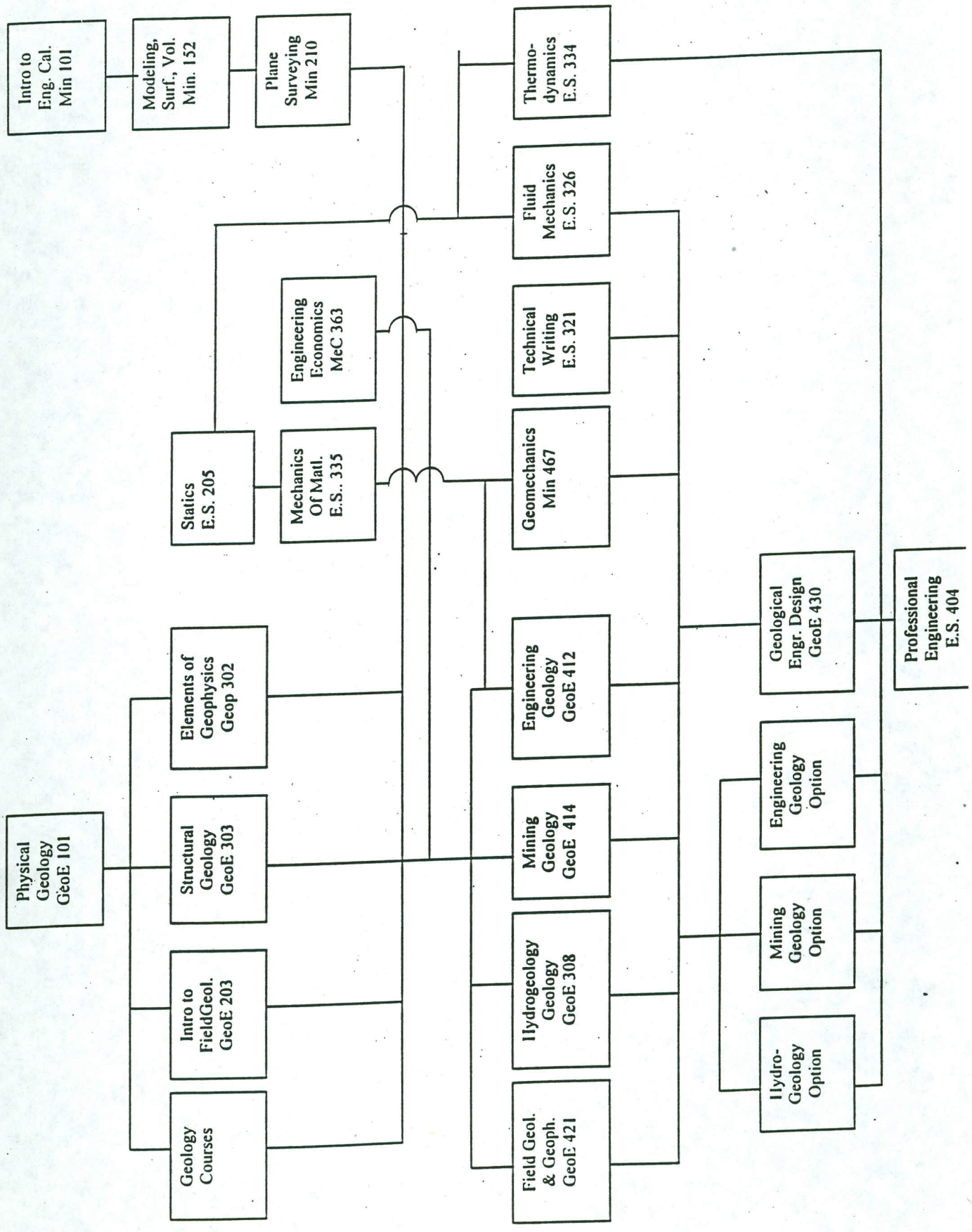
3. Regular EAC/ABET Program Evaluations

4. Job Placement Surveys

5. Student Course Evaluations

Figure II-1: Bachelor of Science in Geological Engineering

Integration of Design Experience Flow Chart



6. Graduating Senior Exit Surveys

7. Student Satisfaction Surveys

8. Student feedback, from summer employment

9. Alumni Surveys

10. Faculty feedback, from biannual EAC/ABET Program Evaluator training

11. Faculty feedback, from attendance at professional conferences

12. Faculty feedback, from the annual Mineral Schools Department Heads Meeting

13. Faculty feedback, from consulting activities

14. Periodic comparison with similar programs

15. Industry Advisory Board

As previously mentioned, there has been 100% placement of geological engineering graduates for, at least, the past seven years. Like graduates from other engineering fields at Montana Tech, they are well thought of. Many advance rapidly into supervisory positions with significant responsibilities.

Graduate Programs: The Geological Engineering Department offers a Master of Science degree in Geoscience with options in Geological Engineering, Hydrogeological Engineering, Geology, and Hydrogeology. The degree has required completion and defense of a thesis, but effective in the spring 2000 a non-thesis option is also available. For the past five years, 100 percent of the students in the program have come from other institutions; many from out of state. Placement of graduates in professional positions has been at 100 % for many years.

Exhibits: EAC/ABET Volume II, with final report of the EAC, course descriptions/ syllabi, required texts and laboratory manuals, samples of student work and design projects, and program assessment data will be available for examination. Tours of laboratory facilities will be available.

Geophysical Engineering

Mission and Objectives: The first objective of the geophysical engineering program is to provide basic mathematical, scientific, and computer skills that, when coupled with the practical application of these skills to geophysical engineering problems, will prepare the student to enter the geophysical industry at the professional level.

Because engineering techniques, the knowledge base, and computer technology are continuously advancing, the second objective is to provide a sufficient background and awareness for the process of lifetime learning.

To meet these objectives, students completing the geophysical engineering program should develop certain capabilities and knowledge. Among these are an understanding of the physical and mathematical basics behind each of the major geophysical techniques (gravity, magnetics, electrical, and seismic) and an understanding of when they can be applied. The students will be able to operate measurement equipment and collect data using up-to-date techniques and computer software. They will know how to reduce, process and interpret the data using up-to-date techniques and computer software. Students will have experience in combining different measurement techniques and using combinations of data sets in the interpretive process to reduce ambiguities inherent in any interpretation.

Students will be able to communicate effectively within an interdisciplinary environment. Because most geophysical work is proprietary, students will be aware of their professional and ethical responsibilities. Students will also gain an appreciation for the interaction of engineering technology and society and the issues that arise from conflicting interests in this interaction.

Special Accreditation: EAC/ABET accreditation on 9/99 for 6 years; no program deficiencies.

Department/Program Size and Organization: The average enrollment in the program over the past few years has been about 25 undergraduate and four graduate students. The program has experienced some growth from a low of 10 students in the early 90s. Some of the growth is due to recruiting efforts, but a major factor is the cyclical nature of mining and petroleum industry job markets.

The faculty consists of five Ph.D. geophysicists, one Ph.D. geophysical engineer, and one M. S. engineer, who serves as the department's laboratory director. The faculty have a broad range of government, industry and academic experience (see Table II-XVI, Geophysical Engineering Faculty Analysis). Expertise in all the major areas of geophysical engineering is present in the faculty.

The geophysical engineering department arguably houses the best computer facilities on campus. Seven SGI workstations are available for student use, along with SUN workstations and LINUX configured PCs. Configurations range to dual monitors, multiple processors and up to 2 GB of RAM per single workstation. The workstations are configured with the latest software packages used in the exploration geophysics industry, valued at over $2 million. Both undergraduate and graduate students have access to and are encouraged to make full use of the computer facilities.

TABLE II - XVI
GEOPHYSICICAL ENGINEERING DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Sill, W.R.	Prof	FT	PhD	MIT 1967	4	28	17	None	SEG, AGU	Med	Low
Wideman, C.	Prof	FT	PhD	CSM 1975	8	32	32	None	SEG, COGS	High	Low
Link, C.	Assoc Prof Head	FT	PhD	U of TX 1993	0	8.5	6.5	None	SEG,AA, PG,AGU	High	Low
Moon, T.	Assoc Prof	FT	PhD	U of WA 1985	0	13.5	10	EIT-MT	AGU, IEEE	Med	None
Speece, M.	Assoc Prof	FT	PhD	U of WY 1992	0	8	8	None	SEG, AGU	Med	Low
Donovan, R.	Visit Prof	FT	PhD	U of WY 1992	0	8	4	EIT-TX	ASME ASCE	Med	Low
Girard, J.	Lab Dir	FT	MS	Montana Tech 1993	0	7	7	EIT-MT	None	Low	Low

Undergraduate and graduate students also have access to a full array of field equipment, including modern field vehicles and instruments for making seismic, magnetic, gravity, electrical, electromagnetic, borehole, and ground-penetrating radar measurements. The five full-time faculty are actively involved with funded research projects in a variety of areas including oil reservoir characterization, remote sensing and image analysis, neutral network analysis, and earthquake/rockburst analysis.

Design of the Undergraduate Curriculum: The curriculum in geophysical engineering meets ABET general engineering criteria and the objectives of the geophysical engineering program at Montana Tech.

There are 50 credits of engineering topics in the curriculum. Of these, 32 credits are in required courses in general engineering (3 credits), geological engineering (3 credits), and the remainder in geophysical engineering (26 credits). For opportunities to specialize in certain areas, there an additional credits of elective courses in engineering science, geological engineering, geophysical engineering, petroleum engineering, and mining engineering (see Montana Tech Catalog, page 89).

In geophysical engineering, design content is judged by such factors as: independent student study of open-ended problems; projects that require critical and creative thinking; consideration of objectives and/or geologic models in the planning of geophysical surveys; considerations of alternative techniques or data sets; weighing tradeoffs; and synthesis of information from multiple sources. Much of the formal design theory for modeling and interpretation is addressed in the context of inversion and experiment design.

Elements of design in geophysical engineering begin with instrument design parameters, precision of measurements and errors of measurement. The next level is consideration of single measurements, survey design parameters, and the overall problem of data acquisition, reduction, processing, and visualization. The final step of data interpretation often involves the rectification of modeling results and geologic or other independent information, including a combination of geophysical measurements.

As the student progresses through the program, the level of independent work increases steadily. This process peaks in the senior year in the geophysical engineering design course. In this course, students select and plan a project of their own. They then conduct the study and report weekly on their progress. A budget and economic analysis of the project are required. A final report of professional quality and an oral presentation of the results are the culmination of this project.

Assessment of Program Objectives: The curriculum and objectives are reviewed periodically by the faculty, with input from students, alumni, and an industry advisory board. Prior to the 1998 ABET program evaluation team visit, Montana Tech conducted a Student Satisfaction Survey. The results for the geophysical engineering program indicated three areas that needed attention: recruitment; financial aid; and adequacy of the department's computer laboratories.

The recruitment issue is being addressed by: (1) Increased faculty involvement with high school students and faculty through presentations at high schools and on-campus programs, including the NSF-sponsored Mineral Education Program for Young Scholars (MEPYS) and Upward Bound. A promotional video is in the planning stage.

The financial aid issue is more difficult to address. Traditional sources of scholarships dedicated to geophysical engineering/geophysics students; such as, the Billings Geophysical Society and the National Society of Exploration Geophysicist are not anticipating increasing their scholarship funds. Thus, alternative sources will need to be identified.

The number of PCs that contain the most often used geophysical engineering software has been increased from three to four over during 1998-99 and two additional PCs were put in place in the Fall of 1999.

Graduate Programs: The Geophysical Engineering Department offers a Master of Science degree in Geoscience with an option in Geophysical Engineering. Thesis and non-thesis options are available.

Exhibits: ABET Volume II, with final report of the EAC, course descriptions/syllabi, texts and laboratory manuals, examples of student work and design projects. Tours of laboratory facilities will be available.

Metallurgical and Materials Engineering

Mission and Objectives: As one of the oldest programs at Montana Tech, the metallurgical and materials engineering program continues to serve the historical mission of the School of Mines and, therefore, the needs and interests of the minerals, metals, and materials industries by providing students a broad education with an appropriate blend of theory and practice so they can successfully enter into a metallurgical engineering career and become productive members of society.

Special Accreditation: EAC/ABET accreditation on 9/99 for six years; no deficiencies but there is a concern about the low percentage of registered professional engineers on the Metallurgical and Materials Engineering Department's faculty. Since the visit in October 1998, the department has hired one new faculty member who is a registered professional engineer and is committed to giving preference to candidates having a PE, or who are willing to obtain a PE, in all future hiring.

Department/Program Size and Organization: There are currently 4 full-time, tenure track faculty in the Metallurgical and Materials Engineering Department, plus one, one-third time faculty member on phase-out retirement, for a total of 4.33 FTE. There is also a full-time laboratory director and one adjunct faculty member who, together, teach a total of six credits of required courses per year (see Table II-XVII, Metallurgical and Materials Engineering Faculty Analysis).

TABLE II - XVII
METALLURGICAL AND MATERIALS ENGINEERING DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution	(Indicate State)	Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Huang, Hsin-Hsiung	Prof	FT	Ph.D	Stanford, 1975	3	20	20	None	Med. TMS	Med	Low
Twidwell, Larry G.	Prof	FT	D.Sc.	CSM, 1965	4	30	30	None	Med. TMS/SME	High	High
Griffiths, Vernon	Prof Emeritus	PT	Sc.D	MIT, 1955	2	43	39	None	Low TMS, ASM, NACE, I of M, APMI, AcerS, MRS	Low	Med.
Young, Courtney A.	Assoc. Prof	FT	Ph.D	U of U, 1995	2	6.5	6.5	None	High SME, TMS, SA S, ECS, ACS, ASM	Med	Low
Cross, Carl E.	Asst. Prof	FT	Ph.D	Colorado School of Mines, 1986	25	1	1	P.E., Colorado	Med. AWS, TMS, TMS, IOM, AFS	High	Low
Huestis, William L.	Lab Dir. & Instr.	FT	B.S.	Montana Tech, 1969	14	18	18	None	None	Low	Low
Anderson, Corby G.	Res. Prof	FT	Ph.D	U of Idaho, 1988	19	3.5	3.5	None	High SME, IPMI, NWMA, Order of the Engineer, CIM, AICHE	High	High

Undergraduate enrollment has grown from a low of 36 students in 1995-96 to 57 in 1998-99, and an estimate of 62 in 1999-2000. Increased enrollment is tied to offering more scholarships and to a very active College Relations and Marketing Office. Plans to offer options and minors in the program are being developed to increase enrollments further.

The Engineering Laboratory/Classroom (ELC) Building houses the Metallurgical and Materials Engineering, Geophysical Engineering, and Business Information Technology departments. Space for the metallurgical and materials engineering program , for the most part, is adequate. The degree program requires numerous "hands-on" laboratory courses, and the department has 13 dedicated laboratories in the ELC Building for this purpose. Some of the laboratory equipment is old, but well maintained and rarely used continuously. Two exceptions are the scanning electron microscope (SEM) and the computers in the department's Computer Laboratory. Metallurgical and materials engineering students have access to other computer labs across the campus, and particularly the ELC Computer Lab, but they prefer their own facilities. Plans are in progress to replace the old SEM and to upgrade the department's Computer Laboratory.

Design of the Undergraduate Curriculum: Undergraduate students in the metallurgical and materials engineering program take courses systematically as defined by the curriculum published in the catalog for the year they originally enrolled or the first semester in which they last showed continuous registration (see Montana Tech Catalog, page 93). Courses in the metallurgical and materials engineering program are arranged so students move gradually towards higher levels of calculations and design concepts that integrate a progressively broader spectrum of basic knowledge in science and engineering with simultaneous progression of metallurgical engineering topics. Students in the program begin by taking basic mathematics and science courses which, together with courses that develop their communication and computer skills, lay the foundation for integrating engineering science and design; i.e., engineering topics. Students then take lower level engineering topics courses; including, statics and mechanics of materials, advanced-level mathematics; such as, differential equations and statistics, and advanced-level sciences; including, another year of physics with lab, physical chemistry with lab, and a basic science elective. Once students satisfy these program requirements, they need only to take a few extra courses to obtain minors in chemistry and mathematics.

Through this process, the student is slowly introduced to the metallurgical and materials engineering discipline. This begins with introductory courses in materials engineering in the freshman year, physical metallurgy and mineral processing in the sophomore year, and extractive metallurgy in the first semester of the junior year. These courses help the student to gain meaningful summer employment, determine which sub-discipline they wish to emphasize (if at all), and also lay the foundation for the design experience in metallurgical and materials engineering.

In the last year and one-half of the program, the students continue to learn about additional topics in the four sub-disciplines, but simultaneously take technical electives of their choice to satisfy their personal interests in them. The students' advisors insure that the design experience is properly integrated into their programs and, therefore, closely

monitor technical electives. More importantly, the last three semesters are used to integrate general engineering fundamentals with metallurgical and materials engineering knowledge to define and solve problems and embark upon design projects of increasing, but limited, scope until, finally, all of their cumulative knowledge of engineering fundamentals, metallurgical and materials engineering, computer applications, engineering economics, communications, etc., is challenged in the metallurgical and materials engineering capstone design course (MetE 477) to define and solve a "real-world" problem.

Assessment of Program Objectives: In the past, program objectives and outcomes have been assessed from students' course evaluations, students' knowledge and abilities determined through examinations, exercises and reports, employment surveys conducted by the Career Services office, and during annual meetings of the department's advisory board. Recently, the department began requiring seniors to take E.S. 404 (Professional Engineering) and the Fundamentals of Engineering examination during their last semester and began soliciting feedback from new (Senior Exit Interviews) and recent graduates (Graduate Surveys) with no more than five years permanent employment experience. These interviews and surveys assess all aspects of the program's objectives, particularly those relevant to meeting ABET requirements and industrial needs. Since they have only been conducted for the past two summers, however, their statistical significance is somewhat questionable. However, these surveys have prompted reassessment of course sequencing and of the draft Department Strategic Plan and Employer Satisfaction Survey. In any case, it is important to note that the high employment rate of metallurgical and materials engineering graduates, even in difficult economic times, and their career accomplishments, as related by them, are positive indicators of the success of the metallurgical and materials engineering program.

Graduate Program: Metallurgical and Materials Engineering offers two masters degrees, both with thesis or non-thesis options. The Metallurgical Engineering/Mineral Processing degree is offered to satisfy the interests of students who wish to emphasize extractive metallurgy or mineral processing. The Metallurgical Engineering masters degree accords students the opportunity to emphasize their education in other sub-disciplines; physical metallurgy, welding metallurgy, and materials engineering. Both degrees prepare graduates for professional practice, but a few students do go on to pursue a Ph.D. program elsewhere.

Exhibits: Metallurgical and Materials Engineering Self-Study Questionnaire (Volume II ABET Report) with final report of the EAC, course descriptions/syllabi, textbooks and laboratory manuals used, examples of student work and projects, and Senior Exit Interview, Graduate Survey, and Employer Satisfaction Survey compilations. Tours of laboratory facilities will be available.

Mining Engineering

Mission and Objectives: Mining engineering is the founding program of Montana Tech and Bachelors of Science and Master of Science degree programs are available. Faculty with strong academic and industrial backgrounds teach the mining engineering courses.

As stated in the Montana Tech Catalog, the objective of the undergraduate mining program is to provide a quality education that blends theory with practice to produce a mining engineer who can enter and pursue a successful career in the field of Mining Engineering and is prepared to meet the vigorous demands of natural resource development throughout the world. In addition to a comprehensive engineering background, the program provides training in the mechanics of geologic materials, blasting, materials handling, mine valuation, ventilation, environmental considerations, and the design and operation of surface and underground mines.

Special Accreditation: EAC/ABET accreditation on 9/99 for 6 years with an interim report.

Department/Program Size and Organization: The department consists of an average of 80 undergraduate students and 4 graduate students. The six faculty members are diverse, well qualified, and each is registered as a professional engineer (see Table II-XVIII, Mining Engineering Faculty Analysis). Laboratory facilities are adequate to meet the needs of the students. They consist of a computerized mine design laboratory, rock mechanics/ventilation laboratory, and a survey laboratory. The department also maintains a small, off-campus blasting practice laboratory. Enrollments have remained uniform throughout the past 10 years. The most serious challenge facing enrollments in the program is keeping enrollments healthy in light of the increasing difficulty the mining industry is having obtaining operating permits in Montana.

Design of the Undergraduate Curriculum: The curriculum in mining engineering meets ABET general engineering criteria, mining engineering program criteria, and the objectives of the mining program at Montana Tech. The students take 67 credits of engineering topics. Instruction in engineering science of statics, dynamics, strength of materials, fluid mechanics, thermodynamics, and electrical circuits are included (see Montana Tech Catalog, page 94).

Engineering design is an integral part of the mining engineering program. The design sequence insures that each student will have developed the design tools and valuation skills necessary to take the results of a successful exploration project and complete a mine design which includes the design of the mine, the equipment selection, production scheduling, cost estimation, and valuation. The design projects completed in Min 4016 and Min 4056 are complete mine designs and include the following factors:

Economic Analysis of Alternatives
Cost Estimation
Equipment Selection

TABLE II - XVIII
MINING DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Knudsen, H. Peter	Prof.	FT	Ph.D.	U. of Arizona 1981	5	23	19	MT	SME	Low	Medium
Brower, John C.	Prof.	FT	Ph.D.	Penn St. 1978	11	19	18	CPG/AIPG	SME	Low	Medium
McNearny, Richard L.	Assc Prof.	FT	Ph.D.	Colorado School of Mines 1991	20	8.5	0.5	Co, Ut, Nv	SME, ASSMR	Medium	Medium
Patton, Susan B.	Assc Prof	FT	Ph.D.	U.of Alabama 1993	4	6	6	Co, AL	SME	Medium	Medium
Finch, Thomas E.	Prof.	FT	Ph.D.	U. of Idaho 1978	2	34	32	MT	SME	Low	Low
Patton, Philip W.	Asst. Prof	PT	MBA	U.of Alabama 1989	21	5	5	Id,Ky,Mt Co,Al,	SME	Low	High

Mine Design
Aesthetics of the Mine, Rock Dumps, and Leaching Facilities and
Mine Valuation

The final design experience is an actual design project at one of the local mines, which is presented to the engineering staff at the mine. The projects completed in the capstone design course have been extremely varied. The mines have implemented many of the designs.

Graduate Program: The department has an M. S. program in Mining Engineering. Thesis and Non-Thesis Options are available.

Assessment of Program Objectives: Assessment is an integral part of the mining program. The basic plan is to survey graduates, faculty, current students midway in the program, and industry contacts who provide senior design projects. The two main objectives of the degree program are:

1. To blend theory and practice to produce a mining engineer, and

2. Prepare engineers to meet the vigorous demands of natural resource development throughout the world.

The program assesses its objective by evaluation of the student's knowledge and abilities through graded examinations, exercises and reports; alumni surveys conducted by the Career Services office; and feedback from alumni and industry representatives. The outstanding success of mining engineering alumni and their high employment rate are positive indicators of the department's success at meeting program objectives. As part of Montana Tech's transition to ABET 2000 criteria, it initiated formal student surveys. The results in the mining department are higher than the Montana Tech average. The department also designed and conducted a survey of its 1995 graduates in 1998. Additional alumni surveys are planned at 3 to 5 year intervals, depending upon the volatility of the market for mining engineering graduates. The 1998 survey indicated the need for improvement in the areas of environmental topics and blasting. One new environmental-related course (Min 4446) has been implemented as a result and blasting has been integrated into both the Introduction to Mining (Min 1056) and Mining Methods (Min 2156) courses.

The department's full assessment plan will be included in the exhibits. Assessment is not complete without review and continued modification. The assessments are reviewed annually by the faculty and appropriate modifications implemented. A formal advisory board, made up of a broad spectrum of alumni and industry representatives, meets annually to assist the faculty and the Department Head and Dean in assessment and planning.

Exhibits: ABET Volume II, with the final report of the EAC
Course Descriptions/Syllabi

Examples of Student Work and Projects
Placement Survey
Student Satisfaction Survey for Mining Engineering
Alumni surveys
Assessment Plan for Mining Engineering

Petroleum Engineering

Mission and Objectives: The educational objectives for the petroleum engineering degree program are listed below. Specific outcomes required to achieve each are published in the Montana Tech Catalog on page 97.

1. Graduates will be prepared to assume positions as petroleum engineers on graduation. As a minimum, they will be required to demonstrate the competencies required for EAC/ABET accreditation under the program criteria for petroleum and similarly named engineering programs.

2. Graduates will be prepared to solve complex engineering problems.

3. Graduates will understand the role of engineering in society and their obligations to the profession and society.

4. All graduates will be prepared by their education at Montana Tech to be successful in obtaining entry level engineering positions.

Special Accreditation: EAC/ABET accreditation on 9/99 for 6 years; no program deficiencies.

Department/Program Size and Organization: The Petroleum Engineering Department has four, full-time, tenure track faculty. Three of the faculty hold Ph.D. degrees; all are registered professional engineers (see Petroleum Engineering Faculty Analysis, Table II-XIX). The department has an average of 168 undergraduate students and 12 graduate students. The department's laboratory facilities consist of a mud lab, a core lab, a natural gas lab, and a computer laboratory. They are presently adequate to meet the needs of the students.

The primary strength of the petroleum engineering program is the dedication of the institution and of the faculty to the undergraduate program. Student needs have always come first, and will continue to be the department's first priority in the future. This has a resulted in a very dedicated group of alumni who support both the petroleum engineering program and the institution. Another result has been the program's ability to maintain a high enrollment (by petroleum engineering standards) since the early to mid-eighties, while other institutions have been forced to cancel their petroleum engineering programs for lack of students. Petroleum engineering's rigorous curriculum and success in placing students in summer internships has resulted in its graduates being in high demand by the oil and gas industry.

TABLE II - XIX
PETROLEUM ENGINEERING DEPARTMENT FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt./Industry Practice	Total Faculty	This Institution		Professional Society (Indicate Society)	Research	Consulting/Summer Work in Industry
Ahmed, Tarek	Prof.	FT	Ph.D.	Oklahoma U 1980	3 Yrs.	20 Yrs.	20 Yrs.	P.E. (MT)	SPE	Low	High
Cady, Gil	Assoc Prof.	FT	Ph.D.	Stanford U. 1969	18 Yrs.	18 Yrs.	18 Yrs.	P.E., Alberta	SPE	Medium	High
Evans, John	Assoc Prof.	FT	M.S.	Penn State 1967	24 Yrs.	9.0 Yrs.	9.0 Yrs.	P.E. (MT)	SPE	Low	High
Ziaja, Margaret	Assoc Prof.	FT	Ph.D.	U. of M&M Poland, 1982	14 Yrs.	4 Yrs.	4 Yrs.	None	SPE	High	Medium
Browne, Barry	Adj. Inst.	FT	M.S.	Montana Tech 1995	1 Yrs.	1 yr	1 yr.	None	SPE	None	None

Design of the Undergraduate Curriculum: Petroleum engineering is very much an interdisciplinary field and, as such, students are required to take a very broad set of engineering topics courses, both inside and outside of the department. Many of these courses are required by the ABET criteria for petroleum engineering programs, but would be an integral part of the degree program regardless of that. All petroleum engineering students take mathematics through differential equations, two semesters of general chemistry, three semesters of calculus-based physics, statics, strength of materials, fluid mechanics, and electrical circuits; as well as two courses in geological engineering. Since the program's graduates generally go directly to work in the oil and gas industry, they need a solid base in mechanical and electrical engineering, and in the engineering aspects of fluid flow in pipes and porous media.

Oral and written communication skills are developed through a series of specialized courses that are preceded and followed by courses that require the application of these skills as an integral part of the coursework. Writing skills are developed in ENGL 1046 (English Composition) and E.S. 3216 (Scientific and Technical Writing). Oral skills are developed in HSS 1216 (Principles of Speaking). Many graduates believe that Scientific and Technical Writing is the single most valuable course that they took during their college career. Beginning with the freshman year in Pet 2016 (Elements of Petroleum Engineering) and Min 1016 (Introduction to Engineering Calculations and Problem Solving), written reports and oral presentations are required in a number of courses. In their senior year, students are required to give an oral presentation (supported with Power Point visuals) to support the conclusions in their written project report for PET 461 (Engineering Design). Other courses requiring either written or oral presentation of results include Pet 2056 (Petroleum Engineering Lab I), Pet 3016 (Well Drilling and Completion), Pet 410 (Reservoir Simulation) and Pet 4526 (Natural Gas Engineering); as well as E.S. 3366 (Mechanics of Materials Laboratory).

Computer skills begin with the development of familiarity with word processing, spreadsheets, databases and graphing software in Min 1016 (Introduction to Engineering Calculations and Problem Solving). Pet 2016 (Elements of Petroleum Engineering) reinforces these skills, as do the basic science and engineering laboratories. During their sophomore year, students take Pet 2066 (Petroleum Laboratory II) which develops mapping skills on the PC. All upper division petroleum engineering courses require the use of one or more general application packages and discipline specific packages, as appropriate. The Petroleum Engineering Department's computer laboratory houses seventeen Pentium and Pentium Plus class machines with 64M of RAM, multi-gigabit hard drive networked to laser printers, a color printer, a large format plotter, and a scanner. The department provides disk space for student accounts, which faculty can access to aid with problem solving. The Petroleum Engineering Department Intranet will soon contain course descriptions and homework assignments, as well as a database for job placement and advising.

Engineering design is first introduced in Pet 2016 (Elements of Petroleum Engineering) and Min 1016 (Introduction to Engineering Calculations and Problem Solving), where students work in groups to solve design problems. As the student moves through the

petroleum engineering curriculum, the number of components for design required on any one problem are increased. In the senior year, a capstone design course, where all of the components of petroleum engineering design are brought to bear on a single project, is completed.

Graduate Program: A M. S. degree in Petroleum Engineering is available.

Assessment of Program Objectives: The Petroleum Engineering Department uses the following assessment methods to evaluate its instructional program:

1. Standardized Examinations – Fundamentals of Engineering (FE) Exam
2. Surveys of employers one and five years after graduation
3. Surveys of alumni one and five years after graduation
4. Placement data for summer and full-time as compared to published normative data for the year.
5. Focus groups studies of freshman through seniors
6. Regular EAC/ABET Program Evaluations

Petroleum engineering graduates have enjoyed nearly 96% placement over the past four (4) years, 98% within their degree area. The Fundamentals of Engineering Examination pass rate for petroleum engineering graduates is comparable with that of others in the discipline, but is significantly below national and campus-wide averages.

Exhibits: EAC/ABET Vol. II with final report of the EAC, all course descriptions, required texts, samples of student work, laboratory manuals, and samples of design projects will be available for examination. Tours of laboratory facilities will be available.

Safety, Health and Industrial Hygiene

Mission and Objectives: The mission of the Bachelor of Science degree program in Occupational Safety and Health is to provide a formal practical program which prepares science-oriented students to control occupational/public risks through the development and maintenance of occupational and public health and safety policies and programs and prepares students for graduate studies in industrial hygiene, safety, or related areas.

Objectives of the program are:

A. Graduates will be prepared to develop, implement and manage public health, occupational health, industrial hygiene and/or safety policies and programs.

B. Graduates will be prepared to assume professional positions in industrial hygiene, safety or health science careers.

C. Graduates will understand the role of health and safety professionals in both workplace and public health and their obligations to their profession and the public.

Special Accreditation: B. S. program, none. The Masters of Science program in Industrial Hygiene, however, received its initial Related Accreditation Commission (RAC/ABET) accreditation in September 1999.

The department anticipates pursuing RAC/ABET accreditation for the S&E option of the Occupational Safety and Health curriculum in the near future.

Department/Program Size and Organization: The Bachelor of Science degree in Occupational Safety and Health (OSH) is administered by the Safety, Health and Industrial Hygiene Department (SH/IH). The Bachelors degree has two Board of Regents approved options: (1) Science and Engineering (S&E) and (2) Applied Health Science (AHS). From 1986 to 1998, OSH majors have increased from 30 to approximately 185 students. The department has five full-time, tenure track faculty and began interviewing for a sixth in the fall of 1999. The are also two adjunct faculty members (see Table II-XX, Safety, Health and Industrial Hygiene Faculty Analysis). Additionally, two member of the Environmental Engineering Department teach and routinely serve on Industrial Hygiene graduate committees: Professor Kumar Ganesan, Ph.D., PE, and Professor Holly Peterson, Ph.D.

Laboratory, computer and library facilities are adequate for the department. The OSH/IH Department presently has seven laboratory courses taught in three different laboratories. Additional laboratory space was allocated to the department in fall 1999. Computer services are adequate, with well maintained computer laboratories available for student use. As a result of continuing NIOSH grant support, the department supplements its state library budget for book purchases. The department has greatly expanded the library holdings over the past decade, including technical journals and CD-ROMs.

Design of the Undergraduate Curriculum: The S&E option is a traditional safety and occupational health curriculum. The program is a balance of safety and industrial hygiene. Graduates typically accept positions as safety engineers, safety specialists, safety and health specialists, or industrial hygienists. Some of these graduates feed into the department's masters level industrial hygiene program.

The AHS option is a very strong science program with a complement of safety and industrial hygiene courses. Originally, this option was designed to prepare students to develop and manage corporate wellness programs. However, as the curriculum developed, the option has matured into one that not only prepares wellness coordinators but more importantly prepares students for graduate work in physical therapy, occupational therapy, occupational nursing, cardiac rehabilitation and other health care professions. Some graduates of this option proceed to the masters level industrial hygiene program in the department.

TABLE II - XX
SAFETY, HEALTH AND INDUSTRIAL HYGIENE DEPARTMENT
FACULTY ANALYSIS

Name	Rank	FT or PT	Highest Degree	Institution from which Highest Degree Earned & Year	Years of Experience			Professional Registration (Indicate State)	Level of Activity (high, med, low, none) in:		
					Govt/ Industry Practice	Total Faculty	This Institu-tion		Professional Society (Indicate)	Research	Consulting/S ummer Work in Industry
Norman, Julie	Prof	FT	MPH	Univ of TX, 1980	6	16	16	CIH	AIHA, ACGIH, AAIH, PNS-AIHA High	Med	High
Spath, Bill	Prof	FT	Ph.D	Univ of Missouri – Columbia, 1979	None	22	14	CS & CS HF Director	ACSM, AIHA, Med	Low	Med
Spear, Terry	Prof	FT	Ph.D	Univ. of MN, 1996	3	17	17	None	AIHA, ASSE MED	High	High
Amtmann, John	Assoc Prof	FT	Ph.D	University of MT, 2000	1	9	9	CS & CS CP & RES EMT	ACSM, NSCA, MED	High	Med
Jensen, Roger	Asst Prof	FT	Ph.D	W.VA Univ.,1989	27	2	1	CSP, PE, CPE	ASSE, HFES, High	Low	Med
Bardsley, Sally	Adj. Instr	FT	MS	Montana Tech, 1994	2	5	5	IHIT	AIHA, ACGIH, Med	None	Med

The curriculum requirements in both options meet or exceed the Montana University System's General Education requirements. Students are required to complete six credit hours of coursework in humanities, communications, social sciences, natural and physical science, and mathematics. The general education requirements are clearly articulated and published in clear and complete terms in the catalog.

The OSH/IH Department is part of the School of Mines and Engineering. This arrangement results in considerable sharing of faculty, equipment and facilities that clearly benefits students. Some faculty with the School of Mines and Engineering teach courses within the curriculum and select faculty have served on industrial hygiene graduate committees. This close interaction with faculty from other departments provides OSH/IH students with an excellent interdisciplinary exposure.

Assessment of Program Objectives: Student technical knowledge is assessed through student examinations, laboratory exercises, presentations, research projects and senior projects. Student writing and presentation skills are assessed through written assignments, reports, and presentations. In written assignments and reports, student work is evaluated for organization, layout, transition and composition. Presentation skills are evaluated in terms of student confidence, clarity, presentation format, and ability to answer questions.

Professional success and advancement of graduates are also assessed through the following mechanisms: (1) Graduate Surveys: Alumni are contacted by mail and asked to answer a series of questions pertaining to how well the program prepared them for their present position; (2) Advisory Council Outcome Assessment of Graduates: Board members are asked to rate specific attributes of a Montana Tech education; (3) Curriculum evaluation performed by an outside consultant (Floyd Bossard, CIH, PE); (4) Input solicited from employers; (5) Data tabulated on permanent employment placement and success in passing professional certification examinations.

Graduate Program: Approval to offer a Master of Science degree in Industrial Hygiene was granted by the Board of Regents in 1984. The first degrees were awarded in 1985 and, since that time, 67 masters degrees have been granted. There are currently 18 graduates students in Industrial Hygiene.

The M. S. degree in Industrial Hygiene requires a thesis and normally requires two years for completion. Students entering the program are required to have one semester of calculus, plus statistics (12 credits), two semesters of college physics (8 credits) and a background in chemistry through a survey of organic chemistry (11 credits). Cellular biology and anatomy/physiology are also required (12 credits).

The M. S. degree in Industrial Hygiene received its initial accreditation from RAC/ABET for six (6) years in 9/99. Deficiencies assessed during the visit were: (1) The graduate statistics class (I.H. 507) did not meet ABET criteria for applied statistics. The course has been redesigned and now meets those criteria; (2) Two-thirds of the major faculty in the department were not certified in the comprehensive practice of industrial hygiene. A

new faculty member is being recruited and certification will be a condition of employment. The department's laboratory director took the comprehensive examination for certification in the Fall of 1999. Results are pending.

Exhibits: Department/Program Self Study, ABET Volume II with report of the RAC, course descriptions/syllabi, textbooks and laboratory manuals used, examples of student work, and student portfolios. Tours of laboratory facilities will be available.

GRADUATE PROGRAM

The graduate program at Montana Tech began in 1928. Today 100–120 masters students are enrolled in nine degree areas. Approximately, 5 million in annual grants and contracts supports the thesis research efforts of the students and the faculty.

The graduate programs at Montana Tech award a professional graduate degree, rather than a research degree, although research is part and parcel of every thesis. Students may elect a non-thesis track in some departments. At present, only masters degrees are awarded. The mission of the campus traditionally has been to prepare students for careers in technical industries, in science and engineering. More recently, degree programs ancillary to the technical industries have been implemented. All graduate programs are identifiable with the mission and goals of the institution.

As part of their first week orientation, new graduate students are advised that a higher level of performance is expected. All graduate courses are more demanding than undergraduate courses, both in the level of material to be mastered, and in the level of individual initiative required. Higher performance is ensured in part by the requirement that at least half of the student's coursework be in 5000-level (graduate) courses. Senior-level (4000) courses can be part of a student's graduate program, but 3000-level and lower can not be taken for graduate credit. Challenges to student's intellectual and creative capacities are defined and identified through design of a student's graduate program, and further defined through the selection of a thesis subject and title. Subsequent meetings with the thesis advisor and/or committee ensure that he student continues intellectual growth.

In the fall of 1999, Montana Tech began according its undergraduate students the opportunity to earn a Master of Science degree in their 5th year of study at Montana Tech. The purpose of the program is to allow motivated students to enroll in the Graduate School as provisional students during their junior year and begin work on the academic and research requirements for a Masters of Science degree. Seven academic departments currently participate in the program; General Engineering, Chemistry and Geochemistry, Geophysical Engineering, Metallurgical Engineering, Mining Engineering, Petroleum Engineering, and Professional and Technical Communications. The admission requirements for the program are:

1. Second semester of Junior year or completion of 75 semester credits

2. Minimum cumulative GPA of 3.25

3. Completion of all application requirements for the Graduate School

4. Accepted for admission by their academic department

A proposal to establish a doctoral degree program in Earth Resources Engineering will be submitted to the Board of Regents of Higher Education at their March meeting in Havre, Montana. The program is unique in two ways. First, the degree will be granted by The University of Montana, not Montana Tech. Second, while engineering coursework and, in most instances, dissertation research will be undertaken at Montana Tech, the required minor in a related field may be completed at any campus of The University of Montana that has a graduate program in the minor field. This is not a boutique degree and students may elect to specialize in the petroleum, mining, metallurgical, geophysical, geological, general, or environmental engineering aspects of Earth Resources Engineering. If approved at the Board of Regents meeting in May, it is conceivable that the first student(s) could be admitted into the program in Fall 2000.

GRADUATE FACULTY AND RELATED RESOURCES

Faculty time and infrastructure resources are essential to a successful graduate program. All faculties that are involved with graduate student education are provided release time from their normal classroom teaching assignments. This release time is nominally one 3 credit hour course per term.

The Office of Research and Graduate Studies works with the individual faculty and Department Heads to identify funding sources, both campus and external, to support infrastructure needs for the faculty research efforts. In addition the Chancellor has authorized a competitive New Faculty Seed Grant Program that provides $5,000 in start up funds for newly hired faculty. A committee appointed from the faculty administers the program. The Campus has also developed an Undergraduate Research Program that provides $500 stipends to undergraduate students to work under the direction of faculty mentors. These students typically join ongoing research programs and provide additional resources to the faculty to conduct their individual research programs. The Chancellor is committed to making the resources described above available on a continuing basis.

Faculty members are hired through national searches, typically advertised in the *Chronicle of Higher Education*, and relevant professional journals, to ensure those individuals with suitable training, experience and credentials are hired. Faculty search committees include members from other departments on campus. Searches that do not result in a satisfactory candidate are terminated, regardless of ensuing difficulties to the campus, and re-advertised until a qualified candidate is hired.

Faculty are allowed limited consulting time as described in the *Faculty* Handbook, to both encourage this activity, while at the same time ensuring that it does not become the primary occupation. Montana Tech constantly strives to meet the requirements of ABET for having enough full-time faculty, trained and certified in the areas in which they teach, and holding the appropriate level of diploma, preferably a Ph.D. This also ensures that qualified teachers and researchers are available for teaching graduate-level courses, and for supervising graduate research.

GRADUATE RECORDS AND ACADEMIC CREDIT

Admission policies and regulations are recommended by the Graduate Council to the Vice Chancellor for Research and Graduate Studies, for approval by the Chancellor and Vice Chancellor for Academic Affairs. The Graduate Council includes the Department Head from each masters degree-granting department, as well as representation from academic areas supporting graduate work. This provides the essential communication to ensure that policies, procedures and standards are consistent and supportive among each other, and consistent with the character of the campus. Policies, regulations, and procedures are published in the college catalog, are also available through the Internet, and are reviewed and revised annually to reflect new programs and other changes.

Admission to a masters degree program is attained through submittal of a formal application and required materials, which are evaluated for academic quality by faculty of the relevant department, and for compliance with university standards and requirements, and federal regulations by the Graduate School office. Required materials include: official transcripts, Graduate Record Examination scores, TOEFL scores for non-Canadian foreign students, three letters of recommendation including assessment of the applicant's ability to perform graduate work, a statement by the applicant of his/her career goals, and for foreign students, proof of financial support and immunization.

For regular admission, a GPA of 3.0 (A=4.0) or better is required. Students may be granted provisional admission with a GPA of 2.7 or better, if faculty feel that the applicant has demonstrated exceptional skill through professional work experience, or potential for success in graduate studies through undergraduate research and/or good performance in his/her major coursework, accompanied by strong undergraduate faculty recommendations. Provisional admission may also be granted for students entering graduate school who lack essential background courses for their intended masters program, as determined by the faculty of the relevant department. If applicants have 15 semester credits or more of deficiencies, provisional admission is required. Deficiency coursework is not counted in the graduate GPA.

Apart from those policies mandated by the Board of Regents, general policies and requirements for admission for all students are established by the Graduate Council. Criteria for admission to specific programs are established by the faculty of that program.

In order to graduate, students must meet general academic requirements for credit hours completed as established the Board of Regents and the Graduate Council, and specific requirements established by the faculty in the appropriate department. A minimum of 30 credit hours for thesis students, or 34 hours for non-thesis students, must be completed, normally requiring at least two full semesters, but usually taking more if students have assistantship responsibilities and/or are taking the thesis option.

In the thesis option, all of the 30 credits are graded, but the eight (8) hours of thesis research are graded pass/fail, wherein "pass" does not count in the GPA, but "fail" does. Two one-hour graduate seminar presentations are required. Departments have the option of using one of the hours for a required thesis writing seminar, which is graded pass/fail, or having students take the writing seminar as well as perform two one-credit seminar presentations, which receive letter grades.

Half of the credits counted for the masters degree must be at the 5000-level (graduate), and other credits must be at least 4000-level (senior). Six (6) credits may be transferred from out of state institutions and nine (9) from other graduate programs within the Montana University system. Thus, a minimum of 2/3 of the work has to be performed on the Montana Tech campus. Students must complete their coursework and defense within seven (7) years from the date of admission. Extension may be granted for valid reasons. Students must maintain continuous enrollment. Full-time students must complete two full semesters in residency; part-time students are deemed to have met academic residency upon completion of 12 credit hours.

Students must maintain a 3.0 ("B") average. Courses that are part of the student's program in which the student received a grade lower than "C" must be repeated. Students who fall below a 3.0 are placed on probation, which must be corrected in the next semester, or expulsion will result.

Upon completion of coursework, students pursuing non-thesis degrees must pass a comprehensive examination. For thesis programs, an open thesis defense covering thesis work, and which can include coursework as well, is required. In these examinations, students must demonstrate a level of proficiency that satisfies the examining committee, i.e., the student's graduate program committee. Failure to satisfy the committee will result in postponement of award of the degree until additional work has corrected the deficiency.

All graduate students are assigned a graduate program committee, normally including a chairman and one additional faculty member from the awarding department, one "outside" member from at least a related department, and one member appointed by the Graduate School. Students are encouraged to nominate members they feel most appropriate to their program. Non-thesis students take a comprehensive examination, as described above. Some departments require graduate projects or papers. Thesis students conduct research that demonstrates ability to conceptualize a problem or issue, gather relevant data in support of a hypothesis, and interpret and present their findings to professional colleagues.

Suitability of credits for transfer is determined by the faculty of the relevant department, and judged in terms of comparability to campus courses in terms of the subject matter itself, and its scope, rigor and age. Grades of "C" or "P" are not transferable. Courses taken several years ago in which the body of knowledge has changed considerably may not be deemed suitable for transfer. The determination of transferability is made by faculty competent in the course material in question. Courses taken from any institution, including Montana Tech, more than six years prior to the anticipated date of graduation are reviewed by the student's advisor and the Director of the Graduate School to determine their acceptability. Regarding quality of transfer credits from other institutions, faculty rely on individual knowledge of peer faculty and institutions gained through personal experience, conduct of research, currency with professional journals and publications, and attendance and participation in professional conferences. Credits that are questionable as to quality or comparability are not allowed.

Several departments allow and encourage internships with businesses or other organizations as a means of expanding the learning experience for graduate students. The internship experience is designed in conjunction with the student's graduate advisor to ensure educational content and a means of measuring performance. Internships count for three (3) credits. Field experience in and of itself is not awarded graduate credit. However, off-campus thesis research is allowed, and could be linked to a student's professional experience.

CONTINUING EDUCATION AND SPECIAL LEARNING ACTIVITIES AND NON-CREDIT PROGRAMS & COURSES

OVERVIEW

In keeping with its mission to provide its graduates with the knowledge and skills necessary for successful lives and careers, and to provide related services to the citizens of Montana and beyond, Montana Tech provides educational offerings for the lifelong learning needs of new and former students. These programs range from single for-credit courses to complete WEB based Masters of Science degree programs. In addition the campus provides a comprehensive array of non-credit programs and workshops that provide training and practice in specific skills required in the evolving work place.

Academic standards for credit programs are developed by the responsible program or department and reviewed by the Vice Chancellor for Academic Affairs and Research. The specific course content is the responsibility of the faculty instructor working in concert with their Department Head and the Curriculum Review Committee, if required. Student applications, acceptances, registration, progress, completion, and degree award are handled by the Registrar, the Montana Tech Graduate School, or the Director of Continuing Education as appropriate. All programs offering courses for credit are subject to the rules and regulations of the Montana Tech 2000-2001 Catalog.

Non-credit courses are developed by individual faculty or departments in response to a local or regional needs assessment process or they may be developed in response to specific terms and conditions of a grant or contract with Montana Tech. Non-credit courses may be taught by Montana Tech faculty or by recognized academic or industrial educators from other institutions. Faculty and Department Heads are involved in the selection of instructors when non- Montana Tech faculty are employed in the delivery of courses.

Both credit and non-credit course offerings use student feedback to evaluate the courses and to make continuous improvements to their content and delivery methods. In the case of new WEB based offerings, Montana Tech will be working with its service provider, eCollege.com, to analyze the effectiveness of the WEB based delivery system. Montana Tech expects to modify the academic content of these course offerings and the structure of the WEB platform in an effort to maximize student learning, student retention, and faculty efficiency and effectiveness. Because of the evolving and interactive nature of WEB based learning, students are expected to play an active role in the evaluation process.

Appropriate library resources are made available for all participants in continuing education and special learning activities. These resources can take the form of course notes, reference materials or WEB based bibliographies as needed. Inter-library loans are available to students enrolled in credit classes and local students have full access to the Montana Tech library. For international programs, library collections are maintained by Montana Tech's local agent in a place convenient to all program participants. As Montana Tech's distance delivered and internationally based degree programs grow and evolve more reliance will be placed on WEB based collections of reference materials.

Admissions criteria for students applying for enrollment in WEB based courses and programs is the same as for students applying for regular courses and programs, including completion of all prerequisites. All students will be given a Montana Tech email account upon receipt of their application and may then use email, as well as conventional distant communication means, to obtain the same student services as resident students, including financial aid and career advising and placement.

The Montana Commissioner for Higher Education and the Montana Board of Regents are in the process of reviewing the current fee structure for distance learners throughout the Montana University System. A part of this review involves determining the student services needed by distance learners. Appropriate pricing structures for the distance student are being developed and the needed or desired student services are being identified and their costs estimated. At the end of this comprehensive review, Montana Tech will determine what student services have value to the distance learner and which do not have value. We expect that many, but not all, of the services provided to the on-campus learner will be of use to the distance learner. It is Montana Tech's belief that it should not charge the student for services that they will not use. The current pricing structure for distance delivered programs is found in the exhibits, along with a discussion of student services currently provided.

Programming for both credit and non-credit continuing education programs is very dynamic. Major new trends are the use of WEB-based delivery systems and the development of an internationally based student clientele. In the following Sections, on-going continuing education activities that are offered for credit or non-credit are described. At the suggestion of NWASC (letter from Larry Stevens dated 12/17/99), two existing degree programs whose delivery formats are being modified are included for substanitive change review under the requirements of Standard 2.6. One program, the Masters of Science in Petroleum Engineering, is adding an off-campus delivery option. The second program, the Masters in Project Engineering and Management, which has been delivered in the past by two-way interactive TV, is being converted to an entirely WEB-based delivery format.

ONGOING PROGRAMS

General

To provide a better representation of the depth and breath of programs that Montana Tech would typically offer over the period covered by an accreditation cycle, programs that are currently offered or have been offered during the past three years are included. Included are programs offered for academic credit, continuing education credit, and without credit. These programs are offered in response to specific student or industry needs, as a deliverable of a specific grant or contract, or as part of an ongoing institutional responsibility for technical and educational outreach.

In addition, two existing course offerings that became available in WEB based formats (eCollege.com) in the Spring term of 2000 from the Safety, Health and Industrial Hygiene Department and from the Environmental Engineering Department are included.

Safety, Health and Industrial Hygiene

Continuing Education and Special Learning Activities: The Safety, Health and Industrial Hygiene Department offers an Extended Studies Program (ESP). The program was established to meet the needs of occupational safety and health education for professionals who are uncredentialed beyond professional experience and who are place bound. A participant can pursue professional development or an Associate or Bachelors Degree.

The Extended Studies Program consists of the following components:

Correspondence Courses – Students complete course requirements through off-campus study and proctored examinations. Five correspondence courses are available:

OSH 224	Safety Administration & Programs
OSH 322	Hazardous Material Management

OSH 323	Fire Protection
OSH 324	Construction Safety
OSH 354	Industrial Toxicology

Intensive On-campus Courses – Students attend two-week summer courses that include additional assignments or projects to be completed within three months.

OSH 225	Safety Engineering & Technology I
OSH 226	Safety Engineering & Technology II
OSH 411	Industrial Hygiene I
OSH 470	Welding Health and Safety
OSH 412	Industrial Hygiene II
OSH 492	Senior Research in Safety and Industrial Hygiene (Independent Study)

General Education Requirements – Credits earned in relation to the basic math, science, communication, humanities and social science requirements of an AS or BS can be transferred from any accredited college or university.

For the Associate degree, eight major courses (24 credits) must be completed through Montana Tech; a minimum of thirty credits must be matriculated to earn a B.S.

Web-based courses are also planned for the ESP program. One industrial hygiene course (OSH 412) is available January, 2000. Three additional web-based courses are planned for Spring, 2000.

OSH 411	Industrial Hygiene I
OSH 406	Small Particle Technology
OSH 416	Industrial Ventilation

Faculty members supporting the Extended Studies Program include:

Professor and Head, Julie B. Norman, MPH, CIH
Professor Kumar Ganesan, Ph.D, PE
Professor Terry Spear, Ph.D
Professor Bill Spath, Ph.D.
Professor Roger Jensen, Ph.D, CSP
Instructor Sally Bardsley, IHIT

ESP was approved by the Curriculum Review Committee in 1995 and has been evaluated by the Advisory Board to the SHIH Department. Course content is the same as traditional delivery and field experience is included. Laboratory reports, problem sets, research papers and examinations are required. Students meet the same academic rigor and requirements as traditional in-residence students.

Participants evaluate courses and faculty at end of each course and participate in alumni surveys, as appropriate.

Non-Credit Programs and Courses: It is philosophy of the Safety, Health and Industrial Hygiene Department to be creative and flexible in delivering education to non-traditional populations. The department makes an effort to meet the continuing education or professional development needs of groups such as small business managers, electric utility and gas transmission, safety and health professionals, electric utility supervisors, hazardous waste disposal firms, etc. through short courses and seminars. The list, below, contains examples of short courses/workshops taught by the SH/IH Department:

Hazwoper 40 – Hour
Hazwoper 8 – Hour Refresher
Ergonomics
Contractor Health and Safety
Hazard Communication
Safety and Health for Small Business Operators
Safety and Health for the Electric Utility Industry

Course programs and training materials are developed by SH/IH faculty. No credits or CEUs have been given.

The SH/IH Department also sponsors a luncheon seminar series. Seminars are arranged by SH/IH Department Head with faculty input. In addition to Montana Tech faculty, staff and students, regional Safety, Health and Industrial Hygiene professionals are invited and participate. Speakers are regional professional or recognized experts in selected fields. Speakers during 1999 were:

Dr. Terry Spear, Montana Tech
Publishing Research and State of the Art Programs

Sally Bardsley, IHIT, Montana Tech
Environmental Estrogens

Terri Roach, VRI, Missoula
Workplace Injury Management

Susan Brenner, Marthon Oil Intern
Texas City Disaster

Richard Thomas, dual M.S. Candidate,
Industrial Hygiene and Environmental Engineering
"Sampling Techniques for Environmental Silica"

Ed McGowan, Director of Safety and Health,
Montana Resources
"Mining Accident History"

Bob Johnson,
Safety and Training Manager,
Granite Construction
Watsonville, CA
"Construction Safety Challenges"

Dr. Ashok Despande, Deputy Director
NEERI, Nagpur, India
"Chemical Risk Assessment Workshop"

Rick Larson, CIH, Environmental Health and Safety,
Butte-Silver Bow Public Health Department
"Community lead Remediation Program"

Again no credit or CEU's are awarded.

Center for Advanced Mineral and Metallurgical Processing

Mission: The Center for Advanced Mineral and Metallurgical Processing (CAMP) will facilitate cooperation between the university system and industry to enhance the economy of the State of Montana by supporting, developing and adding value to the global mineral industry. Economic enhancement may be encouraged through added value processing of minerals & metallurgical wastes and developing processes that minimize waste generation.

Continuing Education and Special Learning Activities: No credit courses offered.

Non-Credit Programs and Courses: CAMP has facilitated several short courses, conferences, seminars and lectures throughout the past 10 years. The courses are selected based on student, faculty and industry needs and in response to queries. In the case of JK SimMet and PERI, which are currently the most established and relevant mineral processing software available, there was high interest in both of the courses from industry, students and faculty. Both companies were contacted regarding teaching the courses since they have the most experience with the software. Once the courses are completed participants are asked to provide feedback on the quality of the course. A detailed list of sponsored and co-sponsored events has been provided below. Additional information is included in the Exhibits.

Table II- XXI
Center for Advanced Mineral and Metallurgical Processing Activities

CAMP Sponsored/Co-Sponsored Events					
Short Courses					
Name of Course	**Date**	**# of Paying Participants**	**# of MT Tech Participants**	**# of Students Earning credit**	**Total # Participants**
JK SimMet	Jun-96	8	2	3	13
JK SimMet	Sep-98	7	2	9	18
PERI	May-00	n/a	n/a	N/a	0

Conferences & 1-Day Seminars **Name of Event**	**Date**
Grantsmanship Seminar	Apr-90
Mining In The 90's And Beyond	Aug-91
Arsenic in Mine Wastes and Process Effluents	Nov-93

Lectures	
Name of Lecture	**Date**
Simulation of Heap, Dump and In-Situ Leaching – Bender Lecture Series	Feb-89
Mapping Function In the Vertebrate Eye w/Cellular Chemistry and Chemistry and Digital Imaging	Aug-89
Installation and Pilot Testing of Retech, Inc's Plasma Centrifugal Furnace for Hazardous Waste Incineration	Sep-89
Microbiological Leaching of Sulfide Ores for Metal Recovery	Feb-90
Information on Creation of a Department of Energy Hazardous Waste Research Center in Butte	Mar-90

Educational Outreach Program

Mission: The Educational Outreach Program's (EOP) mission is to provide both credit and non-credit courses consistent with Montana Tech's mission to non-traditional and place-bound students. The EOP's director reports to the Vice Chancellor of Academic Affairs and Research. The staff of the EOP includes a Marketing Manager. All business related activities of the EOP are channeled through the administrative offices of Montana Tech.

The EOP was established in March of 1999 and initially included only the Microsoft Certification Center (MSCC). In the past year it has expanded to include the CISCO Academy, the Jump Start Program and Internet based online courses. Detailed information on the program is contained in Montana Tech's homepage (www.metch.edu) under Outreach and Extended Studies. A printout of this information will be furnished as an exhibit at the time of the Evaluation Team's visit.

Continuing Education and Special Learning Activities: The majority of credit-generating courses taught through the EOP are regular catalog courses utilizing established syllabi with the instructor being a full or part time member of the department offering the course. All course offerings and instructors must be approved by the department head.

All courses offered in the Butte and surrounding area receive support from Montana Tech's student services. The Internet based classes receive support services from UmtOnline (University of Montana – Missoula). These 24-hour/day student services include an on-line bookstore, financial aid, access to virtual libraries, the student handbook, a Student Union chat room, and complete information on tuition and fees.

The Table II - XXII provides head count information and logistics for all of EOP's offerings. Four major program areas are served by the EOP. They include:

1. Microsoft Certification Center (MSCC) provides ideal computer training. Classes are offered in a fast-paced, focused format for both the public and private sector, and can be customized to meet the needs of the student or sponsoring business.

2. Montana Tech's Cisco Regional Academy teaches students how to design, build, and maintain computer networks. The Academy's courses consisting of four sequential semesters include all aspects of networking, ranging form basic through advanced.

3. The Jump Start Program features Freshman level courses delivered at area High Schools in areas such as English, Psychology, Sociology, and Chemistry.

4. On-Line Courses (Internet) gives the student flexibility to earn quality education where and when it suits their schedule.

Detailed information on all programs will be provided as exhibits for the Evaluation Team.

Non-Credit Programs and Courses: Jump Start and Internet courses may also be taken on a non-credit basis.

Table II- XXII
Educational Outreach Program Statistics

Program	Number of Students		Locations
	Credit	Non-Credit	
MSCC	80	1833	South Campus, St. James Hospital, MPC
CISCO Academy	40	145	Anaconda, Butte Central, Butte High, South Campus, Ronan
Jump Start	165		Anaconda, Butte Central, Butte High School, Ronan
Internet	30		www.umtonline.net

Technical Outreach

Mission: In direct alignment with the college's mission, the Technical Outreach Office was established in 1994 with the mission of providing K-12 teachers and students with college-based programs that enrich statewide science, engineering, and technology education. The programs described below were conducted through the Technical Outreach office during the past six years.

Continuing Education and Special Learning Activities: Instructors for STEP Bridge, Upward Bound Bridge, and Energy: A Closer Look at Oil and Gas, were selected from the full-time faculty at Montana Tech, and the classes offered in these programs were designed, approved administered and periodically evaluated under established institutional procedures. Credits offered for these classes were approved by the appropriate institutional body and were monitored through established procedures.

Non-Credit Programs and Courses: The remaining non-credit classes were taught by professional Technical Outreach staff and were administered under appropriate institutional policies, regulations, and procedures.

Table II- XXIII
Technical Outreach Program Statistics

Short Courses Offered for Credit			
	Date	**Number of Participants (teachers or students depending on program)**	**Number of Tech Personnel (faculty or professional staff involved in project)**
STEP BRIDGE	Summer 1999	12	4
Upward Bound BRIDGE	Summers 1996-99	16	12
Constructing a Home on the Info. Super Highway	Spring 1996	15	3
Energy: A Closer Look at Oil and Gas	Fall 1997	13	3
Stream Ecology	Summer 1998	21	2

Table II - XXIV
Technical Outreach Non-Credit Program/Course Statistics

Short Courses (No Credit Offered)			
Title	**Date**	**Number of Participants (teachers or students)**	**Number of Tech Personnel (faculty or professional Staff involved in project)**
T3: Teachers Teaching with Technology	Spring 1999	16	2
Conferences and Seminars			
Title	**Date**	**Number of Participants (teachers or students)**	**Number of Tech Personnel (faculty or professional staff involved in project)**
Teaching about Energy Through Inquiry	Spring 1997	30	3
Teaching about Energy Through Inquiry	Spring 1996	30	3

Mine Waste Technology Program

Mission: The Mine Waste Technology Program (MWTP) is funded by a grant from the U.S. Environmental Protection Agency. The MWTP conducts research, develops academic programming, and performs educational outreach and technology transfer. In this section, the educational outreach activities of the MWTP are discussed.

Continuing Education and Special Learning Activities: No for credit courses are currently offered.

Non-Credit Programs and Courses:

General: The Mine Waste Technology Program (MWTP) offers courses on an individual basis by contract. Currently the MWTP is engaged in a four-course contract with the Montana Department of Environmental Quality (MT DEQ). These courses are described, individually, below. In addition, the MWTP conducts a conference each year for the MT DEQ, the Bureau of land Management, and The US Forest Service/EPA.

All courses are taught by Montana Tech Faculty or recognized experts in the field under contract to Montana Tech and are taken on a non-credit basis. Events are organized by the MWTP and are offered on a cost recovery basis with financial support from the sponsoring agency or bureau. Additional information is included in the Exhibits.

Mine Waste Technology Program Non-Credit Courses:

Introduction to Hydrogeology **Willis D. Weight, Ph.D., P.E.**

This course assists the practicing geologist, environmental engineer, scientist, regulator, or other professionals who are involved with groundwater studies (who need a good background in the subject) approach groundwater problems with a better understanding of the fundamental principles. Groundwater and Surface water interaction is explored along with the basic concepts of vadose zone hydrology. The text is Applied Hydrogeology, C.W. Fefter, 3rd Edition. The format of the class consists of morning lectures followed by afternoon discussion and problem exercises. These are setup in an integrated synthesis fashion. Each lab has a building effect, which allows application of geologic and engineering knowledge. This course is designed to be presented as three one-day sessions.

Groundwater Monitoring Design **Willis D. Weight, Ph.D., P.E.**

This course assists the practicing geologist, environmental engineer, scientist, regulator, or other professionals who are involved with groundwater studies to explore the various aspects of monitoring design. How to monitor groundwater depends on the geologic setting and application. For example, monitoring design for a landfill will be much different than for a water supply system. A variety of settings are discussed along with

specific construction design parameters, including drilling and completion techniques and methodologies. This course is designed to be presented as a three-day session including field trips.

Pathogen and Virus Transport **Willis D. Weight, Ph.D., P.E.**

This course assists the practicing geologist, environmental engineer, scientist, regulator, or other professionals who are involved with groundwater studies a background in pathogen and virus transport. An increasing number of cases of sickness and death have heightened our awareness of the concern of these as waterborne pathogens. This course evaluates the most likely microbial contaminants, how they affect us and how they move in the subsurface. These are critical to monitoring design and increasing our understanding of the problems that may be occurring in Montana. For example, there may be issues regarding the density of housing units in subdivisions or other small communities and agricultural impacts.

Reclamation Caps **Dirk Van Zyl, Ph.D.**

This course covers the design and application of reclamation caps for hard rock mining and landfills. An introductory analysis is performed leading then to the design implications of water budgets in the geographical area of concern. Groundwater flow models and climatic conditions are examined and applicable caps are discussed and designed. Soil stability issues are also examined. The third day covers a series of case studies to aid the students in their own future designs.

MWTP Events:

Mine Design, Operations & Closure Conference (April 16-20, 2000, Polson, MT)

The Mine Design, Operations & Closure Conference began eight years ago with about 80 people in attendance. Today, this annual conference plays host to roughly 150 attendees each year. Initially, we hosted primarily regulatory personnel. Today, conference attendance splits evenly between government and private sector participants.

Individuals specializing in mining and mining-related issues from academia, regulatory agencies, the mining industry, and private industry have consistently presented the latest in technologies, methods, and case studies regarding mine design, operations, and closure.

The main focus of the Mine Design, Operations & Closure Conference is to offer an educational forum where participants are engaged in education that can be immediately applied to their daily tasks.

DISTANCE DELIVERED DEGREE PROGRAMS

General

As mentioned in the overview there are two programs that Montana Tech desires to add to the list of approved programs delivered at a distance by Montana Tech. These two programs are the Masters in Project Engineering and Management and the Masters of Science in Petroleum Engineering. Both programs already exist as approved degree offerings and have been delivered in the past by alternative delivery systems. NWASC has requested that the programs

> *"be adequately described in the self-study document so that it receives attention from the evaluators who review both its academic home area and those programs offered by Montana Tech that qualify as entries under Commission Policy 2.6 – Distance Delivery of Course, Certificate, and Degree Programs. Second, the institution should be prepared to document that the proposed degree program meets the requirements of Policy 2.6, items **a** though **x**, Accreditation Handbook, pages 45-46. We believe if the program is handled by the institution to adequately meet these tests in the routine review of the curriculum, it can be added to the list of approved programs delivered at a distance through different means by Montana Tech." (Larry P. Stevens letter to Daniel J. Bradley, December 17, 1999.)*

The evolution of these programs to distance delivery formats is described, individually, in subsequent sections and Montana Tech will provide detailed documentation that the programs conform to the requirements of Policy 2.6, "Policy on Distance Delivery of Courses, Certifications and Degree Programs".

Masters of Project Engineering and Management

The Masters of Project Engineering and Management (MPEM) program was originally conceived in 1996 as a collaborative effort between Montana Tech of The University of Montana, Montana State University-Bozeman (MSU), and a local research and development corporation, MSE, Inc. The Program was approved by the Montana Board of Regents in 1997 for distance delivery.

The program was originally designed to provide MSE, Inc and Montana Power Company engineers with the opportunity to broaden their knowledge and experience in a specific technical field, Environmental Engineering, while at the same time acquiring the skills needed to become successful project managers. When it began, the program was unique and still remains one of the few available degree programs nationally that is specifically directed at the place-bound practicing engineer.

The program graduated four students in December 1999. The original MPEM program used a combination of live classroom instruction and real-time, two-way interactive video to reach students working in Montana. Montana Tech and MSU Bozeman view the program as a success and have determined to take the program to the next level of access by making the entire program available through the Internet. With the help of a grant from eCollege.com, Montana Tech and MSU are converting courses at both campuses to eCollege.com Web-based format. The first course (MT ENVE 540) went live on January 31, 2000 with an enrollment of 23 students. Eleven more courses will follow in the next eighteen months.

The MPEM program has served as a model for the interaction of higher education and the technical industrial community. Conversion to the WEB platform will make this unique program available nationally to practicing engineers seeking to upgrade their technical management skills. Appendix A includes a full description of the program conforming to the guidelines of Section 2.6 of the NWASC Accreditation Handbook.

Masters of Science in Petroleum Engineering

The Masters of Science in Petroleum Engineering has been offered at Montana Tech since 1949. Since its inception, the program has produced over 150 graduates. All instruction in the past used campus-based delivery of courses. Starting in 1995, the program was modified to meet the needs of non-traditional students. The program was successfully delivered in a compressed format to a cohort group of senior engineers from the Montana Power Company. These engineers from Billings, Bozeman, and Butte completed each 3-credit hour course over the period of 6-8 weeks, with most of the live instruction occurring in extended weekend sessions. Follow-up assignments and problems were transmitted by FAX and e-mail. This method of delivery worked very well and was able to satisfy the work limitations that full-time employment imposed on the students. All members of this cohort group have now graduated and are now employed at the Montana Power Company at various sites throughout Montana.

Montana Tech has been asked to consider using a similar delivery format to deliver its Masters of Science in Petroleum Engineering in Jakarta, Indonesia. The campus has retained the services of Barata Nusatama Prima (BNP) in Jakarta to serve as its fiscal and administrative agent in Indonesia. We are currently working with several international oil companies with major operations in Indonesia to provide sustained and predictable funding for their employees that wish to enroll in the program.

Montana Tech faculty have worked with BNP in the past to deliver graduate-level instruction in a non-credit workshop format conducted over the period of one week in Jakarta. The new Masters of Science degree offering will be based on this concept and will add pre-and post-work for all students using Internet connections between Butte and Jakarta.

Montana Tech looks forward to using this model for distance delivery to bring Petroleum Engineering to Indonesian and expatriate engineers in Jakarta. Appendix B includes a full description of the program conforming to the guidelines of Section 2.6 of the NWASC Accreditation Handbook.

EXHIBITS

Undergraduate Program

II-1 Degree Objectives for Each Degree Program
II-2 Curriculum Development (Procedures, Committee Minutes)
II-3 Departmental Self-studies
II-4 Student Evaluations of Faculty and Courses
II-5 Professional Accreditation Documents and Resulting Actions (ABET, CSAB, ACS, Montana Board of Nursing)
II-6 Student Admission/Retention Criteria and Procedures, Student Records Maintenance and Awarding of Credit
II-7 Transfer Credit Policies and Articulation Agreements
II-8 Remedial Work Policies
II-9 Academic Advisement Documents and Advisor Handbook
II-10 Grade Distribution Studies
II-11 Public Service Policies
II-12 Program Assessment Plans
II-13 Advisory Board Documents

Graduate Program

II-14 Graduate Credit/Transfer Credit Policy
II-15 Internship, Field Experience/Clinical Practice Policy

Continuing Ed and Special Learning Activities

II-16 Special Programs Catalogs, Brochures, Class Schedules
II-17 Award of Credit Policies
II-18 Award of Credit Policies for Prior Experiential Learning
II-19 Description of Courses and Programs Taught by Nontraditional Instructional Formats
II-20 Continuing Ed and Special Learning Activities Budget Info
II-21 Outcomes for Courses/Programs Offered Under Concentrated or Accelerated Time Frames
II-22 Policies on Admission, Credit Transfer, CLEP, etc.
II-23 Sample Transcript
II-24 Contracts with Other Institutions or Travel Agencies
II-25 Admissions Criteria/Procedures; Student Records Maintenance
II-26 Continuing Ed/Special Learning Activities Courses and Programs
II-27 Student Registration Criteria and Procedures; Student Record Keeping Policies
II-28 Procedures for Involvement of Institutional Personnel in Program Approval and Development

APPENDIX A

Section 2.6 Responses for WEB delivered Masters in Project Engineering and Management

ON-LINE
MASTERS IN PROJECT ENGINEERING AND MANAGEMENT DEGREE (MPEM) PROGRAM

Dr. Kumar Ganesan
Professor and Head
Environmental Engineering
Montana Tech
of The University of Montana

February 11, 2000

REQUIREMENTS

APPROVAL AND PURPOSE

a) The institution's distance delivery programs have a clearly defined purpose congruent with institutional mission and purposes.

The primary mission of Montana Tech of The University of Montana is to provide educational opportunities to traditional and non-traditional students. Educational opportunities can be provided to non-traditional students through on-campus and off-campus programs. The off-campus educational programs involve course offering through distance-delivery methods. The distance learning must incorporate technology that provides uninterrupted service, quality, and effective learning experience to students.

In general, these distance-learning courses are focused on non-traditional students, who are employed, have family responsibilities and are unable to travel to physical campuses. These people are able to take advantage of on-line courses and improve their skills and become more productive employees and be successful in their chosen careers.

b) Each program has been approved through established institutional program approval mechanisms.

The Master in Project Engineering and Management Program (MPEM) has been approved by the Montana Board of Regents in 1997 to offer courses through distance-delivery to help working engineers to obtain their Master's degree. This program is truly a joint degree program with 50/50 partnership between Montana State University-Bozeman (MSU), and Montana Tech of the University of Montana (Montana Tech). The degree program was approved through the two campuses.

The MPEM degree program, unlike traditional degree programs, has a working steering committee that directs the program through MSU and Montana Tech graduate schools. The steering committee, consisting of industry, faculty and student representation, provides direction and oversight of the program, including curriculum development, preparation and tracking, and budget and operation of the degree program.

CURRICULUM AND INSTRUCTION

c) Programs provide for timely and appropriate interaction between students and faculty, and among students.

Traditionally, distance learning is a means of providing access to instructional programs for students who are separated by time and physical location from a faculty member. The paradigm of interactive distance learning that is rapidly evolving is based on the new interactive technologies. It promotes learning experiences based upon the following types of interactions: faculty with students; students with other students; and students with resources such as books, journals, experts, and other dynamic electronic sources. Through the use of technology, these interactions can occur at any time or in any place. This new interactive distance learning will enhance the learning environment both on and off campus.

Designing distance learning on the three interactions of faculty-to-student, student-to-student, and student-to-resources, increases the probability of effective learning outcomes. Additionally, distance courses will be improved by designing with the following **ACCEL** model that builds on learning principles and learner characteristics.

Active. Learners participate in a learning program that requires thoughtful and engaged activity.

Collaborative. Learners engage in discussions, activities and project with fellow students.

Customized and accessible. The learning program is designed to fit the needs and requirements of students in terms of time, career goals, levels of preparation, and learning styles.

Excellent quality. Courses are designed with a learner focus, enabling learners to achieve desired goals and objectives. This learning generally includes communication with faculty members and other students, and it includes quick and easy access to high quality instruction resources.

Lifestyle-fitted. Interactive distance learning accommodates the lives of students, affording cost-effective education opportunities anywhere, anytime, and at a reasonable speed.

The curriculum is designed with a focus to provide engineering and project management skills to working engineers. Students must successfully complete thirty-credit course work and at the end of course work they are required to give a presentation to the advisory committee to earn the MPEM degree. The curriculum includes six core courses (eighteen credits) and four elective courses (twelve credits). Currently the program will offer six elective courses from which students can choose four elective courses. Students are also allowed to transfer up to six credits if the courses are approved for transfer.

The curriculum is given in the following section:

CURRICULUM

This thirty-credit, non-thesis degree is structured around technical management as its focus. Courses will be offered during fall, spring, and summer semesters. The MPEM course work includes six core courses and four technical electives.

Core Courses (Three credits each) – Required of All Students

- Economic Feasibility of Projects
- Project and Engineering Management
- Legal issues related to PE & M
- Financial Management of Technological Enterprises
- Management Economics & Accounting
- Advanced Management Seminar

Elective Courses (Three credits each) – Students complete any four courses

- Pollution Prevention
- Energy Conversion
- Statistics for Engineers and Managers
- Hazardous Waste Engineering
- Computer Applications in Civil Engineering
- Information Technology for Managers

The on-line course has several features including: message center, email class, online chatroom and threaded discussion. A summary of the communications tools used in an on-line course is given below. In addition, threaded discussion is further explained to indicate its effectiveness in on-line learning experience.

COMMUNICATION TOOLS FOR ONLINE COURSES*

TOOL	TYPE	KEY FEATURE	MAIN USES
Message Center	Asynchronous – Send and/or receive messages at any time. Instructor – to – class.	This is one of the first places a student obtains information about the course. Located at the top of a Course Homepage, the MC prompts students to read new messages, and permanently archives all messages.	Used by instructor for posting a welcome message, giving notice about important changes, as well as responding to issues highlighted by duplicate questions from students
Email Class	Asynchronous, One-to-One, One-to- Many.	Once inside the course, this function allows one to Email an entire class, selected members, or instructors without having to leave the course of having to type any addresses. You can also attach documents, e.g. a Word file, to your messages.	The Email function allows for individualized communication. A student can privately ask questions of his teacher or classmates on special concerns, and request clarification. Instructors can respond to student needs directly, give referrals, or arrange online tutoring with another student or assistant.
Online Chatroom	Synchronous- Send and/or receive messages at the same time, in the same place One-to-One, or One-to-Many.	Live Chatroom where students, with or without the instructor, can engage in text-based discussions. Show participants who are present, and transcript of ongoing dialogue. Also allows one to call up a new browser window for demonstration purposes.	Can be used to provide designated "office hours" during which professor is available to class, allows for individual appointments, and enables small group collaborative discussion – i.e around team projects.
Threaded Discussion	Asynchronous, One-to-Many	Allows for more in-depth conversation over time, with students posting entries whenever convenient. Elicits more thoughtful interaction than chats, and enables "shy" students greater opportunities for participation in class discussions.	Instructors often pose weekly questions for discussion. Students then are encouraged or required to respond, with participation and the quality of their comments graded. Also used for posting of assignments for peer-review, role-play simulations, or informal conversation.

**How to Design, Develop, and Teach an Online Course, eCollege.com, Handbook, 1999.*

THREADED DISCUSSION GUIDELINES

The Instructor uses good questioning strategies to enhance the learning process. Questioning should be part of the instructional strategy. Effective teachers ask questions to:

1. Check the students' understanding of key points,
2. Check for mastery of basic concepts,
3. Encourage critical thinking, and
4. Stimulate interaction among students, as well as between instructor and student.

The first step in effective questioning is to recognize that questions have distinctive characteristics, serve various functions, and provide opportunities to develop higher level thinking skills by applying, synthesizing, or evaluating the content being learned. Words such as what, why, how, summarize, justify, trace, describe, or define encourage thoughtful answers and meaningful interaction. Through the process of questioning, the instructor stimulates the learner to make use of information, to put together facts that may not have been thoroughly understood, and to draw logical conclusions.

The questioning technique is effective if it is carried out at the appropriate time, causes students to learn by thinking and doing, and changes students' roles from passive to thinking and applying. Skillful questioning can be learned through study, practice, and feedback. Instructors can improve their questioning techniques by learning to formulate more thought-provoking questions and encouraging critical thinking by students. Instructors can also learn to avoid practices that interfere with students' responses.

For maximum effectiveness, the instructor should use questions to:

1. Stimulate interest in the lesson,
2. Establish communication between the instructor and students,
3. Focus students' attention on major points to be remembered.
4. Stimulate learning by causing students to apply facts in order to analyze problems,
5. Help students develop a feeling of confidence and success, which leads to greater motivation, further study, and experimentation,
6. Help student develop the ability to organize ideas and write effectively,
7. Building cooperation through group activity and responsibility,
8. Provide for a collaborative approach to learning, and
9. Evaluate effectiveness of instruction.

Thus, using the threaded discussion provides an effective learning experience among on-line students.

d. The institution's faculty assumes responsibility for and exercises oversight over distance education, ensuring both the rigor of programs and the quality of instruction.

The MPEM program co-directors at Montana Tech and MSU are directly responsible to oversee the quality of on-line courses and to provide the necessary resources to accomplish it. They are responsible to identify quality faculty members, provide the necessary on-line course development training and support and assist them to offer on-line courses. Each course will be evaluated at least twice once in the mid-semester and once at the end of the semester. Student's evaluation will be used to continuously improve the on-line course offering. The two campus-co-directors with the help of the MPEM steering committee will accomplish this.

Montana Tech is aware that conventional classroom teaching methods are not enough to effectively offer classes through distance delivery.. Some of the key factors in providing a quality on-line learning experience include:

experienced professors who are motivated and proficient in using technology to provide a quality education;

professors who are willing to use the best available technology including hardware, software and multimedia systems for effective course delivery;

professors who have the ability to effectively lead threaded discussions and encourage chatroom discussion(s) thereby maximizing interaction and effective exchange with and among students;

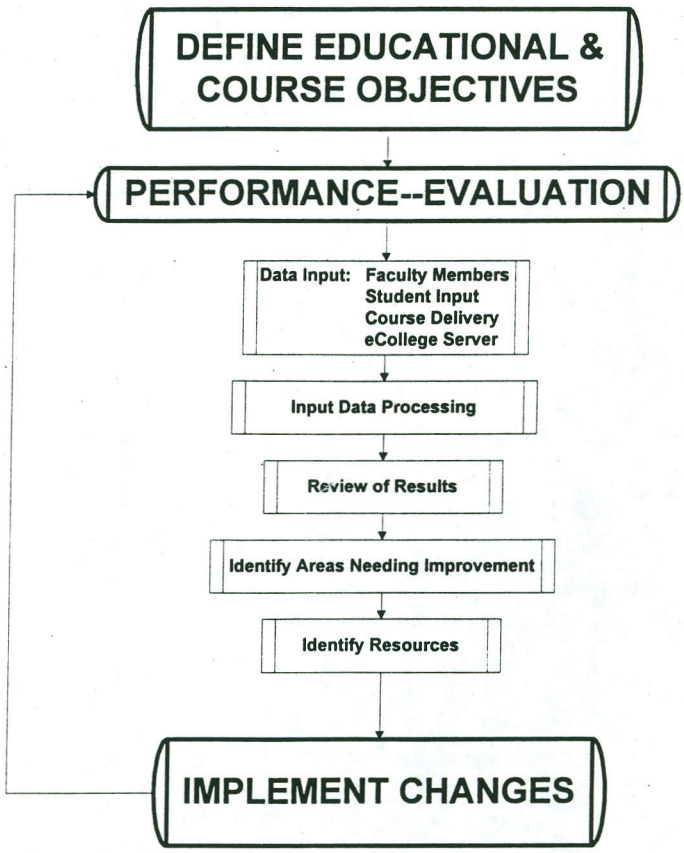
access students to continuously provide input on their learning experience;

mechanisms to assess student input and make necessary changes in a timely manner;

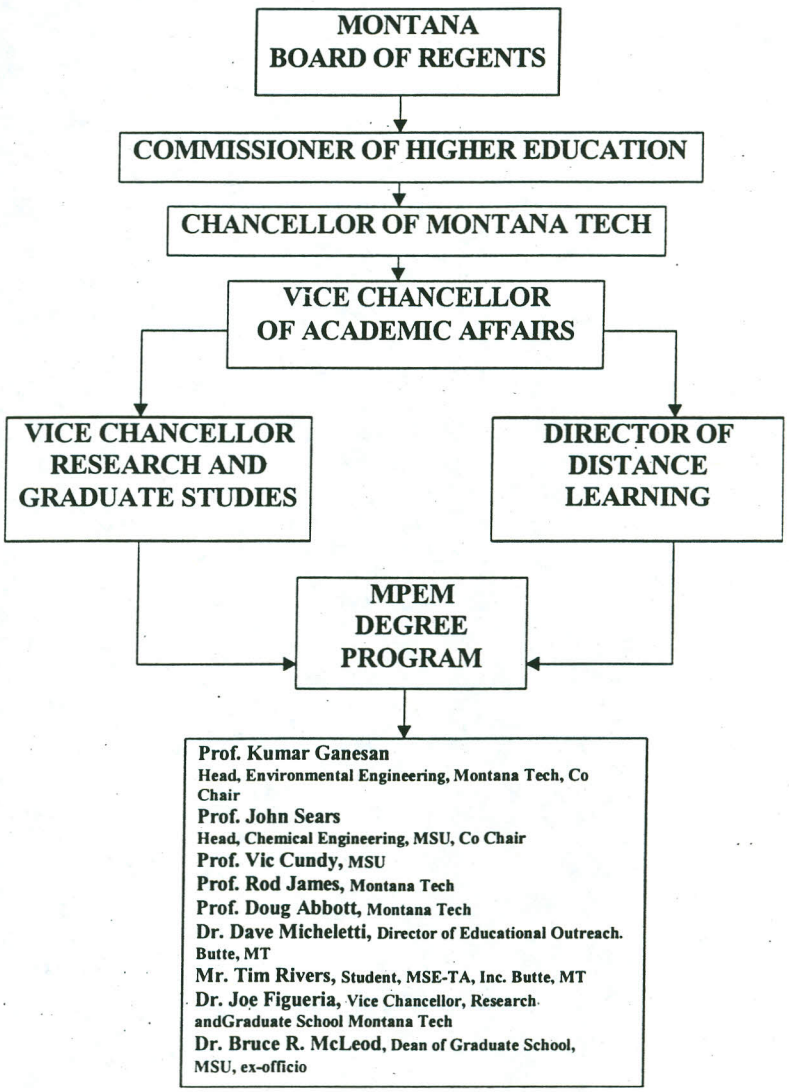
annual course evaluations by students and professors.

The MPEM program will receive the same type of dedicated and quality attention and supervision that the rest of Montana Tech course offerings receive and that have made it one of the most respected institutions in the nation in environmental engineering and similar degree programs. A quality assurance flow chart for online course delivery follows:

MPEM EVALUATION PROC
Continual Improvement of E-Cours



A flow chart illustrating the management structure and MPEM program support is included below. The program has the support of the Board of Regents, industry, and campus administrators.



e. *The institution ensures that the technology used is appropriate to the nature and objectives of the programs.*

The on-line course for the MPEM degree is offered through a private company, eCollege.com. Ecollege.com is a pioneer in providing the technology to teach engineering and project management courses on-line. Montana Tech contracts with eCollege.com to provide the appropriate tools and technology for quality, on-line education. The eCollege.com also is in the forefront to identify new technologies available in the market to improve on-line course delivery. Montana Tech and MSU, by themselves, do not have such resources, where as contracting with eCollege.com has provided us access to these new technologies.

f. *The institution ensures the currency of materials, programs and courses.*

The co-directors of the MPEM program review course outlines and solicit student input and input from company representatives and faculty members to keep the course materials current, appropriate and effective.

g. *The institution's distance education policies are clear concerning ownership of materials, faculty compensation, copyright issues, and the utilization of revenue derived from the creation and production of software, telecourses or other media products.*

The institution has a hierarchy of administrative structure that develops policies and procedures and allows flow of funding and resources to on-line course developers and teachers. Montana Tech's contractual arrangement contains specific language covering intellectual property and copyright issues. The faculty and administrative personnel have a fairly good understanding of the on-line course delivery policies. However, like any program, this being a new experience, we will make changes to our policies, as we learn from our experience. In general, if the course material is developed with assistance for Montana Tech it is the property of Montana Tech. If developed independently by a faculty member, then it is the property of that faculty member.

h. *The institution provides appropriate faculty support services specifically related to distance education.*

The MPEM degree program has a designated budget to provide necessary resources for faculty to prepare courses for on-line delivery. The faculty members are given, financial incentives, adequate in-house training and training by eCollege personnel. Support services are also available from eCollege.com as described in (e) above. All funds flow through the state general fund budget.

i. *The institution provides appropriate training for faculty who teach in distance education programs.*

The main training is provided by eCollege.com. Montana Tech faculty members, already trained by eCollege.com in developing and teaching on-line courses will act as mentors to new faculty who are coming on-line, to teach on-line courses.

LIBRARY AND INFORMATION RESOURCES

j. *The institution ensures that students have access to and can effectively use appropriate library resources.*

Library resources are more than adequate to provide the necessary educational experience to students. Students can search documents and journals on-line and make interlibrary (ILL) loan requests. In addition, the course itself has several websites to gather reference

and case study information to supplement the text book and reference materials for the course.

k. The institution monitors whether students make appropriate use of learning resources.

The faculty member who teaches the on-line course will be responsible for that course and the co-directors of the MPEM program will supervise the student use of the appropriate technology in their on-line learning. Features to monitor student use of resources are built into the eCollege.com platform and are available to each course instructor.

l. The institution provides laboratories, facilities, and equipment appropriate to the courses or programs.

The institution has computers that on-campus students can use to take the on-line courses. However, most of the MPEM students are off-campus and will use computers owned by them or by the company they work for.

FACULTY SUPPORT

m. Training is provided for faculty who teach via electronic delivery.

Adequate training will be given to faculty to teach the course on-line. Refer to Section "h".

n. The institution has faculty support services specifically related to teaching via electronic delivery.

Besides the external training programs, in-house training by trained faculty will also be available for faculty. The Mine Waste Technology Program has support services available to assist with online course development. Also see (h) and (i) above.

STUDENT SERVICES

o. The institution provides adequate access to the range of student services appropriate to support the programs, including admissions, financial aid, academic advising, delivery of course materials, and placement and counseling.

The students are given the necessary services through:

1) the Graduate School
2) the Registrar's Office
3) the Business Office

4) their advisors.
5) The Financial Aid Office

The services are available via phone, the WEB (Email) or in person.

The co-directors of the MPEM program will oversee the overall services for MPEM students.

p. The institution provides an adequate means for resolving student complaints.

The students have access to communicate with any of the four groups providing the services. It is expected that the MPEM program director may receive the most complaints. The directors, with the help of the Steering Committee, are responsible for resolving student complaints and take action to provide a continuous improvement in their learning experience.

q. The institution provides to students advertising, recruiting and admissions information that adequately and accurately represents the programs, requirements, and services available.

The institution and the MPEM directors provide information to students about the degree program through the college catalogue, college web-site and brochures. The eCollege.com, who hosts the server and the course, has an excellent FAQ for new students to help them learn the necessary on-line orientation. All student admissions and specific information requests are processed by the Graduate Schools at Montana Tech and MSU using the same criteria as traditional programs.

r. The institution ensures that students admitted possess the knowledge and equipment necessary to use the technology employed in the program, and provides aid to students who are experiencing difficulty using the required technology.

The eCollege.com, who is hosting the course and the server, has 24-hour service to on-line students. Their service is excellent and available anytime of the day.

FACILITIES AND FINANCES

s. The institution possesses the equipment and technical expertise required for distance education.

The MPEM degree program is offered through eCollege.com. The eCollege.com has the necessary technology, software, hardware and trained personnel to provide uninterrupted quality service to on-line students. The campus is in the process of completing an 1.0 GHZ Intranet and will soon have full connectivity to Internet II.

t. *The institution's long-range planning, budgeting, and policy development processes reflect the facilities, staffing, equipment and other resources essential to the viability and effectiveness of the distance education program.*

The MPEM degree program received an initial grant ($60,000) to develop courses on-line. The campus administration has specific procedures to allocate resources from collected tuition to sustain the program on a long-range basis. The campus has in place a policy of continuous upgrades of faculty, staff, and student computers on campus.

COMMITMENT TO SUPPORT

u. *The institution offering the program demonstrates a commitment to ongoing support, both financial and technical, and to continuation of the program for a period sufficient to enable enrolled student to complete the degree or certificate.*

Montana Tech of the University of Montana and MSU-Bozeman are very much committed to this program and are actively working with eCollege.com to convert the MPEM Program to a WEB-based delivery format. The co-directors, with the help of the steering committee, are developing policies and procedures for this program that will insure its financial stability in an Internet environment and that will allow the program to grow and expand in its course offerings.

EVALUATION AND ASSESSMENT

v. *The institution assesses student capability to succeed in distance education programs and applies this information to admission and recruitment policies and decisions.*

The MPEM undergraduate program has specific admission requirements. The students must have an engineering degree with a 2.75 or higher GPA. Non-engineering degree candidates will be allowed into the program only after they take the necessary deficiency courses in engineering fundamentals. This admission process is very clearly defined and the recruitment policies reflect this. The students with lower than 2.75 GPA may be considered for provisional admission and will be accepted to the Graduate School only after they maintain higher than 3.0 GPA for two courses.

w. *The institution evaluates the educational effectiveness of its distance education programs (including assessments of student learning outcomes, student retention, and student satisfaction) to ensure comparability to campus-based programs.*

The MPEM degree program has obtained evaluations from students enrolled and graduated from the program. Their comments were incorporated in the curriculum and in administrative areas to improve the course offerings. We will have mid-term and annual course evaluations for each course and compare that with national outcome assessment

studies for similar degree programs. This will give us the benchmark necessary to maintain a high quality, on-line learning experience.

x. *The institution ensures the integrity of student work and the credibility of the degrees and credits it awards.*

Montana Tech and MSU have been offering MS-level degree programs for many years. The MPEM must follow the same protocols and evaluation process as all other degree programs offered by both campuses.

APPENDIX B

Section 2.6 Responses for Indonesian delivered Masters of Science in Petroleum Engineering

PETROLEUM ENGINEERING DEGREE PROGRAM IN INDONESIA

Dr. Tarek Ahmed
Professor and Head
Petroleum Engineering
Montana Tech
of The University of Montana

February 11, 2000

REQUIREMENTS

APPROVAL AND PURPOSE

d) The institution's distance delivery programs have a clearly defined purpose congruent with institutional mission and purposes.

The primary mission of the institution is to provide educational opportunities to traditional and non-traditional students. In 1995 and in accordance with our institution mission, the Petroleum Engineering Department modified its Masters Degree Program to meet the needs of non-traditional students. The program was successfully delivered in a compressed format to a cohort group of senior Petroleum Engineers from the Montana Power Company. Each required 3-credit hour course was completed over a period of 6-8 weeks. This compressed mode of delivery was designed to meet the high standard and the strict requirements of the Graduate School and the Petroleum Engineering Department.

The Petroleum Engineering Department has extended the compressed format to deliver its Masters of Science in Petroleum Engineering in Jakarta, Indonesia. The program is designed to provide higher educational opportunities to both Indonesian and expatriate personnel. Students admitted to the College must meet all the standard requirements of the traditional students in terms of GPA, GRE scores, TOFEL, and others. All courses will be taught in Jakarta by Montana Tech Faculty. WEB-based materials will be used to supplement the onsite instruction as required. Some related optional courses from the Project and Engineering Management program will be available by Internet-based delivery.

e) Each program has been approved through established institutional program approval mechanisms.

The Masters of Science in Petroleum Engineering in Indonesia was approved by the College and by action of the Montana Board of Regents in January, 2000.

CURRICULUM AND INSTRUCTION

f) Programs provide for timely and appropriate interaction between students and faculty, and among students.

The curriculum for the proposed program in Indonesia is identical to the curriculum of the Masters Degree offered on the Montana Tech campus. Students must successfully complete 38-credit course work to earn the degree. The curriculum includes nine core courses (27 credit hours), two non-petroleum courses (6 credit hours), a report (3 credit hours), and two seminars (2 credit hours). The curriculum is given in the following table:

MASTERS OF SCIENCE IN PETROLEUM ENGINEERING IN INDONESIA

Course #	Credit Hours	Description
PET 501	3	Advanced Drilling
PET 502	3	Production Operations Design
PET 511	3	Reservoir Simulation
PET 503	3	Surface Production Operations
PET 505	3	Pressure Transient Testing
PET 506	3	Advanced Reservoir Engineering
PET 507	3	Advanced Secondary/Enhancement Oil Recovery
PET 521	3	Equations of State
PET 522	3	Special Problems
MIN 510	3	Advanced Engineering Economic Analysis
MIN 518	3	Advanced Geostatistics
PET 561	3	Engineering Research and Report
PET 509-510	2	Petroleum Engineering Seminar
TOTAL	38	

The required 40 contact hours of instruction per course will be delivered in the following format:

1) Five continuous days of instruction, Monday-Friday for 8 hours/day.
2) Additional work that includes reading assignments, homework, and tests will be required by all students. This additional work will be accomplished prior to and after the Jakarta-based course of instruction.
3) Montana Tech will employ a local coordinator that will proctor exams and distribute and collect homework.
4) Students will interact with the instructor through Internet and e-mail.
5) Montana Tech will establish a library in BNP facilities in Jakarta. The library will contain the required textbooks and reference materials for all the courses. The students will also have available the on-line resources of the Montana Tech library interlibrary (ILL) loan.
6) To ensure that on-site supervising arrangements are carried out in an effective manner, a Montana Tech employee in Jakarta will be identified whose responsibilities will include:
    a) Work with the Head of the Department in dealing with activities associated with course delivery;
    b) Distribution of books and other course materials; and
    c) Course evaluations.

g. The institution's faculty assumes responsibility for and exercises oversight over distance education, ensuring both the rigor of programs and the quality of instruction.

The Head of the Petroleum Engineering Department is directly responsible to oversee the quality and ensure the academic integrity of the program in Indonesia. During the past five years, all the members of the Petroleum faculty have been involved in teaching several non-credit Petroleum Engineering courses in Indonesia using the same proposed delivery format. All the faculty have gained considerable experience in teaching these type of compressed courses. The Petroleum Department Head has the ultimate responsibility for academic integrity of this program. Each instructor will be evaluated at the completion of each course. This evaluation will provide valuable information regarding the success of the delivery format.

h. The institution ensures that the technology used is appropriate to the nature and objectives of the programs

The Masters of Science in Petroleum Engineering will be delivered by live classroom lectures in Jakarta. Required pre-work and post-work will be conducted with students by the use of e-mail exchange and some on-site testing in Jakarta. The e-mail connections will serve to transfer needed homework, questions, and bibliographic material between instructors and students. On-site follow-up and exam proctoring will be accomplished by Montana Tech's local coordinator.

i. The institution ensures the currency of materials, programs and courses.

Traditionally, the Petroleum faculty members participate jointly in selecting the appropriate and current textbooks and course materials for the Petroleum Program required courses. This tradition will continue for the proposed Masters Degree Program in Indonesia.

j. The institution's distance education policies are clear concerning ownership of materials, faculty compensation, copyright issues, and the utilization of revenue derived from the creation and production of software, telecourses or other media products.

The College and the Montana Board of Regents have a hierarchy of administrative structures that develops policies and procedures and allows flow of funding and resources to support distance learning. Materials developed independently by the faculty member will be his/her property. Material developed with assistance of Montana Tech will be the property of Montana Tech.

k. The institution provides appropriate faculty support services specifically related to distance education.

Part of the generated income from the Masters Degree in Petroleum Engineering is designated to provide necessary additional resources for faculty to prepare for their courses. The faculty members will be given additional financial incentives by Montana Tech.

l. The institution provides appropriate training for faculty who teach in distance education programs.

The institution encourages the faculty to engage in teaching industry short courses that are similar in format to this proposed for the Masters Degree in Indonesia. The Petroleum faculty members have been to Indonesia and they are already trained in delivering this program. Faculty members have also gained valuable training in compressed-mode delivery from the earlier MS in Petroleum Engineering offered to Montana Power Company employees (see a) above).

LIBRARY AND INFORMATION RESOURCES

m. The institution ensures that students have access to and can effectively use appropriate library resources.

The institution will provide students with a complete set of library reference materials for each required course to be located in the facilities provided by BNP. To ensure that sufficient library resources are available, all instructors are required to provide the Head of the Petroleum Engineering Department with a list of required resources for his/her course. In addition, library access will be provided via the Internet to all the students.

n. The institution monitors whether students make appropriate use of learning resources.

The faculty member who teaches the course, the Head of the Petroleum Engineering Department, and the local coordinator will supervise the students use of the available learning resources that include:

- Library (on-line and local)
- Computer Software
- Internet
- E-mail

o. The institution provides laboratories, facilities, and equipment appropriate to the courses or programs.

Library, computer access, and other resources will be made available to students though the cooperative arrangement between Montana Tech and BNP. The library in the BNP facilities contains 10 state-of-the-art computers that are dedicated for the students' use.

FACULTY SUPPORT

p. Training is provided for faculty who teach via electronic delivery.

Members of the Petroleum faculty are already trained in delivering compressed learning courses and are very familiar with e-mail technology. WEB-based courses will be delivered by faculty specifically trained on the eCollege.com platform.

q. The institution has faculty support services specifically related to teaching via electronic delivery.

The institution permits and encourages the faculty to engage in teaching industry short courses. Because of their active involvement in these industry short courses, members of the Petroleum faculty have gained considerable experience in delivering courses in the compressed format. Montana Tech is currently upgrading the speed of its campus Intranet and will soon have full access to the Internet II system.

STUDENT SERVICES

r. The institution provides adequate access to the range of student services appropriate to support the programs, including admissions, financial aid, academic advising, delivery of course materials, and placement and counseling.

The students are given the necessary services through

- Graduate school
- Registrar's Office
- Business Office
- Members of the Petroleum faculty
- BNP
- Local Coordinator
- No financial aid will be available for this program, although most if not all students will be sponsored by their employer

The Head of the Petroleum Department will bear the ultimate responsibility for the administrative component of the program.

s. The institution provides an adequate means for resolving student complaints.

The Graduate School and the Head of the Petroleum Engineering Department are responsible for analyzing course evaluations and responding in a timely manner to students concerns and problems.

t. *The institution provides to students advertising, recruiting and admissions information that adequately and accurately represents the programs, requirements, and services available.*

The institution and the Petroleum Engineering Department provide information and detailed descriptions of the program through the College catalog, college Website, and brochures. In addition, Montana Tech has contracted with Barata Nusatama Prima (BNP) to serve as its agent in Indonesia for administrative and advertising as part of the Masters of Science Degree in Petroleum Engineering program.

u. *The institution ensures that students admitted possess the knowledge and equipment necessary to use the technology employed in the program, and provides aid to students who are experiencing difficulty using the required technology.*

Students will be trained in using computers, software, Internet, and E-mail services by BNP as required.

FACILITIES AND FINANCES

v. *The institution possesses the equipment and technical expertise required for distance education.*

The Petroleum Engineering Department has the necessary technology, knowledge, software, and trained personnel to provide uninterrupted quality of education and service to the students in Indonesia. The campus maintains its e-mail service and contracts with eCollege.com to maintain its WEB server for eCollege.com formatted courses. The Campus also uses Blackboard as a platform for local development of WEB courses. Blackboard is supported by on campus instructional designers.

w. *The institution's long-range planning, budgeting, and policy development processes reflect the facilities, staffing, equipment and other resources essential to the viability and effectiveness of the distance education program.*

This Program is based on a self-sustained model that will generate enough income from tuition to insure the continuity and the success of the program. Prior to the initiation of the program sufficient industrial support will be obtained to insure its financial stability.

COMMITMENT TO SUPPORT

x. *The institution offering the program demonstrates a commitment to ongoing support, both financial and technical, and to continuation of the program for a period sufficient to enable enrolled student to complete the degree or certificate.*

The institution and the Petroleum Engineering Department are committed to sustain the program on a long-range basis. It is projected that the program will continue for a minimum of eight years.

EVALUATION AND ASSESSMENT

y. The institution assesses student capability to succeed in distance education programs and applies this information to admission and recruitment policies and decisions.

The Masters Degree Program in Petroleum Engineering has specific requirements. The students must have a Petroleum Engineering Bachelor of Science Degree with a 2.75 or higher GPA. Students must take the GRE and TOFEL examinations. All other requirements for the regular admission to the Graduate School are strictly enforced.

z. The institution evaluates the educational effectiveness of its distance education programs (including assessments of student learning outcomes, student retention, and student satisfaction) to ensure comparability to campus-based programs.

The Petroleum Engineering Department believes that the quality of an academic program is ultimately defined by the long-term success of its graduates. The Petroleum Engineering Program will assess the success of the program through:

- Student course evaluations
- Graduate Students exit surveys
- Student satisfaction surveys
- Student and employer feedback
- Job placement survey

Thus, the goal of our assessment program is to ensure we maintain the quality of the program and continuously improve our distance learning curricula in order that our graduates achieve the goals of the program.

aa. The institution ensures the integrity of student work and the credibility of the degrees and credits it awards.

Montana Tech has been offering the MS Degree in Petroleum Engineering since 1949. The Masters Degree in Petroleum Engineering in Jakarta will follow the same protocols and evaluation process as all the campus-based degree programs offered by Montana Tech.

STANDARD THREE
STUDENTS

PURPOSE AND ORGANIZATION OF STUDENT AND ADMINISTRATIVE AFFAIRS

Student and Administrative Affairs exists to support the academic-instructional program, which is at the core of the mission of Montana Tech. Student and Administrative Affairs at Montana Tech is integrated into a unified administrative/programmatic area of the institution (Figure III-1). The area is dedicated to supporting the primary institutional goal of student learning. The Student and Administrative Affairs staff uses the American College Personnel Association's (ACPA's) *The Student Learning Imperative* as a guide to direct their efforts to the academic purposes of the institution. Each program has a statement of program purpose on record that is supportive of the larger educational purposes of the institution (Exhibit III-1.1). The American College Personnel Association and the National Association of Student Personnel Administrators (ACPA/NASPA) document, *Principles of Good Practice for Student Affairs*, is also a guide to professional conduct.

The staff at Montana Tech uses a team approach in planning, goal setting, program development, and problem solving. The Vectors System for Goal Achievement, Planning, and Evaluation is the specific mechanism used for assessment and planning (Exhibit III-1.1). While ongoing program quality improvement efforts are expected throughout the year, the annual program review addresses larger issues of program improvement and results in the establishment of specific program improvement objectives.

A full complement of programs and services, commensurate with the size and scope of the school, is offered. Teamwork is a necessary and critical aspect of the work relationships that exist among the staff and with the faculty. Low staff turnover in key positions, such as the Dean of Students, the Financial Aid Director, the Registrar, the Vice Chancellor, the Director of the Student Union/Activities and others, has contributed to maintaining an important level of professional experience among the staff and the continuity of overall program development.

Table III-I profiles the Student Affairs Staff and Exhibit III-1.2 will be available during the evaluation team's visit. It contains the resumes of all regular staff members.

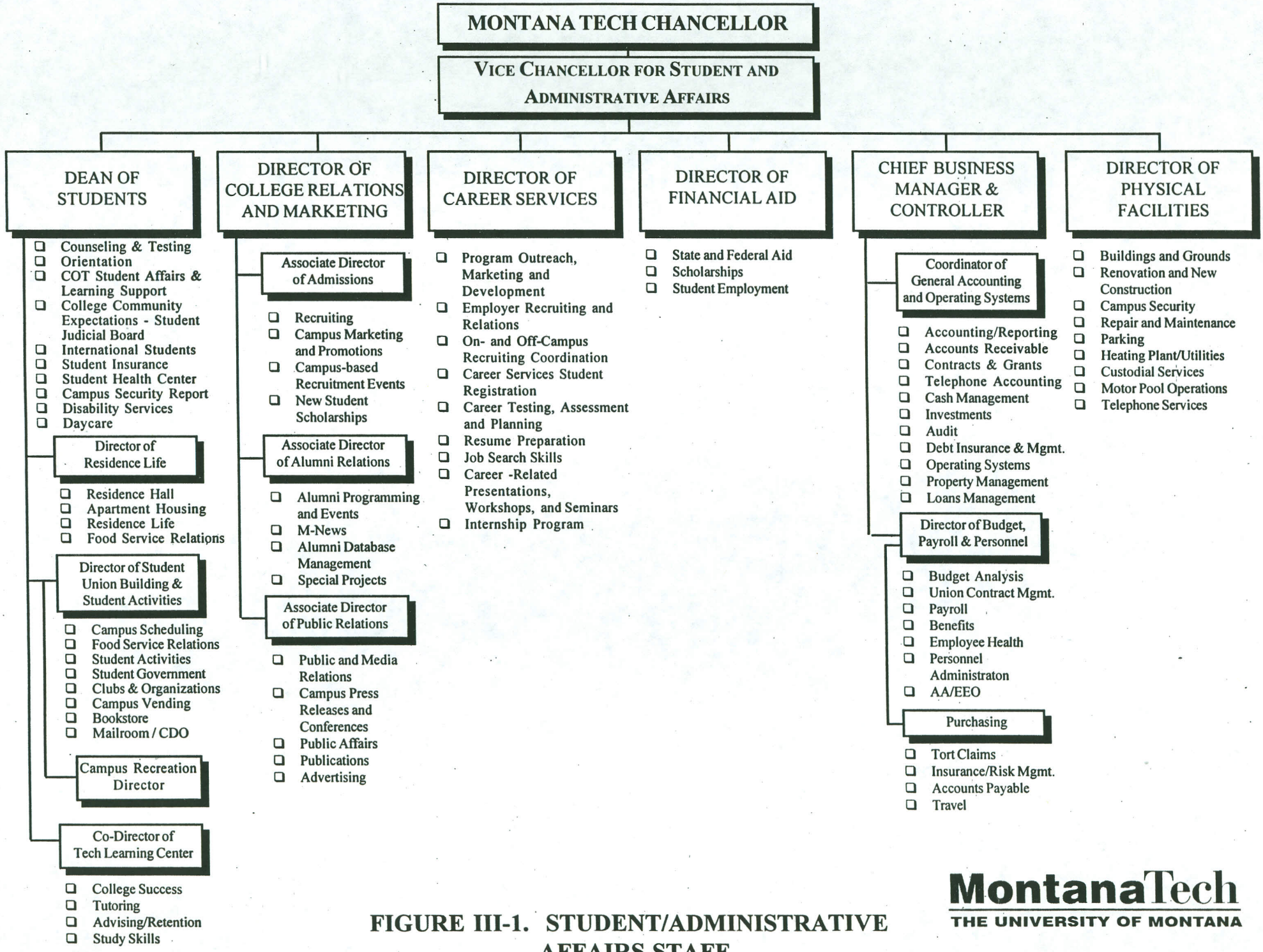


FIGURE III-1. STUDENT/ADMINISTRATIVE AFFAIRS STAFF

MontanaTech
THE UNIVERSITY OF MONTANA

TABLE III-I STUDENT AFFAIRS STAFF PROFILE

		Professional	Support	Student
Female		9	24	71
Male		11	9	78
Degrees:	PhD, EdD	1		
	MA, MS	7	2	
	BA, BS	12	10	
	AA, AAS, Certificate, etc.		7	
Years Experience in field:	None			
	Less than 5	8	12	
	5 – 10	4	9	
	11 – 15	5	5	
	16 – 20		4	
	More than 20	3	3	
Full-time:	9/10 months	3	1	
	12 months	17	27	
Part-time:	9/10 months	1	3	
	12 months		2	

Each program is held accountable for accomplishing annual improvement objectives in addition to the regular purposes and objectives of each program. These objectives are characterized as both problem solving and program enhancement efforts, and are determined as a result of ongoing general assessment of campus Student Affairs programs and services, including the use of campus surveys, meetings with students, staff meetings, focus groups, supervisor evaluations, and surveys providing national norms. (Exhibit III-1.1 Vector System for Goal Achievement Planning/Evaluation and Exhibits III-2.1-11 Surveys).

As indicated above, the staff conducts ongoing informal assessments of program effectiveness throughout the year and also conducts a formal annual program evaluation and planning exercise. Examples of assessment activities which led to improvement objectives and then to action are:

1. Financial Aid services were improved for students at the south campus. Because the south campus is located seven miles from the Financial Aid Office on the north campus, a special ad hoc committee designed a schedule of visits to the south campus that coincided with south campus student intake assessment and placement. Furthermore, a specially designed financial aid newsletter is now distributed twice a semester and a hotline phone is available for south campus students to call the Financial Aid Office.

2. For north campus students, in particular, and for south campus students, as well, the institution decided to create a "one-stop shopping" situation in the Mining and Geology Building by co-locating Admissions, Business Office, Registration, and Financial Aid.

3. In response to reductions in staff, the Admissions Office, the Registration Office, and the Business Office centralized and coordinated the delivery of related services and administrative support for these functions at the south campus.

4. For the past few years, the HPER was managed by a series of part-time coaches who were often distracted by their coaching duties. Several different approaches were attempted to improve upon the quality of the facility management. Various program assessments repeatedly revealed that management remained inconsistent and past approaches did not maximize the number or quality of services to students and the public. These efforts and assessments led directly to the new structure initiated during the 00FY in a cooperative manner by the Athletic Director and Student Affairs administrators. The HPER manager position now reports to the Director of Student Union/Activities and the job is now unified with the Campus Recreation Director position.

5. Annual financial assessments and evaluations revealed that the campus Bookstore was losing large amounts of money and the operation needed more emphasis on marketing. The Bookstore staff was restructured, and a search was initiated for a new director and assistant director with greater professional business qualifications and retail marketing experience.

6. The institution has had variable success with the integration of the south campus. On-going assessments and targeted evaluations revealed that, when a staff member is assigned duties on both the north and south campuses, the quality of the service improves and the program becomes more unified across both campuses, more closely approaching active goals to establish "one" institution through the merger. When the south campus counselor position became vacant, the position was given special duties on both campuses and the current staff member spends scheduled time on both campuses. Additionally, the south campus student government advising responsibilities, formerly assigned to the south campus counselor position, were reassigned to the Director of the Student Union and Student Activities who previously advised only the north campus Associated Students of Montana Tech (ASMT). A change in the ASMT constitution now reflects a unified student government for all Tech students regardless of academic program or campus location.

7. The campus enrollment management group and the campus retention advisory group combined forces to study specific issues of retention and attrition. Success or failure in the initial mathematics courses quickly surfaced as a key element of retention. The Math faculty submitted a proposal now being reviewed by the academic administration for implementation. This "Success Through Mathematics" proposal

(Exhibit III-16) involves three key aspects: math skills assessment, mandatory math placement policies based on the assessment, and a redesigned calculus course that adds an additional credit hour for an intensive review of algebra in the first weeks of the course.

Services and assistance in problem solving are easily accessible to students on the north and south campuses due to the size of the campus and the convenient location of campus resource offices. The "one-stop shopping" situation was discussed above for example. Counseling, testing, career services, international student services, disability services, and the Tech Learning Center are located in the same building. This building is in close proximity on the mall to the Student Union Building, the Mill Building, and all associated programs and facilities, such as student activities, campus scheduling, meeting rooms, food services, bookstore, and student government. The Financial Aid Office was moved in Fall Semester 1999 to the Mining-Geology Building to be in the same convenient vicinity as Admissions, the Registrars Office, and Business Office.

A recently completed, ambitious Mill Building restoration and Student Union Building renovation program enhanced the provision of services, such as food service, bookstore, student government advising, campus scheduling, and information services. It improved student use of the facility with new meeting rooms, designated study areas, and ADA accommodations. Additionally, the new residence hall contributes to an improved quality of campus life and programs. Discussions have already begun on how to instill a stronger academic emphasis in the residence life program. It is important to note that staff, faculty, and students were fully involved in the planning and design of these new and improved facilities. The finished product accomplished the intent of the designs in many important ways (Exhibit III-3 Architectural Program and Conceptual Design of the Mill Building Restoration and Student Union Building Renovation):

1. Eliminated the old separate dining room for residence hall students on meal plans and replaced it with a modernized dining facility where faculty, staff, and all students can congregate for meals as a campus community.

2. Significantly increased the number and quality of meeting rooms.

3. Provided more and better, small meeting areas for study and conversation.

4. Established a new residence hall with room features identified by students as being important to their residence hall living experience.

5. Created special lounges, such as the new Copper Lounge, the Chancellor's Room and the Alumni Lounge, for student comfort and for a wider variety of other campus uses (conference/workshops, seminars, formal meetings, and exhibits).

Student access to services and resources at the south campus remains an important issue that is currently evolving. As a consequence of the merger, and due to some necessary

budget decisions, services that were duplicated on both campuses were centralized on the north campus for efficiency, streamlining, and the most judicious use of limited resources. Also a significant shift in institutional identity is occurring. The south campus is evolving from a stand-alone institution previously attached to the local school district, to a fully vested college of the larger institution.

Discussions about how best to offer services to students at the south campus are ongoing. The most fundamental issue gravitates around whether services should be physically located at the south campus. For example, should all students register for classes on the north campus, or should registration activities be provided at the south campus as well. The answer is likely to be a combination of all these approaches. Certain decisions have been made to provide easy access to services in a way that overcomes the challenges related to the south campus being remote from the main, north campus. The Financial Aid Office has adjusted its services to accommodate this problem. Counseling services are shared with both campuses. Staff providing personal counseling, career counseling, internship programs, and learning center programs have offices on both campuses. A food service program was re-introduced at the south campus this academic year. A Perkins Grant-supported learning center is located at the south campus, in addition to the Tech Learning Center on the north campus. Students from both campuses may use the north campus learning center.

Student governance was previously separate on each campus. However, since the restructuring of the Montana University System and the merger of Montana Tech and the former Butte VoTech (south campus), the north campus Associated Students of Montana Tech (ASMT) became the official voice of all students on both campuses. A recent student referendum incorporated south campus students in the student government constitution and enfranchised them in the larger institution's student government. Difficult questions still remain, mostly related to student fees. Questions are being raised in terms of the payment of fees and realistic access to north campus services and programs for south campus students.

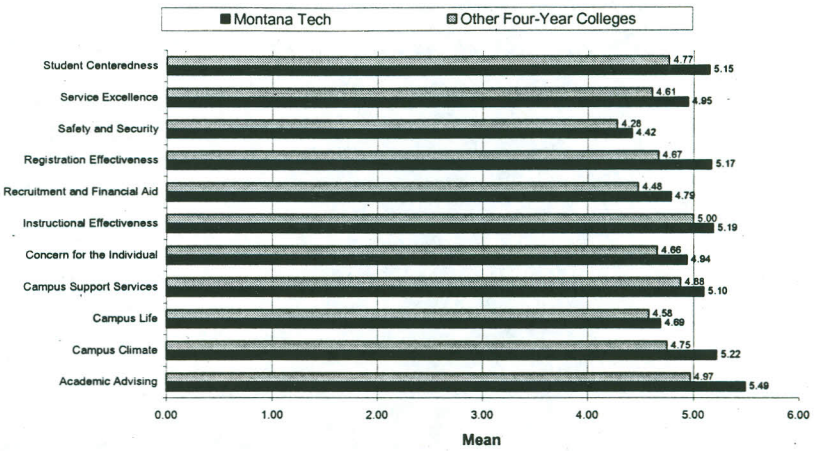
Good working relationships exist between Student/Administrative Affairs and Academic Affairs. The Tech Learning Center (TLC) is a long-standing, joint program venture between Academic and Students Affairs. This partnership has served to strengthen the quality of the program for students. A high level of positive interaction occurs between the TLC and the academic departments and with the counseling, testing, and career services programs. The newly enhanced student success programs are located in the TLC under the leadership of the co-directors. This program enhancement is centered around better advising services for incoming and undecided students, but the larger program direction is toward a more comprehensive, interwoven set of programs and services dedicated to student success. Furthermore, orientation programs will be more effectively aligned with these program elements as a result of a newly designed counselor position.

Related to all of the program development efforts discussed above is an ongoing and active effort to strengthen student services at the south campus. Greater integration and

increased emphasis on Tech being a unified set of two campuses is an institutional mandate for the evolving of the merger.

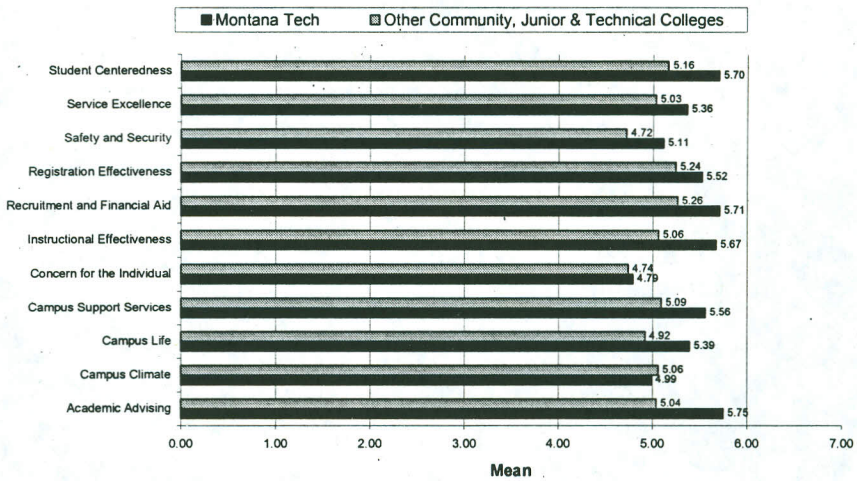
In 1997 and 1999, at least three authoritative measures of student assessment of program quality have been conducted: The Noel and Levitz Student Satisfaction Questionnaire, the Institutional Priorities Surveys (Exhibit III-2.1 – III-2.4), and the "Tell It To The Chancellor Survey" (Exhibit III-2.5).

The Noel-Levitz Questionnaires revealed above average marks of student satisfaction (Figures III-2 and III-3).



Source: Student Satisfaction Inventory, North Campus Report, Winter 1997-98

Figure III-2. Satisfaction of Montana Tech Students Compared to Other Four-Year Public Colleges



Source: Student Satisfaction Inventory, South Campus Report, Winter 1997-98

Figure III-3. Satisfaction of Montana Tech Students Compared to Other Community, Junior & Technical Colleges

Where students indicated a need for improved programs, this information was formally discussed and relayed to the appropriate group or staff for follow-up action. For example:

1. Students indicated dissatisfaction with parking. Consequently, the Chancellor expanded the campus Parking and Traffic Committee and increased the number of student members. A new balance of student interest was created on the committee. In addition to providing more students an opportunity for input, students have more votes for decision-making purposes. This is important as the committee determines priorities in parking rules and hears appeals from persons who receive tickets.

2. Resident Assistants were rated below national norms on one scale of the Student Satisfaction Questionnaire: *"being concerned about me as an individual."* This factor was incorporated as a point of emphasis in RA selection and training, and follow-up discussions were held with residents. In a subsequent residence hall survey, residents evaluated the staff as being satisfactory in terms of the concern identified on the Noel and Levitz instrument.

3. Student satisfaction with the institution's campus recreation program was only average compared to national norms. Since extra efforts were being made at the time to improve this program, the average rating was considered by staff to be less than satisfactory. Staff in the Student Life area made a more detailed assessment and recommended certain changes in the program structure. Most significantly, the campus recreation and HPER management functions were combined, and better integration of student activities and campus recreation was accomplished. Initial follow-up assessments show that greater diversity of programs and increased participation has occurred. Student opinions on this scale will be of particular interest on the Fall 1999 re-administration of the Student Satisfaction Inventory.

4. The Noel-Levitz Student Satisfaction Survey and the Institutional Priorities Survey were administered again in November 1999. These two surveys have been incorporated into all ongoing assessment and planning.

Programs such as the Tech Learning Center, Residence Hall, Food Service, Admissions Office, Student Union and Activities, and Student Life Programs also conduct other regular assessments (Exhibits III-2.6-10). Program directors, faculty, and administrators meet regularly with student government and other student groups to discuss matters of mutual concern. It is a quality and strength of the institution that staff and faculty quickly form ad hoc groups to solve problems or to address issues of quality improvement. This occurs within and between departments, programs, and other areas as a regular function of normal work.

GENERAL RESPONSIBILITIES

Student Demographics

Montana Tech systematically identifies student characteristics in numerous ways, including the following:

1. ACT (American College Testing) - Campus Freshman Profiles (Exhibit III-14)
2. EIT/FE (Engineering in Training/Fundamentals) Exam
3. Graduate Record Exam (GRE)
4. ASSET (A Student Advising, Placement, and Retention Service)Test
5. English Placement Examination
6. Math Placement Test
7. Industry Advisory Boards
8. Montana Tech's Graduate Survey (Exhibit III-15)
9. Student Satisfaction Inventory (SSI) Survey (Exhibits III-2.1-2.2)
10. CORE Drug and Alcohol Survey (Exhibit III-2.10)
11. Tell It to the Chancellor Survey (Exhibit III-2.5)
12. Residence Hall Survey (Exhibit III-2.7)
13. Learning Center Survey (Exhibit III-2.6)
14. Non-returning Student Survey (Exhibit III-2.13)
15. Retention/Completion Data (Exhibit III-2.14)

Figures III-4 through III-7 graphically demonstrate trends in (a) total enrollment for each campus, (b) full-time equivalent enrollment for both campuses, (c) undergraduate class size, and (d) enrollment by gender. Table III-2 provides a further detailed analysis of Montana Tech's headcount and full-time equivalent (FTE) statistics from Fall 1990 through Fall 1999 for both the north and south campuses.

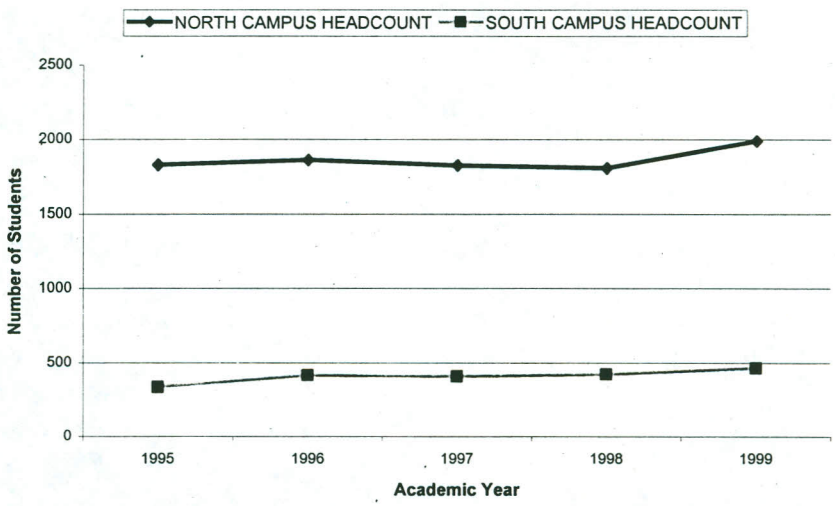


Figure III-4. Total Enrollment by Campus (Headcount)

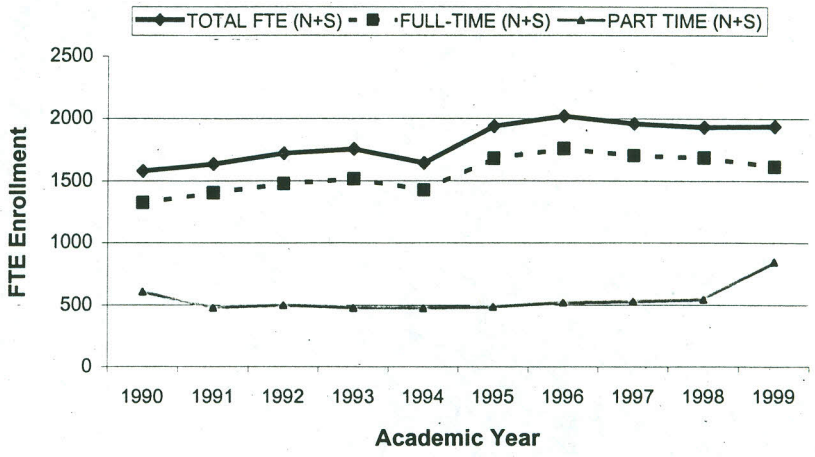


Figure III-5. Full-Time Equivalent (FTE) Enrollment by Academic Year (Both Campuses)

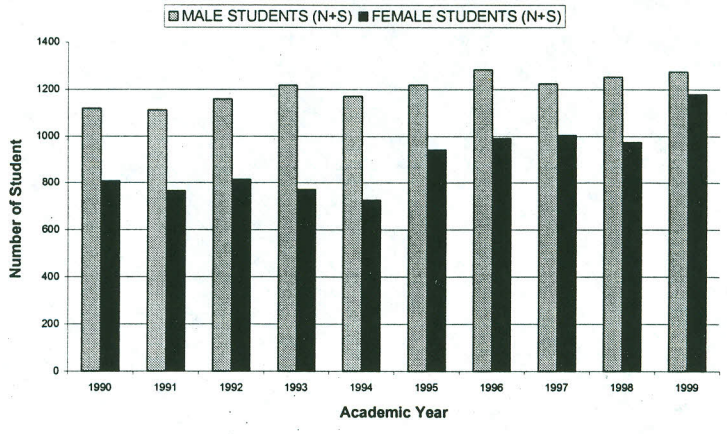


Figure III-6. Gender Distribution (Total Headcount)

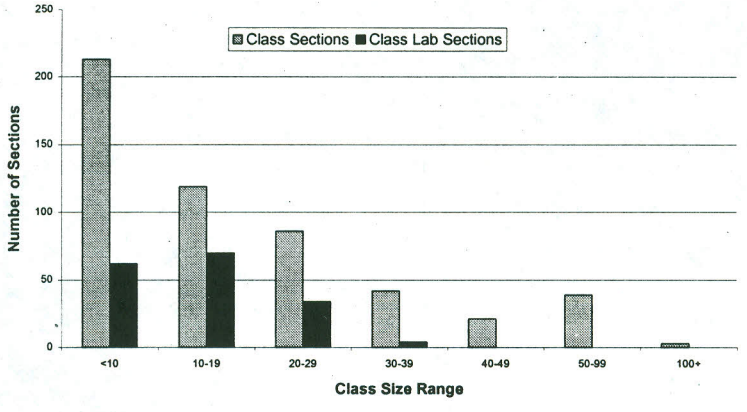


Figure III-7. Undergraduate Class Size (Fall 1999)

Table III-II Enrollment Statistics for Montana Tech
FTE and Headcount Statistics for Comparison
Close of Registration, Fall 1999

MONTANA TECH	FALL	FALL	FALL	FALL	FALL	FALL	FALL	FALL	FALL	FALL
North and South Campus	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
*TOTAL HEADCOUNT (N+S)	NA	NA	NA	NA	NA	2163	2277	2232	2230	2456
TOTAL FTE (N+S)	1578	1634	1720	1755	1642	1937	2018	1958	1931	1937
FULL-TIME (N+S)	1323	1403	1477	1515	1425	1679	1757	1704	1686	1612
PART TIME (N+S)	606	478	498	477	475	484	520	528	544	844
MALE STUDENTS (N+S)	1120	1114	1160	1220	1173	1221	1285	1226	1254	1276
FEMALE STUDENTS (N+S)	809	767	815	772	727	942	992	1006	976	1180
FIRST-TIME FRESHMAN (N+S)	336	318	314	320	294	355	397	381	389	367
FOREIGN (N+S)	81	72	78	68	79	75	64	67	63	67
IN-STATE (N+S)	1785	1736	1776	1747	1632	1888	2005	1959	1967	2188
OUT-OF-STATE (N+S)	144	145	199	245	268	275	272	264	263	268
TRANSFER (N+S)	99	90	115	136	102	130	200	180	203	206
	FALL	FALL	FALL	FALL	FALL	FALL	FALL	FALL	FALL	FALL
NORTH CAMPUS DETAIL	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
NORTH CAMPUS HEADCOUNT	1929	1881	1975	1992	1900	1827	1860	1823	1805	1988
NO. MT COUNTIES	48	52	52	52	52	54	50	50	50	51
NO. STATES	26	32	38	41	40	39	38	31	32	34
NO. COUNTRIES	17	21	21	20	19	18	14	17	18	17
WUE STUDENTS	63	65	104	120	81	66	68	74	92	115
ENGINEERING	767	850	939	982	929	887	868	795	811	770
GRADUATE STUDENTS	81	83	104	105	110	99	105	92	101	95
	FALL	FALL	FALL	FALL	FALL	FALL	FALL	FALL	FALL	FALL
SOUTH CAMPUS DETAIL	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
SOUTH CAMPUS HEADCOUNT						336	417	409	425	468
NO. MT COUNTIES						16	23	25	23	23
NO. STATES						6	6	12	10	13
NO. COUNTRIES						1	1	2	1	1
WUE STUDENTS						0	1	3	3	3
*Students attending classes on both campuses are counted both as a north campus student and a south campus student										
All "Montana Tech" numbers represent total of north + south campuses										

ADA Disability Services

The Student Life Programs Office, under the guidance of the Dean of Students, assists those students identified as having "special needs." At the south campus, the Counselor/Career Development Coordinator is the resource for Disability Services. Students are directed in college publications such as the Student Handbook (Exhibit III-4 Access for Students with Disabilities, page 32), or during orientation programs, or by referral from Admissions or Registration to meet with the Dean of Students if they have personal issues related to ADA, including learning disabilities. The Dean consults with the student's faculty and with other appropriate staff depending on the circumstances. Additionally, the Dean chairs the campus ACCESS Committee, which has a direct reporting relationship to the Vice Chancellors and Chancellor. It is the ACCESS Committee that conducted the ADA Self-Evaluation and Transition Plan (Action Plan for remediation of campus physical barriers and program access-Exhibit III-5). The

committee meets regularly during the year to deal with current issues and to assess progress on the Transition Plan items.

Student Government

The Office of Student Union/Student Activities promotes campus student government, which is known as the Associated Students of Montana Tech (ASMT). A constitution and set of by-laws govern ASMT (Exhibit III-6.1). The student government has authority over student fees assessed by ASMT through the institution. All proposed campus policies are made available to ASMT for review and comment to the Chancellor before such policies are approved. This past semester, ASMT and the Montana Tech administration agreed on a specific protocol which provides guidelines for student participation in campus decision making concerning fee increases (Exhibit III-6.2). The system of governance employs an executive board comprised of a president, vice president, and a treasurer (Exhibit III-6.3). The vice president in turn presides over a ten-member Senate. Advising comes from the Director of the Student Union/Student Activities in an ex-officio capacity. Advising also is available from an ASMT Senate-approved faculty advisor who is appointed annually. ASMT elections are commonly held in the latter part of the spring semester. Freshman officer elections are held early each fall semester.

The Director of the Student Union/Student Activities designs, coordinates, and administers student leadership training opportunities through an annual fall ASMT Orientation Retreat and follows up with active advising throughout the year. The initial planning typically includes two days of interactive training sessions in the areas of group dynamics, goal setting, meeting administration, constitutional review, and office management. Various campus faculty/staff assist in the presentation of relevant topic sessions. Off-campus presenters are also recruited occasionally to provide 'expert' viewpoints.

Rights and Responsibilities

Every fall, students and staff are supplied with a Student Handbook and catalog listing college regulations governing conduct, discrimination, disability access, alcohol use, academic dishonesty, student right to privacy, drug abuse, and the process for filing a complaint.

The subject of student rights and responsibilities is an important part of the general orientation programs, and the topic is especially emphasized in the residence hall program. In many educational programs, particularly those dealing with alcohol, drugs, violence, and sexual assault, healthy and responsible decision-making is an important part of the program's content. With regard to matters of academic honesty, those policies and procedures are not a part of the student judicial system per se, but are rather governed by academic policy found in the Faculty-Staff Handbook. The campus grievance procedure is also available to students who feel they have been the victims of discrimination. This policy and procedure is outlined in the Faculty-Staff Handbook, as well.

Applicable standards in the area of students rights and responsibilities are based in large part on common sense and reasonable codes of behavior, that respect the rights of others and reflect honesty in all actions. The mission and goals of the institution, and the specific policies of Montana Tech and the Board of Regents, apply, as do the laws of Montana and the United States. Special codes of ethics formulated by professional associations and boards may also be considered in determining appropriate behavior.

The College Community Expectations Program (Exhibit III-7) has been established and was updated in the Spring of 1999 to assist students in resolving disputes and grievances and to create better understanding of rights and responsibilities. This program is much more than a standard judicial program in process and substance. It is intended to maintain proper standards of behavior at an academic institution and in a manner that contributes to the learning of all concerned. The program provides for due process in the resolution of grievances and misconduct. As in all learning situations, choices are required. Generally, disputes and disagreements are best settled informally to the satisfaction of all parties.

In other specific cases, a more formal proceeding is warranted. Resolutions and decisions through this process focus on peer review with appropriate involvement of Student Affairs professionals. All appropriate means are provided so that all those who are involved (students, faculty, and/or staff) fully understand the program and its procedures when a complaint is made. For general reference, the program is outlined in the Student Handbook, the Residence Hall Handbook, the Faculty-Staff Handbook, the student government constitution, and it is referenced in Montana Tech's catalog. Each year, the student judicial board or any other hearing board, which may be used as a part of this program, receives appropriate training before it may hear a case to provide for the consistent application of fair treatment.

Student satisfaction in reference to fair disciplinary procedures is ranked positively in the Student Satisfaction Inventory (SSI item #63). There is no reference to discipline procedures on the SSIS but south campus students fall under the north campus Community Expectations Program. The Student Handbook and catalog are distributed to all students, faculty, and staff during fall Orientation and these materials are also available throughout the year at the Student Union, Student Life Office, and Student Services at the south campus.

Safety and Security

The health and safety of students, faculty, staff, and visitors are a primary concern of Montana Tech. The institution has added security screens in the Residence Hall, has increased lighting around campus, and has provided emergency phones in the lobbies of most buildings. The 1997 Student Satisfaction Survey indicates that Montana Tech's efforts to address safety and security concerns have had positive results and the student satisfaction surpasses student expectations at other four-year public institutions (Exhibit III-2.1 items #7 and #28). The same holds true on the south campus (Exhibit III-2.2, items #4, #11, #24 and #31). The only area that was ranked below the national average

was item #36, "*security staff respond quickly to emergencies*." This was brought to the attention of the campus security officials, and they have improved their response time.

Campus security personnel are not police officers. Montana Tech emergency procedures (Exhibit III-8) direct that local law enforcement be contacted immediately if police services are required. In compliance with the Drug-Free Schools and Communities Act and Campus Security Act, policies, procedures, publications, and programs are designed to ensure a safe and productive learning and working environment. The specific policies, procedures, and publications are located in Montana Tech's Student Handbook (Exhibit III-4), the Residence Life Handbook (Exhibit III-9), Student/Administrative Affairs Emergency Procedures Manual (Exhibit III-8), and the Emergency Action and Contingency Plan (Exhibit III-10). All handbooks and manuals are reviewed and updated every year. The Emergency Action and Contingency Plan was developed and implemented in 1998-99. The Montana Tech Annual Security Report of crime-related information is also published on pages 35 and 36 of the Student Handbook, which is available to all members of the campus community.

Catalog and Handbook

The Montana Tech Catalog (available in hard copy – Exhibit III-18 or via Montana Tech's web site) provides all general and specific academic and student services information required by prospective and currently enrolled students. The Schedule of Classes (1999-2000 Course Schedule-Exhibit III-19), also available on the web, lists all classes scheduled during the academic year. At appropriate times during the year, an addendum to the schedule is published in both hard copy and on Montana Tech's website. Additionally, the Montana Tech Student Handbook (published separately from the catalog and soon to be available via the World Wide Web) is distributed to all new students. The Handbook focuses on student responsibilities, provides specific information on student services and organizations, and lists important events/dates during the academic year.

Evaluation of Services and Programs

In addition to the assessment and planning procedures employed by the Student and Administrative Affairs area, Montana Tech's strategic planning process and the budgeting process are also important means by which the administration determines the adequacy of funding in relation to long-term goals of the institution and in relation to current and anticipated institutional priorities. Furthermore, the Academic Deans Council, the Student and Administrative Affairs Directors Council, the Chancellor's Cabinet, the Chancellor's Advisory Committee, the Student Senate, and the Faculty Senate all discuss these matters, as appropriate, and contribute valuable information concerning the adequacy, quality, and proper utilization of Student Services and programs. The Northwest Accreditation self-study has also been influential in this regard leading to improvements.

Academic Credit & Records

All student academic records (transcripts) since Fall 1998 are maintained on the Banner Integrated Student Records Database. Hard copy academic records for those students enrolled prior to Fall 1989 are maintained in the Registrar's Office in secure, fireproof storage. Backup microfiche copies of the hard copy records are maintained off-campus in secure safe-deposit boxes. Electronic backup of virtual student database records is stored in a secure, fireproof safe in the Museum Building. Hard copy records of current students are maintained in a secure environment within the Registrar's Office. In the near future, a data warehouse of all student records will also be maintained in Missoula and Helena.

Security of electronic records remains an ongoing project. Currently, the administrative computing system, which houses the student records database, is being "firewalled" to protect against unauthorized access. Montana Tech is currently reviewing security procedures related to all users of the database. The addition of Banner Web for students and Web for faculty/advisors, and the inherent security within that system, will add additional protection.

The criteria used for evaluation of undergraduate and graduate student performance and achievement at Montana Tech are stated in course syllabus information provided directly to students by instructors of each course. Department Heads are charged with overseeing that instructors adhere to the criteria set forth in syllabi.

Montana Tech clearly denotes between degree and non-degree credit. Any courses NOT counting toward a degree are clearly identified in the catalog, such as College Success. Specific limitations for the amount of continuing education or extended studies credit that can be counted toward a degree are stipulated in the catalog. The institution's catalog and student transcripts note when credit does not apply to a degree (a grade type of "excluded" shows on transcripts). Graduate courses are numbered 5000+, undergraduate (BA/BS) courses are numbered 1000+, technology (AAS) courses 100+, and compensatory (non-credit courses) are numbered < 100.

Montana Tech accepts transfer credit from other regionally accredited institutions in accordance with written procedures (Exhibit III-20) and as noted in the college catalog, pages 10-12. A minimum grade of C from non-Montana University System Units (MUS) is required. A grade of D is accepted from MUS units. Transfer credit from institutions that are candidates for regional accreditation is awarded AFTER the student has successfully completed 30 credits at Montana Tech. Educational Credential Evaluators, Inc. evaluates credits of students transferring from foreign institutions (except Canada).

Montana Tech student records are complete, accurate, and secure. The college has adopted and follows the American Association of Collegiate Registrars and Admissions Officers (AACRAO) recommendations for retention of records. Transcripts and registered student files are maintained in fireproof storage (safes and file cabinets). Transcripts and current-semester student records are backed up by duplicate files (either

microfiche or electronic), which are stored off-site in safe deposit boxes. Data held in the computerized Student Information System Database (Banner) is secure, and is backed up regularly by computer center staff. The college publishes and adheres to Family Educational Rights and Privacy Act (FERPA) guidelines for release of information and confidentiality of student records (Exhibit III-19 - 1999-2000 Course Schedule). A confidentiality agreement has been developed, and is to be signed by all college personnel and students working in college offices. All users of the Banner Web product must agree to maintain confidentiality prior to using the web-based access to Banner.

Student Services - Admissions

Montana Tech's student admission policies are consistent with its mission and strategic direction. The institution clearly states these admission policies in its primary marketing, recruitment, and policy publications. All admission policies for Montana Tech's undergraduate programs and its College of Technology are described in detail on pages 6-12 of the 2000-2001 Montana Tech Catalog. Graduate School admission requirements are described on pages 108-115.

Montana Tech encourages all prospective students to apply for admission. Applications for admission are accepted from in-state, out-of-state, and foreign students. The Admissions Office has counselors available to assist full-time, part-time, early admit and non-degree applicants in the admission process. Counselors are available at both the north and south campuses.

Montana Tech's admission requirements vary depending upon the admission status of each applicant. Generally, all students are required to complete and submit an appropriate application form for admission depending on whether they are a new, transfer, or returning student. A one-time application fee of $30 is assessed to all new students. Depending upon the status of the student, additional information is required as follows:

1. High school transcript(s) or General Education Diploma (GED) – required of all new first-time students to either campus.
2. ACT or SAT score reports – required of all north campus students who have been out of high school for three years or less.
3. ASSET exam scores – required of College of Technology students only.
4. Proof of two separate doses of measles and rubella immunization – required of all new students based upon stated age criteria.
5. Transcripts for all other post secondary institutions previously attended – required of all transfer students.

In evaluating students for admission, the Admissions Office screens students based upon a set of established criteria. Freshman applicants for baccalaureate programs must satisfy one of the three stated admission requirements (22 ACT or 1030 SAT, high school GPA of 2.5/4.0 or higher, rank in upper-half of graduating class), and must have completed a college preparatory program. Students not meeting these standards are reviewed on a case-by-case basis and the Director of College Relations and Marketing makes an

admission decision within exception limitations provided in Montana Board of Regents Policy. Students accepted under these conditions are classified as "at risk," are assigned to an "at risk" advisor, and are required to enroll in MT 101 - College Success. Transfer students admitted by exception are admitted on probation. To be admissible to Montana Tech, transfer students must have a GPA of at least 2.0 on a 4.0 scale.

A summary of Montana Tech admissions statistics for the past four academic years is provided in Table III-III.

TABLE III-III. ADMISSIONS REPORT

	Evaluation Year 1998/1999		Evaluation Year 1997/1998		Evaluation Year 1996/1997		Evaluation Year 1995/1996	
	*A	**B	*A	**B	*A	**B	*A	**B
First Time Freshmen Applications Received	478	83	521	59	477	69	430	66
Admitted	473	71	354	52	335	65	294	54
Withdrawn	5	12	165	7	142	4	136	12
Denied	0	0	2	0	0	0	0	0
Enrolled	310	64	327	41	330	58	283	49
Transfer Applications Received	218	93	236	135	245	150	257	110
Admitted	216	74	208	126	181	144	178	97
Withdrawn	2	19	28	9	64	6	79	13
Denied	0	0	0	0	0	0	0	0
Enrolled	156	72	154	108	175	124	172	94
Readmission Applications Received	209	68	344	51	266	43	359	25
Admitted	198	54	312	51	261	43	346	18
Withdrawn	11	14	31	0	4	0	12	7
Denied	0	0	1	0	1	0	1	0
Enrolled	160	46	269	41	239	32	325	14
Graduate Applications Received	103	N/A	114	N/A	85	N/A	31	N/A
Admitted	47	N/A	48	N/A	56	N/A	15	N/A
Withdrawn	56	N/A	62	N/A	15	N/A	9	N/A
Denied	0	N/A	4	N/A	14	N/A	7	N/A
Enrolled	43	N/A	44	N/A	44	N/A	13	N/A
Professional Applications Received	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Admitted	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Denied	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Enrolled	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Non-Degree Applications Received	310	100	316	60	285	54	324	52
Admitted	306	93	316	60	285	54	324	52
Withdrawn	4	7	0	0	0	0	0	0
Denied	0	0	0	0	0	0	0	0
Enrolled	239	82	283	52	267	44	311	50

*Column A contains figures for the North Campus **Column B contains figures for the South Campus

For special classes of students, the following criteria apply:

International Students
Montana Tech is authorized to accept international students and to issue the Immigration and Naturalization Service (INS) for I-20AB for F-1 student visas and USIA IAP-66 for J-1 student visas. To be admissible, international students must submit an application for admission, a $30 application fee, immunization records, a TOEFL score report with a minimum grade of 525 (for non-English speaking countries), a statement of financial support, all educational credentials including high school and college transcripts from all institutions previously attended (translated into English), and proof of medical insurance. A transfer credit evaluation is performed for international applicants once the student's application is fully complete. If the applicant is found to be admissible, an acceptance packet containing the transfer credit evaluation and I-20 form will be sent to the applicant.

Early Admission Students
Some students who are currently attending high school, but have not yet graduated, may be eligible for early admission to earn college-level credit applicable to a degree. In the Fall of 1999, Montana Tech initiated a "Jump Start" program in two local schools where college-level courses are delivered at the student's high school. High school students who seek admission to Montana Tech must complete and submit a High School Release Form before being considered for admission. If admissible, early admission students must complete an early admission application, submit a $30 application fee, submit high school transcripts and ACT or SAT scores (if available) and show proof of two separate doses of measles and rubella immunizations (if they are taking courses on campus).

Graduate Students
The Graduate School encourages applications from qualified students holding bachelor's degrees from accredited four-year colleges and universities. Degrees or diplomas in technology fields generally do not qualify as accredited four-year degrees for purposes of admission.

Applicants to Graduate School must submit a Graduate School application for admission, a $30 application fee, three personal references, official transcripts from all undergraduate and graduate schools attended, a personal/professional statement, Graduate Record Exam (GRE) scores, and immunization records. International applicants must also submit translated transcripts, Test of English as a Foreign Language (TOEFL) scores, a statement of financial support, immunization records, and proof of medical health insurance. Educational Credential Evaluators, Inc., evaluate all foreign transcripts.

To determine if minimum standards have been met, the Director of the Graduate School Administrator reviews all applicants for admission to the Graduate School to determine if minimum acceptance standards have been met. The Graduate School then forwards the application package to the academic department in which the student will enroll for final

review and decision. The Graduate School informs the applicant of the departmental decision.

TARGET GROUPS

Montana Tech does not discriminate against any students based on sex, marital or parental status, race, color, religion, age, or national origin. A non-discrimination statement is included on page 4 of the Montana Tech 2000-2001 Catalog.

With the assistance of support from private corporations who support Montana Tech, the college has recently started a new program to assist female and minority student who are pursuing a degree in engineering. This program, referred to as STEP (Succeeding sTudents in Engineering Programs), assists students with many aspects of college life including study skills, time management skills, social skills, and other skills important to the success of these students. The Montana Tech Admissions Office identifies students who qualify for the STEP program and provides that information to the STEP coordinator for appropriate follow-up.

Because of the importance of mathematics in a science/engineering education, Montana Tech places high importance on placing students in the most appropriate math courses based upon their current skill and knowledge. Math placement examinations are given to all new students during the first week of each semester. Based upon the test results, each student is advised and placed in the most appropriate math course. An Internet based placement exam is being developed.

All first-time freshman students are required to take an English composition competency exam during orientation and registration. Based upon the results of the exam, students not meeting a minimum score are advised to enroll in a supplemental course in grammar.

Montana Tech understands the unique needs of international students. The Dean of Students assumes responsibility for international students and provides support services necessary to meet their special needs. This area was just reorganized designating the Dean's administrative assistant as the Foreign Student Advisor. Specific programs for international students have been added to the overall orientation program in the past few years (Exhibit 3-11.1).

Academic Planning

Academic advisors use the following to aid in the placement of students in appropriate course work:

- Admission Requirements (ACT/SAT Test Scores, GPA, Rank in Class, completion of College Preparatory Program),
- English Placement Exam,
- Math Placement Test (in first week of semester),
- Graduate Record Exam (Graduate School only),

- Test of English as a Foreign Language (TOEFL - for students whose native language is not English), and the
- ASSET Test (College of Technology students only).

Students admitted "at risk" (as determined by the Admissions Office, or by the Academic Standards Committee) are required to enroll in MT-100, College Success, and generally are restricted to a maximum of 15 credits per semester (Exhibit III-20).

Academic Probation and Suspension

Specific requirements for good academic standing, probation, suspension, and an appeals process are clearly indicated in the Montana Tech Catalog for undergraduate (pages 22-23) and graduate (page 112) students. Immediately following the conclusion of each semester, the Vice Chancellor for Academic Affairs or Vice Chancellor for Research and Graduate Studies, as appropriate, promptly notifies affected students of probation or suspension status and the appeal process.

Graduation Requirements

Graduation requirements (institutional and programmatic) are clearly indicated within the catalog (pages 24-25 and within each department section). A structured course challenge, course substitution, or course waiver process exists for instances when a student might vary from the current publishing curriculum requirements (Exhibit III-21). *Application for Degree* forms (Exhibit III-22) provide the structure for appropriate advisor, department and college review of the student's course work and require the signatures of the student, advisor, Department Head, academic Dean, and the Business Office.

Currently, the college has implemented *Banner Web for Students and Banner Web for Faculty/Advisors*. The Registrar's staff has received initial training and has set up the *Banner CAPP* modules (automated degree-audit software) which will be tested for the next six to twelve months prior to implementation. All three of these enhancements will further assist students, faculty, and staff to access, plan, and review students' academic programs and progress on an as-needed and regular basis throughout the student's time at the college.

Financial Aid

The Financial Aid program of the institution provides eligible students with financial assistance consistent with all state and federal guidelines and in accord with the needs and talents of students. The Financial Aid staff attends yearly federal financial aid training workshops and program updates in the fall and spring, including reauthorization of federal financial aid programs. The Director presently is serving as president of the Montana Association of Student Financial Aid Administrators (MASFAA).

An effective working relationship exists between the Financial Aid Office (FAO) and other groups on campus, especially the Admissions Office, Business Office, Registrar's Office, the Scholarship Committee, and the Montana Tech Foundation (with regards to

scholarship dollars held and managed by the Foundation). In the Fall of 1999, the FAO moved into the Mining-Geology Building to better coordinate services with the offices listed above and to better meet the needs of students. The Director of Financial Aid advises the Chancellor, Vice Chancellors, and the fiscal staff concerning scholarships and fellowships and on matters related to enrollment management.

The Financial Aid Office works with the Admissions Office, student life programs, campus departments, and individual students to fully inform prospective and enrolled students about the availability of financial aid. This is accomplished by providing important financial aid information on all available programs to each and every student that applies for federal and state financial assistance. The FAO responds to all inquires and questions in a complete and timely manner by mailing consumer information on federal programs to every prospective student who applies for federal aid.

Student financial aid satisfaction at Montana Tech ranks above the national norms (SSIN items #5, #12, #17 and SSIS items #7, #13, and #20).

The FAO files and records financial aid documentation on the current status of all enrolled students and applicants, along with any related information and special issues. This information assists the FAO in helping students solve problems and in receiving the maximum available assistance.

New efforts have been employed to better serve students at the south campus including:

- presenting financial information to groups
- counseling with individuals
- providing financial aid information to each student when they take the ASSET test
- developing and disseminating a semester newsletter to better inform south campus students about aid availability and the application process for each and every federal/state program that is available

The FAO administers all state and federal need-based programs in compliance with government regulations and is audited by the State Legislative Auditors Office in compliance with the Federal Single Audit Act. Table III-IV provides a summary of student financial aid at Montana Tech. The FAO also complies with federal program reviews and conducts periodic reviews. State audits and federal program reviews are available for review in the campus exhibit room, (Exhibit III-17).

Montana Tech has a centralized student information system, Banner, that links Financial Aid, Registration, Admissions, and student account records. Montana Tech is in the second year of Banner implementation and has been able to make timely awards to students. Electronic fund transfers have increased the efficiency of Montana Tech's Federal Stafford Loan process. A thorough working relationship with guarantee agencies, lenders, and students has maximized efficiency, resulting in quicker loan delivery to students.

Table III-IV. Statistics on Students Financial Aid

	1996/97	1997/98	1998/99
Female Students	755	734	716
Male Students	923	898	876
Federal Grants	$1,269,031.00	$1,421,717.00	$1,644,784.00
Perkins Loans	$133,750.00	$197,350.00	$241,500.00
Federal Work Study	$162,064.00	$155,736.00	$151,189.00
State Work Study	$28,671.00	$35,189.00	$32,953.00
State Grants	$16,120.00	$23,940.00	$15,650.00
Stafford/PLUS Loans	$3,446,016.00	$3,908,799.00	$3,734,087.00
Scholarships	$750,000.00	$775,000.00	$800,000.00
Tuition Waivers	$434,104.00	$499,941.00	$502,655.00
Total	**$6,239,756.00**	**$7,017,672.00**	**$7,122,818.00**

Montana Tech has outstanding scholarship support through industry, business, and other parties. The Admissions Office awards all freshman and transfer scholarships. A Scholarship Committee, comprised of faculty, Department Heads, and FAO staff, award returning student scholarships.

Students at Montana Tech have the lowest amount of Federal Stafford Loan debt within the Montana University System, a result of Montana Tech's tremendous scholarship support and student internship programs. Most scholarships are merit based and awarded based on academic achievement. The FAO also administers all tuition waivers, which comprise a large amount of student assistance.

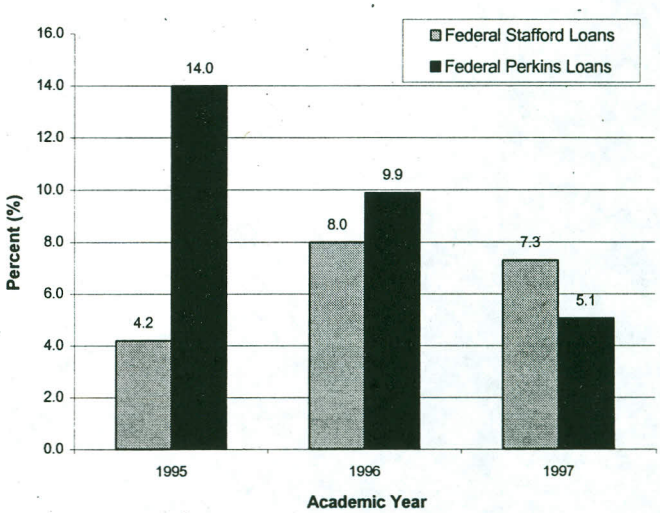


Figure III-8. Student Loan Default Rates

The student loan programs and default rates (see

Figure III-8) are carefully managed and monitored. All loan recipients and first-year borrowers are required to attend entrance interviews for both Federal Stafford and Federal Perkins Loans, and all graduates must attend mandatory exit interview sessions. The information provided for Federal Stafford Loans covers debt management and the students' rights and responsibilities for borrowing loan funds to help pay for higher education. These sessions are provided by the Montana Guaranteed Student Loan Program, MGSLP, and by the Montana Higher Education Assistance Corporation, MHESAC. The trend for Montana Tech's default rate in each program has been variable for the past three years. This can be attributed to the merger of the south campus into one federal identification number for all Title IV assistance with the north campus.

Orientation

Orientation is undergoing its own evolution as the options to pre-register gain popularity. Historically, Montana Tech's emphasis was directed to the fall program when all students were required to be on campus to be advised and registered. The Dean of Students and the Admissions Office coordinate orientation. In 1995, Tech offered its first summer orientation/pre-registration program. Pre-registration and summer orientations are now offered twice during the summer with an extended orientation program in the fall (Exhibit III-11.1). Orientation programs and activities also include Tech Days, scholarship programs, international programs, evening orientation, and College Success classes. Summer and evening programs are evaluated by participants for improvement and effectiveness at the end of each session (Exhibit III-11.2). The Student Satisfaction Survey also supports the effectiveness of these programs (SSIN items #45, #64, #77 and SSIS item #59). Even though there is positive feedback about orientation programs, MontanaTech still struggles with students not attending, or attending just one portion of the program. Orientation is currently not mandatory and students may opt to pre-register after the last summer program. The north campus made progress to address students that do not attend orientation programs, but a number still miss these opportunities. The south campus programs are well attended. Montana Tech's Extended Orientation, which was developed and implemented Fall of 1998, offers programs geared to student readiness. These programs offered during the first six weeks of fall semester have great potential to support the mission of student orientation on both campuses.

Academic Advising and Learning Center

All Montana Tech instructional faculty are charged with advising students. A Faculty Advisor Handbook (Exhibit III-23), jointly prepared by the Dean of Students and Vice Chancellor for Academic Affairs, is distributed to all faculty and updated yearly. Each year, Montana Tech presents workshops directed at improving faculty advising skills. All students, with the exception of part-time students taking seven or fewer credits, are required to obtain their advisor's signature to register for classes or make a change in their registration. Career exploration opportunities, including testing and computer-guided career exploration software, are available through the Student Life Programs Office and the Tech Learning Center.

Advising current students is coordinated between the academic departments and the Registrar's Office. The system has been very effective with continuing students who are seeking a degree at Montana Tech. Therefore, currently enrolled students are being advised and receive assistance with their problems, as are those who change their major or who have special issues related to their advisor. International students receive special assistance through their faculty advisors and through the international student advisor in the Dean of Students Office. Students with disabilities, or who have special needs, also receive assistance through the Dean of Students, Admissions, and Registrar's offices.

The institution's academic leadership and Student Affairs staffs have recently focused on an area of advising that needed enhancement. Specifically, new freshmen and transfer students who arrive for pre-registration during times when the faculty are generally unavailable (semester and summer breaks) were too often at a disadvantage in terms of advising. Mathematics placement advising was the most critical concern in this regard and non-traditional students were often out of sync with the availability of regular advising resources. Some non-traditional students do not have to take the ACT/SAT assessments and placement in the proper mathematics class can be difficult, as well as English, Chemistry and Physical Geology. Another area that needed special attention was the undecided student population. To fill this gap, the institution established an advising resource that would be available to work in concert with the Registrar and Admissions offices in advising and pre-registering students who came to campus during vacation periods. The Co-Directors of the Tech Learning Center, who share these responsibilities, are now coordinating this enhanced availability of advising. Each provide either effective pre-registration advising or personally arrange for the student to see an appropriate member of the faculty. Special care is taken in the selection of mathematics courses, because proper mathematics placement is critical to student success. As soon as a regular academic term begins, the new student is personally assigned to a permanent Montana Tech faculty advisor. Increased emphasis is being given to workshops and training on effective advising.

To insure that students are taking the classes they need to meet their goals, prerequisites and to graduate on time, registration for classes takes place during an interactive session between the advisor and the student. Classes for the next two semesters are mapped out and then the advisor goes on-line and registers the student in the appropriate classes. If there are time conflicts or other problems, they can be immediately handled. When the student leaves their advisor's office, he/she has a completed schedule and the advisor is in full agreement. Montana Tech has found that this system works well and is considerate of the time of both the advisor and the advisee.

The current student information system is inadequate to insure that students who meet prerequisites at the time of registration actually pass the classes. Therefore, a database query has been written which checks failures in a class with classes registered for the next semester. The results of the query are shared with advisors, and students are then required to change their schedule where appropriate.

Advisors at Montana Tech generally are much more involved with their advisees than simply mapping out a schedule of courses. Typically, students have both formal and informal discussion with their advisor multiple times per semester. Topics of discussion include internships, job placement and participation in professional student organizations. By the time a student graduates, they generally will have both a professional and personal relationship with their advisor and other members of the faculty within the department.

Career Development

Career Services offers career-related assistance to students at all levels, from incoming freshman through graduating seniors, graduate students, and alumni. Staff members work with constituents in specific areas such as career counseling and interest assessment, on-campus interviewing, off-campus interviewing opportunities, job search strategies and skills, and internship coordination. In addition to the staff, Career Services has other resources available to aid in career development – career-related books, company directories and brochures, employer contacts, and web-based job search information.

Services are delivered through individual advising, classroom presentations, group meetings, technology, coursework, and referrals. The desired student outcomes resulting from the delivery of services include: develop awareness related to career choice; obtain occupational information to aid career planning; take responsibility for career development and job-search skills; develop job-search skills; gain experience through suitable experiential learning opportunities; connect students with alumni and employers to promote understanding of career choice and competencies, and build networks for future internship and employment opportunities; search for and pursue desired employment and educational opportunities; and prepare to manage careers after graduation.

Career exploration begins prior to a student enrolling at Montana Tech. Workshops are conducted during Tech Days, a campus visit day for high school students considering enrolling at Montana Tech, utilizing self-directed assessment tools. Once enrolled at Montana Tech, students have access to tools such as the STRONG Interest Inventory, SIGIplus, and the Myers-Briggs Type Indicator (MBTI). Many academic departments include these assessments as part of their curriculum, and the testing is conducted in the classroom. Student satisfaction with career exploration opportunities ranks above the national norm (SSIN item #49).

The placement services are established and continue to be developed. Employers recruit students through on-campus job postings and interviewing (39 companies were on-campus this fall) and from off-campus (over 320 companies seeking students from August through November). Students can register with Career Services to increase their chances of being considered for on- and off-campus recruiting opportunities.

For the first time, students from the south campus are registering with Career Services. Students at the south campus had expressed a desire to become more involved in the formal placement process and it is now available to all students of Montana Tech.

The other major change with the Career Services registration process is all students registering provide an electronic copy of their resume. This electronic option for employer screening is very efficient. Of the 39 companies interviewing on-campus this fall, 37 of them requested the students' electronic files for pre-screening. In most cases, the students' electronic files were sent the same day as the company request was made.

The resources of Career Services are also available to all Montana Tech alumni. Career Services keeps the alumni connected or reconnects them to employers currently recruiting on- and off-campus. As registered alumni, resumes are on file in the Career Services office and available to all interested employers. Alumni receive job announcements and their resumes are sent to satisfy employer requests. Career Services staff assist alumni with resume and cover letter preparation, interviewing skills, and job search strategies.

An emphasis has been placed on workshops and classroom presentations to provide assistance with job-search strategies and skills. Until this fall, most career-related services were delivered through individual advising. This fall, workshops were conducted on registering with Career Services and resume writing. Workshops on resume and cover letter preparation, interviewing, and Internet job search will be offered this spring.

In addition to the workshops, students have the opportunity to enroll in two classes that explore career options and the job search process: MT1016, Student Success; and MT220, Employment Strategies. Currently, MT101 is required for students on academic probation and MT0220 is required for all south campus students. Career Services is now involved in directing the content of MT220, and this will be the most efficient and effective way of delivering career-related services to south campus students.

One of the principle functions of Career Service is to administer the Internship Program. The Internship Program is an organized program in which students include periods of supervised, degree-related employment as an integral part of their academic degree work. The student may receive academic credit for the work experience and is usually compensated at the normal salary level for the position. Benefits to the students who participate in the Internship Program are numerous and include: professional experience, clarification of career goals, insight into the relevance of degree course work, contacts for future employment, income, and self-assurance and personal growth.

The students and employers assess the Internship Program and the students' internship experiences. All students participating in an internship for academic credit complete an evaluation form. The last question on the form addresses how the Internship Program can be improved. Students provide positive feedback and constructive criticism that have been used to improve the program. The student satisfaction survey (SSIN item #79) indicated that students were satisfied with the opportunities that exist to gain practical experience in student majors. Employer satisfaction is gauged by the 25 percent increase in internship placements from the Spring of 1998 to the Spring of 1999.

Resources outside the Career Services Office are essential for students and overall program development. Staff work collaboratively with faculty, staff, administrators, and employers in identifying, developing, and monitoring work sites (both full-time and internship sites). Faculty provide important perspective and assessment through the Career Services and Internship Advisory Boards. The advisory boards work in cooperation with the Director of Career Services and staff to establish and implement policies and procedures related to office operation. The boards also act in an advisory capacity concerning all Career Services matters and activities. Also, Career Services staff maintain effective working relationships with social service programs, such as Vocational Rehabilitation, local Job Service offices, and several other non-profit organizations to facilitate the career development process.

Delivery of career-related services has proven to be effective as evidenced by a placement rate of over 93 percent for the last 10 years. The annual Graduate Survey is the placement assessment tool (Exhibit III-15, 1998 Graduate Survey), and survey results are based on a 100 percent response rate from Montana Tech graduates. The survey is used to track and follow up with all graduates to determine employment levels, position titles, employment locations, type of organizations, starting salaries, continuing educational development, and awareness of Career Services.

A summary of the 1998 Graduate Survey follows. This information includes placement and salary information, as well as graphical demographics information (see Table III-V and Figures III-9 through III-11). Significant trends show increases in average starting salaries, degree-related placement, and diversity of companies employing Montana Tech graduates.

TABLE III-V
SUMMARY OF THE 1998 PLACEMENT CATEGORIES BY DEGREE AREA

	# Grads	% Placed	Salaries High	Salaries Low	Salaries Average
Biology	2	100%	N/A	N/A	N/A
Business & Information Technology	32	94%	$42,000	$20,000	$28,339
Chemistry	7	100%	N/A	N/A	N/A
Computer Science	12	100%	$65,000	$25,000	$40,978
Engineering Science	31	100%	$70,000	$24,000	$40,807
Environmental Engineering	34	100%	$48,000	$23,312	$35,792
Geological Engineering	9	100%	$40,000	$36,000	$38,133
Geophysical Engineering	3	100%	$42,000	$30,000	$36,333
Mathematics	3	100%	$40,000	$33,000	$36,500
Metallurgical Engineering	9	100%	$57,500	$36,000	$44,986
Mining Engineering	13	100%	$55,000	$30,000	$43,125
Occupational Safety & Health					
Science & Engineering Option	28	100%	$68,000	$27,500	$42,233
Applied Health Science	8	100%	N/A	N/A	N/A
Petroleum Engineering	15	100%	$58,420	$36,000	$49,635
Society & Technology	13	85%	$35,000	$23,000	$28,000

OVERALL PLACEMENT	98%
OVERALL PLACEMENT BY DEGRE TYPE	
Arts and Sciences	95%
Engineering	100%
AVERAGE STARTING SALARIES	
Arts and Sciences Degrees	$32,469
Engineering Degrees	$41,458

The placement percentage consists of six categories:

1) degree-related employment
2) professional employment
3) employment outside of degree
4) continuing education
5) military
6) not seeking employment

EMPLOYMENT BY GEOGRAPHIC AREA

(Degree, Professional and Non-Degree)

Montana	35%	Idaho	8%	Texas	8%
Washington	6%	California	5%	Alaska	5%
Colorado	4%	Utah	4%	Wyoming	4%
Louisiana	4%	Nevada	3%	Arizona	2%
North Dakota	2%	All other areas*	10%		

**Includes U.S. Citizen working in South America*

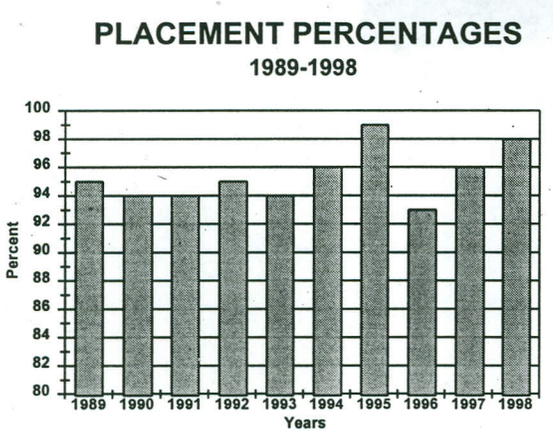


Figure III-9. Placement Percentages

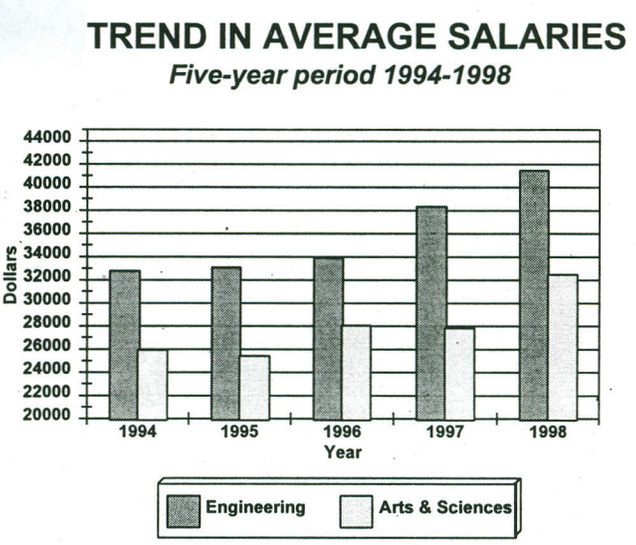


Figure III-10. Average Salary Trend

The career development programs and services continue to evolve. Based on the graduate survey and informal student and employer assessment, Career Services will continue to improve and implement new programs and services. Specific activities to be incorporated in the Career Services package include developing a formal alumni-mentoring program, hosting a career fair, and conducting formal employer and student satisfaction surveys focused on career-related issues.

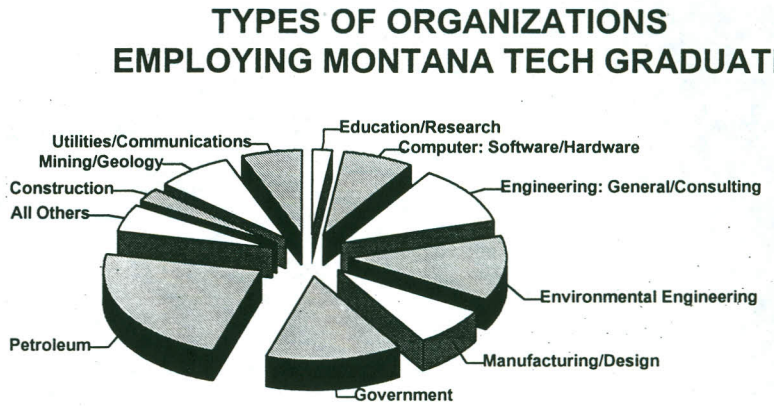


Figure III-11. Employer Types

Counseling and Health Services

The Student Life Programs Office is responsible for Student Health and Counseling Services. Health and Counseling Services provide the following assistance to Montana Tech by: 1) supporting and advancing the academic mission; 2) removing barriers to learning; 3) contributing to retention; 4) addressing the most pressing prevention needs of the campus community; and, 5) building a sense of interdependence and community. Health, wellness, student development, and counseling programs contribute to Tech's focus on students as whole persons including their capacity to address critical issues in health behaviors and their ability to foster connection, participation, and citizenship.

Counseling Services is coordinated by the Dean of Students and uses a creative staff approach that ties in a professional counseling staff with Career Services. By sharing professional responsibilities with two people, personal and career counseling is offered more consistently and effectively on both campuses. Satisfaction ranks above the national norms (SSIN items #22 and #49; and SSIS items #30, #47, and #48).

Montana Tech contracts with Rocky Mountain Health Clinic to provide a nurse four hours a day and a physician two hours a day, five days a week. The Health Center was established at the request of students and its effectiveness is evaluated in part by the number of students using the service (Exhibit III-12). The Student Satisfaction Survey item #15 positively reflects student satisfaction. Students pay a $18.50 semester fee to support this service. South campus students have the option to pay and use the Health Center on the north campus.

Residence Hall Housing

Between 1990 and 1999, Tech had more students apply for housing than could be accommodated. Overflow students were provided housing space in family housing. A new 100-bed residence hall was constructed for Fall 1999 eliminating that situation.

Montana Tech currently can house 300 students in two traditional residence halls. These buildings offer double, single and suite-style rooms. Most students share community bathrooms. All residence hall housing is modern and offers a variety of conveniences including computer network access, cable television, and telephone service for each student. Study lounges, a computer laboratory, laundry, kitchen, game room, television lounge, and a full-service reception desk complement the living space. The housing facilities are well maintained and a long-term plan for renovation and maintenance is in place. Further, the students respect the living environment with little damage and vandalism exhibited.

Housing is operated as an auxiliary enterprise, offering modern housing at affordable rates. Historically, students have shown through annual surveys that the Residence Hall is run to their satisfaction and provides a good learning atmosphere that enhances the out-of-class experience (Residence Hall survey summaries, Exhibit III-2.7). A computer lab was installed in Prospector Hall in response to student requests (and was a design component of the new Residence Hall). A concerted effort has been made to maintain the facilities in a clean and safe manner. Security screens have been placed upon all accessible windows (1993), locked hallway doors provide added privacy to all living areas, and policies are in place that create a good study environment.

Family Housing

Apartments for 60 student families are located north of campus. Furnishings are available for any family that desires them. Extensive renovation, including the replacement of all windows, siding and roofing, was completed during the Summer of 1999. An ongoing maintenance program regularly replaces furnaces and carpeting, and renovates apartments. Rental costs have been rising to meet growing repair and renovation costs, but is still below the cost of the local housing market each year.

Student apartment managers are readily available to assist with any needs, report repairs, and maintain the grounds. A playground and city-operated skating rink are located on-site for the recreation needs of family members. A newsletter is published monthly to provide regular communication to the tenants. Family-oriented events (barbecues, clean-up days, etc.) are held periodically to build relationships between tenants and staff.

Residence Life Program and Staffing

A live-in professional staff member, who is assisted by student para-professional staff, directs the Residence Life program. An Assistant Director was hired to provide additional professional staffing with the opening of the new Residence Hall. Staff training focuses upon the needs of students, communication and confrontation skills, educational and recreational activities programming, and available campus and community resources. The 1997 Student Satisfaction Survey indicated that responses for "*residence hall staff are concerned for me as an individual*" were below the national average. Feedback and training has given the staff an increased awareness of individual student needs, how to identify these needs, and the ability to address them appropriately. Annual Resident Assistant evaluations (Exhibit III-2.7) by students have indicated high

levels of satisfaction with the Resident Assistant directly responsible for the housing area where they live.

Students are annually surveyed (Exhibit III-2.7) to determine specific needs for improvement and to identify areas that meet the satisfaction of students. Responses to surveys have led to several improvements in the housing operation: the installation of a computer lab, improved parking lot lighting, and a re-structuring of the cleaning services provided. The students have expressed dissatisfaction with the contractors providing laundry and game services. A new contract for laundry services was bid and awarded this year.

Students are included in active planning efforts and decision making through the Residence Hall Association (RHA). A mandatory semester fee of $7.50 is charged to each resident student that provides funding for a variety of activities and the purchase of supplies and equipment under the authority of RHA. Annual ski trips, holiday celebrations, plus swimming, camping, hiking, and fishing trips are examples of group activities. The RHA group also provided input when the meal plans offered to students was significantly altered. The Residence Hall Association has weekly meetings that are open to all residents. The Assistant Director of Residence Life counsels and advises this group.

Residence Life also supports campus activities that promote other school programs. Housing is available for several groups that are associated with the Technical Outreach Office (Upward Bound, Veteran's Upward Bound, Young Scholars, and STEP) and other campus offices (Hydrogeology Field Camp, sports camps, and campus-based internships). The Residence Life staff actively participates in Orientation, Tech Days, and other events designed to promote the college to prospective students.

Student Union/Activities/Food Services

The Montana Tech Student Union houses the campus dining services. These services are contracted out to Sodexho-Marriott Campus Services. In the Spring of 1999, a complete renovation of the campus dining services took place. This extensive remodeling and improvement of the dining area has allowed Montana Tech to provide a greater diversity of product lines and service components. It also combined the resident dining hall with the faculty/staff nonresident-dining program. This new atmosphere allows all of the campus populations to dine in the same facility, thus encouraging greater interaction and community. Montana Tech also provides a satellite food service operation (also managed by Sodexho-Marriott) in its Mill Building. This operation, The Coffee Mill, provides gourmet coffees, drinks, snacks, soups, sandwiches, and assorted sundry items. Sodexho-Marriott provides professionally trained managers who are certified in food safety. Primarily this involves food safety according to 'Hazard Analysis Critical Control Points'. They are also trained annually in 'wellness' programs, menu planning, food storage techniques, quality assurance, sanitation, and marketing. The campus dining services are inspected periodically by the Montana Department of Public Health and Human Services.

In an effort to improve and increase food service opportunities for south campus students, Sodexo-Marriott operates a managed food service. This new service includes daily breakfast and lunch menus. Service is provided from 7:30 a.m. until 1:30 p.m., Monday through Friday. Past south campus food service operations were comprised of occasional on-site vendors and vending machines. It is anticipated that the new Sodexo-Marriott service will foster an atmosphere of balance and community on the south campus.

In a continuing effort to provide a living and learning environment that meets the needs of students, faculty, and staff, Montana Tech is always exploring ways to improve the facilities and food service offered on campus. The Prospector Survey (Exhibit III-2.12) and Director Dinners (feedback sessions with the Director of Tech's Food Service) revealed low satisfaction with the food service.

To address the low satisfaction with the Food Service, in the Fall of 1999, Montana Tech engaged H. David Porter Associates, Inc. (PORTER), a nationally recognized independent food service company, to assist in examining the services offered on campus. PORTER's consultations include examination of customer service, food preparation, menu options, hours of service, meal plans, and physical arrangements of all dining facilities. As a part of the assessment of dining service needs for Montana Tech, PORTER developed a survey based on focus groups and interviews PORTER conducted at Tech in October of 1999. The survey was administered on both campuses near the end of the semester (Exhibit III-2.11) and the results were presented January 31, 2000. The Sodexho-Marriott campus food service director reviewed the survey data before being mailed for PORTER analysis. An action plan for Spring 2000 addressing immediate changes to impact satisfaction was submitted by Sodexho management (Exhibit III.2.11).

Co-Curricular Activities and Programs

The primary purpose of the Office of Student Union/Student Activities is to advise, promote, and supervise the Co-Curricular program at Tech. The primary areas of responsibilities include, but are not necessarily limited to, student clubs/organizations (which includes sport clubs) and the Student Entertainment Committee. Student clubs and organizations are required to abide by a recognition process that assures a particular organization with certain rights and responsibilities (Exhibit III-13.1). The formal recognition process includes the identification of organization officers and assigned faculty/staff advisors, plus formulation of the organization's constitution. In turn, the club is granted rights and privileges that include petitioning for funds from student government, access to college facilities, use of audio/visual equipment, on-campus fund-raising activities, and Bookstore and Mail Room charging privileges. Student clubs and organizations for the 1999-00 academic year numbered 35 recognized groups (Exhibit III-13.2). The primary purpose of the Student Entertainment Committee is to provide a calendar of diverse entertainment events and traditional events (Homecoming and M-Days). This committee works to arrange a slate of activities that appeal to the diverse campus student populations and their schedules. In all, it is estimated that nearly 700 students were actively involved in various groups. An additional 60+ students are

involved in student government, Technocrat (student newspaper), KMSM-FM (student managed radio station), and the Student Entertainment Committee.

The Student Union/Student Activities Office provides student centered advising, financial record keeping, scheduling services, clerical assistance (as needed), maintenance/storage needs, and student leadership programs for all student club officers and members. Tech holds institutional memberships with both the Association of College Unions International and the National Association of College Activities. Participation by the Director of Student Union/Activities and students in regional and national conferences of these organizations promotes an active commitment to uphold and maintain Montana Tech's responsibility to provide student centered co-curricular programming.

Campus Recreation

Currently, the Campus Recreation program employs a full-time salaried individual who is responsible for the planning, administration, and marketing of a recreational sports and outdoor recreation program. Student fees (ASMT) fund a portion of the personnel services and operating budget of the program (approximately $25 thousand per year). Montana Tech funds a portion of the contract professional employee's salary and benefits. Typical program offerings include common team sports for men, women, and co-recreational divisions; and individual competition events for men and women. New schedules of events are presented each semester.

Montana Tech offers substantial facilities for leisure interests of students. The Health, Physical Education, and Recreation Complex (HPER) contains four basketball/volleyball courts, six handball/racquetball courts, a six lane-25 meter swimming pool, weight training room, dance and aerobics room, and a full complement of shower/locker rooms for men and women. Outdoor recreation areas are equally sufficient: tennis courts, softball fields, open field areas, and one lighted combination baseball and football area. Projects are currently underway to expand and improve Tech's open space recreational field areas. The purpose of these projects is to allow a balance of rotational use between athletics and recreational needs.

The Campus Recreation program takes full advantage of Montana Tech's geographical location to allow students an opportunity to engage in outdoor activities. The objective of the outdoor recreation is to make available outdoor experiences that may not otherwise occur in the leisure time of college students. The outdoor recreation portion of the program offers equipment rentals (backpacks, tents, sleeping bags, snow shoes, cooking equipment, coolers, rafts, and kayaks), outdoor trips, day hikes, seminars, guest speakers, and cross-country skiing opportunities.

Bookstore

Tech provides a full service, campus bookstore that supplies a textbook support system; a full array of academic/office supplies; personal hygiene needs; computer supplies; candy/snacks; leisure reading books; and college logo clothing. Specialized items can be single ordered for customer convenience. Hours of operation are favorable to students

and faculty/staff alike. Input toward bookstore policies and procedures are accomplished by the functions of the Faculty, Senate, ASMT (student government), and Bookstore Advising Committee.

In the Spring of 1998, the Bookstore was reorganized and relocated from the Student Union Building to the newly renovated Mill Building. Previously under the supervision of the campus Business Office, the Bookstore is now under the administration of the Student Union Director, as are all operations of the Mill Building. The Bookstore has experienced a decrease in revenue over the last several years. It was determined that a reorganization of the director and assistant director positions was necessary to improve the operation and its profitability. Plans are also being made to link up with The University of Montana Bookstore in the area of on-line textbook purchasing capabilities and the creation of an on-line catalog.

Student Media

Montana Tech students, along with faculty/staff members, serve on the Publications Board (PUB). The PUB serves to monitor and regulate student-run media: the campus newspaper (The Technocrat-Exhibit lll-13.3); and the campus radio station (KMSM). Montana Tech students comprise the majority of committee members. Students are also the only committee members with voting privileges. PUB is an ASMT (student government) appointed and approved committee. The Student Union/Student Activities Director serves on the committee in an ex-officio capacity. First Amendment policies are routinely reviewed to insure proper and ethical applications.

From 1996 until 1998, The PUB engaged in a discussion of whether to continue the college yearbook (Magma). Several issues regarding the viability of the Magma were exchanged within the committee and across campus. These included overall cost, Magma popularity, content quality, and delivery schedule to students. The PUB Board made the decision in the Spring of 1998 to discontinue the Magma, primarily due to its cost and quality of content questions.

Intercollegiate Athletics

Montana Tech's Intercollegiate Athletics Program consists of women's volleyball, basketball, and golf, plus men's football, basketball, and golf teams. Tech is a member of the National Association of Intercollegiate Athletics and the Frontier Conference. Between 160 and 170 student athletes compete for the Orediggers.

The accomplishments of Montana Tech student athletes in the classroom and on the court/field are a source of pride for the institution. These young people are living proof that high achievement in athletics and academics can go hand-in-hand. Oredigger athletes regularly garner extensive recognition on academic all-conference teams and N.A.I.A. All-American Scholar Athlete Selections. The 1998-1999 seasons produced 30 Academic All Conference Orediggers and 9 N.A.I.A. American Scholar Athletes. During the nineties, Tech won conference championships in women's volleyball, men's basketball and football. These squads have advanced to post season play on several

occasions with the 1997-98 and 1998-99 men's basketball team qualifying for the N.A.I.A. National Tournament and the football team advancing to the national championship game in 1996 and quarterfinals in 1997. Oredigger programs involve true student athletes.

Administration of both the women's and men's Intercollegiate Athletics Programs rests with the Athletic Director. Certification for eligibility to compete is a function of the Registrar, Head Coach, and Athletic Director. Scholarship reports and compliance with scholarship limits are the responsibility of the Director of Financial Aid, Head Coach and Athletic Director. It is up to the Athletic Director to complete and submit all required conference and N.A.I.A. forms/reports, etc. Since 1987, no Montana Tech athletic program has been in violation of an N.A.I.A. or conference regulation. The Intercollegiate Athletics Program has regularly participated in the administration of the Frontier Conference and N.A.I.A.

The exercise of institutional control of intercollegiate athletics at Montana Tech is accomplished through the Athletic Director, the faculty athletic representative, and the faculty Athletic Committee. The Athletic Director reports directly to the Chancellor. Evaluation of intercollegiate athletics rests with the Chancellor. Montana Tech's programs reflect a very close relationship with the education of athletes. The Intercollegiate Athletics Program is committed to keeping with our institution's educational mission and enriching the lives of the athletes who participate.

Any candidate for an athletic staff position is given the program's goals, objectives, and policies. Montana Tech's Personnel Department briefs candidates regarding institutional policies and procedures. Departmental policies and rules are reviewed annually by the Athletic Director and coaching staffs. Departmental duties of athletic personnel are stated in writing.

Student athletes at Montana Tech are admitted to the institution via the exact same procedure as any prospective student. The Admissions Office administers the process and subjects athletes to the same requirements as all applicants. Student athletes' continuing academic status and degree requirements are evaluated by the Registrar's Office. Athletic scholarship awards are executed by the Financial Aid Office, which handles all student financial aid matters and all department scholarship awards.

The development of athletic budgets at Montana Tech is entirely systematic. Like all departments, the athletic budget is set by the administration in concert with campus financial officers. The Association's Director and its board of directors administer funds from the Digger Athletic Association. Digger Athletic Association budgets are subject to approval by the Chancellor. The Director of the Digger Athletic Association is responsible for accounting, which is accomplished through the Montana Tech Foundation with independent audits.

Montana Tech is committed to fair and equitable treatment of both male and female athletes in all aspects of their athletic experience. Participation opportunities, scholarships, support services, equipment, and access to facilities are administered at Tech with a keen awareness of gender equity.

The instructional calendar at Montana Tech takes precedence over the scheduling of athletic contests and practices. Coaches constantly adjust practice times and game schedules to insure that a priority is placed on academics. A policy reflecting these practices is published.

SUMMARY AND PROSPECTUS

Student Affairs programs are organized to provide necessary services that support the students' attendance at the institution and to contribute to student learning. The integrated organizational relationship with Administrative Affairs contributes to the goals of both sets of programs on the campus. In fact, their underlying purposes are the same. In one way or another, the student is made the focus of staff efforts and program structures. Whether this is expressed in terms of "customer service," or in terms of the *Student Learning Imperative,* or "college success" programs, it is student learning and the general welfare of the student that is maintained as a constant, purposeful emphasis.

Student Affairs staff members view themselves as educators and intentionally seek to contribute to or enhance the quality of student learning in their own right. There is also a strong sense of membership in an academic community and the full realization that the academic program is at the heart of this community. It is a source of pride to be part of an instrumental support system for the instructional program of Montana Tech.

These understandings have resulted in good to excellent working relationships with colleagues throughout the academic programs. It is characteristic of the institution to have Student Affairs staff and faculty work cooperatively together on projects, to communicate freely and to often consult with one another about the best approach to help a student; and, yes, to disagree and debate, but with uncommon civility. Faculty and staff alike are interested in achieving success as an academic institution. There is a strong mutual commitment to the student. This is the common ground upon which faculty and staff stand together. This value unifies the campus.

Good organizational models, effective staff communication networks, and the best of intentions do not constitute a good program unless there is real benefit to the student. Our various feedback mechanisms indicate that student satisfaction is relatively high. In those instances where it becomes known that a program needs improvement, honest and persistent efforts are made to respond to that feedback. The Residence Life Program and Food Service are two examples. But, surveyed student opinion does not tell the whole story.

Areas where the benefit to the student is not always apparent or revealed through surveys include: counseling relationships and related topics, judicial and/or disciplinary

situations, emergency response incidents, alcohol and drug education, and a whole myriad of intangible learning experiences. Concerning some of the most important of these learning issues, the learner may not place a value on the experience until many years later.

Assessment and improvement in many areas of program performance must be left to understandings of best practice, professional experience, and good judgement. This demands that staff interact with students frequently and in meaningful ways. It can be said that Tech staff and faculty do, indeed, work with students in this personal manner. And, this interaction is especially fruitful if faculty, staff, and students all work together as fellow members of an academic community which is dedicated to learning. While a primary purpose and focus of the institution is *student* learning, a community of learners is most effective and beneficial when all its members view themselves as learners. While this defines a real characteristic of Montana Tech, this matter of an enriching community of learners must always be pursued and nurtured. It is always a work in progress by its very nature. Montana Tech holds this value and seeks its way in this direction, never perfectly, but actively.

Future Issues and Needs

- The institution's marketing effort must receive greater support in order to address the school's "number one" problem. A current proposal to increase the marketing/ recruitment budget by $200,000 per year for the next five years is probably the minimum required investment. Mere image building is not what is meant by "marketing" in these remarks.

- In order to preserve current Student Affairs program offerings at acceptable quality levels, current staff positions must be maintained and operations and program budgets must be at least maintained at current level and preferably increased on a regular basis.

- The Residence Life program must be improved and developed into a living-learning community that is student-centered and more demonstrably contributive to residence life *Student Learning Imperative* purposes. An academic "presence" must be incorporated.

- All issues of merger and effective integration of program with the south campus must be accomplished in no more than one more year.

- The problems associated with the poor performance of the campus Bookstore must be addressed successfully in no more than one year.

- Career Services must continue to be enhanced technologically.

- The retention (college success) program, formally established only this past year, must remain fully motivated and active in its efforts, guided by its faculty advisory

committee and by the offices of the Vice Chancellor for Academic Affairs and Research and the Vice Chancellor for Administrative and Student Affairs.

- Student clubs and organizations at Tech are considered to be an important and successful part of the co-curricular program. Strong support for this program area must be maintained and enhanced. The essential connection that many of the clubs have to academic programs and departments is considered to be a special strength.

- Issues of diversity, gender equity, and minority achievement will remain important goals for the entire institution for a long time into the future. Efforts such as the Diversity Issues Round Table and the continuing institutionalization of values that are inclusive of all people and all cultures, and the full realm of ideas must remain active, on-going goals.

- The campus needs to better incorporate values of good citizenship and collegiality in its daily interactions, in the curriculum, and in the co-curriculum.

- Problems of deferred maintenance will continue to challenge the campus and available campus resources. It would be important to have a fully operational preventive maintenance program, but that is currently unfunded.

- Financial Aid staff will continue to work with students to help them better manage the financial debt they take on while they are students.

- Professional development and in-service training are important to maintaining quality and are essential for quality improvement. Additionally, such topics as sexual harassment and safety in the workplace are valuable discussions for staff to have on campus. The Personnel Director will continue to coordinate and support these efforts. It is also important to fund staff travel to conferences and workshops in order to foster professional development and training.

- An emphasis needs to be placed on further development of the potential found in the HPER/Campus Recreation Program. This is recognized as an important campus program that has been undergoing significant program improvement these past three years due to new direction and leadership and a recent reorganization. A proposal is being written to consider adding the campus Wellness Program to this cluster of programs. It is also intended that greater integration of programming occurs among residence life, student activities, and campus recreation.

- As circumstances permit, the institution needs to continue to expand on-campus housing facilities in order to meet housing needs of planned increased enrollment and to contribute to a more dynamic on-campus environment.

- Staff will assess the feasibility of establishing greater coordination between undergraduate and graduate student admissions.

EXHIBITS

III-1.1	Vector System for Goal Achievement Planning and Evaluation
III-1.2	Student/Administrative Affairs Staff Resumes
III-2.1	Student Satisfaction Inventory North (SSIN)
III-2.2	Student Satisfaction Inventory South (SSIS)
III-2.3	Institution Priority Survey North
III-2.4	Institution Priority Survey South
III-2.5	"Tell it to the Chancellor"
III-2.6	Tech Learning Center – Student User Survey
III-2.7	Residence Hall Surveys
III-2.8	Student Union Surveys
III-2.9	Orientation Surveys/Evaluations
III-2.10	Core Drug and Alcohol Survey
III-2.11	Porter– Food Service Survey & Sodexho Action Plan - Spring 2000
III-2.12	Prospector Survey
III-2.13	Non-returning Student Survey
III-2.14	Retention/Completion Data
III-3	Architectural Program and Conceptual Design of the Mill Building Restoration & Student Union Building Renovation
III-4	Student Handbook
III-5	ADA Self Evaluation and Transition Plan
III-6.1	Associated Students of Montana Tech (ASMT) Constitution
III-6.2	Fee Increase Protocol
III-6.3	ASMT Organizational Chart
III-7	College Community Expectations Program Manual
III-8	Montana Tech Student/Administrative Affairs Emergency Procedures Manual
III-9	Residence Life Handbook
III-10	Emergency Action and Contingency Plan
III-11	Orientation Programs
III-12	Health Center User Statistics
III-13.1	Montana Tech's Club and Organization Procedures
III-13.2	1999-2000 Student Clubs
III-13.3	Campus Newspaper - Technocrat
III-14	ACT – Campus Freshman Profiles
III-15	Montana Tech's Graduate Survey (Career Placement)
III-16	Success Through Mathematics-Montana Tech College Success/ Retention Strategy
III-17	Financial Aid State Audits and Federal Program Reviews
III-18	2000-2001 Montana Tech Catalog
III-19	1999-2000 Course Schedule
III-20	"At Risk" Letter
III-21	Transfer Credit Procedures, Transfer Credit Policy, and Procedures for Evaluation
III-22	Application for Degree Forms
III-23	Faculty Advisor Handbook

STANDARD FOUR
FACULTY

INTRODUCTION

The faculty of Montana Tech consists of two general categories, instructional faculty and research faculty. Instructional faculty is defined as those faculty members who teach a minimum of six semester credits each year. All other faculty members are designated as research faculty. The vast majority of the research faculty members of Montana Tech hold positions in the Montana Bureau of Mines and Geology. Instructional faculty fall into two general groups those of the College of Technology and those of the four-year and graduate degree programs. Significant differences between these two groups of instructional faculty are:

A. A doctoral degree is the normal minimum requirement for faculty rank in the four-year and graduate degree programs, while a bachelor's degree is the minimum requirement for faculty rank in the College of Technology (although a master's degree is preferred).

B. The normal teaching workload of faculty at the College of Technology is higher than the normal teaching workload of faculty in the four-year and graduate degree programs (18 credits/semester versus 12 credits/semester), but there is no requirement for research or publishable scholarly activity by College of Technology faculty.

C. Faculty of the College of Technology belong to a state-wide collective bargaining unit (union), but the faculty of the four-year and graduate degree programs are not represented by one (nor are the Research Faculty).

D. The only faculty rank in the College of Technology is that of Instructor (with four levels), while faculty rank in the four-year and graduate degree programs extends to that of Professor.

E. There is some variation in the requirements for tenure and promotion of College of Technology faculty and those of the four-year and masters degree programs, including the requirement for research and publishable scholarly activity mentioned above. Also, the College of Technology has a merit pay plan, while there is none presently for other instructional faculty. Because of budget limitations, however, the merit pay plan of the College of Technology has never been implemented.

All full-time faculty appointed to the rank of Instructor or higher hold either probationary appointments or appointments with continuous tenure. Part-time faculty members are given the title of "adjunct" and temporary faculty members are given the title of "visiting". Adjunct instructional faculty members at Montana Tech include those

Laboratory Directors and Coaches who teach part-time, but this does not affect the status of their principal duties.

There are currently 20 full-time instructional faculty in the College of Technology and 89 full-time instructional faculty assigned to four-year and graduate programs, not including 2 visiting (temporary) faculty. The profile of these faculty members is given in Table IV-I. The number and source of terminal degrees of these faculty members are given in Table IV-II. Additionally, there are 12 adjunct (part-time) instructional faculty in the College of Technology and 31 other adjunct faculty (including 7 Laboratory Directors and 6 Coaches) hold positions relating to the four-year and graduate degree programs. These positions are listed, but not profiled, in Table IV-I. The number and source of the full time institutional employee's terminal degrees, however, is given in Table IV-II. Last, but not necessarily least, there are presently 29 members of the Montana Tech faculty whose principal duty is research. They are conducting research at the MBMG. Of those 29, 28 are full-time. These positions are listed, and those, which are full-time, profiled, in Table IV-I. The number and source of their terminal degrees is given in Table IV-II.

Reference: Faculty and Staff Handbook, Section II-201

INSTRUCTIONAL FACULTY STAFFING MODEL

No single staffing model has been devised to date that takes into account all of the parameters that must be considered when allocating faculty resources and, especially, new faculty positions. Presently, three different parameters are considered:

A. Strategic Five-Year Plan
B. Present faculty workloads
C. Credit hours generated per faculty member
D. Student faculty ratios

Table IV - III, is the present staffing plan based on present faculty workloads. It takes into account:

A. Number of major credits in the degree program.
B. Number of credits in Board of Regents approved options
C. If the department has more than 35 graduate students (none do, presently)
D. If the department has a Laboratory Director (7 departments do, presently)
E. The number of laboratory sections taught each Academic Year
F. If the department has a MS degree program
G. Six credits of teaching release time for Department Heads, 12 for Deans
H. Number of Service Course credits taught each Academic Year
I. Number of credits taught for courses residing in another department
J. Number of credits taught by faculty from another department
K. Credit for Special Help
L. Part time courses taught

TABLE IV-I Institutional Faculty Profile

Rank or Class	FULL-TIME																		
	Number		Number of Terminal Degrees					Salary, 9 Months			Years of Experience at Institution			Total Years of Teaching Experience			Previous Fall Term Credit Hour Load		
	Full Time	Part Time	Dr	M	B	Prof. License	Less than Bach	Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	Med	Max
Professor	44	0	41	3	0	16	0	41,691	58,708	75,725	7	21.4	41	7	23.9	45	2	9.4	15
Associate Professor	32	0	19	13	0	16	0	36,569	52,579	68,589	0.5	10.4	30	3	12.9	31	2	8.4	15
Assistant Professor	5	0	3	2	0	3	0	30,245	37,137	44,028	0	4	12	2	5.46	16	6	9.8	16
Research Faculty	28	1	5	18	5	1	0	21,918	32,192	47,468	3	5	4	5	6	7	0	0	0
Instructor[1]	35	37	0	24	11	8	1	26,554	37,277	48,000	2	8.39	21	2	9.26	21	11	17	27
Visiting Lecturer	1	1	1	1	0	1	0	NA	NA	NA	5	6	7	3	4	5	9	11	13

[1] Previous fall term credit hour load reported for COT full time instructors

Table IV-II. Source of Terminal Degrees-Full Time

NORTH CAMPUS*		Doctor	Masters	Bachelors
	Colorado School of Mines	4		
	Colorado State University		1	
	Cornell University	2		
	Dalhousie University - Canada	1		
	E Stroudiburg University		1	
	Georgia Institute of Technology	1		
	Golden Gate University		1	
	Indiana University		1	
	Kansas State University	1		
	Lesley College		1	
	Massachusetts Institute of Technology	1		
	Miami University		1	
	Michigan Technological University		1	
	Montana State University	6	5	
	Montana Tech of the Univ. of Montana		3	3
	North Dakota State University	1		
	Nova University	1		
	Ohio University	1		
	Oklahoma State University	1		
	Oregon State University	2		
	Dalhousie University - Canada	1		
	Pennsylvania State University	2	1	
	Purdue University	1		
	Stanford University	2		
	Univ. of Mining & Met - Krakow, Poland	1		
	University of Alabama	1		
	University of Arizona	1		
	University of California-Berkeley	2		
	University of California-Irvine	1		
	University of California-Riverside	2	1	
	University of Colorado	2		
	University of Denver	1		
	University of Florida	1		
	University of Houston	1		
	University of Idaho	1		
	University of Minnesota	2		
	University of Missouri-Columbia	1		
	University of Missouri-Rolla	1		
	University of Montana		3	
	University of New Mexico	1		
	University of Oklahoma	1		
	University of South Dakota		1	
	University of Southern California	1		
	University of Texas	1	1	

Table IV-II. Source of Terminal Degrees-Full Time (Continued)

NORTH CAMPUS (Continued)				
	University of Utah	3		
	University of Washington	3		
	University of Wisconsin-Madison	1		
	University of Wyoming	3		
	Washington State University	2	1	
	West Virginia University	1		
	Total	63	23	3
VISITING				
	University of Alabama		1	
	University of Wyoming	1		
	Total	1	1	
MBMG				
	Colorado School of Mines	2		
	Indiana University		1	
	Montana Tech of The University of MT		5	2
	Pennsylvania State University		2	
	Montana State University	2	1	
	University of Montana	2	5	2
	University of New Mexico	1		
	University of North Dakota		1	
	University of Texas, Austin		1	
	University of Wisconsin			1
	Total	7	16	5
SOUTH CAMPUS				
	Carroll College			1
	Gonzaga University		1	
	Montana State University		5	
	Montana Tech of the Univ. of Mont.			1
	Northern Montana College		4	3
	University of Montana			1
	Western Montana College		2	2
	Total		12	8

*Includes all full-time employees with faculty rank, including laboratory directors and coaches.

Table IV-III. Staffing Plan

Date: 8/21/98

STAFFING PLAN2

CREDITS BY DEPARTMENT

1	2	3	4	5	6	7	8	9		10	11	12	13	14	15	16	17
NAME DEPARTMENT	DEGREE CREDIT	OPTION CREDIT	GRAD >35 YR	LAB DIR	LAB SECS	MS PROG	ADMIN	SERVICE To Cot	SERVIC	CROSS TEACHIN OUT	CROSS TEACHIN IN	SPECIAL* HELP	CURRENT PARTTIME CRS	TOTAL	CALC FTE	ACTUAL FTE	AVAILABLE CROSS TEACH CR
ES	42	21	0	-12	13	12	6	63		3	-24			117.5	6.2	7	**15**
ENVR	42	0	0	-12	14	12	6			27				82.0	4.3	7	**48**
GEOP	42	0	0	-12	13	12	6	44		6	-3			101.5	5.3	5	**-6**
MET	42	0	0	-12	14	12	6	13		3				71.0	3.7	4.33	**11**
OSH	42	21	0	-12	9	12	6	0	3		-6			70.5	3.7	4.5	**14**
PET	42	0	0	0	13	12	12	0		10				82.5	4.3	5	**12**
MIN	42	0	0	0	21	12	12	21			-4			93.5	4.9	4	**-17**
GEOL	53	0	0	0	26	12	6	22		3				109.0	5.7	5	**-13**
MINES & ENGINEERING														**727.5**	**38.3**	**41.83**	**64**
BIOL	53	0	0	-12	7	0	6	26			-15			61.5	2.8	3	**4**
CHEM	53	0	0	-12	27	12	12	44						122.5	6.4	5	**-26**
CS	53	0	0	-12	3	0	6	50						98.5	4.5	5	**9**
MATH	53	0	0	0	0	0	6	114						173.0	7.9	7.5	**-7**
MATH & SCIENCES														**455.5**	**21.6**	**20.5**	**-20**
BUS	53	27	0	0	0	12	6	24						122.0	6.4	6	**-8**
TPC*	42	0	0	0	1	12	6	36						96.5	5.1	5	**-1**
LIB STUDIES*	42	0	0	0	0	0	6	123						171.0	7.8	8.33	**10**
HSS&IT														**389.5**	**19.3**	**19.33**	**1**
TOTAL				**-96**	**161**	**132**	**108**			**52**	**-52**		**0**	**1572.5**	**79.1**	**81.7**	**45.3**

***OPTION IN s&t 53+27/2=41**

DESCRIPTION OF COLUMN CONTENTS

1 DEPARTMENT NAME

2 DEGREE PROGRAMS WILL BE GIVEN A FIXED NUMBER OF CREDITS. SEE ABOVE FOR DEGREE ANALYSIS

3 DEGREES WILL BE GIVEN AN ADDITIONAL CREDITS FOR THE FIRST OPTION IF GRADS EXCEED A MIN, ZERO FOR ANY ADDITIONAL

4 MAJOR COURSES WILL BE ASSUMED TO HAVE A CAPACITY . PROGARAMS GRADUATING MORE PER YEAR RECEIVE EXTRA CREDIT

5 LABORATORY DIRECTORS WILL BE ASSUMED TO BE RELIEVING CREDITS PER YEAR OF DIRECT FACULTY TIME

6 LAB SECTIONS WILL BE GIVEN EXTRA CREDIT FOR EACH SECTION

7 GRADUATE PROGRAMS WILL BE GIVEN A FIXED NUMBER OF CREDITS IF STAND ALONE LESS IF INTERDISCIPLINARY

8 ADMIN WILL BE DIRECTLY COUNTED

9 SERVICE CREDITS TAUGHT . IF A COURSE IS REQUIREDOF MAJORS THEN ONE SECTION IS NOT COUNTED (EG CHEM 105).
GENERAL SERVICE COURSES WILL BE ASSUMED TO HAVE A CAPACITY
100 LEVEL MATH COURSES WILL HAVE A MAX # OF STUDENTS
WRITING COURSES WILL HAVE A MAX ENROLLMENT

10 CREDITS CURRENTLY BY TAUGHT DEPARTMENT FACULTY IN OTHER DEPARTMENTS

11 CREDITS CURRENTLY TAUGHT BY OUTSIDE FACULTY

12 SPECIAL HELP INCLUDES: SURVEYING FOR MINING AND FIELD CAMPS FOR GEOLOGICAL AND GEOPHYSICAL ENG

13 CURRENT PART TIME CREDITS (NEGATIVE MEANS FULLTIME FACULTY TIME REPLACED BY PART TIME)

14 SUM OF COLUMNS 2 THROUGH 13

15 AVERAGE LOAD FOR PROGRAMS WITH AN MS PROGRAM WILL BE **'X'** CREDITS WITHOUT AN MS PROGRAM WILL BE **'Y'** CREDITS PER YEAR

16 CURRENT OR AUTHORIZED STAFFING LEVEL. REFLECTS HIRES THAT HAVE BEEN APPROVED

17 SURPLUS OR EXCESS, CALCULATED FTE MINUS ACTUAL TIMES AVGERAGE LOAD

Table IV-III. Staffing Plan (Continued)

DEGREE ANALYSIS

Degree Requirements1998 Catalog

	MAJ CR	OPTIONS	GRADS 98	MS PROG	LAB DIR
E.S.	42	4	31	2	1
ENVR	45		34	2	1
GEOP	35		4	1	1
MET	42		10	2	1
OSH	42	2	34	2	1
PET	47		14	2	0
MIN	39		15	2	0
AVERAGE	**42**				
BIOL			2	0	1
BUS	53	3	32	1	0
CHEM	52		7	1	1
C.S.	48		13	0	1
GEOL	53		9	1	0
MATH	39	2	3	0	0
TPC			6	2	0
Lib Studies	75		6	0	0
AVERAGE	**53**				

LAB DIRECTOR: 0-NO LAB DIRECTOR, 1-LAB DIRECTOR
MS PROGRAM: 0-NO PROGRAM, 1-JOINT PROGRAM, 2 STAND ALONE

ASSUMPTIONS USED IN CALCULATIONS

COLUMN		
2	DEGREE CREDITS (ENG)	42
2	DEGREE CREDITS (OTHER)	53
3	OPTION CREDIT GRADS >=	10
3	OPTION CREDIT, MULTIPLIER	0.5
4	LARGE PROG (>35 GRADS)	35
4	LARGE PROG, MULTIPLIER	0.67
5	EXTRA FOR LABS, MULTIPLIER	0.5
6	CREDIT FOR LAB DIR	-12
7	MS PROGRAM	12
7	MS PROGRAM (JOINT)	12
8	DEANS, CR/YR	12
8	DEPT HEADS, CR/YR	6
9	WRITING CLASSES	24
9	100 LEVEL MATH	40
9	SERVICE COURSES	60
15	AVG WORK LOAD W/MS	19
15	AVG WORK LOAD NO MS	22

The total number of equivalent credits is divided by an average faculty instructional workload, which is set at 22 credits for departments that do not have MS programs, and 19 for those who do. This results in the number of FTE faculty needed to fully staff the department. The difference between the calculated and actual FTE regular faculty indicates whether the department is fully staffed, understaffed, or overstaffed based on its faculty's instructional workload.

The Deans Council, together with the Vice Chancellor for Academic Affairs and Research (VCAAR), takes all of these factors into account when evaluating requests from departments for additional or replacement faculty. Final decisions, however, are made by the Chancellor.

SELECTION OF INSTRUCTIONAL FACULTY

In recruiting new faculty, it is the primary responsibility of the Department Head and the faculty of the department where the new faculty member will reside to describe the academic and professional qualifications of the position to be filled. The ultimate responsibility for the position, however, is that of the Vice Chancellor for Academic Affairs and Research (VCAAR). When permission to actively recruit a new faculty member is granted by the Chancellor, the Department Head, in concert with other faculty from the department, composes a suitable advertisement for approval by the appropriate Dean and VCAAR . Once approved, the Department Head recommends academic and professional journals and other media in which to place the advertisement to Montana Tech's Personnel Office. Usually at this point in the process, the Department Head appoints a Search Committee to review and rank all applications. In the case of adjunct (part-time) and visiting (temporary) faculty, however, the Department Head may, with the permission of the Dean and VCAAR, act unilaterally.

The Search Committee normally consists of three faculty members from the department, plus one outside member in an allied field. Student involvement in the search process is encouraged and, at the discretion of the Department Head, a student may be appointed to serve on the Search Committee. Although Department Heads may serve on the Search Committee and chair it, in many instances they elect not to become involved until the Search Committee has ranked the applicants and recommends two or three candidates for an on-campus interview. Once consensus on the candidates has been reached between the Search Committee and the Department Head (which is rarely a problem), the Department Head seeks permission from the VCAAR (or MBMG Director, if appropriate) to bring the finalists to the campus to meet with faculty, students, and administrators. If the candidate is applying for a position in one of the four-year degree-granting departments, they are usually required to make a formal presentation of their research, to which all faculty, students, and staff of the institution are invited.

After all of the finalists have been interviewed on-campus, the Search Committee ranks them and recommends their choice of candidates to the Department Head. Once the Search Committee and Department Head agree upon a choice of candidates, the Department Head makes a written recommendation, including a recommended starting

salary, through the appropriate Dean to the VCAAR. The VCAAR is responsible for making a formal offer to the candidate and for negotiating the terms of employment with her/him.

Once the position has been filled, the Department Head or Search Committee Chair notifies all the unsuccessful candidates that they were not selected for the position. Candidates who are obviously not qualified for the position are usually sent letters of rejection during the screening process.

Reference: Faculty and Staff Handbook, Section II-204.

SELECTION OF RESEARCH FACULTY

Minimum requirements for entry-level research faculty positions at the MBMG are a Bachelor of Science degree and 3 years of experience. The requirements are graduated based on the position. The University guidelines are followed for proper advertisement and search procedure.

EVAULATION OF INSTRUCTIONAL FACULTY

Evaluation of the instructional faculty, including Adjunct (part-time) and Visiting (temporary) faculty members, is focused principally on improvement in the quality of teaching and learning. Instructional faculty members are also evaluated with respect to their research (except for faculty of the College of Technology, COT, as mentioned previously) and professional development, institutional and public service, and progress towards a terminal degree (if applicable). All four-year and graduate program instructional faculty members are evaluated annually until they obtain the rank of Professor with tenure. Tenured Professors are evaluated every three years, with all tenured Professors in a given department being evaluated during the same year. All COT faculty members are evaluated every two years.

It is the responsibility of the individual faculty member to initiate the evaluation process by preparing a performance self-evaluation portfolio and submitting it to their Department Head. They are, however, always reminded of the deadline for doing this by a memorandum from the VCAAR , which also contains the deadlines for submitting applications for tenure and promotion. The performance self-evaluation portfolio for four-year and graduate faculty members must address all of the following areas:

A. Instructional Performance
B. Research and Professional Development
C. Institutional and Public Service
D. Progress Toward a Terminal Degree (by those not holding such a degree)

Areas to be addressed by members of the COT's faculty are more prescriptive, and include:

A. Student/Faculty Interaction
B. Course/Classroom Development and Preparation
C. Campus-Related Advisory Boards, Committees, and Service
D. Community-Related Advisory Boards, Committee, and Service
E. Professional Development

The following pertains directly to the Self-Evaluation Portfolio for faculty members of the four-year and graduate programs, but is very similar to the process for COT faculty.

Central to the Instructional Performance portion of the Instructional Faculty Self-Evaluation Portfolio is the requirement for all instructional faculty members to accord every student in every course that they teach an opportunity to evaluate the instructor and other aspects of the course. The principal purpose of these course evaluations is to establish goals for course improvement and develop plans for achieving them. Goals established during the previous performance evaluation and the progress made towards achieving them is a major consideration in the self-evaluation process.

Although the VCAAR and Deans have expressed their desire for a standard numerical course evaluation system for the institution, at present the design of course evaluations is left to the discretion of the instructor. Any department, however, may require a standard method and form, if the majority of all instructional faculty members in the department approve it. Examples of course evaluation forms in use, presently, are included in the exhibits, which will be available during the evaluation teams visit. Mid-term evaluations are encouraged, but not required. Faculty members are required to include a summary of these evaluations for each course that they taught during the previous year in their Self-Evaluation Portfolio, as well as specifying the number of students enrolled in the course and the number who participated in its evaluation. If less than eighty-percent of the students enrolled participated in the course's evaluation, the results are considered to be invalid in the consideration of favorable personnel actions (tenure, promotion, and merit pay). Faculty members are required to maintain a file of their course evaluations for inspection by their Department Head and other academic administrators, their department's Tenure Committee, and Montana Tech's Collegial Evaluation Committee, if deemed necessary by them.

Emphasis on research, other scholarly activities, and professional development by instructional faculty has increased, and continues to increase. This increased emphasis is partly a result of the merger of Montana Tech with the University of Montana and other campuses to form The University of Montana. To a greater extent, however, it has resulted from a heightened realization by the faculty and administration of Montana Tech that research is an essential component of instruction in four-year and graduate programs and enhances the learning experience through example and by participation of students in the process. This is a significant change from the past. In the Research and Professional Development section of their Self-Evaluation Portfolio, instructional faculty members are required to include information on their publications and presentations, research (including research contracts received and proposal submitted), formal study undertaken, creative work, and attendance at professional meetings.

Institutional and public service constitutes a third area in which all instructional faculty members are evaluated. The required Institutional and Public Service section of their Self-Evaluation Portfolio must include information on their role in advising new and returning students. Other areas that may be included are committee participation, college-sponsored or related activities, advising of student groups, student recruiting and retention activities, consulting, participation in community groups, as well as any other institutional and public service to which the faculty member has contributed.

Four-year and graduate degree program instructional faculty members who do not possess a terminal degree are required to report on their progress toward earning one in the final section of their Self-Evaluation Portfolio. Except in the fine arts and library science, only doctoral level work is considered to constitute a terminal degree.

The Instructional Faculty Self-Evaluation Portfolio is submitted to the faculty member's Department Head upon completion, but not later than February 15th (Department Heads submit theirs to their Dean). If the faculty member holds a probationary appointment, they may also be required to provide copies to members of their department's Tenure Committee, which consists of the tenured faculty members of the department. After reviewing the faculty member's Self-Evaluation Portfolio, and receiving written comments from the members of the department's Tenure Committee (Figure IV- 1) if the member's appointment is probationary, the Department Head completes a written evaluation of the faculty member's performance.

After discussing the faculty member's Self-Evaluation Portfolio, the Tenure Committee's evaluation (if appropriate), and their own evaluation of the faculty member's performance with them, the Department Head and the faculty member define areas, goals and plans for improvement. The Department Head then forwards the faculty member's Self-Evaluation Portfolio, the Tenure Committee member's evaluations (if appropriate), their own evaluation, and a written summary (Figure IV- 2) signed by the faculty member and the Department Head to the Dean for review and comment, if warranted, not later than May 1st. The completed evaluation becomes part of the faculty member's file, which is maintained in the Dean's office.

Reference: Faculty and Staff Handbook, Section II-207

CONFIDENTIAL
MONTANA TECH
Of The University of Montana
Tenure Progress Report
(To Be Completed by all Tenured Members of the Department)

Name:_____
Department:_____
Years of Service:_____

In my view the following progress toward tenure is being made:

Comments (Required):

Instruction:

Research:

Service:

Good Progress Satisfactory Progress Less Than Satisfactory Progress

Signed:_____ Date:_____

Figure IV-1. Departmental Tenure Comment Form.

MONTANA TECH

Of The University of Montana
Department Heads Certification
Tenure Progress Report

Name:_____
Department:_____
Years of Service:_____

I have discussed the attached progress toward Tenure Progress Reports with the above individual. Overall the Department judges progress toward tenure and promotion as:

Comments (Required):

Instruction:

Research:

Service:

Good Progress Satisfactory Progress Less Than Satisfactory Progress

Signed:_____ Date:_____
Department Head

Figure IV-2. Department Heads Certification Tenure Progress Report

EVALUATION OF RESEARCH FACULTY

Evaluation of Research Faculty is currently conducted in accordance with the guidelines for Instructional Faculty, but the emphasis is, of course, on their research instead of instruction. To address the unique nature of research professionals at the MBMG, guidelines were drafted for evaluation and promotion procedures in 1999. The document,

A Criteria for Classification and Procedures for Promotion of Bureau Professional Staff was prepared by MBMG representatives and is in process of approval.

Reference: Faculty and Staff Handbook, Section II-207

SELECTION AND EVALUATION OF DEPARTMENT HEADS

Department Heads serve an initial term of five years, with subsequent terms being three years each. When a new Department Head is to be selected from their own ranks, the department's faculty members form a selection committee in consultation with its Dean. The committee, which must include one faculty member from outside the department and one student majoring in the department, forwards two candidates names to the Dean. The Dean then makes a recommendation to the VCAAR and the Chancellor. The Department Head serves at the discretion of the Chancellor.

Department Heads are evaluated during odd numbered years of their appointment. The Dean solicits written and oral evaluations from all members of the department and from faculty in other departments who interact closely with the Department Head being evaluated. At minimum, the Department Head is evaluated on:

A. Their ability to command respect as an academic administrator and to effectively represent the academic program to the administration and vice versa.
B. Their ability to interact with faculty and peers in a fair and equitable fashion.
C. Their commitment to the growth and continuing improvement of the quality of the academic programs (both research and instruction) of the department.
D. Their ability to perceive the role of the department in the college, as a whole, and to facilitate the interaction of the department in institutional growth.

Department Heads may request reconsideration of their evaluations to the VCAAR.

References: Faculty Staff Handbook, Section II-206.4

SELECTION AND EVALUATION OF COLLEGE DEANS

Deans represent both the academic faculty and the administration. They carry responsibility for maintenance and growth of the academic programs of the college or school. Deans are appointed by the VCAA/R in consultation with the Chancellor and members of their relevant academic programs. Deans do not have tenure in the administrative component of their appointment. To ensure that the administration of the academic programs is conducted in a fashion which best serves the institution, deans are evaluated periodically in an evaluation cycle with a period not to exceed three years.

Evaluation of a Dean can also be initiated in any year by written request of a majority of those members of the respective college who have been appointed on Board of Regents'

contracts, or by the VCAA/R. Requests from faculty must be submitted to the Office of the Vice Chancellor by November 1.

Evaluation shall be conducted by the VCAA/R and will consist of:

A. An evaluative questionnaire which shall be sent to all members of the college and to other Deans and members of the faculty from other areas which closely interact with the individual under evaluation;
B. Invitation from the VCAA/R to all members of the college to participate in confidential personal interviews;
C. Personal interview(s) with the dean.

At a minimum, evaluation criteria shall include consideration of:

- The demonstrated ability of the Dean to command respect as an academic administrator and to effectively represent the academic program to the administration and vice versa.
- Demonstration of ability to interact with faculty and peers in a fair and equitable fashion.
- Demonstration of a commitment to the growth and continuing improvement of the quality of the academic programs (both research and instruction) of the College.
- Ability to articulate the role of the college/school in the Institution as a whole, and to facilitate the interaction of the college/school in institutional growth.

Deans may request reconsideration of their evaluations to the Chancellor.

References: Faculty Staff Handbook, Section II-206.4

TENURE

Providing that an individual faculty member fits within institutional needs and the quality of their current professional performance and their promise for future performance warrants it, a faculty member may be awarded tenure based on the policies of Montana's Board of Regents of Higher Education. Once granted, tenure is limited to the faculty member's program or department (or the College of Technology), and does not extend to Montana Tech, The University of Montana, or the Montana University System. Board of Regents' Policy 710.2.1 provides for the termination of tenured faculty for reasons of financial exigency or discontinuance or reduction of a program or department (Faculty and Staff Handbook, Section II-211). Tenured and probationary faculty may also be terminated for cause under Board of Regents' Policy 710.2.2 (Faculty and Staff Handbook, Section II-212). Although a few long-time Research Faculty in the Montana Bureau of Mines and Geology (MBMG) are tenured, the policy has been discontinued.

Instructional faculty members are eligible to apply for tenure after completion of six-years of full-time appointment in a tenure track position (five years of teaching is required for COT faculty, four of which must be at this institution). The review prior to granting tenure and the subsequent recommendation to the Board of Regents is normally

made during the sixth year of employment. If granted, tenure does not become effective until the eighth contract year (seventh contract year for COT faculty). Tenure is based on performance, not time in service, and is never awarded by default.

To apply for tenure, the eligible instructional faculty member compiles a Tenure Application and Portfolio and submits it to their Department Head not later than January 20th. College of Technology (COT) faculty members submit their applications directly to the Dean of the COT. The Tenure Application Portfolio generally follows the same format as the Performance Evaluation Portfolio, but also requires a detailed vitae/resume. Supporting letters from faculty, staff, and others from outside of the department and Montana Tech are not required, but are usually included. COT faculty must address each of the five areas in which they are evaluated, as well as a minimum of ten specified subtopics within them. Only those areas specified for annual evaluation of a faculty members' performance may be used to evaluate their application for tenure (and for promotion).

Within five working days after receipt of a faculty member's application for tenure, the Department Head (in the case of faculty in four-year and graduate programs, only) solicits written evaluations from each tenured faculty member of the department (the department's Tenure Committee), and prepares a written evaluation and recommendation. The application, together with these additional documents, is then forwarded to the college's Dean. The Dean has five working days, or until January 30th, to review the entire application and to make a written evaluation with recommendations before forwarding the entire file to Montana Tech's Collegial Evaluation Committee. Similarly, the Dean of the College of Technology forwards applications for tenure from COT faculty to its Faculty Tenure Evaluation Committee.

The Collegial Evaluation Committee and COT Faculty Tenure Committee were constituted as the result of the recommendation after the last NWASC interim visit that there be broader faculty involvement in Montana Tech's tenure and promotion evaluation process. The Collegial Evaluation Committee, which evaluates tenure and promotion applications from faculty of the four-year and graduate programs, consists of one elected representative from each of the colleges, except the COT. Only full-time Professors with tenure are eligible to serve on this committee. Incumbent Department Heads, Deans, and members of the Academic Freedom and Tenure Committee may, also, not serve on it. Additionally, each faculty member who has applied for tenure (or promotion) may be represented by a voting faculty member of their choice (other than a Department Head, Dean, or member of the Academic Freedom and Tenure Committee) during deliberations pertaining to their application. The COT Faculty Tenure Committee is similar, but is constituted of its Department Heads plus one elected representative from each of its departments. COT faculty members applying for tenure may also be represented by a voting faculty member of their choice during deliberations pertaining to them.

The Collegial Evaluation Committee evaluates the tenure application, the portfolio, and all supporting letters and documents against the standards set forth in the Faculty and Staff Handbook and transmits them, together with their written assessment and

recommendations, to the Vice Chancellor for Academic Affairs and Research (VCAAR) by February 15th. The process followed by the COT Faculty Tenure Committee is the same, but they return the application, portfolio, supporting documents with their written assessment and recommendations to the Dean of the College of Technology, who in turn forwards them with any additional comments to the VCAAR.

The Vice Chancellor for Academic Affairs and Research (VCAAR) conducts an exhaustive review of the entire tenure application file and prepares a summary transmittal document for the Chancellor's signature. The transmittal document, together with the entire tenure application file, is forwarded to the Chancellor for review and signature by March 1st.

If, after reviewing the entire tenure application file, the Chancellor concurs with the recommendation of the reviewers and the VCAAR, the faculty member's application with supporting documents and the signed transmittal form are forwarded to the President of The University of Montana for final review by March 15th. Portfolios of student course evaluations and copies of publications and other scholarly works, if submitted with the application, are not forwarded, but are retained by the VCAAR until the President has acted on the application. The Chancellor notifies faculty members of the Presidents decision on their application by April 1st. The Montana Board of Regents of Higher Education officially grants tenure.

Throughout the tenure application review process, reviewers are required to notify the applicant of their positive or negative recommendations within five working days so that the applicant may strengthen their application portfolio or withdraw their application at any intermediate step. Reviewers may also request additional information or materials, or clarification of information at any step in the review process.

A faculty member may appeal a negative tenure decision to the Academic Freedom and Tenure Committee within 15 days of receipt of notification of the Presidents decision by the Chancellor. Further appeal may be filed with the Commissioner of Higher Education and ultimately with the Board of Regents. Neither may, however, overturn the decision of the President of The University of Montana unless it can be demonstrated that the decision was arbitrary or capricious, or clearly erroneous based on the facts in the record. These procedures do not apply to COT faculty, which have a separate grievance procedure as set forth in Article 8 of their union contract.

References: Faculty and Staff Handbook, Sections II-208, 210, 211, 212, 213, and 214

Collective Bargaining Agreement between Montana Board of Regents of Higher Education and Vocational-Technical Educators of Montana

College of Technology Tenure Policies and Procedures

PROMOTION OF INSTRUCTIONAL FACULTY

The promotion application process for Instructional Faculty is exactly the same as the tenure application process, and has the same deadlines. Eligibility criteria for promotion of faculty in four-year and graduate programs differ significantly from criteria that apply to faculty of the College of Technology.

Eligibility criteria for faculty of the College of Technology are shown in Table IV-IV. Although all COT faculty members hold the rank of Instructor, there are four well defined levels within that rank. Promotion from Level I to Level II requires the faculty member to have completed seventeen or more semester credits of approved graduate course work and promotion to Levels III and IV require the faculty member to have a Masters degree, in addition to the prerequisite teaching or occupational experience. A promotion to Half Level II is authorized for faculty members who meet the experience requirements for Level II, but not the graduate course work requirements.
Meeting the threshold education and experience requirements, as specified in Table IV-IV, only establishes the eligibility of the COT faculty member to apply for promotion to the next Level. Promotion requires the faculty member to document their positive contributions to the College of Technology. As with applications for tenure, a minimum of one activity in each of the following five areas and a minimum of ten activities must be represented in the applicants portfolio:

A. Student/Faculty Interaction
B. Course/Classroom Development and Preparation
C. Campus-Related Advisory Boards, Committees, and Service
D. Community-Related Advisory Boards, Committees, and Service
E. Professional Development

To be eligible for promotion to the next rank, faculty in the four-year and graduate programs must meet the following minimum full-time in-rank service requirements:

Assistant Professor to Associate Professor – Four Years
Associate Professor to Professor – Five Years

As in the case of applications for tenure, applications for promotion to the next rank require the faculty member to document their achievements in the areas of:

A. Instruction
B. Research and Professional Development
C. Institution and Public Service
D. Progress Toward a Terminal Degree (for those not holding one)

Evidence of higher levels of performance is required for promotion to each advanced rank. The rank of Professor is reserved for faculty members who fully meet all promotional criteria contained in Sections II-207, 208, and 209 of the Faculty and Staff Handbook and who have earned, at minimum, a regional reputation in research and/or

public service. A doctoral degree is normally required for promotion to the rank of Professor. A faculty member may be considered for promotion to Professor if they do not meet all of the promotional criteria only if they can demonstrate that their contributions to Montana Tech and its students significantly and substantially exceeds the generally accepted requirements of the remaining criteria. A faculty member who fails to demonstrate substantial compliance with two or more promotional criteria will not be considered for promotion to the rank of Professor.

Under extraordinary circumstances, a faculty member may be considered for accelerated promotion. Such promotions are rarely granted.

The appeal procedures for unfavorable promotion decisions are the same as for negative tenure decisions.

References: Faculty and Staff Handbook, Sections II-207, 208, 209, 210, 213, and 214

Collective Bargaining Agreement between Montana Board of Regents of Higher Education and Vocational-Technical Educators of Montana

College of Technology Promotion Policy and Procedures

Table IV-IV. Eligibility Criteria for Faculty of the College of Technology

COT – LEVEL DEFINITIONS	
Level I	No degree through Bachelor's degree
Level II	Appropriate Bachelor's degree, seventeen (17) or more semester credits of approved graduate course work, and five (5) years of full-time related teaching or occupational experience. Level II is the highest level authorized for new hires.
Level III	Appropriate Master's degree, and ten (10) years of full-time related teaching or occupational experience, five (5) of which must be at the College of Technology where employed.
Level IV	Appropriate Master's degree, thirty-one (31) or more semester credits of approved graduate course work, and fifteen (15) years of full-time related teachings or occupational experience, ten (10) of which must be at the College of Technology where employed.
Half Level II	Employees who do not meet the degree requirements for promotions to Level II may apply for a Half Level II promotion by exception when they five (5) years of full-time related teaching or occupational experience and have completed at least half of the requirements of an appropriate Bachelor's degree or have graduated form an approved professional school which is equivalent to at least two (2) years of post-secondary education when such professional school alternative is approved by the Dean, President of designee and the local Labor Management Committee. The base salary for employees who are given a Half Level III promotion is $26,000.
Promotion by Exception	Non-degreed employees employed prior to the 1996-97 academic year may apply for promotion by exception. Employees eligible for such promotion by exception are typically those teaching nontransferable occupational courses. Employees applying for their first promotion by exception must meet the same experience requirements as for a normal promotion. After one promotion by exception, employees may apply for a promotion by exception only after it has been a minimum of ten (10) years since their last promotion. Employees applying for a promotion by exception must have completed an education plan, which is academically rigorous, meets program and institutional needs, and insures the highest quality instruction. Education plans used to support promotions by exception must be approved by the Dean, local Labor Management Committee and President or designee. Prior approval is recommended.

PROMOTION OF RESEARCH FACULTY

Promotion of research faculty currently follows the guidelines for instructional faculty with emphasis on research rather than teaching. To better define the requirements for MBMG researchers, a new promotion and classification guideline is out of committee and in the approval process.

References: Faculty and Staff Handbook, Sections II-207, 208, 209, 210, 213, and 214

Criteria for Classification and Procedures for Promotion of Bureau Professional Research Staff

FACULTY SALARIES

Four-year and graduate faculty salaries at Montana Tech are presently at 75 percent of their College and University Personnel Association (CUPA) targets and lag behind those of faculty of The University of Montana – Missoula and Montana State University-Bozeman who teach in similar disciplines. Salaries for COT faculty are the same throughout the Montana University System, since they are regulated by a statewide union contract. Faculty salary data for the institution as a whole, for each college, and for each department/degree program are given in Table IV-V. Faculty salary trends by rank and CUPA salary group are shown in Figure IV- 3.

Montana Tech's inability to accord its four-year and graduate faculty the same salaries as faculty of The University of Montana – Missoula and Montana State University – Bozeman is, in part, due to the Montana University System's enrollment driven funding model and, in part, due to the nature of the institution itself. While priding itself on its relatively small class sizes and more favorable student - faculty ratios, the lack of economy of scale in classroom instruction creates a less favorable financial situation at Montana Tech than at the larger, neighboring institutions. Even if the decision was made to selectively increase class sizes, there are only three classrooms on campus that can accommodate more than 100 students and five others that can hold more than 50. Yet it is clear that plans must be made and actions taken to improve the faculty salary posture of the institution.

Even with low salaries, faculty retention has not been a problem at Montana Tech. Many faculty consider the intangible attributes of Butte and the surrounding region to be of greater importance to them than higher salaries, at what they consider to be, less favorable locations; even within the state. Many of the degree programs at Montana Tech are relatively unique and are able to attract and retain high quality faculty members who are dedicated to serving in them. Montana Tech, for instance, has one of only two ABET accredited degree programs in Geophysical Engineering in the nation.

Many Montana Tech faculty members are more concerned about real and perceived salary inequities within the institution than with external comparisons. A "blind" salary model was created by the Deans Council, approved by the faculty and the Chancellor, and instituted during the 1997-98 Academic Year. The model, based on CUPA target salaries, eliminates arbitrary promotional increments and other pay raises. However, CUPA target salaries have and continue to increase at a greater rate than faculty salaries so that, in its present form, the model is not very aggressive with respect to eliminating any pre-existing salary disparities.

There is an undocumented salary policy that accords engineering faculty a "bonus" upon obtaining their license as a Professional/Registered Engineer. In the past 10 years, this "bonus" has varied from $500 to $2,000. The "bonus" is added to the faculty member's base salary and under the salary model progressively disappears over time.

Table IV- V. Faculty Salary Data

SUMMARIZED CUPA CATEGORY		PROFESSOR	ASSOCIATE PROFESSOR	ASSISTANT PROFESSOR	FULL-TIME INSTRUCTOR
Business Management and Administrative Services • Accounting • Economics • Business	Number	2	5	0	0
	High	63,153	49,531	0	0
	Mean	60,669	46,944	0	0
	Low	58,184	44,601	0	0
College of Technology • Certificate Programs • Associate Programs	Number	0	0	0	20
	High	0	0	0	48,000
	Mean	0	0	0	36,850
	Low	0	0	0	28,385
Engineering • Engineering • Enginering Related/SHIH	Number	22	16	3	6
	High	75,725	68,589	44,028	39,061
	Mean	62,595	49,454	43,329	33,233
	Low	46,436	38,445	42,000	30,046
Health and Physical Education • Coaches • Trainer	Number	0	0	0	6
	High	0	0	0	44,501
	Mean	0	0	0	33,335
	Low	0	0	0	28,982
Humanities and Social Sciences	Number	11	2	1	0
	High	55,847	39,256	30,245	0
	Mean	48,426	37,913	30,245	0
	Low	41,691	36,569	30,245	0
Mathematics and Computer Science • Mathematics • Computer Science	Number	3	8	0	1
	High	67,642	51,407	0	32,160
	Mean	62,342	45,528	0	32,160
	Low	56,318	41,243	0	32,160
Sciences, General • Biology • Chemistry	Number	6	1	1	2
	High	54,863	39,240	35,755	31,719
	Mean	47,185	39,240	35,755	29,137
	Low	44,560	39,240	35,755	26,554
INSTITUTION AS A WHOLE ACADEMIC YEAR - FY 99-00	Number	44	32	5	35
	High	75,725	68,589	44,028	48,000
	Low	41,691	36,569	30,245	26,554

Table IV-V. Faculty Salary Data (Continued)

AVERAGE PERCENT SALARY RAISES GIVEN TO CONTINUING FACULTY MEMBERS PAST SIX (6) YEARS						
Unit	**Year 1995**	**Year 1996**	**Year 1997**	**Year 1998[a]**	**Year 1999[b]**	**Year 2000[a]**
North Campus	1.5	6.4	6.63	5.49	1.5	3.0
South Campus (Collective Bargaining Agreement)	2.68	3.93	5.32	4.09	3.23	0.31

a. The start of the raise was deferred until October 1.
b. The start of the raise was deferred until June 30.
c. Carry over from previous contract. Negotiations ongoing.

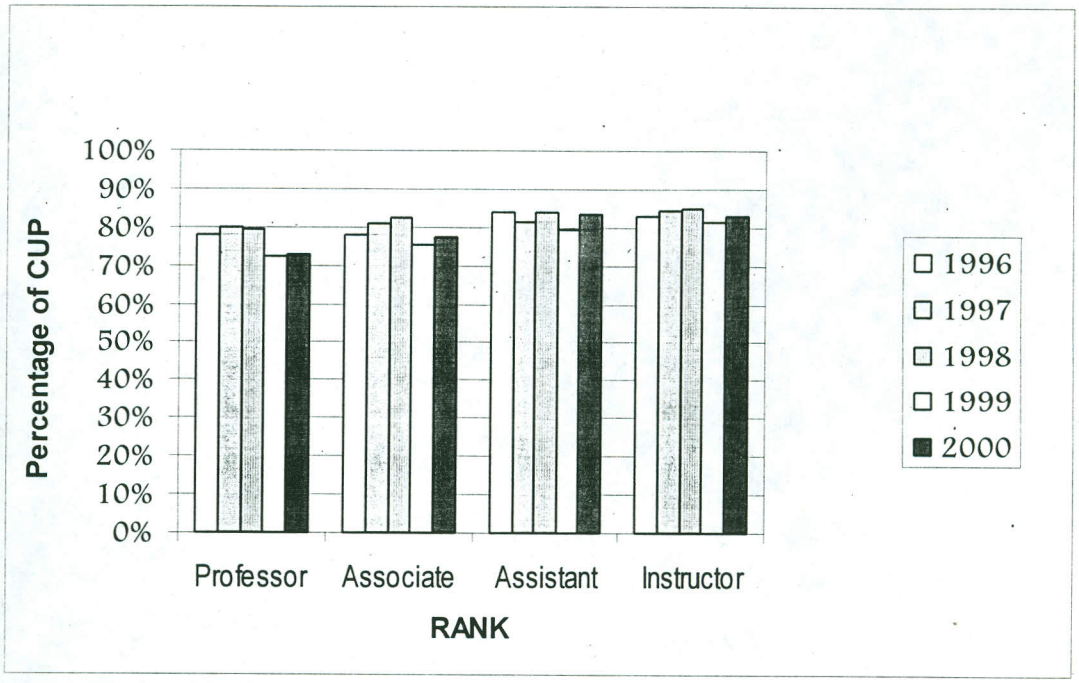


Figure IV-3. Faculty salary trends by rank and CUPA salary group.

The faculty's Salary Advisory Committee consists of three members elected at large by the Instructional Faculty and one appointed by the Faculty Senate. The term of office is for three years, with one member's term expiring each year on a rotating basis. In the past, the Salary Advisory Committee played a fairly active role in the distribution of cost of living and promotion increases, but that role has been diminished, significantly, with the institution of the "blind" salary model in AY1997-98. The committee's present role is that of oversight of the salary model's application, collecting and analyzing data pertaining to faculty salary parity in the state, and providing advice to the VCAAR and Chancellor on faculty salary matters, when requested to do so.

In 1995 the MBMG compared their salaries with those of peer institutions in the west of similar size and mission. At that time, the salaries were at 86.4%, 89.2% and 96.2% of the averages for Assistant, Associate and Senior Researchers, respectively. The Bureau 2000 Plan addressed this discrepancy. The University System, the governor but not the legislature approved the plan. A goal of 5.1% raises over the next 5 years was sought in an attempt to reach 100% of the average. Actual raises for the fiscal years 96-00 were 1.5, 1.5, 5.0, 5.0, and 3.0%, respectively.

References: Faculty Salary Model

The Bureau 2000 Plan (August 1995)

FACULTY WORKLOADS

Faculty instructional workloads for members of the College of Technology's faculty are governed by their union contract and are limited to 18 credit hours or 25 classroom contact hours/week each semester. When COT faculty members are required to undertake additional responsibilities, their contract stipulates that they must be compensated for them on a prorated salary basis.

As previously stated, faculty members of the four-year and graduate programs are not represented by a union. The "normal" instructional workload for these faculty members is 12 credit hours per semester, with laboratory instruction counted as two equivalent credits. Actual classroom contact hours vary between 12 and 15, or more, hours/week. If granted, compensation for a teaching overload is the same as that accorded adjunct (part-time) faculty, which presently is $800/semester credit, with laboratory instruction counted as two equivalent credits.

Department Heads and the Chair of the Faculty Senate are accorded a three-credit reduction in their instructional workload per semester. Deans are accorded a six-credit reduction in their instructional workload per semester. Department Heads and Deans receive a stipend of $2,500 and $3,000, respectively, as additional compensation for their administrative duties, which extend over the summer months. Deans also receive an additional month's salary to compensate them for working at least halftime during the summer.

References: Collective Bargaining Agreement between Montana Board of Regents of Higher Education and Vocational-Technical Educators of Montana

Academic Planning and Curriculum Development

Although it may, on occasion, be undertaken in response to a mandate or request from higher authority, including the Montana Board of Regents of Higher Education, academic planning and curriculum development is, for the most part, an on-going, collaborative faculty process at the department level. New courses are typically developed by individual faculty members in response to student requests or expressed needs of off-campus constituencies in accordance with the institution mission. More frequently, perhaps, they are developed as the result of the faculty member's ongoing involvement in the educational activities of national and international professional societies; such as, the Society for Mining, Metallurgy, and Exploration or the Society of Petroleum Engineers. If approved by the majority of the faculty and the Department Head, the Department Head submits the course to the Curriculum Review Committee (if it is an undergraduate level course) or to the Graduate Council (if it is a graduate level course). The submittal documents typically include a justification for adopting the course, a description of the course for inclusion in Montana Tech's Catalog, and, if the course is to be taught in one of the engineering departments, a detailed course description in the format prescribed by ABET is required. The Curriculum Review Committee (or Graduate Council for graduate courses) may approve the course, reject it, or request additional information before taking action on it. If the course is approved, it is submitted to the instructional faculty for action, usually at the last faculty meeting of each semester. Again, the instructional faculty may approve the course, reject it, or request additional information before taking action on it at the next faculty meeting. Once approved, the course is added to the catalog. However, it may not be added to the list of courses required for a degree at this time, unless a request to modify the degree's curriculum was submitted and approved concurrently.

Internal review and revision of each department's/program's curriculum is an ongoing processes that is supported by their industry advisory councils. The number of credits in four-year degree programs is limited by the Montana Board of Regents of Higher Education to 136 semester credits for engineering programs and 120 semester credits for all other degree programs. Therefore, the addition of a new course must be accompanied by the elimination of another course, or combination of courses, to stay within these credit limits. When a department/program desires to change the curriculum for the degree(s) for which it is responsible, the Department Head submits a request to do so to the Curriculum Review Committee. The request must contain a detailed justification for the desired changes to the curriculum and must be accompanied by spreadsheets showing the present and proposed curriculum, with the changes annotated. There is an intermediate step in the process for all engineering departments/degree programs. Engineering departments/degree programs submit their requests to the Dean of the School of Mines and Engineering. After any changes recommended by the Dean are

made, the Dean calls a meeting of all engineering faculty to review the proposed change. During this meeting, the engineering faculty may vote to approve the proposed change, reject it, or request further information before taking action. If approved, the change is then submitted to the Curriculum Review Committee by the Department Head with the written comment that the proposed change has been approved by the Dean and the engineering faculty. From this point on, the process is identical to that for approval of new courses.

In the past year, an interdisciplinary option in Civil Engineering has been added to Montana Tech's General Engineering degree program and a new interdisciplinary degree in General Science, with a number of optional minors, has been proposed to the Board of Regents of Higher Education. In these cases, curriculum development was carried out by a committee, with a representative from each department whose courses were considered to be appropriate to the major areas of the proposed program.

Changes and adoption of new graduate degree programs are carried out it the same manner, except that proposals are submitted to the Graduate Council rather than the Curriculum Review Committee.

Academic Advising

Academic advising of both undergraduate and graduate students is a high priority responsibility of regular, full-time instructional faculty at Montana Tech and is an area in which they are evaluated on a regular basis (see the section on Evaluation of Instructional Faculty, above). Usually, every instructional faculty member in an academic department is involved in advising its undergraduate students. There are exceptions. The Accreditation Board for Engineering and Technology (ABET) expects that only faculty with engineering degrees or engineering experience evidenced by licenses will be assigned as advisors to undergraduate engineering students. The Department of Geological Engineering, the Department of Geophysical Engineering, and the Department of Environmental Engineering have some faculty who are not engineers. While these faculty cannot be assigned to advise engineering students in these departments, they will become advisors for students in the General Science interdisciplinary degree program when it is approved and instituted.

Most faculty members have an open door policy, in addition to regular office hours. The good rapport between students and faculty at Montana Tech is well known throughout the Montana University System and in the Montana Legislature.

Because of their "menu-driven" curriculum, advising of engineering students is not difficult as long as they stay on track. Engineering curricula are designed to insure that students have not only the prerequisites for all courses in the sequence, but that the sequence of courses takes maximum advantage of, and integrates, their growing body of knowledge to solve engineering problems and to create engineering designs. When students are not on track, or get off track for some reason, it is the faculty advisors'

principal responsibility to map out a course of action to get them back into the specified sequence to the extent practicable.

Because of the engineering heritage of the institution, other degree programs at Montana Tech tend to be "menu-driven" also. Most have much more built-in flexibility and opportunity for students to explore and follow their own interests, however. In these instances, advisors play a greater role in assisting students to develop and pursue elective course sequences to meet their own goals and objectives.

Formal advising takes place near the end of each semester, when students are given the opportunity to pre enroll for the following term. Students are required to meet with their assigned faculty advisor to develop a schedule of courses for the following term and/or to have it approved by them. At the same meeting the advisor inputs the schedule into the Student Information System, Banner.

Faculty Role in Institutional Governance

Montana Tech's faculty is involved in most areas of institutional governance through standing and ad hoc committees, and through interaction with their Department Heads and Deans. The following is a list, in alphabetical order, of standing committees to which faculty are either elected or appointed:

Academic Freedom and Tenure Committee
Academic Standards Committee
Athletic Committee
Benefits Committee
Chancellor's Advisory Council
Computer Advisory Committee
Co-Op Education Faculty Advisory Committee
Cultural Events Committee
Curriculum Review Committee
Faculty Advisory Committee for College Relations and Marketing
Faculty Senate
Faculty Service Committee
Graduate Council
Graduate Council of The University of Montana
Grievance Committee
Instructional Improvement Committee
Library Committee
Motor Pool Committee
Placement Advisory Committee
Recycling Committee
Research Advisory Committee
Safety Committee
Salary Advisory Committee

Scholarship and Financial Aid Committee
Student Disciplinary Appeals Committee
Student Retention Advisory Board
Student Union/Mill building/Bookstore Advisory Board
Telecommunications Committee
Traffic and Parking Committee
WEB Committee

Active ad hoc committees include:

NWASC Steering Committee, with nine subcommittees
Classroom/Laboratory Renovation Committee

Descriptions of individual committee functions and a list of their current members will be available for review by the visitation team.

SCHOLARSHIP, RESEARCH, AND ARTISTIC CREATION

Teaching is the main focus of Montana Tech's instructional faculty. Within this framework, however, the faculty engages in a diverse array of research projects. Currently, 43 percent of the instructional faculty (35 faculty) and half of the Montana Bureau of Mines and Geology staff (25 staff) are actively engaged in scientific and technological research. Research volume in FY99 was $5,400,000, with about $13,000,000 worth of research under contract. One hundred and ten graduate students support this research effort. Current funded research is listed in Montana Tech's Grants and Contracts Activity Report, which will be available for inspection during the evaluation team's visit.

The Vice Chancellor for Research and Graduate studies is responsible for the development and administration of Montana Tech's research policies and practices. All research related policies are posted on the Research Office Home Page. New policies are distributed by electronic mail, posted on the Research Office's Shared Folder on the campus email system, and then added to the Research Office Home Page, http://www.mtech.edu/research.htm. The faculty participates in two governing councils that directly effect the development of research policies and practices. These two councils are the Research Advisory Committee and the Graduate Council. Members of the Research Advisory Committee are appointed from the instructional and research faculty ranks by the Vice Chancellor for Research and Graduate Studies. The VCAAR, the VCRGS, and Department Heads appoint the members of the Graduate Council. The charters of these committees and their current makeup are contained in Tables IV- VI and IV- VII, respectively.

Table IV- VI. Research Advisory Committee

Committee Mission Advises Office of Research and Graduate Studies on policies and programs to promote and enhance research and creative activities. Performs reviews and serves as the College committee responsible for oversight of misconduct in research.			
Current Membership:			
Joanne Cortese (1998)		Cliff Goudelock (1999)	
Katy Donovan (1998)		Ted Duaime (1998)	
Chris Gammons (1998)		David Hobbs (1998)	
Grant Mitman (1998)		Keith Olson (1998)	
Holly Peterson (1998)		Larry Smith (1998)	Faculty Senate
Dan Trudnowski (1998)		Larry Twidwell (1998)	
Rich McNearny (1999)			
Joe Figueira, Chair	Ex-Officio	Rollo Shea	Ex-Officio
Dan Bradley	Ex-Officio	Lynn Job	Ex-Officio

Table IV- VII. Graduate Council

Committee Mission The Graduate Council serves to ensure consistency and quality in and across graduate degree programs. The Graduate Council considers and recommends action(s) to the Director of Research and Graduate Studies on all matters brought before it by an officer of the Graduate School, a member of the Graduate Council, or any faculty member in any of the graduate programs.	
Current Membership:	
Graduate Units:	*Nongraduate Units:*
Tarek, Ahmed, PetE (1998)	Doug Abbott, BIT (1998)
Joanne Cortese, PTC (1998)	Doug Cameron, Geochemistry (1998)
Kumar Ganesan, EnvE (1998)	Rick Douglass, Biology (1998)
Pete Knudsen, MinE (1998)	Henry Gonshak, Liberal Studies (1998)
Julie Norman, IH (1998)	Jim Handley, Math (1998)
David Westine, E.S. (1999)	Keith Olson, C.S. (1999)
Diane Wolfgram, Geosciences & GEOE(1998)	Dan Bradley Ex-Officio
Marvin Speece, GeophE (1999)	Joe Figueria, Chair

The Research Office provides most of the administrative support services required for faculty research and scholarship activities. The University of Montana provides assistance in technology transfer, intellectual property and legal issues to the Montana Tech Campus. Services provided on campus include pre and post award financial services, grant preparation assistance, and editorial assistance. The Research Office also assists faculty with proposal related travel, as needed. Indirect cost returns are used to establish Montana Tech's physical research infrastructure and, also, to leverage the

acquisition of required research equipment. Table IV- VIII summarizes the funds used to support Montana Tech's research infrastructure need in FY 2000.

Individual faculty, or the Research Office, initiates sponsored research programs with the explicit consent of the academic departments involved. This insures that all proposed research is consistent with the long-range goals of the host department(s) and that any infrastructure investments are consistent with these same goals. The Office of Research works closely with the academic departments to identify and establish new research directions for the department in response to new hiring or funding opportunities. These new directions for research are typically coordinated at the Vice Chancellor for Academic Affairs and Research level.

Research is not the only scholarly activity engaged in by Montana Tech's faculty. For example, the faculty of the Professional and Technical Communications (PTC) Department is constantly involved in scholarly activities, not only as their own projects, but in conjunctions with those of their students. Each faculty member, for example, works with graduate students on projects ranging from developing Intranet sites for corporations to producing CDs for marketing purposes, writing and initiating creative curricula in high schools, and producing multimedia that demonstrates realities; such as, the Berkeley Pit. PTC faculty members are also engaged in their own writing projects ranging from textbooks to articles in The Montana Professor.

Table IV-VIII. Funds Used to Support Montana Tech's Research Infrastructure FY 2000.

DESCRIPTION	Budget	Total
Research Administration		
Office of Research	$163,772	
Office of Grants and Contracts	$125,602	
Office of International Affairs	$10,000	
Graduate School	$71,454	
		$370,828
Research Enterprise Fund		
New Faculty Seed Grant Program	$15,000	
Undergraduate Research Grants	$10,000	
EPSCoR Dues	$2,640	
Natural Resource Research Center	$5,000	
DEQ-Zortman/Landusky Match	$4,065	
Matching & Start Ups	$0	
		$36,705
Institutional Support		
General Institutional Support	$24,500	
Office of Environmental Health and Safety	$54,942	
Library Support	$10,000	
		$89,442
Public Service		
Office of Technical Outreach Support	$5,000	
Campus Seminar Series	$2,000	
MT Science Fair	$7,500	
K-12 Workshops	$1,000	
Expanding Your Horizons	$1,000	
Environmental Design Team	$750	
		$17,250
Return to Generators		
Division Head Fund @ $4,000 each	$20,000	
Dept. & PI & MBMG	$50,000	
Chemistry & Biology Building	$63,000	
Chemistry & Biology Building FY 1999 Carryover	$67,000	
		$200,000
		$939,649

ASSESSMENT OF POLICIES

Institutional policies concerning faculty, including temporary and part-time, are evaluated on a three-year rotating basis, with major revisions of the entire Faculty and Staff Handbook completed about every 10 years. The faculty section of the Faculty and Staff Handbook was most recently revised in 1999. The mission and goals of Montana Tech are the guide in all revisions. Since undergraduate instruction continues to be Montana Tech's number one priority, teaching excellence on the part of its entire instructional faculty is of critical importance. This is especially true of adjunct and part-time faculty, as teaching is their only responsibility.

EXHIBITS

IV-1 Faculty statistics by rank or class and individual
IV-2 The Bureau 2000 Plan (August 1995)
IV-3 Criteria for Classification and Procedures for Promotion of Bureau Professional Research Staff
IV-4 Faculty and Staff Handbook
IV-5 Policy on Academic Freedom (Faculty and Staff Handbook)
IV-6 Current professional vitae
IV-7 Doctrinal statements required for employment, promotion and tenure
IV-8 Collective Bargaining Agreement between Montana Board of Regents of Higher Education and Vocational-Technical Educators of Montana (College of Technology Promotion Policy and Procedures)
IV-9 Summary reports of faculty involvement with public services/community services
IV-10 Policies regarding scholarship and artistic creation by faculty and students (Faculty and Staff Handbook)
IV-11 Statistics on Faculty Retention and Turnover
IV-12 Biennial Report of Activities and Programs of the Montana Bureau of Mines and Geology

STANDARD FIVE
LIBRARY AND INFORMATION RESOURCES

PURPOSE AND SCOPE

Library

Montana Tech of The University of Montana's library and information resources have been developed, primarily, to support teaching, learning, and research. The majority of library materials are held in one collection in the Library/Auditorium Building on the north campus. The only exception is a small collection of books and periodicals maintained on the south campus to support the faculty and students in the College of Technology's programs. Even though the Library's collection contains over 147,000 books and 1,700 periodicals, the Library does not meet Association of College and Research Libraries (ACRL) standards for holdings and staff due to financial restrictions. The Library does, however, meet the on-going needs of students, faculty, and staff by effective and sometimes innovative utilization of resources. The materials budget (for books and subscriptions) is presently concentrated on acquisitions to support the curriculum. Cuts of more specialized journals that primarily support research and faculty development have been offset, in part, by offering a current Contents Awareness Service, which is actively used by approximately twenty percent of the faculty. As part of this service, journal articles are acquired from other libraries or commercial sources and provided to the faculty at no cost to them. Electronic journal subscriptions are being investigated in concert with other University of Montana libraries for those programs and faculty that all of the institutions have in common. The primary issue with this effort, as would be expected, is its cost. Additionally, licensing agreements for multiple campuses vary from publisher to publisher. Staff from The University of Montana, Missoula campus library are investigating a variety of options. Montana Tech's serial vendor, EBSCO, is beginning to supply some titles electronically. These can be accessed via Montana Tech's Library web site. An Ariel workstation was recently installed in Montana Tech's Library to facilitate some Interlibrary Loan (ILL) activities by sending copied material directly to patron email accounts.

Montana Tech's Library is a member of the Federal Depository Library Program (FDLP) and is a Selective Depository (17.74%) for Federal Documents in all formats. As such, it contains extensive United States Geological Survey and former United States Bureau of Mines holdings. Montana's Regional Depository (100%) for Federal Documents in the affiliated library of The University of Montana, Missoula. Montana Tech's Library is also a Selective Depository for Montana State documents, a designated Superfund Information Source, and a Montana State Data Center cooperative program member (census materials). The Library is also a repository for domestic and foreign publications received by the Montana Bureau of Mines and Geology (MBMG), as well as all MBMG publications, and is a Patent and Trademark Depository Library (PTDL). CDROM and online reference search sources are available at the Library for student and faculty research, as is Interlibrary Loan (ILL) service. Most of the material requested through ILL is used to support new research areas.

The Library's core collection and related resources are, for the most part, sufficient to support the curriculum. Because of the institution's historic role and scope, the collection has significant

strength in engineering and the physical sciences. Based on a 30 percent response to a faculty survey conducted in 1994, additional materials were needed in the areas of life science, communication, and electrical engineering. These needs have been given funding priority and the situation has improved, although additional materials are still needed in these areas. In 1999, Department Heads were surveyed on library and information resources and needs. Responses will be included in the exhibits for review during the evaluation team's visit.

In 1993, a Dynix/Ameritech automated library system was purchased and installed. At that time, only 10 percent of the collection was included in the system, but that has been increased to about 25 percent at present. The retrospective focus has been on those sub-collections most useful to students and which, therefore, receive the most use. Over 95 percent of the book, serials, and reference collections have been cataloged and added to the systems and all Montana Tech theses have been added, as well. The book collection is presently being inventoried to identify material that is on the shelves, but not in the system.

Because of a Y2K problem with Montana Tech's Dynix system, the catalog has been moved to The University of Montana, Missoula system, which also holds the catalog for Western Montana College. In addition to preserving Montana Tech's automated system capability, the collections of the three larger units are now readily accessible from each campus. The University of Montana recently requested proposals for a Windows-based system for all four units. These proposals are in the final evaluation stage, and a decision whether or not to migrate to a new system during the Summer of 2000 is anticipated very soon.

Both Library of Congress and Superintendent of Documents classifications are used to arrange the collection. The priorities for the retrospective cataloging of the collection are as follows:

Book Collection	completed 1996
Reference Collection	completed 1996
Serials Collection	completed 1997
Montana Tech Theses	completed 1998
GPO – Maps – Flat	in progress
US Geological Survey	in progress
US Bureau of Mines	in progress
EPA	
Commerce and Labor	
Montana Government Documents	in progress
Technical Reports	

A faculty committee with representatives from each department is used to guide the operation of the Library. The committee meets regularly throughout the academic year to consider major library issues. Its last activity was to review the Collection Management Policy.

Additions to the Library's book collection are made through a process in which the major part of the book budget is allocated to academic departments based on the number of faculty and students. Within budget constraints, all recommended books are purchased.

INFORMATION RESOURCES AND SERVICES

Montana Tech's computer network provides access to statewide and regional networks and the Internet for all students, faculty, and staff. The north campus has fiber to all buildings and, in some cases, to the floors within the building. Approximately fifty percent of the buildings on the north campus have CAT/5 wiring to their PC workstations and it is planned to have all on-campus PC workstations connected to the network via CAT/5 before the year 2001. The fiber backbone is currently running at 100mbs and the campus Network Services is installing new high speed network switches, which will provide switched 10/100mb to each desktop computer. Segments of the backbone will operate at either 100mb or gigabit (1000mb) speeds to the core switch, providing layer 3 routing and quality of service (qos). The College of Technology (COT), located on the south campus, also has a fiber backbone and CAT/5 wiring to the majority of its workstations. The COT is connected to the north campus by a dedicated T1 data link.

Montana Tech projects the installation of a DS-3 (the equivalent of 28 T1 circuits or 45mb) service link from the north campus to The University of Montana, Missoula campus in the Spring of 2000. The link will serve Montana Tech/University H/R Internet2 research and commodity Internet communication and traffic originating and destined both for Montana Tech's College of Technology and Western Montana College in Dillon. Two other high bandwidth pathways include two DS-3s from the Missoula campus to Seattle; one for Internet2/Abiline network participation and the other for commodity Internet participation.

The Internet2 project exists to develop and integrate new innovations in networking. The universities that originally ventured on this project understood that the fundamental advances and development in networking must be applied and pursued if they were to fulfill their teaching and research missions. Internet2 represents a partnership of over 130 universities, 40 corporations, and 30 other organizations. Internet2 has the potential to improve the way people work, learn, and communicate. The project facilitates the development of new network technologies and advanced network applications to improve what we know of the Internet today.

The best effort of the Internet today is unable to guarantee, reliably, the performance necessary to run even the more moderately advanced networked applications envisioned. As new applications develop, and users begin to rely on these applications, the quality of service will degrade. Ultimately, Internet2 will improve the quality of service on the Internet and provide the mechanism for sustaining an advanced production system with the quality of service necessary and expected.

Montana Tech's network is connected to the Internet via The University of Montana, Missoula, which is part of VERIO. This Internet connection is currently part of the state of Montana's teleprocessing network (SUMMITNET). A separate University of Montana network exists, which is part of the state of Montana Teleprocessing Network. In January 1998, Montana Tech implemented an on-campus (ELCB 231) two-way interactive televideosite as part of the state of Montana Teleprocessing System (METNET). This site is used receive and deliver interactive video. The campus network also contains multiple ISDN lines for the purpose of providing desktop video conferencing.

Montana Tech converted to the Microsoft suite of products in 1995. About ninety percent of all workstations are currently running Windows 95, 98, Outlook, Internet Explorer, and Office 97. The other ten percent are Microsoft NT workstations. The majority of the servers in Montana Tech's LAN/WAN are Microsoft NT based.

All faculty and staff are provided with personal computers (PCs) in their offices. Students have access to personal computers in general and individual department computer laboratories, as well as in the libraries, the Student Union, the Learning Center, and the two residence halls. The vast majority of these personal computers are Pentium based. The campus has instituted a plan to replace each employee's PC on a four-year rotational basis. A fixed dollar amount is to be allocated, which can be used to purchase a basic machine or supplemented with other funds to acquire one with more power or additional features.

FACILITIES AND ACCESS

Library

Library and information resources are readily accessible to all students, faculty, and staff. The main Library is wholly compliant with the Americans with Disabilities Act (ADA) and its facilities and stacks are open during the following hours:

Academic Year:	
Monday – Thursday	7:30am – 10:00pm
Friday	7:30am – 5:00pm
Saturday	9:00am - 5:00pm
Sunday	1:00pm - 10:00pm

Summer Hours:	
Monday – Friday	7:30am - 4:00pm
Saturday – Sunday	Closed

Academic Year Reference Assistance Hours:	
Monday – Wednesday	9:00am – 12:00pm and 1:00pm – 4:00pm
Thursday	11:00am –12:00pm and 1:00pm – 4:00pm
Friday	9:00am – 12:00pm and 1:00pm – 4:00pm
Saturday and Sunday	None

The seating capacity of the Library is as follows:

First Floor Conference Room	12
First Floor General Areas	99
Second Floor Study Rooms	24
Second Floor General Areas	106
Total	241

There are now waiting lines in the Library to use its 18 workstations and waiting times for reference assistance is minimal during scheduled hours. The physical facilities are not fully

utilized, except during final examination week(s). Tables and chairs are normally available for Library patrons' use. New library material is processed in a timely manner and public notification of new additions is accomplished using the campus email system and by hard copy notices.

In addition to the campus-wide network that can be used to access the Library's catalog and a variety of internet databases that the Library subscribes to, there are 10 workstations in the Library that are dedicated to particular in-house data bases. Since 1995, the number of dedicated workstations in the Library has increased by 400 percent and the number of databases has nearly tripled. Online versions of Georef and Engineering Index (EI) have been added recently. Students, faculty, and staff can electronically access the following databases:

Engineering literature and information using EI and Immage
Federal Government and other information using MARCIVE and GPO ACCESS
Scientific and contemporary literature using Georef, Wilsondisc, and Infotrac Searchbank
Library holdings of the Western Library Network, and soon OCLC, via the Internet or using an in-house version of LaserCat
Several chemical, metallurgical, and legal databases

Faculty examination and review is obtained before new databases are acquired.

Campus Computer Facilities

Campus computing facilities are considered to be state-of-the-art. The student to workstation ratio is one PC for every three students. The latest software and hardware are available campus-wide. Student access to computer facilities, primarily PC workstations, is provided via general purpose and/or departmental laboratories. General purpose laboratories fall into two categories: those that are scheduled for classes and those that are never scheduled for classes. The latter are available 24 hours/day, seven days/week. General purpose laboratories, which are scheduled for classes, are open 104 hours/week -- 7:00 a.m. until midnight during weekdays, 8:00 a.m. to 5:00 p.m. on Saturday, 1:00 p.m. to midnight on Sunday. These laboratories are scheduled for instructional use approximately 50 percent of the time during the academic year. The departments have total jurisdiction over the hours and use of their own workstations and dedicated computer laboratory facilities. All faculty, staff, and students are assigned a user account and email address.

Currently, Montana Tech has minimum wiring and/or Internet access from its classrooms. A plan has been formulated to address this issue during the Spring of 2000. During the Summer of 1998, two classrooms and two general purpose instructional computer laboratories were completely renovated to provide full multimedia capability. One additional multimedia classroom was readied in the Summer of 1999. Several additional classrooms will have data projectors added during the Summer of 2000.

PERSONNEL AND MANAGEMENT

Library Staff

The Library employs three full-time and one half-time professional staff members. Because of the small size of the operation, none are assigned exclusively to any particular academic program. Both the Head of Technical Services and the Reference Librarian are professional librarians. All of the professional staff consistently receive excellent evaluations and maintain excellent working relationships with faculty and students. The Library also employs eight part-time student assistants. The Library needs two additional professional staff members -- one to develop an information literacy program and a collection development specialist to accelerate the retrospective cataloging effort.

Many of the Library staff's duties have changed over time due to budget restrictions and changes in collection management policies and procedures. The staff, however, does have a good understanding of their responsibilities. In addition to in-house training, all Library staff members are accorded the opportunity to attend workshops held at the annual meeting of the Montana Library Association and all of its professional staff members have attended national meetings within the past two years.

Informational Resources Staff

Montana Tech's Computer Center was reorganized during the Summer of 1999. This resulted in the re-assignment of some of its former staff to the four colleges to provide more responsive service tailored to their individual mission and needs. The computer specialist assigned to each college is directly responsible to its Dean. The remaining staff was organized to focus on two mission-critical computer support service areas: network services and information systems. The two service areas in place are Network Computer Services and Information Services; each with well-defined work paths. Network Computer Services is charged with developing, monitoring, securing, and maintaining the entire network infrastructure. The network must provide delivery of all media and computer communications, facilitating both instructional and administrative needs. Information Services is charged with support of student information systems and administrative support systems. Each service area is funded with separate operating budgets.

Montana Tech's Network and Information Services employs six, full-time specialists, three of whom are directly involved in the operation and maintenance of Montana Tech's networked computer system. Additionally, each of Montana Tech's four colleges has its own computer systems specialist whose principal responsibility is to maintain the general and dedicated computer laboratories for which each college is responsible. Virtually all of Montana Tech's students receive formal instruction from faculty members in the use of computer information systems in regular, required classes such as, Mining 1010 (Introduction to Engineering Calculations and Problem Solving), Computer Science 1006 (Computer Literacy), and Computer Science 1416 (Computer Software).

Management

Montana Tech's library and information resources (computer) are well organized to support Montana Tech's mission and goals down to and including those at the department/academic program level. The Library, Network Computer Services and Information Services are directly under the Vice Chancellor for Academic Affairs and Research (VCAA/R), who is responsible for insuring both management and technical continuity in all aspects of their operations, as well as between them and the four colleges. Library and computer-based information resource needs are considered in curriculum and course development and the Library Director is an ex-officio member of the Curriculum Review Committee. Although budgets are limited, Montana Tech's administration has made the commitment to replace the automated library computer system and the computer network has been, and remains, a high priority budget item.

PLANNING AND EVALUATION

Planning and evaluation of library and information resources takes place at every organizational level at Montana Tech. Every academic department has its own representative on the Library Committee to voice their department's individual needs and concerns. Montana Tech's Network Committee has a broad representation by knowledgeable individuals from every group served. Additionally, department needs for computer hardware and software are deliberated by the Deans Council and forwarded via it to the VCAA/R for inclusion in the Academic Affairs and Research Budget. Library and informational resources are also considered by the Chancellor's Cabinet and Executive Committee based on input from various faculty, staff, and student units and groups.

EXHIBITS

V-1 Learning Resources Facilities Hours and Services
V-2 Policies/Procedures for Development and Management of Library and Information Resources
V-3 Library and Other Learning Resources Statistics
V-4 Statistics for Library Collection and Inventory of Other Learning Resources
V-5 Adequacy of Facilities
V-6 Adequacy of Holdings/Information Resources and Services
V-7 Library Staff Data
V-8 Organizational Chart for Library/Information Resources
V-9 Library and Information Resources Budgets
V-10 Vitae of Professional Library Staff
V-11 Other Library Formal, Written Agreements
V-12 Computer Usage Stats on Retrieval of Library Resources
V-13 User Services Provided by Computing Facility
V-14 Library and Information Resources Evaluation Materials
V-15 Library Committee Minutes
V-16 GPO Self-Study and Response
V-17 GPO On-site Inspection Report
V-18 RFP Request for New Integrated Library System Software
V-19 Circulation Manual
V-20 Technical Services Manual
V-21 Holdings (monthly acquisition report)
V-22 Library Representative Account/Request Letters
V-23 Map Database
V-24 Index of Superfund Materials
V-25 Montana Documents Depository Selected Item List
V-26 GPO Selected Items List
V-27 Databases on CDROM for Library Use
V-28 Network Topology Map (a logical view)
V-29 Office and Classroom Network Wiring Project (Blue Prints)
V-30 Montana Tech Data Wiring Project Manual and Specifications
V-31 Meeting Minutes of Telecommunication and Computer Committees
V-32 Organization Chart for Network Computer Services/Information Services
V-33 List of Services Provided by Network Computer Services
V-34 Strategic Planning Affecting Computer Networking

Exhibits available in Library Archives.

STANDARD SIX
GOVERNANCE AND ADMINISTRATION

INTRODUCTION

Montana Tech of The University of Montana is one of four separately accredited campuses of The University of Montana. The campuses are located in Missoula, Butte, Dillon and Helena. The documents that guide the establishment and governance of the institution began with the 1889 act of the 50th Congress of the United States authorizing a land grant for the establishment of a School of Mines in the state of Montana (Exhibit VI-1). In 1994, the Montana University System (MUS) was restructured under a document titled *The Restructuring of the Montana University System (Phase One)* (Exhibit VI-2). The restructuring was completed under a document dated January 7, 1997, and titled *Phase Two of the Restructuring of the Montana University System* (Exhibit VI-3). This restructuring created two universities, The University of Montana (UM), as described above, and Montana State University (MSU) with campuses in Bozeman, Billings, Havre and Great Falls. In the restructuring, the five vocational-technical centers that had become a part of MUS in 1989 were made a part of the two universities. What was formerly the Butte Vocational-Technical Center became the College of Technology of Montana Tech.

SYSTEM OF GOVERNANCE

Article X, Section 9 (Exhibit VI-4), of the Montana Constitution gives the governance and control of the MUS exclusively to the Montana Board of Regents of Higher Education. The Board of Regents has full authority to manage public higher education in Montana. The Board of Regents also has oversight of Dawson Community College, Flathead Valley Community College and Miles Community College, which are the non-tribal public community colleges.

The relationships among the Board of Regents, administrators, faculty, staff and students are defined in the MUS *Policy and Procedures Manual* (Exhibit VI-5) which is available in print and electronic form through the internet at http://www.montana.edu/wochelp/borpol/. Faculty, student, and staff views are solicited by the Board of Regents prior to making decisions. At each meeting, the Board of Regents meets separately with representatives of students and faculty and at alternate meetings with representatives of staff. Representatives of all constituents attend Board of Regents meetings and are asked to speak on issues under consideration. Each institution in the MUS is required to have a written policy on how student input is obtained on mandatory fees.

The MUS *Policy and Procedures Manual* defines the relationship and division of authority and responsibility between the central office and the campuses. This is done by

defining the responsibilities and authority of the Commissioner of Higher Education, the Presidents and the Chancellors.

GOVERNING BOARD

The Board of Regents has seven appointed members plus the Governor and the Superintendent of Public Instruction who serve as **ex-officio** members (Exhibit VI-6). For 1999 - 2000, the Board of Regents has three women and four men. Six members are Caucasian and one is Native American. One Board member is a student at one of the MUS campuses. Members of the Board of Regents represent all geographical regions of the state.

The Governor appoints members of the Board of Regents. These appointments are confirmed by the Montana Senate. The Board of Regents consists of six members appointed for seven-year terms and one student member who serves not less than one year and not more than four years. Vacancies that occur other than by completion of a term are filled for the remainder of the term by appointment by the Governor. In making appointments to the Board of Regents, the Governor generally consults the members of the Board of Regents and the Commissioner of Higher Education. The Commissioner requests input from the campuses. No more that four non-student members of the Board of Regents may be appointed from one United States Congressional District and no more than four from the same political party. Although Montana currently has only one United States Congressional District, geographical distribution has been maintained.

The Board of Regents has two committees, The Academic and Student Affairs Committee and The Administrative and Budget Committee. These committees consist of members of the Board of Regents and are attended by appropriate campus representatives. Discussions of Board of Regents agenda items are held and recommendations are made to the full Board of Regents. Final action on agenda items is taken only by the full Board of Regents acting as a committee of the whole.

The duties, responsibilities, organizational structure, and operating procedures of the Board of Regents are defined in the MUS *Policy and Procedures Manual.* Ethical conduct of Board of Regents members is covered in the Mission Statement of the MUS and in *Ethics Standard of Conduct for State Employees* (Exhibit VI-7) published by the Department of Administration, State Personnel Division.

The Board of Regents selects, appoints and supervises the Commissioner of Higher Education who serves as the Executive Officer of the MUS. The Commissioner is reviewed annually by the Board of Regents.

The Board of Regents approved Montana Tech's current mission statement (Exhibit VI-8) in May 1999. The Board of Regents approves all major academic, vocational, and technical programs of study, degrees, certificates, and diplomas. The Board of Regents

also approves major substantive changes in the mission, policies, and programs. The Board of Regents has two levels of approvals. Level I proposals are relatively minor campus initiatives typically characterized by minimal cost, clear adherence to approved mission statements, and the absence of programmatic impact on other institutions in the system. Level I proposals may be approved by the Commissioner of Higher Education. Level II proposals are more complicated campus initiatives and require approval of the Board of Regents. The following are examples of Level II proposals:

Creating new certificate and degree programs
Adding minors to existing degrees
Creating options within majors
Adding minors where a major does not exist
Changing the names of degrees
Terminating programs

In September 1999, the Board of Regents approved *a Mission, Vision and Goals Statement* (Exhibit VI-9) that represents an evaluation of its performance. All policies of the MUS were evaluated during 1999 and approved by the Board of Regents in November 1999.

The Board of Regents has organized the MUS into two universities of four affiliated campuses each. The academic and administrative structure of these universities is approved by the Board of Regents. The annual budget, the annual fiscal audits, and the long-range plan of each campus is approved by the Board of Regents. The Board of Regents takes an appropriate interest in both regional and professional or specialized accreditation of the campuses. Accreditation reports and accreditation self-studies are submitted to the Commissioner of Higher Education and available to the Board of Regents.

LEADERSHIP AND MANAGEMENT

The Chancellor is the full-time chief executive officer of Montana Tech. The Chancellor of Montana Tech is appointed by the Board of Regents upon recommendation of the President of The University of Montana and reports to the President. While Montana Tech and The University of Montana - Missoula, share a number of functions(e.g., payroll), the only reporting authority is from the Chancellor of Montana Tech to the President of The University of Montana.

The reporting authority for the various Montana Tech offices and functions is summarized in the Montana Tech Organizational Chart (Figure VI-1, page VI-4).

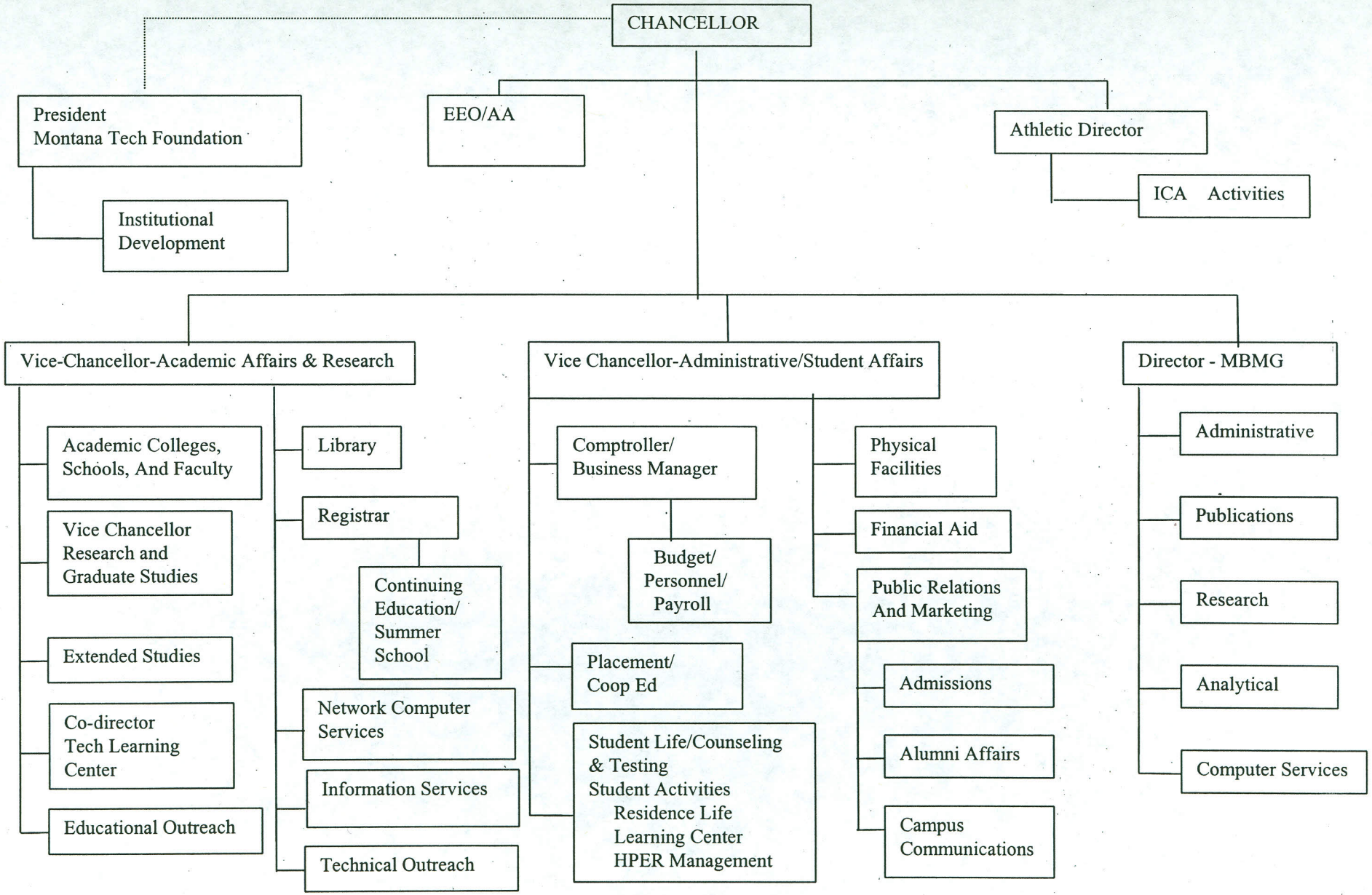


Figure VI-1 MONTANA TECH OF THE UNIVERSITY OF MONTANA ORGANIZATIONAL CHART

Reporting directly to the Chancellor are the Vice Chancellor for Academic Affairs and Research, the Vice Chancellor for Administrative and Student Affairs, and the Director of the Montana Bureau of Mines and Geology, the Athletic Director, and the Equal Opportunity Affirmative Action Officer. The duties and responsibilities of these positions are governed by their respective job descriptions (Exhibit VI-10).

Decisions and on-going issues of management are discussed as frequently as required by the Executive Committee. The Executive Committee consists of the Chancellor, the Vice Chancellor for Academic Affairs and Research, the Vice Chancellor for Administrative and Student Affairs, the Director of the Montana Bureau of Mines and Geology, and the Vice Chancellor for Research and Graduate Studies.

The Chancellor's Cabinet is a broad policy development group composed of the three Vice Chancellors, the Director of the Montana Bureau of Mines and Geology, the four academic Deans, the Dean of Students, the Controller, a representative of the Faculty Senate, the President of Montana Tech Foundation and the Director of Extended Learning. The Cabinet meets every two weeks to discuss current issues and to develop policies for consideration by other groups on campus. The Cabinet is an advisory group to the Chancellor.

The Chancellor's Advisory Committee is a broad-based group of faculty, students, and staff that meet monthly to discuss accomplishments and problems of the campus. The purpose of this committee is to provide a two-way communication link between the Chancellor and the campus constituent groups.

The Chancellor's Kitchen Cabinet is a group of ten to twelve members of the faculty and staff chosen at random. These meetings are held when the Chancellor's schedule permits. The purpose is to assist the faculty and staff to know each other better and to know the administration better. The goal is to have each faculty and staff member meet with the Chancellor at least once each year in an informal setting.

The Local Executive Board consists of three citizens appointed by the Governor. This group meets quarterly and serves in an advisory role to the Chancellor. The Local Executive Board also serves as a link to the surrounding communities.

The duties and responsibilities of Montana Tech's administrators are published in the *Faculty & Staff Handbook* (Exhibit VI-11). These were revised in the Fall of 1999 and are reviewed periodically. The faculty has adopted a code of conduct that is also followed by the administration. The Department of Administration, State Personnel Division, publishes *Ethics Standard of Conduct for State Employees* (Exhibit VI-7). All employees of Montana are required to follow this standard.

Montana Tech has well-qualified administrators. The Chancellor spent 26 years in classroom teaching, directing doctoral research and departmental administration, before going into higher administration six years ago. Five years as Executive Vice President of an institution similar to Montana Tech prepared him to be Chief Executive Officer of this campus. The chief academic officer spent 19 years as a faculty member, Department Head and Dean before becoming Vice Chancellor for Academic Affairs and Research two years ago. The Vice Chancellor for Administrative and Student Affairs has a total of 32 years experience in student affairs and administrative affairs, with the last 13 years in executive management at Montana Tech. All of the Deans and Directors and most of the Department Heads are seasoned administrators. A few Department Heads are new administrators that should provide the continuity every institution needs. Since Department Heads are critical academic administrators, consideration is being given to training programs for them.

The Montana Tech Foundation (the Foundation) is responsible for all private fund raising for Montana Tech. The Foundation is an independent not-for-profit corporation chartered under the laws of Montana. A *Memorandum of Understanding* (MOU, see Exhibit VI-12) between the Foundation and Montana Tech outlines the methods of operation. The MOU meets all the requirements outlined by Board of Regents policy to maintain an arms-length relationship. The Foundation is governed by a Board of Directors, from which an Executive Board is elected. The Executive Board hires a President of the Foundation. Priorities for fund raising are set by the institution through the Chancellor's Cabinet. Members of the Cabinet discuss needs with their constituencies and submit these to the Chancellor. The Chancellor furnishes the Board of Directors of the Foundation with the priorities (Exhibit VI-13) of the institution for fund raising. The Digger Athletic Association raises funds to support athletics. Their activities are coordinated with the Foundation and all their funds are administered by the Foundation. The Director of College Relations and Marketing is responsible for alumni relations. The Associate Director of Alumni Relations is responsible for maintaining direct contact with alumni and the Montana Tech Alumni Association. The Alumni Relations Office maintains the alumni database and publishes M-News, the institutions official alumni and foundation publication. M-News is distributed to alumni and friends of Montana Tech. Copies of M-News are available in Exhibit VI-14.

Institutional decision making follows several courses depending on the nature of the decision. The very infrequent decision that requires immediate response is made by the Chancellor acting alone, or by the Chancellor after consulting the Executive Committee. Most issues that arise allow for a timely, but more deliberate, decision-making process that involves shared faculty, student or staff governance. Recommendations of committees and groups are acted on by the appropriate administrator when the recommendation is made or may be sent to a group such as the Chancellor's Cabinet for additional discussion. With few exceptions, decisions are made in a timely manner.

The administration facilitates cooperative working relationships among organizational units and promotes communication and goal attainment through a number of activities.

For example, the Chancellor's Cabinet, the Chancellor's Advisory Committee and the Chancellor's Kitchen Cabinet bring diverse campus groups together to promote communication and working relationships. The Academic Deans Council devotes much of its effort to building working relationships among the academic units and to communication among the academic units. Weekly staff meetings of the Administrative and Student Services Directors Council promote working relationships among the units of this division. The Director of the Montana Bureau of Mines and Geology coordinates activities through its three division chiefs and two managers. Through the Chancellor's Cabinet the units of the campus including the Montana Tech Foundation, are brought together to attain the goals of the institution.

Data obtained through institutional research is made available to all concerned groups. For example the results of the Student Satisfaction Survey are made available to faculty and staff. The administration seeks suggestions for improving weak areas. The Graduate Survey is conducted by the Placement Office and the results are shared with faculty and staff, as well as with potential students and the Board of Regents.

Policies, procedures and criteria for administrative and staff appointment, evaluation, retention, promotion, and/or termination are published, accessible, and periodically reviewed. Montana Tech's *Selection and Recruitment Manual* (Exhibit VI-15) was reviewed in 1996 and is available to all search committees and administrators involved in hiring. Criteria for evaluation, retention, promotion, and/or termination are published in the *Faculty and Staff Handbook*, which was reviewed in 1999.

Montana Tech has been fortunate to attract capable staff and administrators, despite salaries that are about 80% of national averages for similar positions. However, one search for a Vice Chancellor for Academic Affairs and Research failed because of salary. Retention of a highly capable workforce has not been a major problem because many choose to live in Butte and the surrounding area and accept lower salaries. Montana Tech is not satisfied with the salaries for any of its personnel and continues to work to bring salaries to national averages. Copies of salaries and benefits for Montana Tech administrators and staff are provided in Exhibit VI-16.

Academic Affairs is divided into the School of Mines and Engineering; the College of Mathematics and Sciences; the College of Humanities, Social Sciences and Information Technology; and the College of Technology; each under the leadership of a Dean. Distributed among this school and these colleges are 20 programs and departments each led by a Department Head (Figure VI-2, page VI-8, and Table VI-I, page VI-9).

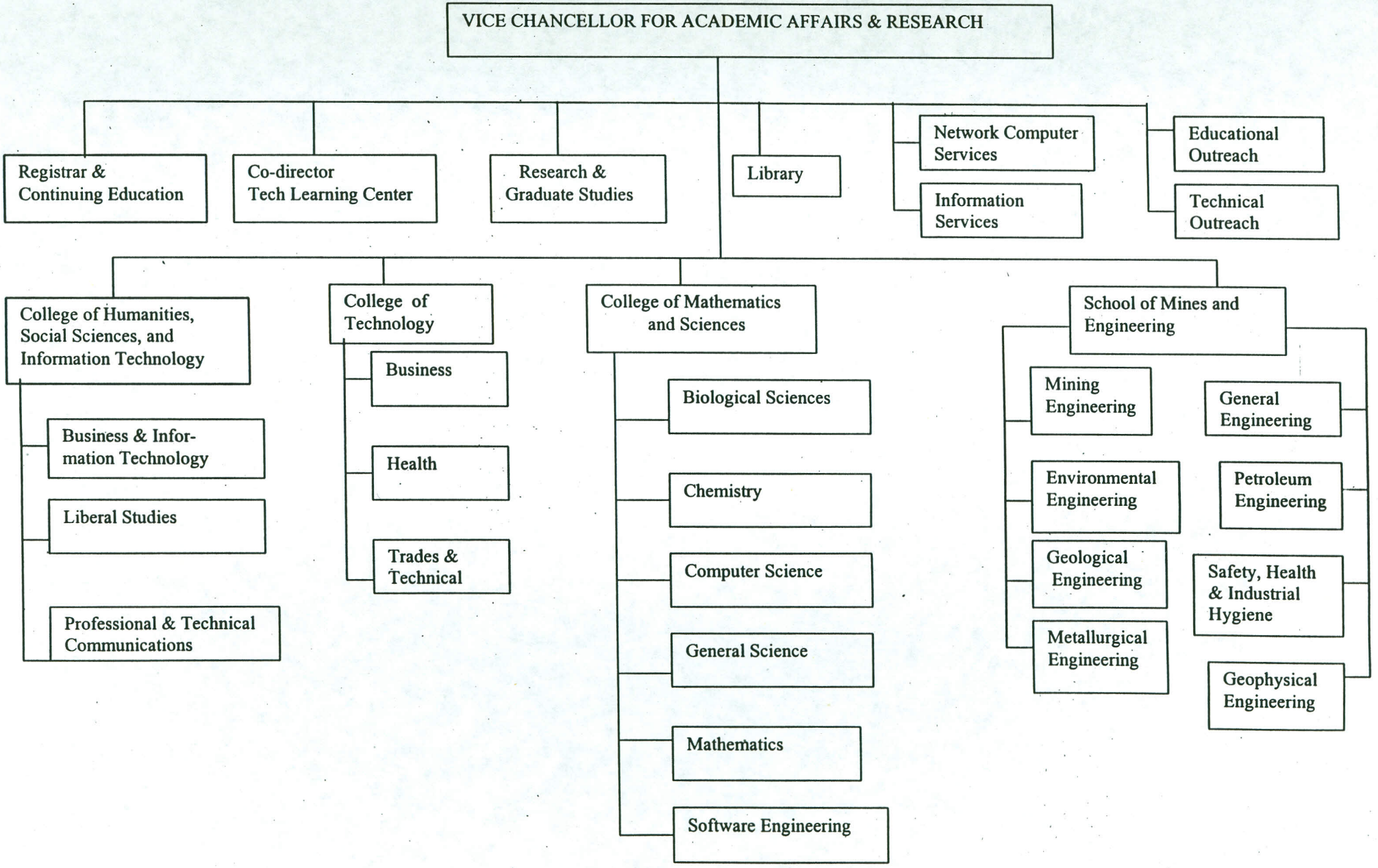


Figure VI-2, Montana Tech of The University of Montana – Academic Organizational Chart

TABLE VI-I

Colleges or Schools	Departments or Programs
College of Mathematics and Sciences	Biological Science Chemistry & Geochemistry Computer Science General Science Mathematics Registered Nursing Software Engineering
School of Mines and Engineering	Environmental Engineering General Engineering Geological Engineering Geophysical Engineering Metallurgical Engineering Mining Engineering Petroleum Engineering Safety, Health, & Industrial Hygiene Health, Physical Education, & Recreation Program
College of Humanities, Social Sciences, and Information Technology	Business & Information Technology Liberal Studies Professional & Technical Communications
College of Technology	Business Health Trades and Technical

The duties and responsibilities of the Deans, Department Heads, and Program Directors are detailed in their respective job descriptions as described in Section II of *The Faculty Staff Handbook* (Exhibit VI-10 and VI-11).

The Vice Chancellor for Academic Affairs and Research receives formal advice and counsel during regularly scheduled meetings of the Deans Council (minutes of these meetings are available in Exhibit VI-17). Also reporting to the Vice Chancellor for Academic Affairs and Research are the Vice Chancellor for Research and Graduate Studies, the Registrar, the Director of Extended Studies, the Co-Director of the Learning Center, the Director of the Library, the Director of Network Computer Services, the Director of Information Services, Director of Technical Outreach, and the Director of Educational Outreach. The duties and responsibilities of these positions are detailed in their respective job descriptions (Exhibit VI-10).

Montana Tech Offices and functions that report directly to the Vice Chancellor for Administrative and Student Affairs include the Comptroller and Business Manager, the Director of Physical Facilities, the Director of Financial Aid, the Director of Public Relations and Marketing, the Director of Placement and Cooperative Education, and the

Director of Student Life. The Vice Chancellor for Administrative and Student Affairs communicates with these various offices and functions through twice monthly meetings. The Office of Public Relations and Marketing encompasses the Offices of Admissions, Alumni Affairs, and Campus Communication. The Office of Student Life is responsible for counseling, testing, residence halls, student activities, and shares responsibility (with the Vice Chancellor for Academic Affairs and Research) for the Learning Center. Twice monthly staff meetings, chaired by the Vice Chancellor for Administrative and Student Affairs, facilitate communication between these various groups.

Administrators and staff also participate in institutional governance through service on standing and ad-hoc campus committees. Almost all committees have appropriate administrative representation, either as voting or ex-officio members. Most campus committees that do not exclusively deal with academic issues, also have staff representation.

FACULTY ROLE IN GOVERNANCE

Faculty governance is vested in an elected Faculty Senate, who are guided by the *By-laws of the Faculty Senate of Montana Tech* (Exhibit VI-18). The minutes of Faculty Senate meetings going back to August of 1995 are contained in Exhibit VI-19. The relationship and responsibilities of the Faculty to the institution are spelled out in the *Faculty Staff Handbook* (Exhibit VI-11).

As detailed in the *Faculty and Staff Handbook* (Exhibit VI-11), Faculty are involved in the selection, evaluation, and promotion and tenure decisions affecting their colleagues. For example, following evaluation of a tenure or promotion application by the applicant's Department Head and Dean, the Collegiate Evaluation Committee, consisting of faculty elected from each of the Colleges or Schools and including an applicant representative, assists the applicant in the final preparation of their application and ultimately makes a recommendation on the tenure or promotion decision to the Vice Chancellor for Academic Affairs and Research. Department Head and Dean job descriptions (contained in Section II of the *Faculty and Staff Handbook* - see Exhibit VI-11) also call for faculty participation in their selection and evaluation. Faculty are almost always represented in campus employment searches and in cases where the search is in the area of Academic Affairs, significantly so. In the search for a Chancellor conducted during the 1997-1998 academic year, and in two subsequent searches for the Vice Chancellor for Academic Affairs and Research, faculty representation approached, if not exceeded 50 percent.

Faculty are intimately involved in institutional governance through participation in both standing committees (see Exhibit VI-11, the *Faculty and Staff Handbook*, which contains descriptions of these committees in Section I and Exhibit VI-20, which is a list of the Fall 1999 committee membership) and ad-hoc committees, which recommend and in some cases establish policy guiding the activities of the institution. Generally the Vice Chancellor for Academic Affairs and Research appoints the members of these

committees. The committee chairs are generally selected by the committee members. The Faculty Senate and the Associated Students of Montana Tech both appoint representatives to most of these committees. A few of these committees have elected representation. A list of standing committees and whether they are appointed or elected and have student representation is given in Table VI-II:

TABLE VI-II
Standing Faculty Committees

Academic Freedom & Tenure Committee (elected)
Academic Standards Committee (appointed)
Advising/Retention Steering Committee (appointed)
Athletic Committee (appointed, student representation)
Benefits Committee (an MUS elected committee)
Career Services Advisory Committee (appointed)
Computer Advisory Committee (appointed, student representation)
Cultural Events Committee (appointed, student representation)
Curriculum Review Committee (appointed, student representation)
Educational Outreach Committee (appointed)
Faculty Advisory Committee for College Relations and Marketing Office (appointed)
Faculty Senate (elected)
Faculty Service Committee (an MUS committee with both appointed & elected faculty)
Graduate Council (representatives elected from departments & programs)
Graduate Council (a University of Montana Committee with two Montana Tech members)
Grievance Committee (elected, student representation)
Instructional Improvement Committee (appointed)
Internship Advisory Committee (appointed)
Library Committee (appointed)
Motor Pool Committee (appointed, student representation)
Recycling Committee (appointed, student representation)
Research Advisory Committee (representatives appointed from departments & programs)
Safety Committee (representatives appointed from departments & programs)
Salary Advisory Committee (elected)
Scholarship & Financial Aid Committee (appointed)
Student Disciplinary Appeals Committee (appointed, student representation)
Student Union / Mill Building / Bookstore Advisory Board (appointed, student representation)
Telecommunications Committee (appointed, student representation)
Traffic and Parking Committee (appointed, student representation)
WEB Committee (appointed, student representation)

In addition to providing input into the governance of the institution through the normal academic hierarchy of Department Head, Dean, and Academic Vice Chancellor, faculty have further opportunities to discuss and influence institutional government through their participation in the Chancellor's Cabinet, Chancellor's Advisory Committee and the Chancellor's Kitchen Cabinet.

Faculty input into Montana University System issues is typically provided by a Faculty Senate representative or their faculty designee. For example, this past fall two members of the Faculty Senate participated in a system-wide examination of tenure. Faculty leaders, in Montana Tech's case the chair of the Faculty Senate, have a regularly

scheduled meeting (along with faculty leaders from other institutions in the Montana University System) with the Board of Regents at each bi-monthly meeting of the Board.

STUDENT ROLE IN GOVERNANCE

Students who were previously governed by separate organizations on the two campuses of Montana Tech are, as a consequence of the merger of Montana Tech and the former Butte Vocational Technical Center, now all represented by the elected Associated Students of Montana Tech. This elected body is guided by the *Constitution and By-laws of the Associated Students of Montana Tech* (Exhibit VI-21). Most standing and some ad-hoc committees are required to have student membership (Exhibit VI-11, the *Faculty and Staff Handbook*, which contains descriptions of these committees in Section I and Exhibit VI-20, which is a list of the Fall 1999 committee membership). The Computer Advisory Committee distributes from $50,000 to $100,000 annually in student generated computer fees through the Computer Fee Sub-Committee, which is required to have a minimum of 40 percent student membership.

The Office of the Student Union/Student Activities promotes and supervises the Associated Students of Montana Tech (student government, ASMT). The student government has authority over student fees assessed by ASMT. All proposed campus policies are made available to ASMT for review and comment to the Chancellor before such policies are approved. Recently, ASMT and Montana Tech administration agreed on a specific protocol that provides guidelines for student participation in campus decision-making concerning student fees.

POLICY ON AFFIRMATIVE ACTION AND NONDISCRIMINATION

Montana Tech's policies on affirmative action and non-discrimination are consistent with the statement in *the Montana State University Policy and Procedures Manual, Section 703 Non-Discrimination* (Exhibit VI-5) that:

> *Each campus of the Montana University System shall insure that no employment or educational policy is discriminatory on the basis of race, color, religion, creed, political ideas, sex, age, marital status, physical or mental disability, national origin, or ancestry unless based on reasonable grounds.*

Montana Tech of The University of Montana is an AA/EEO/ADA Employer that subscribes to the intent and abides by the letter of the law with respect to state and federal Affirmative Action, Equal Employment Opportunity, and American Disabilities Act guidelines. Montana Tech's Equal Opportunity Policy Statement:

MONTANA TECH OF THE UNIVERSITY OF MONTANA
EQUAL EMPLOYMENT OPPORTUNITY POLICY STATEMENT

It is the policy of ***Montana Tech*** *to provide equal education and employment opportunity (EEO) to all persons regardless of race, color, religion, creed, sex, national origin, age, mental or physical disability, marital statue, sexual preference, or political beliefs with the exception of special programs established by law.*

Equal education opportunity includes admission, recruitment, extracurricular programs and activities, housing, facilities, access to course offerings, counseling and testing, financial assistance, employment, health and insurance services, and athletics. Title IX of the Education Amendments of 1972 prohibits discrimination on the basis of sex in any education program or activity receiving federal financial assistance by want of grant, contract, or loan.

Montana Tech *will take affirmative action (AA) to equalize employment opportunities at all campus levels where evidence exists that there have been barriers to employment for those classes of people who have traditionally been denied equal employment opportunity.*

Montana Tech *makes a commitment to provide reasonable accommodation to any known disability that may interfere with an applicant's ability to complete in the selection process or an employee's ability to perform the duties of the job.*

Montana Tech *guarantees employee protection against retaliation for lawfully opposing any discriminatory practice, including the filing of an internal grievance alleging unlawful discrimination, the filing of a union grievance, the initiation of an external administrative or legal proceeding or testifying in or participating in any of the above.*

The Chancellor has ultimate authority and responsibility for establishing equal employment opportunity as a policy at ***Montana Tech****. The Chancellor pledges to promote and support practices which protect the right of equal employment opportunity.*

The designated EEO Officer for ***Montana Tech*** *is Maggie Peterson. She is responsible for coordinating the campus; EEO/AA program and for resolving applicant/employee EEO complaints. Maggie's office is in MG 302 and her phone number is 496-4316.*

is included in Montana Tech's *Selection and Recruitment Manual* (Exhibit VI-15), which guides the institutions actions in the area of selection and recruitment of faculty and staff.

In addition to the policies on recruiting covered in the *Selection and Recruitment Manual* (Exhibit VI-15), the ethical conduct of faculty and staff is guided by policies contained in *The Faculty and Staff Handbook* (Exhibit VI-11) with this conduct being particularly addressed in the sections on Academic Freedom (Section II), the Faculty Code of Conduct (Section II), Conflict of Interest (Section II), Academic Dishonesty (Section III), Grievance Policy and Procedure (Section V), Drug Free Work Place (Section V), Sexual Harassment Policy (Section V), and Integrity of Research and Scholarly Activity Policy (Section II).

Montana Tech employs a dedicated affirmative action officer, who handles all questions and issues concerning affirmative action and discrimination.

POLICY ON COLLECTIVE BARGAINING

Montana Tech policies on collective bargaining are consistent with the statement in *the Montana University System Policy and Procedures Manual, Section 704 Labor Relations; General* (Exhibit VI-5) that:

> *The Commissioner of Higher Education, consistent with the provisions of 39-31-301 M.C.A., is vested with the authority to manage negotiations consistent with applicable law and Board policy.*

Montana Tech has six collective bargaining units representing various groups of employees.

Pacific Northwest Council of Carpenters (in negotiation)
Montana Public Employees Association
The International Union of Operating Engineers (in negotiation)
The International Union of Operating Engineers, Local #400
Montana University System Maintenance Painters Union (in negotiation)
Vocational-Technical Educators of Montana (in negotiation)

The full contracts are included in Exhibit VI-22. As of Fall 1999, four of these six contracts have expired and new contracts are under negotiation. These agreements are consistent with the mission and goals of the institution.

EXHIBITS

VI-1 1889 act of the 50th Congress of The United States authorizing a land grant for the establishment of a School of Mines in the State of Montana

VI-2 *The Restructuring of the Montana University System (Phase One)*

VI-3 *Phase Two of the Restructuring of the Montana University System*

VI-4 Article X, Section 9, of The Montana Constitution gives the governance and control of the MUS exclusively to the Board of Regents of Higher Education.

VI-5 *Montana State University System Policy and Procedures Manual*

VI-6 Brief backgrounds on each of the members of the Board of Regents, including the Governor and the Superintendent of Public Instruction. Terms, compensation, and whether any of the members are MUS institution employees is included.

VI-7 Department of Administration, State Personnel Division *Ethics Standard of Conduct for State Employees*

VI-8 Montana Tech's Mission Statement

VI-9 Board of Regents *Mission, Vision, and Goals Statement*

VI-10 Job Descriptions

VI-11 Montana Tech *Faculty and Staff Handbook*

VI-12 *Memorandum of Understanding* between Montana Tech and the Montana Tech Foundation

VI-13 Chancellor's 1999 Priorities for the Montana Tech Foundation

VI-14 M-News

VI-15 Montana Tech's *Selection and Recruitment Manual*

VI-16 Salaries and benefits of Montana Tech administrators and staff

VI-17 Minutes of the Meetings of the Dean's Council

VI-18 *By-laws of the Faculty Senate of Montana Tech*

VI-19 Minutes of the Faculty Senate Meetings

VI-20 Fall 1999 committee membership, including the campus phone numbers of the committee chairs

VI-21 *Constitution and By-laws of the Associated Students of Montana Tech*

VI-22 Collective Bargaining Agreements

STANDARD SEVEN
FINANCE

FINANCIAL MANAGEMENT

The governance and control of the Montana University System are vested exclusively in the Montana Board of Regents of Higher Education, which has full power, responsibility, and authority to supervise, coordinate, manage, and control the Montana University System. In addition, the Board of Regents exercises programmatic oversight of Montana's three community colleges.

The chief executive officers at Montana State University and The University of Montana are appointed by the Board of Regents and are designated as Presidents. The chief executive officers at the other four-year campuses are appointed by the Board of Regents and are designated as Chancellors. The Presidents supervise and direct the Chancellors with regard to the execution, administration, interpretation, and implementation of Board policy. Each Chancellor is directly responsible and accountable to his/her respective president and, through the President, to the Commissioner of Higher Education and the Board of Regents for the management of his/her unit.

The financial service functions of Montana Tech are centralized under the Vice Chancellor for Administrative and Student Affairs. The institutional business functions have been divided into two offices:

- The Budget/Payroll/Personnel/Purchasing/Account Payable Office; and,
- The General Accounting/Student Billing/Business Services Office

The Budget Office is responsible for controlling all expenditures and income activities. This office is responsible for planning, reviewing, preparing, and submitting all the fund groups of the budget in an accurate and timely fashion. However, control and administration of scholarships, grants in aid, loans and student employment are under the direction of the Director of Financial Aid and are included in the institution's regular planning, budgeting, accounting, and auditing procedures.

The fiscal and business operations of Montana Tech are organized for effective, efficient internal operation and for the provision of high quality financial and personnel services to the institution. Effective, productive and mutually beneficial work relationships exist between institutional staff and their colleagues and counterparts at the Office of the Commissioner of Higher Education and throughout The University of Montana. Business Services is streamlined and structured for optimal teamwork. Collaborative work and problem solving are characteristic on a day-to-day basis. There is a continuous quality improvement effort. Communication within the Business Services offices and among them and other offices and programs on campus is excellent. There is a strong commitment to "customer service" in the way the staff functions.

Montana Tech has clearly defined and implemented cash management and investment procedures, as evidenced by the audit reports of the Legislative Audit Division and the bond independent audit reports. Investments are made with the State Board of Investments and with

the Bond Trustee. Effective July 1, 1997, Montana Tech was authorized and required to invest excess monies in the general operating and designated fund groups. The general fund appropriation was reduced by the projected earnings on these funds in the amount of $69,274 for fiscal year 1998 through fiscal year 2001. Any investment earnings in excess of the projected amount for each fiscal year are used for the Montana Tuition Assistance Program. Montana Tech's share of the excess earnings for fiscal year 1998 was $18,464 and $8,353 for fiscal year 1999.

Until June 30, 1999, Montana Tech used the Statewide Budgeting and Accounting System (SBAS). SBAS followed generally accepted accounting principles. Beginning July 1, 1999, Montana Tech began using Banner. All major administrative systems (Human Resources/Payroll, Student and Finance) belong to the Banner suite, which is a comprehensive, highly integrated and complex set of systems designed for the higher education environment. The Banner suite of systems is a product of Systems and Computer Technology, Inc. (SCT).

Financial statements are prepared to conform with standards recommended by the National Association of College and University Business Officers and the Industry Audit Guide of the American Institute of Certified Public Accounts. The Legislative Audit Division audits the institution and the resulting two-year Financial–Compliance Audit (Exhibit VII-1) is presented to the Legislative Audit Committee of the Montana State Legislature. The results of the audit on the four campuses are combined into one document at the request of The University of Montana. Audit recommendations are addressed to The University of Montana but relate to each of the affiliated campuses.

An audit recommendation and action plan are specified for each recommendation. Action on all of Montana Tech's recommendations have been implemented and completed (Exhibit VII-2). The independent auditor's report has consistently included an unqualified opinion for the institution.

Funding for the legislative audit is a line item in the general fund legislative appropriation. Montana Tech pays a percentage of audit costs from funds other than those appropriated by the legislature.

Financial aid funds are subject to this audit. The last Department of Education review of Title IV programs was conducted on June 12-15, 1995. Actions were implemented or completed which represented the program review requirements as outlined (Exhibit VII-3). The internal audit office of The University of Montana performed a compliance audit ensuring implementation of the plan.

In addition to the biennium Financial-Compliance Audit, an annual bond audit (Exhibit VII-4) is done by an independent Certified Public Accountant. In their opinion, the management's assertion that The University of Montana complied with the requirements of the indenture for the year ended June 30, 1999, is fairly stated in all material aspects. The University of Montana has procedures for external audits by legislative auditors and has a program for internal audits.

FINANCIAL PLANNING

In January 1994, the Montana Board of Regents of Higher Education approved the restructuring of the Montana University System. Under this reorganization, the name of the institution was changed to Montana Tech of The University of Montana and the chief executive officer's title was changed to Chancellor. In addition, one and two-year programs from the Butte Vo-Tech, now the Montana Tech College of Technology, were merged with Montana Tech.

There are two principal administrative campus groups -- the Academic Deans Council and the Administrative and Student Affairs Directors Council -- which develop operational plans and recommend priority expenditure of institution financial resources in support of these plans. These plans, which generally consider two to three-year periods of time, are in accord with the mission and purpose of the institution and are directly tied to the campus priorities determined by the executive leadership of the institution.

A strategic planning group looks at larger, long-term visions for the institution. The institution has renewed its formal, campus specific strategic planning activities after a three-year long hiatus during which it was involved in system and University of Montana-wide restructuring and related long-range planning efforts. During this time, the Regents were also actively involved in refining mission statements.

The Chancellor's Cabinet, comprised of Vice Chancellors, Deans, the Director of the Montana Bureau of Mines and Geology, and senior fiscal staff members, serves as the primary advisory group to the Chancellor and Vice Chancellors. The Cabinet also serves as an important clearinghouse for proposals and initiatives having campus-wide interest and fiscal impact. Strategic planning activities are ultimately considered by the Cabinet on their path to executive decisions. Other advisory groups tied directly or indirectly to this process of campus deliberation include the student government, the Faculty Senate, and the faculty assembly. Financial considerations are always a part of on-going and major planning activities at the institution.

Prior to the biennial legislative session, the campuses work with the Associate Commissioner for Fiscal Affairs from the Office of the Commissioner of Higher Education on funding strategies for the session. Topics addressed include funding model revisions, tuition projections, distance learning, enrollment projections, and pay plans. In November of the year prior to the legislative session, the Governor's Executive Budget is presented to the members of the House and Senate. As a part of this budgeting process, each campus is responsible for the preparation and justification of a biennium budget request. After discussions and occasional compromises with the Office of Budget and Program Planning, Tech's biennium budget request becomes a part of the Governor's Executive Budget Request. The Director of Budget and Human Services at Montana Tech is responsible for submission of the biennium budget request. The Governor's Executive Budget Request and Legislative Budget Analysis (Exhibits VII-5 and VII-6) set forth a balanced financial plan for all of Montana state government for the biennium. During the legislative session the Office of the Commissioner of Higher Education and the University System work collaboratively with the Governor's Office and the legislature to obtain adequate funding for the Montana University System.

The Montana University System receives a biennial lump-sum appropriation from the legislature for the current unrestricted portion of operating funds. The Office of the Commissioner of Higher Education, under the authority of the Board of Regents, appropriates funds for the biennium. Allocations are made to individual campuses based on a Cost of Education Model developed by the Montana University System. Major components of the model are variables such as student faculty ratios, target faculty salaries and projected full-time equivalent students (FTE's).

When the campus knows what level of funding is available, the processes and guidelines for preparation and control of the campus budget (Exhibit VII-7) are clearly defined and followed. Montana Tech's Executive Committee (Chancellor, Vice Chancellor for Academic Affairs and Research, Vice Chancellor for Administrative and Student Affairs, Vice Chancellor for Research and Graduate Studies, and Director of the Montana Bureau of Mines and Geology) meets with the Deans, Department Heads, Department Chairs and Program Managers in open forums. The information gathered from these meetings is used to make decisions on the allocation of available resources during the budget development process.

Montana Tech's Executive Committee approves a balanced internal operating budget (Exhibit VII-8). Budget allocations are made to each department's various responsibility centers. Deans, Department Heads, Department Chairs and Program Managers are provided monthly operating statements showing detailed information for current month expenditures, year-to-date expenditures and the status of the operating budget. Reports are provided online through the Business Office Web Page. Deans, Department Chairs, Department Heads and Program Managers are responsible for managing student and part-time employee wages, operating expenses, and capital expenditures. In most cases, salary savings from vacant positions are managed at the executive level. The main exception is in regard to faculty release time for research. A copy of the Faculty Release Time Policy (Exhibit VII-9) is included.

Montana Tech's approved internal operating budget and other fund group budgets (Exhibit VII-10) are submitted to the Office of the Commissioner of Higher Education by October 1. The Board of Regents approves the campus operating budgets. Upon Board approval, the Director of Budgets and Human Services publishes the annual operating budgets. This current unrestricted portion of Montana Tech's budget becomes part of The University of Montana budget book. The budget book (Exhibit VII-11) includes all State Appropriated budgets, as well as Auxiliary and Designated budgets for The University of Montana - Missoula, Montana Tech, Western Montana College, the Montana Bureau of Mines, the Forest and Conservation Experiment Station, and the Helena College of Technology.

Throughout the year, budget control and variance reports incorporating projected revenues and expenditures are submitted to the Executive Committee. Based on meetings with the Executive Committee, additions, deletions, and modifications of the current operating budget are made and appropriate action is taken to ensure the budget is amended and balanced consistent with policies and procedures (Exhibit VII-12).

Generally, the institution has the flexibility to make effective and appropriate decisions concerning the planning and budgeting of the campus programs in support of the school's mission and academic goals. Planning is made more difficult because of declining funds from the State and the fact that detailed budgets can only be determined on a semester by semester

basis, since the funds are directly tied to specific enrollments and system enrollment management and funding rules, including mandatory reversions if appropriate.

After consulting with the Vice Chancellor for Research and Graduate Studies, the Vice Chancellor for Academic Affairs and Research verifies the projected Indirect Cost (IDC) revenues and approves a general plan for the research area of the institution. Institutional policy provides an approval process for the allocation of Indirect Cost (IDC) Funds. This process involves the Vice Chancellor for Research and Graduate Studies, the Vice Chancellor for Academic Affairs and Research, the Director of the Bureau of Mines and Geology, the Vice Chancellor for Administrative and Student Affairs, and the Controller. More normal patterns of IDC administration and allocation will occur now that the diversion of IDC funds to pay for the new Chemistry/Biology Building will cease.

Capital budgets are separated among 1) Educational and General Facilities; 2) Auxiliary Facilities; and, 3) Other Projects (see Table VII-I).

1) Educational and General Facilities:

The Director of Physical Facilities, the Vice Chancellor for Academic Affairs and Research, and the Vice Chancellor for Administrative and Student Affairs from Montana Tech work with their counterparts from other University of Montana campuses and determines a list of long range building priorities (Exhibit VII-13). A prioritized list is submitted by The University of Montana and Montana State University to the Board of Regents for review and approval prior to being submitted to the Department of Administration for legislative action.

During the last two biennium, state funding for educational and general buildings has been primarily for deferred maintenance, Americans with Disability Act (ADA) accessibility modifications, and roofing projects (Exhibit VII-14).

Montana Tech recently reopened its newly renovated Chemistry Building. This 8.5 million dollar project, including the ELC lab renovation project, was funded from a variety of sources including state support (5.2 million), federal support (1.0 million), Montana Tech Foundation support (1.8 million), and Montana Tech indirect cost recovery support (0.5 million).

In October 1996, The University of Montana and its affiliated campuses issued 7 million dollars in bonds for educational and general classroom and laboratory improvements in system buildings constructed prior to 1971. The financing for educational and general buildings was not matched by the legislature as hoped. However, it was an innovative way to finance the deferred maintenance of educational and general plant. Montana Tech's share (1.0 million) of the bond proceeds helped modernize areas in four buildings for instructional purposes and addressed some ADA requirements.

Students are assessed an academic facilities fee to pay this debt. When the students agreed to support the academic facilities fee, it was with the understanding that fee revenues would be used for repayment of the debt associated with the classroom and

laboratory renovations, and that any annual excess revenues generated from the fee would support further improvements to classrooms/laboratories.

2) Auxiliary Facilities:

Series C, D, E and F Improvement Facilities and Revenue Bonds (Exhibit VII-15) were issued in 1995, 1996, 1998 and 1999 to refund old bonds, finance several projects and restructure Series C and D bonds. Those projects include the following improvements and new construction: Student Union/Mill Building (4.3 million), 100-bed Residence Hall (4.2 million), Student Union/Phase II (1.2 million), and Greens Renovation (.6 million).

In the plant fund, the institution has employed a "four-year plan" for repair and maintenance of auxiliary facilities. With the new cross-pledged bonds and the establishment of a university-wide bond debt management committee, this four-year, campus-based planning process is being discussed for continuation in the new context of university bond financing. The outcome of these discussions will have a direct bearing on the campus's ability to perform repair and maintenance of the auxiliary facilities.

3) Other Projects:

A non-denominational chapel, funded by a private donor for approximately 1.5 million, will be built on the campus.

One of the institution's current capital goals is to acquire federal funds to finance the construction and operation of a Natural Resources Research Facility. This building would house the Montana Bureau of Mines and Geology and campus research activities (Exhibit VII-16).

Table VII–I
Capital Investments

	Actual			Projected		
	FY97	**FY98**	**FY99**	**FY00**	**FY01**	**FY02**
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Amount	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**
Land						
Beginning Book Value	1,165,947	1,168,446	1,211,857	1,211,857	1,311,857	1,411,857
Additions	2,499	60,000	0	100,000	100,000	100,000
Deductions	0	(16,589)	0	0	0	0
Ending Book Value	**1,168,446**	**1,211,857**	**1,211,857**	**1,311,857**	**1,411,857**	**1,511,857**
Buildings						
Beginning Book Value	33,610,633	33,915,446	34,113,214	45,647,249	51,895,505	55,915,505
Additions	735,432	225,865	11,534,035	6,248,256	4,020,000	6,000,000
Deductions	(430,619)	(28,097)	0	0	0	0
Ending Book Value	**33,915,446**	**34,113,214**	**45,647,249**	**51,895,505**	**55,915,505**	**61,915,505**
Furniture, Equipment & Software						
Beginning Book Value	17,705,995	18,467,032	13,216,040	13,557,692	13,957,692	14,357,692
Additions	761,037	1,063,678	426,513	500,000	500,000	500,000
Deductions*	0	(6,314,670)	(84,861)	(100,000)	(100,000)	(100,000)
Ending Book Value	**18,467,032**	**13,216,040**	**13,557,692**	**13,957,692**	**14,357,692**	**14,757,692**
Construction in Progress						
Beginning Book Value	0	767,418	4,947,804	3,818,258	0	2,500,000
Additions	767,418	4,180,386	3,818,258	0	2,500,000	0
Deductions	0		(4,947,804)	(3,818,258)	0	(2,500,000)
Ending Book Value	**767,418**	**4,947,804**	**3,818,258**	**0**	**2,500,000**	**0**

*Capitalization policy changed from $1,000 to $5,000 effective FY 98

Projects recently Completed (C), Underway (UW), and/or Anticipated (A)

Project	Status	Total Amount Authorized	Funding Source
Student Union/Mill Building	C	4,275,366	Series C 1995 Revenue Bonds
Mall Site Improvements	C	250,000	Series C 1995 Revenue Bonds
Chemistry Building Renovation	C	7,649,725	Private, Federal , Foundation, IDC & State Funds
ELC Renovation	C	817,116	Private, Federal, Foundation, IDC & State Funds
100 Bed Residence Hall	C	4,200,000	Series D 1996 Revenue Bonds
Classroom Lab Renovations	UW	1,013,641	Series D 1996 Revenue Bonds
Student Union/Phase II	UW	1,224,634	Series E 1998 Revenue Bonds
Greens Renovation	UW	600,000	Series E 1998 Revenue Bonds
Classroom Lab Renovations	UW	214,000	State Funds
Boiler Upgrade	UW	400,000	State & Auxiliary Funds
Roof Replacements	UW	408,000	State Funds
ADA Restrooms	UW	188,000	State Funds
Nondenominational Chapel	A	5,100,000	Private Funds
Natural Resources Research Center	A	20,000,000	Federal Funds

ADEQUACY OF FINANCIAL RESOURCES

Given the relative size of the Montana Tech's state supported budget, and the reality of increasing costs and decreasing state funds, the institution has become quite adept at achieving efficiencies in programs and operations while, at the same time, maintaining the quality and effectiveness of its programs or services. This requires accountable and competent budget management at all levels of the institution and a strong sense of total institutional commitment and collaboration at the executive level. Attempts are made to structure program units in a way that encourages partnerships and avoids duplication of effort and cost.

Although there may never be enough money available to fully fund higher education at the level the Executive Group feels is appropriate, Montana Tech does an excellent job of managing the resources available for instruction and research. Resident students pay approximately 30 percent of the cost of their education. Western Undergraduate Exchange (WUE) students pay 150 percent of in-state tuition and non-resident students pay the full cost of education. Another important element of funding is millage (6-Mill Levy). In 1998, a 6-Mill Levy was voted on and passed by taxpayers of the state of Montana. This levy is voted on in a popular election every 10 years. This Mill Levy provides about 7 percent of state support for higher education.

A number of Montana Tech's programs are laboratory and computer equipment intensive. The majority of funding for computer, scientific equipment and lab supplies comes from mandatory student fee assessments. Other major sources of funding for capital expenditures come from donations to the Montana Tech Foundation.

It is evident from peer data comparisons that funding for the institution is inadequate. On the other hand, funding for the Montana University System has been somewhat stable when compared to other state agencies. Students at the institution have always supported fee increases. Tuition and fees have been steadily rising in proportion to the decline in state support (Exhibit VII-16).

The institution has adequately supported its programs and mission. The following Tables VII-II, VII-III and VII-IV summarize the current revenues by source, expenditures by program or activity, and corresponding excess (deficit). This information is also included in the IPEDS Financial Surveys (Exhibit VII-17).

Table VII-II
Current Funds Revenues

Source (IPEDS Format)		Evaluation Year (estimated) 1999 – 2000		One Year Prior 1998 - 1999		Two Years Prior 1997 -1998		Three Years Prior 1996 – 1997	
		Amount	%	Amount	%	Amount	%	Amount	%
Tuition and Fees		6,111,050	.22	5,769,629	.22	5,591,214	.22	5,452,814	.22
Government Appropriations									
Federal Total									
State Total		9,197,736	.32	8,581,944	.33	8,674,656	.34	8,792,044	.35
Government Grants & Contracts									
Federal	Unrestricted								
	Restricted	5,732,931	.20	4,677,650	.18	4,269,923	.17	3,966,749	.16
State	Unrestricted	40,000	.00	37,552	.00	39,788	.00	28,671	.00
	Restricted	1,000,000	.04	975,841	.04	902,863	.04	749,307	.03
Private Gifts, Grants and Contracts									
	Unrestricted								
	Restricted	1,500,000	.05	1,320,527	.05	1,610,009	.06	1,553,635	.06
Endowment Income									
	Unrestricted								
	Restricted								
Sales and Services of Educational Activities		750,000	.03	915,520	.04	1,024,217	.04	885,589	.04
Auxiliary Enterprises		2,717,508	.10	2,287,217	.09	2,356,648	.09	2,333,204	.09
Hospitals									
Other Sources (Bureau of Mines and Geology)		1,275,283	.04	1,399,885	.05	1,288,006	.04	1,315,824	.05
Independent Operations									
Total Current Funds Revenues		**28,324,508**	**1.00**	**25,965,765**	**1.00**	**25,757,324**	**1.00**	**25,077,837**	**1.00**

Table VII-III
Current Funds Expenditures and Mandatory Transfers

Functions (IPEDS Format)	Evaluation Year (estimated) 1999 – 2000		One Year Prior 1998 – 1999		Two Years Prior 1997 –1998		Three Years Prior 1996 – 1997	
	Amount	%	Amount	%	Amount	%	Amount	%
Educational and General								
Instruction	9,158,444	.32	8,649,238	.33	8,245,654	.32	8,334,701	.34
Research	6,185,107	.22	5,243,893	.21	5,338,461	.21	4,818,043	.19
Public Service								
Academic Support (Excluding Libraries)	1,188,549	.04	1,078,656	.04	1,122,877	.04	1,060,899	.04
Library Expenditures	550,000	.02	537,220	.02	523,994	.02	530,424	.02
Student Services	2,296,192	.08	2,157,323	.08	2,312,358	.08	2,278,963	.09
Institutional Support	897,517	.03	932,797	.04	1,526,247	.06	1,046,794	.04
Plant Operations and Maintenance	2,073,102	.07	1,855,983	.07	1,870,959	.07	1,866,000	.08
Scholarships and Fellowships								
Awards from Unrestricted Funds	600,000	.02	502,655	.02	499,941	.02	433,153	.02
Awards from Restricted Funds	2,578,089	.09	2,277,220	.09	2,045,952	.08	1,800,595	.07
Educational and General Non-Mandatory Transfer	143,034	.01	371,924	.01	174,000	.01	333,076	.01
Total Educational and General Expenditures and Non-Mandatory Transfers	25,670,034		23,757,461		23,660,443		22,502,648	
Auxiliary Enterprises (Including Transfers)	2,717,508	.10	2,340,592	.09	2,376,757	.09	2,368,383	.10
Hospitals (Including Transfers)								
Independent Operations (Including Transfers)								
Total Current Funds Expenditures and Mandatory Transfers	**28,387,542**	**1.00**	**25,947,501**	**1.00**	**26,037,200**	**1.00**	**24,871,031**	**1.00**

Table VII–IV
Summary Report of Revenues and Expenditures

	Evaluation Year (estimated) 1999–2000	One Year Prior 1998–1999	Two Years Prior 1997–1998	Three Years Prior 1996–1997
	Amount	Amount	Amount	Amount
Educational and General				
Revenues	25,607,000	23,678,548	23,400,676	22,744,633
Expenditures	(25,527,000)	(23,234,985)	(23,486,443)	(22,169,572)
Transfers -Mandatory				
-Non Mandatory	(143,034)	(371,924)	(174,000)	(333,076)
Net Excess (Deficit)	(63,034)	71,639	(259,767)	241,985
Auxiliary Enterprises				
Revenues	2,717,508	2,287,217	2,356,648	2,333,204
Expenditures	(2,648,829)	(2,340,592)	(2,276,757)	(2,268,383)
Transfers -Mandatory			(100,000)	(100,000)
-Non Mandatory	(68,879)	0		
Net Excess (Deficit)	0	(53,375)	(20,109)	(35,179)
Net Operational Excess (Deficit)	**(63,034)**	**18,264**	**(279,876)**	**206,806**

The Montana Bureau of Mines and Geology is not included in the above tables for educational and general expenditures and revenues. The total revenues for FY99 were $1,873,795 and the total expenditures were $1,886,898. For FY2000 the total budgeted revenues and expenditures are $2,129,263. The Bureau is allied closely with both the academic and research functions of the institution and conducts broadly based applied research that contributes to the orderly development and use of Montana's minerals, fuels and groundwater resources. Their programs are organized to provide the service of information through completion of state-funded projects, cooperative research agreements, and grants and contracts with the state and federal agencies.

The challenge of the future, for this institution, is to find new sources of revenue. Montana Tech must enhance revenues through the following strategies:

- Increase proceeds from trust lands.
- Increase private donations through the Montana Tech Foundation.
- Continue to increase enrollment, especially international enrollment and out-of-state enrollment.
- Increase auxiliary income sufficiently to return the institution to financial self-sufficiency.
- Increase extramural funded research (i.e., Grants and Contracts).

The institution is relatively free of any short-term debt. Montana Tech had one capital lease with a principal balance of $29,520 as of June 30, 1999. State inter-cap financing is currently being used for telecommunications and technology enhancements beginning in Fiscal Year 1999-2000.

Long-term debt consists of the Series C 1995, Series D 1996, and Series E 1998 Facilities Improvement and Refunding Revenue Bonds. The University of Montana issued Revenue Bonds totaling $126,498,744 from November 1993 to June 1998. The bonds were issued in five separate series, but Montana Tech was only included in three of the series for a total of $14,716,780. The bonds were issued pursuant to an Indenture of Trust between the Board of Regents of Higher Education for the State of Montana (on behalf of The University of Montana) and the U.S. Bank Trust National Association. The bonds are secured by a first lien on the

combined Pledged Revenues of the four campuses of The University of Montana. Bonds payable are recorded in the financial statement of each campus and reflect the liability associated with the bond proceeds for that campus.

At the time that the bonds to construct the new residence hall were being considered, the institution was candid with The University of Montana-Missoula executive staff that inadequate revenue sources were available to support the construction of the building on the Tech campus. In fact, the project was resisted by Montana Tech campus officials on this basis until directed by the President of The University of Montana that the residence hall would be built in the context of cross-pledged bond proceeds. This involved the mutual understanding and agreement that University of Montana-Missoula resources would need to be used to subsidize the lack of adequate revenue from the Tech campus (and at Western Montana College) without inappropriate increases in Tech student fees or any adverse effect on the operations and maintenance of Tech facilities.

A debt management team was formed, with representation from each campus of The University of Montana, to review revenue bond activity. The debt management report provides information for each of the campuses, as well as The University of Montana consolidated cross-pledged scenario, and incorporates a more global view of the financial commitments and challenges of each of the campuses. Finally, recommendations were made to effectively manage The University of Montana debt for the future. The debt management report (Exhibit VII-19) was published in March 1999.

Montana Tech's principal amount outstanding at June 30, 1999 is $13,556,780. The historical and projected pledged revenues and associate debt service payments are presented in Table VII-V:

Table VII–V
Debt Service Schedule

	Actual		Projected			
	FY97	FY98	FY99	FY00	FY01	FY02
	Amount	Amount	Amount	Amount	Amount	Amount
Principal	350,000	350,000	500,000	570,000	590,000	620,000
Interest	314,487	541,857	600,883	583,170	558,587	532,492
Fiscal Year	**664,487**	**891,857**	**1,100,883**	**1,153,170**	**1,148,587**	**1,152,492**
Principal Beginning Balance	8,666,780	12,766,780	12,416,780	13,556,760	12,986,780	12,396,780
Issuance	4,410,000	0	1,640,000	0	0	0
Principal Payments	(310,000)	(350,000)	(500,000)	(570,000)	(590,000)	(620,000)
Principal End Balance	**12,766,780**	**12,416,780**	**13,556,780**	**12,986,760**	**12,396,780**	**11,776,780**

Financial statements for the last five years (Exhibit VII-20) indicate a history of financial stability for all fund groups. As mandated by state and federal requirements and bond indenture covenants, Montana Tech is not allowed to deficit spend. Montana Tech is required by Generally Accepted Accounting Principles (GAAP) to record entries for unfunded compensated absences liabilities, which result in a negative fund balance in the unrestricted operating account. The negative fund balance in the retirement of indebtedness fund is due to recording accrued bond interest payable at fiscal year end.

Mandatory fund transfers are made between the auxiliary, unexpended plant and retirement of indebtedness fund groups in compliance with the bond indentures. A transfer is made from

designated fund and unexpended plant fund group for life cycle accounts.

Various forms of student aid, exclusive of loan funds, make up approximately 45 percent of the fees collected from students. Approximately 10 percent of this is for fee waivers. The Admissions Office, working with the Financial Aid Office, administers financial packages to recruit the best available students and student athletes.

The Director of Financial Aid projects the amount of financial aid that will be necessary through Title IV funds in relation to the institution's projections for enrollment. This is done at the same time that the financial aid cost of education figures are developed. Along with projected state and federal aid, an assessment is also made of available institutional controlled scholarships and grants. Utilizing this information, the Chancellor works with the Montana Tech Foundation to identify the needs of the institution and its students in relation to what the Foundation may raise for direct student support. The campus Scholarship Committee and the Admissions Office also provide input into this discussion of student needs and related fund-raising and allocation policies.

The Financial Aid Office at Montana Tech provides students with a means of paying for higher education through scholarships, federal grants, state grants, federal and state work-study programs, and federal loan programs. Information on programs is available through Internet access and federal publications to increase early awareness of financial aid programs and to expedite the timely awarding of Title IV funds. The default rate, as provided by the US Department of Education for the two most recent years, is illustrated in Figure III-8 of the Standard Three report.

A breakdown of financial aid sources is presented in Table VII-VI:

Table VII – VI
Sources of Financial Aid

	Evaluation Year (estimated) 1999 - 2000		One Year Prior 1998 – 1999		Two Years Prior 1997 –1998		Three Years Prior 1996 – 1997	
	Amount	%	Amount	%	Amount	%	Amount	%
Annual Private Contributions	559,000	.14	551,331	.14	545,783	.15	460,481	.13
Government State Aid	181,897	.04	57,894	.02	39,752	.01	29,020	.01
Federal Aid (PELL, SEOG, WS)	1,926,193	.46	1,766,232	.45	1,553,667	.44	1,399,342	.41
Endowment Earnings	85,000	.02	81,658	.02	68,921	.02	59,558	.02
Institutional Unfunded Aid	1,151,610	.27	1,185,794	.30	1,166,415	.32	1,270,000	.38
Federal Student Loans	225,000	.05	241,503	.06	197,350	.05	133,750	.04
Non-Federal Workstudy Aid	103,529	.02	47,669	.01	35,188	.01	28,671	.01
Total Financial Aid	**4,232,229**	**1.00**	**3,932,081**	**1.00**	**3,607,076**	**1.00**	**3,380,822**	**1.00**

Montana Tech Endowment Fund investment income is distributed to the Current Restricted Funds. Investment income for FY99 was $63,000 and FY98 was $50,000. The Montana Tech Foundation is contracted for fund-raising and development activities. Endowments recorded on

the institution's books remain relatively constant. The table below does not include Foundation financial activity:

Table VII–VII
Operating Gifts and Endowments

	Evaluation Year (estimated) 1999 – 2000	One Year Prior 1998 – 1999	Two Years Prior 1997 –1998	Three Years Prior 1996 – 1997
	Amount	Amount	Amount	Amount
Private Contributions				
Annual Operating Restricted				
Unrestricted				
Endowment	5,000	93	1,175	550
Plant				
Total Contributions	5,000	93	1,175	550
Endowment Fund Balances				
Permanent	363,772	358,772	358,679	357,504
Term				548,969
Quasi	18,000	18,000	18,000	18,000
Total Endowment Fund Balances	381,772	376,772	376,679	924,473

In establishing its annual budget, the institution considers all sources of available funds. Effective combinations of funding have enabled the institution to establish higher quality programs and services than otherwise might be possible. At the same time, close attention is paid to ensuring that appropriate use of funds is maintained at all times. This is especially true of the relationship between the current unrestricted budget and the auxiliary funds and student fee accounts.

The educational and general funds and the auxiliaries are operated separately and independent of each other. Montana Tech's general operating account is used to support the primary objectives of the institution: instruction, research, and public service. The institution ensures that the revenues and expenditures are spent as appropriated by the legislature and approved by the Board of Regents, and that there is no deficit spending.

Auxiliaries are budgeted and accounted for separately. There is a yearly administrative charge assessed to auxiliaries to recognize services provided to the auxiliaries by the institution.

FUNDRAISING AND DEVELOPMENT

Montana Tech is a component unit of the state of Montana. The financial statements for Montana Tech include only the activities, funds, and accounts of the institution and the Bureau of Mines. Private nonprofit organizations affiliated with the institution include the Montana Tech Foundation, Digger Athletic Association, and Montana Tech Alumni Association. The Foundation and Associations operate exclusively for the purposes of encouraging, promoting, and supporting programs, research, and scholarly pursuits, and athletics at or in connection with Montana Tech. In exchange, Montana Tech provides the Foundation with office space and an annually contracted fee. Montana Tech also provides the Associations with office space and de minimis related expenses.

Montana Tech is very fortunate to receive strong and enduring support from its alumni, local government and business, and from national and international business and industry. The institution fosters an active and genuine interaction and communication between its academic programs and the various constituencies served by the institution in all sectors of society. This set of mutually beneficial relationships is enhanced by the fact that the institution has a well understood academic, research and public service mission and it clearly demonstrates its commitment to these purposes to all concerned.

In preparation for the next major capital development effort, the Chancellor of Montana Tech has provided the Foundation Board of Directors and their executive committee with a five-year plan and will provide them with a detailed statement of future academic needs as the cornerstone of the fund-raising campaign.

The institution has always had in place an appropriate contractual relationship with its Foundation. More recently, the Regents adopted policies that provide more stringent guidelines in these contracts for fund-raising and development services with the campus foundation. These guidelines (Exhibit VII-21) discuss how foundations should most properly represent the school and work in their activities for the benefit of their associated institutions. Assurances for proper account and utilization of funds are also called for in this Regents policy. Qualified officers and staff in the Foundation administer all Foundation funds. A Foundation Board of Directors provides general policy and oversight with appropriate involvement of the Chancellor.

The Contract of Operations (Exhibit VII-22) between the Institution and the Foundation authorizes the Foundation to manage endowments and transfer funds to the institution in accordance with the terms and conditions of the gift instrument. The Foundation's records are reviewed annually through an independent audit (Exhibit VII-23). A copy of the audit report is submitted to the Business Services Office at The University of Montana-Missoula by October 31 after the close of the fiscal year. This audit report is made available to the state auditors for review to substantiate Montana Tech's related parties footnote.

There is an arms-length relationship between the Foundation and Montana Tech. The amount of payments on the contract with the Foundation for fiscal years ended June 30, 1998, and June 30, 1999, were $192,239 and $92,759 respectively. The estimated amount spent by the Foundation for the support of Montana Tech for the same period of time were $1,106,783 and $1,978,706. A breakdown of the expenses is as follows:

	FY 98	FY 99
• Educational Services Programs	$137,178	$180,947
• Capital projects	128,628	950,903
• Equipment distribution	157,272	130,387
• Professorship distributions	77,555	98,000
• Scholarship distributions	537,790	563,859
• Direct college support	39,808	54,610
• Advertising for recruitment	19,960	0
• Alumni program	8,592	0
	$1,106,783	$1,978,706

The Foundation administers funds for the Digger Athletic Association, which supports Montana Tech Intercollegiate Athletics (Exhibit VII-24).

Exhibit VII-25 is a listing of 2003 biennium budget priorities agreed upon at the Executive Committee meeting. The priorities include proposed operation budget requests, legislative initiatives and long-range building program requests.

YEAR 2000 DISCLOSURE

The institution took great care to avoid problems associated with the Y2K issues and possible shortcomings that could have occurred in electronic data processing systems and other electronic equipment adversely affecting the operations of The University of Montana beginning in the year 2000.

The campuses of The University of Montana had been addressing the Y2K issue for the last three years. The major administrative support systems were replaced or upgraded to systems that are year 2000 compliant. These systems include Finance (purchasing, accounts payables, accounts receivable, budgeting and general accounting), Human Resource (personnel and payroll) and Student (Financial Aid, Admissions and Registrar).

Montana Tech of The University of Montana did not experience any disruption of services as a result of non-compliant internal systems. However, because of the unprecedented nature of the Y2K issue and the interaction with and dependence on third parties, the ultimate effect of and the success of remediation efforts may not be fully determinable until fiscal year 2000 and thereafter.

EXHIBITS

VII-1 Financial-Compliance Audit
VII-2 Audit Recommendation and Action Plan
VII-3 Federal Program Review Findings and Action Plan
VII-4 Revenue Bonds Audit
VII-5 Governor's Executive Budget Request
VII-6 Legislative Budget Analysis
VII-7 Budget Development Plan and Priorities
VII-8 Internal Operating Budget
VII-9 Faculty Release Time Policy
VII-10 Montana University System Operating Budgets (CHE)
VII-11 The University of Montana Current Unrestricted Operating Budgets
VII-12 Budget Policy
VII-13 Long Range Building Plan Request
VII-14 Funded Long Range Building Plan
VII-15 Official Bond Statements
VII-16 2001 Federal Initiatives
VII-17 Regents Fact Book
VII-18 IPEDS F-1
VII-19 Debt Management Report
VII-20 Financial Statements
VII-21 Regents Foundation Policy
VII-22 Contract of Operations – Foundation
VII-23 Independent Auditor's Report – Foundation
VII-24 Intercollegiate Activities Report
VII-25 2003 Budget Priorities

STANDARD NINE
INSTITUTIONAL INTEGRITY

ETHICAL STANDARDS

Montana Tech of The University of Montana strives to maintain high ethical standards in all aspects of its management and operations. This includes all of its interactions with students, faculty, staff, and constituents. By the very nature of the institution, many members of Montana Tech's faculty are registered (licensed) professionals and subscribe to explicit and legally binding codes of ethical professional conduct. Student Affairs and Counseling subscribe to the ACPA-NASPA Standard of Ethics and the Business Office subscribes to the NACUBO-Business Office Code of Ethics.

Montana Tech has numerous policies, procedures, and publications governing the ethical and professional conduct of its administrators, faculty, staff, and students. Copies of these documents, which are updated periodically, will be provided as exhibits during the evaluation teams visit. Each is, however, summarized below:

Code of Ethics, Standards of Conduct for State Employees, Board of Regents Policy and Procedures Manual, Section 700. All state employees must abide by this policy. It governs the use of state property, management of state funds, conflicts of interest, acceptance of gifts, and use of public property for private business.

Purchasing Authority Agreement. The University is subject to specific bidding procedures when using public funds. These procedures are specifically outlined in the Purchasing Authority Agreement between the State and the University.

Consulting Services, Faculty and Staff Handbook, Section II-219. In compliance with Board of Regents Policy 401.1, all persons wishing to engage in outside consulting activities must request permission to do so. Permission for consulting will normally be granted only after all responsibilities to the campus, including instruction and research, are fulfilled.

Hiring Procedures, Faculty and Staff Handbook, Section V-501 and Section II-204. All searches and hiring decisions first and foremost seek to identify the most qualified candidate. All employees and applicants for employment are guaranteed equal opportunity.

Conflict of Interest and Financial Disclosure, Personnel Policies and Faculty and Staff Handbook, Section II- 220. The policies' intent is to enable University employees to recognize situations that my raise legal and ethical issues and ensure that such situations are properly reviewed and, if necessary, supervised or monitored in accordance with applicable laws and federal regulations.

Invention and Patent Policy, Board of Regents, Board of Regents Policy 401.2. The policy describes the rights and responsibilities of all University employees with respect to patentable inventions and discoveries.

Scientific and Scholarly Activity Misconduct Policy, Faculty and Staff Handbook. The policy outlines procedures to be used in the event allegations of misconduct are brought against researchers employed or enrolled at Montana Tech.

Faculty Code of Conduct, Faculty and Staff Handbook, Section II-203. Conflicts between the institution and the community, and within the institution itself must not be allowed to interfere with the effective operation of the institution. Members of the faculty, regardless of their rank, are expected to nurture, protect, and exercise academic freedom.

Student Standards, Codes of Conduct, Student Handbook. Every fall, each student is furnished a Student Handbook that lists campus regulations governing their conduct; including discrimination, alcoholic beverages, drugs, and distribution of literature; as well as the process for filing a complaint. The handbooks are readily available at Student Services. The codes of conduct are also published in the catalog. The following topics pertaining to institutional integrity are specifically included in the handbook:

> **College Community Expectations Program**. Any individual within the college community who feels that his or her rights have been infringed upon by student conduct may process a referral to the College Community Expectations Program.
>
> **Academic Dishonesty**. Enrollment at Montana Tech is an optional and voluntary entrance into an academic community. Therefore, a student voluntarily assumes obligations of academic performance and personal behavior required by Montana Tech. These obligations are more specific than those imposed on all citizens by civil and criminal laws. Any student who feels that they received unfair treatment in regards to cheating should consult with the Vice Chancellor for Academic Affairs, who is also the chairman for the Academic Standards Committee.
>
> **Student Right to Privacy**. In accordance with FERPA, student academic records will be kept confidential. Directory information will be kept confidential at the student's request.
>
> **Montana Tech Minority and Gender Equity Achievement Plan**. The Montana University System and Montana Tech recognize that there are various groups who are underrepresented in educational programs and in employment. A specific plan has been formulated and implemented to aid in moving toward correcting these inequities.
>
> **Affirmative Action/EEO and Americans with Disabilities Act**. Montana Tech is an affirmative action, equal opportunity organization and provides reasonable accommodations to persons with disabilities.

Software/Internet/Network Use, Acceptable Network Use Policy and Board of Regents Policy 1901.1 Software licensing and its use are governed by computer lab managers and Computer Network Services. Board of Regents Policy 1901.1 covers the unauthorized copying and use of

Student Handbook, and the campus home page. As policies are added or modified, the publications are updated with the latest additions. All primary campus publications are updated on an annual basis. Web-based publications, such as the catalog, are updated on an on-going basis to reflect changes.

ACCURATE REPRESENTATION

To ensure that the college is representing itself in a clear, concise, accurate, and consistent manner, the Registrar's Office and the Office of College Relations and Marketing work cooperatively on the development and oversight of all major campus publications and communications (i.e., recruitment publications, catalog, advertising, campus video, and public and media relations). Since all primary campus publications are developed and administered through these offices, the college is able to maintain accuracy and consistency in its publications and public communications. All publications and communications that will be directed to external constituencies go through a rigorous process of review and editing to assure integrity and uniformity. Formal college statements are reviewed by the college's spokesperson, the Director of College Relations and Marketing, prior to release to the media, after review by the Chancellor or Vice Chancellors prior to release.

Montana Tech has also recently adopted a graphic standard to ensure that the college's image is accurately and consistently reflected in all external messaging. Adopted by the Chancellor's Cabinet, this standard is administered by the Office of College Relations and Marketing and enforced through the Chancellor's Cabinet. The standard will become fully implemented in FY00.

CONFLICT OF INTEREST POLICY

Montana Tech adheres to both the State Officers/Employees (2-2-121 M.C.A.) Rules of Conduct, as well as those set forth in Montana Tech's Faculty and Staff Handbook, Section II-220. The following constitute conflicts of interest for state employees and are to be avoided and discouraged:

a.) use state time, facilities or equipment for his/her private business purposes;
b.) engage in a substantial financial transaction for his/her private business purposes with a person whom he/she inspects or supervises in the course of his/her official duties;

c.) assist any person for a fee or other compensation in obtaining a contract, claim, license, or other economic benefit from his/her agency;
d.) assist any person for a contingent fee in obtaining a contract, claim, license, or other economic benefit from any state agency; or
e.) perform an official act directly and substantially affecting to its economic benefit a business or other undertaking in which he/she either has a substantial financial interest or is engaged as counsel, consultant, representative or agent.

The following constitute conflicts of interest for Montana Tech employees and are to be avoided and discouraged:

a.) No employee shall accept additional compensation for the same services that are part of the employee's assigned duties.

b.) No faculty member may receive compensation for tutoring students of the institution. A teaching assistant may not receive extra compensation for tutoring students in any section of a course in which he/she has any responsibility.

c.) Any employee who recommends or approves a purchase, and who has any financial interest in the firm involved in the purchase, shall make this fact known at the time. This requirement does not include textbook adoptions where the faculty member is clearly identified as the author or editor of the book in question.

d.) Any employee who recommends or approves a personnel action, and who has any financial interest or business association with the person who is the object of action, shall make this fact known at the time.

e.) No employee may use or distribute information from unpublished institutional research for the benefit of a consulting activity or a private client.

f.) An employee may act in a supervisory relationship with the same student or staff member within the institution and in an external organization, but the work cannot be done during the normal workday of his/her contract period.

Montana Tech's Conflict of Interest statement for Contracts and Grants can be found in the PI Handbook in Appendix D.

COMMITMENT TO THE FREE PURSUIT OF KNOWLEDGE

Montana Tech's Academic Freedom Policy is published in the Faculty and Staff Handbook, Section II-202. This policy, based on that portion of the 1940 Statement of Principles on Academic Freedom and Tenure of the American Association of University Professors endorsed by the Board of Regents (Policy302), is as follows:

> The teacher is entitled to full freedom in research and in the publication of results, subject to the adequate performance of other academic duties; but research for pecuniary return should be based upon an understanding with the authorities of the institution.
>
> The teacher is entitled to freedom in the classroom in discussing the subject, but should be careful not to introduce controversial matter which has no relation to the subject. Limitations of academic freedom because of religious or other aims of the institution should be clearly stated in writing at the time of appointment.
>
> The college or university teacher is a citizen, a member of a learned profession, and an officer of an educational institution. When he/she speaks or writes as a citizen, he/she should be free from institutional censorship or discipline, but his/her special position in the community imposes special obligations. As a person of learning and an educational officer, he/she should remember that the public may judge his/her profession and his/her institution by his/her utterances. Hence, he/she should at all times be accurate, should

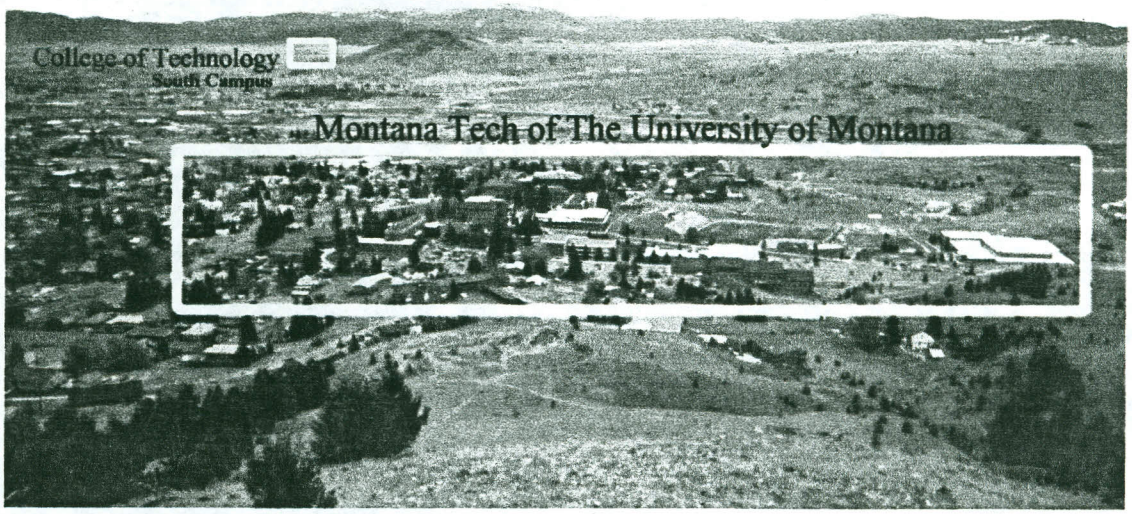
exercise appropriate restraint, should show respect for the opinions of others, and should make every effort to indicate that he/she is not an institutional spokesperson.

The Board of Regents place particular emphasis on the last two paragraphs of the above statement, which relate the responsibilities as well as the privileges which members of the profession and professional organizations associate with this important concept of American life. This also applies to students, staff, and administrators as the entire academic community shares the values.

EXHIBITS

IX-1 Faculty and Staff Handbook
IX-2 Graphics Standards Manual
IX-3 Student Handbook
IX-4 BOR policies and procedures (www.montana.edu/wochelp/borpol)
IX-5 State of Montana Purchasing Policies
IX-6 Acceptable Network Use Policy
IX-7 Copies of printed and electronic promotional materials
IX-8 Copies of code of conduct, ethical behavior

STANDARD EIGHT
PHYSICAL RESOURCES



CAMPUS AND BUILDINGS

Overlooking the city from the shoulder of Big Butte, from which the city takes its name, Montana Tech's north campus can be seen for miles. Its tree-shaded perimeter encloses both the stately buildings of the institution's past and the modern facilities reflecting its present and its future. Over $17 million in new construction and building renovation is currently in progress on the north campus.

Tech's north campus, 1300 W Park Street, consists of the Science/Engineering Building, Engineering Hall, Main Hall, the Chemistry/Biology Building, the Petroleum Building, the Mining/Geology Building, the Health, Physical Education and Recreation (HPER) Complex, and the Engineering Laboratory/Classroom (ELC) Building, all of which are used for classes. Support facilities for the academic programs include the Library and Auditorium, the Museum Building, and the greenhouse. Auxiliary service facilities include the Residence Halls, the Student Union Building, the Mill Building and off-campus apartments. The Chancellor's residence, a stately brick home, is also on campus.

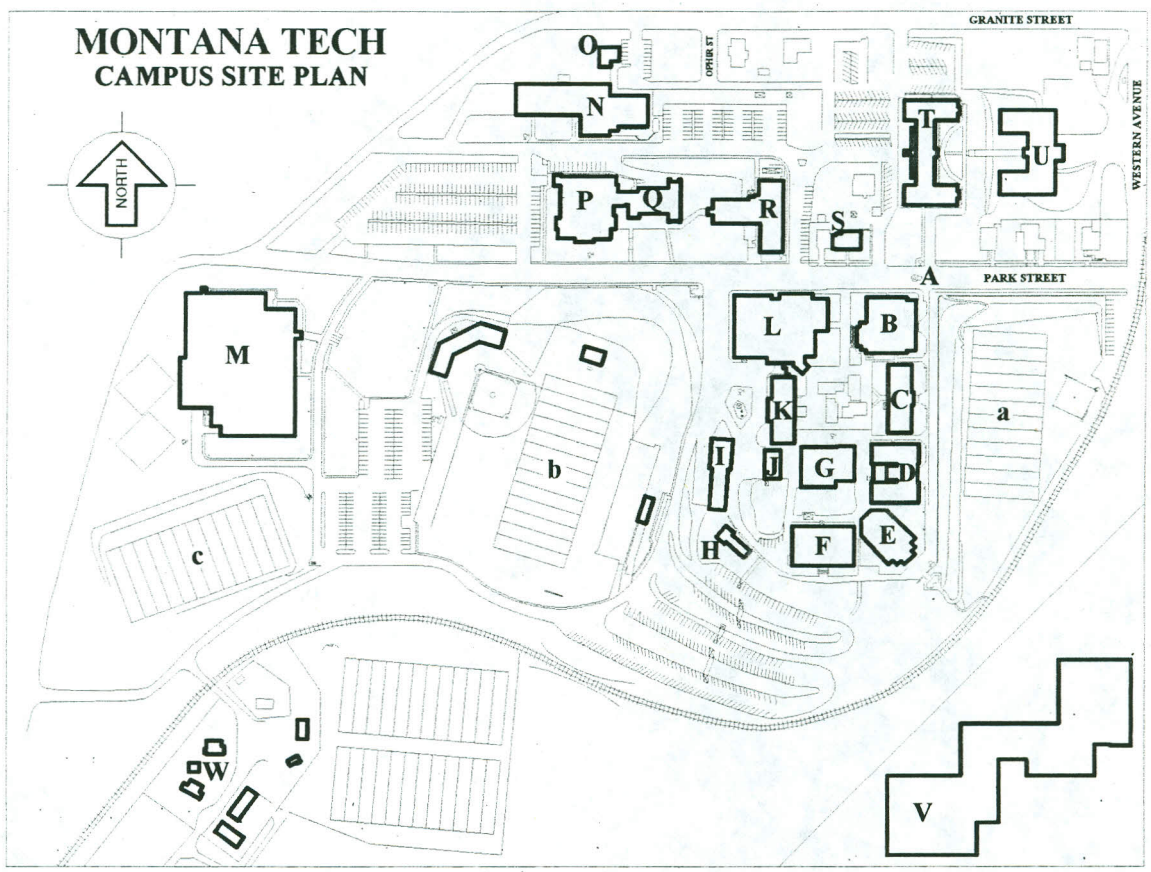
In addition to the buildings, Alumni Coliseum has been carved out of the hillside to provide space for football and other sports events. The campus also has four smaller sports fields and outdoor tennis courts.

A short distance from the Coliseum is the World Museum of Mining, commemorating the development of mining from the pick-and-shovel days to the modern processes now in

use. A private, non-profit undertaking of interested citizens, the museum displays the tools and equipment used by miners over the years and depicts life in a mining camp growing to become a modern city.

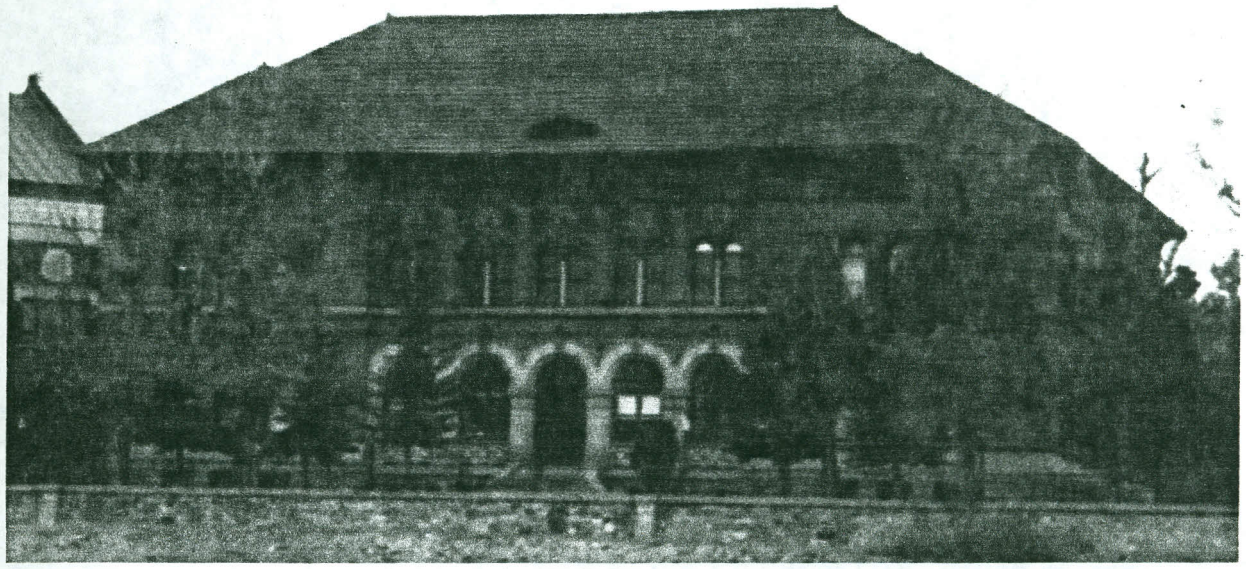
The south campus of Montana Tech, located south of Butte at 25 Basin Creek Road, has an excellent view of the Highlands and the East Ridge.

Montana Tech of The University of Montana Site Plan and Legend



Legend

A Marcus Daly Statue
B Science/Engineering
C Engineering Hall
D Main Hall
E Mineral Museum
F Chemistry and Biology
G Mill
H Greenhouse
I Heating Plant
J Physical Plant
K Petroleum
L Student Union
M Health, Physical Education & Recreation (HPER)
N Engineering Laboratory/Classroom (ELC)
O Montana Tech Foundation
P Library
Q Auditorium
R Mining/Geology
S Chancellor's House
T Prospector Residence Hall
U New Residence Hall
V College of Technology
W Day Care
a Leonard Field
b Alumni Coliseum
c Soccer/Intramural



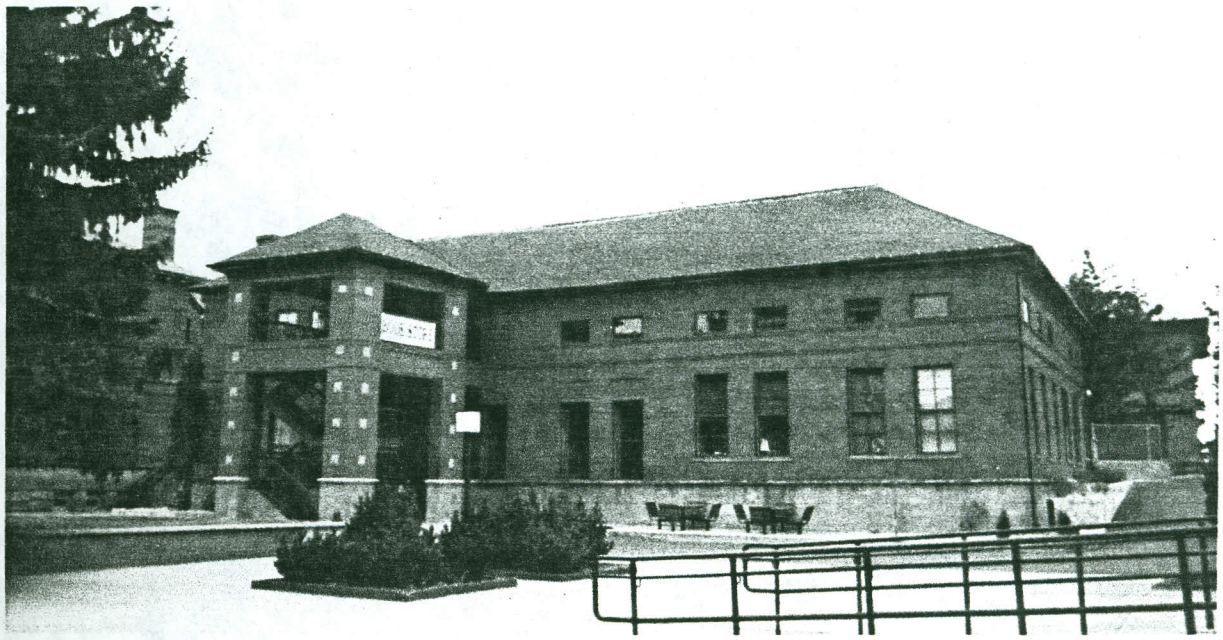
Main Hall

Year Construction began (Age)	1896 (103)	Handicap Accessible	N
Remodeled since construction (Year)	N	Number of floors	4
Building Square Footage (Gross)	38,083.00	Replacement Cost	$2,932,391.00
Campus Site Map Location Letter	D	Primary Function	Classrooms/Offices
National Register of Historic Places	Y	Building/Roof Material	Masonry/Tile

Main Hall was the first building on the north campus. On the front of the building are relief portraits of Benjamin Franklin for Physics, Thomas Hunt for Geology, Gaetzschmann for Mineralogy, John Percy for Metallurgy and Alexander Holly for Chemistry. These five gentlemen's knowledge and wisdom reflect Montana Tech's goals as an educational institution.

The 1919 Legislative Assembly established the Montana Bureau of Mines and Geology as a public service agency and a research department of the institution. The Bureau, located in Main Hall on the north campus, is the only earth science research agency in Montana State Government, and is responsible for assisting in development of the state's mineral, energy and groundwater resources. Reports on Bureau research are made available to the public through formal publications and by replies to individual inquiries.

Bureau funds and projects are apportioned between applied research and public service. Its work comprises field and laboratory study, collection of samples and information, interpretation of data, and compilation of statistics on all mineral resources - metallic and non-metallic minerals, fuels, and groundwater. Projects are undertaken in cooperation with the U.S. Geological Survey, and other federal, state, and local agencies. Laboratories are equipped with modern instrumentation for all essential work; new instruments of greater range, adaptability or efficiency are added periodically. The building also houses the Liberal Studies Department.



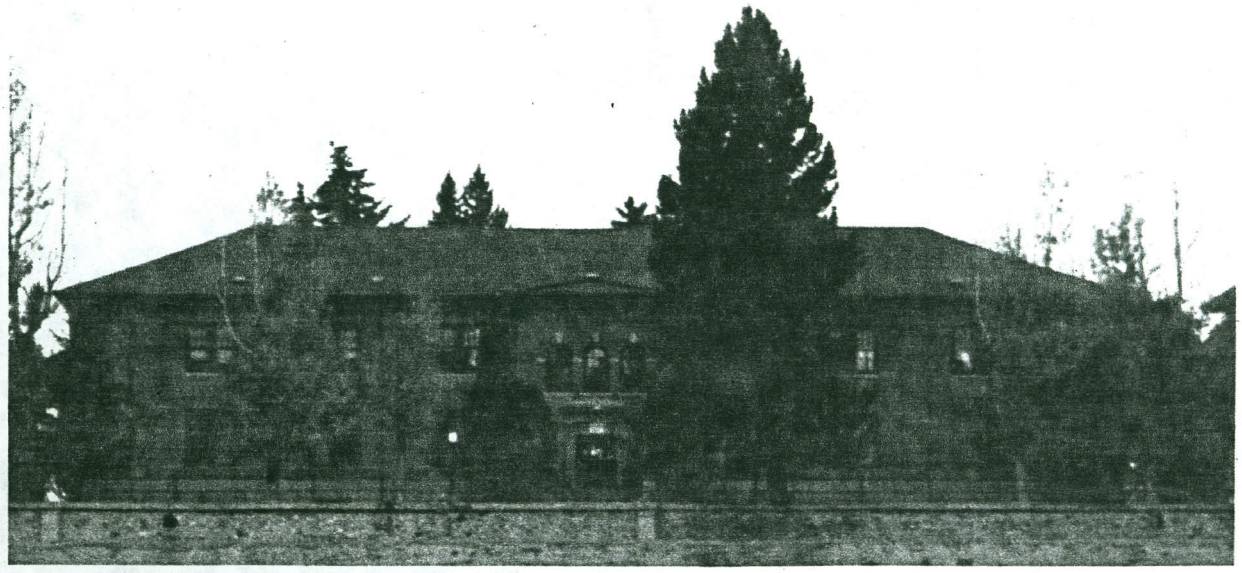
Mill Building

Year Construction began (Age)	1908 (91)	Handicap Accessible	Y
Remodeled since construction (Year)	Y (1997)	Number of floors	2
Building Square Footage (Gross)	16,812.00	Replacement Cost	$1,294,524.00
Campus Site Map Location Letter	G	Primary Function	Bookstore/Conference
National Register of Historic Places	Y	Building/Roof Material	Masonry/Asphalt

The second building on the north campus was originally called the Metallurgical Building, and housed furnaces and machinery that students worked on for practical experience.

The Mill Building is one of Montana Tech's newest renovation projects on campus. Originally designed as a lab facility, heating plant, dormer and storehouse, it has been completely remodeled. It retains much of its early twentieth century character. The Mill Building is home to the campus Bookstore, Starbucks Coffee Shop and several lounge areas and meeting rooms. It is a student-oriented facility that serves as a satellite operation to the Student Union.

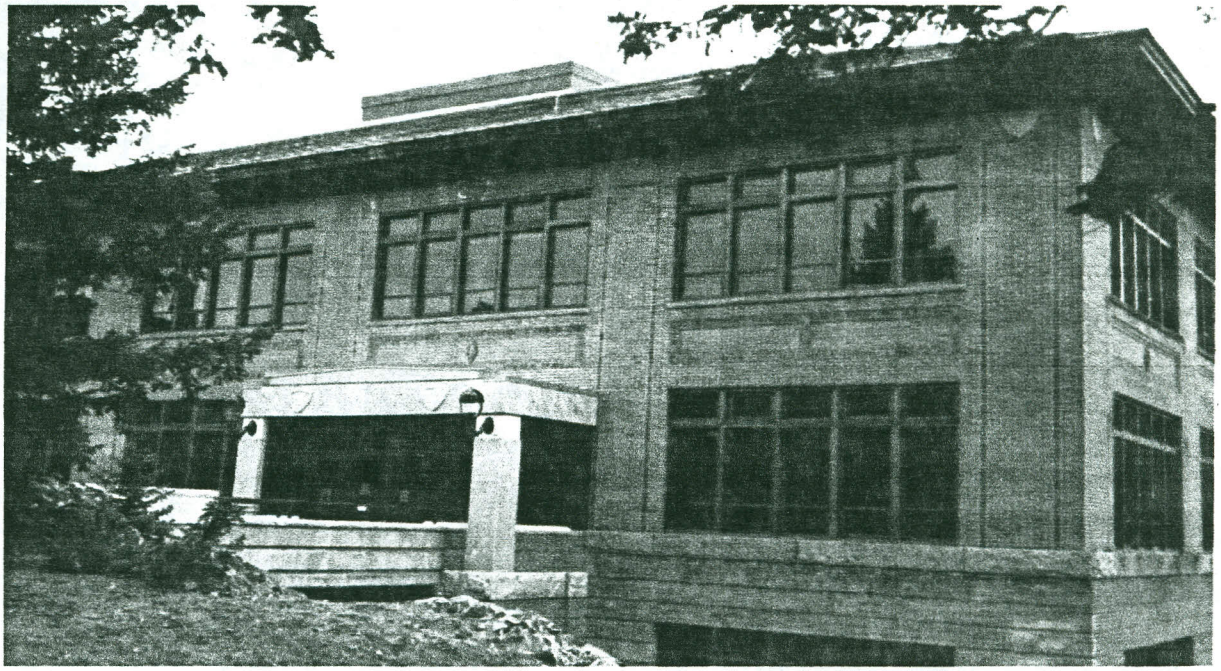
The original boiler doors, saved from the remodeling, are mounted on the north wall by the main entrance.



Engineering Hall

Year Construction began (Age)	1910 (89)	Handicap Accessible	Y
Remodeled since construction (Year)	Y (1923)	Number of floors	2
Building Square Footage (Gross)	13,413.00	Replacement Cost	$1,005,620.00
Campus Site Map Location Letter	C	Primary Function	Classrooms/Offices
National Register of Historic Places	Y	Building/Roof Material	Masonry/Asphalt

Constructed in 1910, Engineering Hall was the third building on campus. Originally a gymnasium, Engineering Hall was remodeled to an engineering drawing facility in 1923. The remodeled first floor included a large drawing room with sixty drafting tables, a small auditorium and a suite of offices. The second floor consisted of more offices, a file room, a blueprint room and two drafting rooms. Currently located in Engineering Hall is the office of the Dean of Student Life, Career Services, Montana Tech Learning Center, classrooms, and the Professional and Technical Communication Department, which is part of the College of Humanities, Social Sciences, and Information Technology. An underground tunnel system connects Engineering Hall with the Science and Engineering Building and Main Hall.

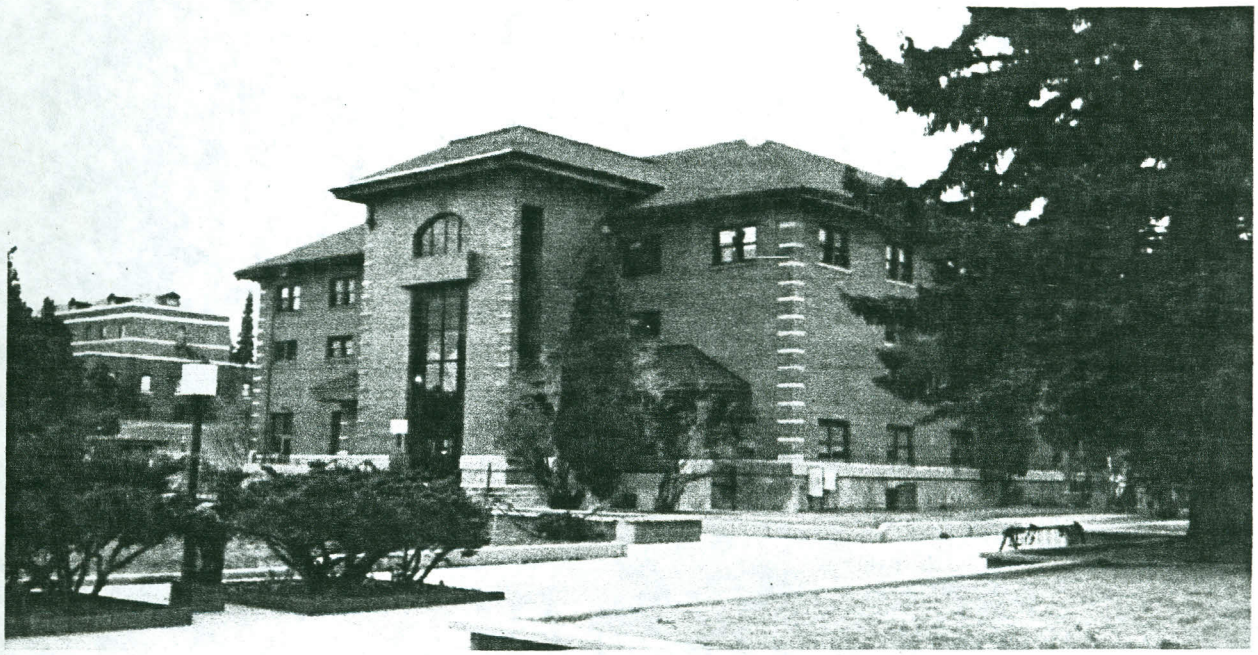


Chemistry/Biology Building

Year Construction began (Age)	1921 (78)	Handicap Accessible	Y
Remodeled since construction (Year)	Y (1998)	Number of floors	4
Building Square Footage (Gross)	44,966.00	Replacement Cost	$8,000,000.00
Campus Site Map Location Letter	F	Primary Function	Classrooms/Offices
National Register of Historic Places	Y	Building/Roof Material	Masonry/Asphalt

The Chemistry/Biology Building, originally known as the Chemistry and Metallurgical Building, has undergone a complete renovation. The renovation added new classrooms and 16 new labs. Offices for faculty and graduate students were also added as well as research labs.

The building has a newly remodeled state-of-the-art multi-media classroom. (CBB 101)



Science and Engineering Building

Year Construction began (Age)	1925 (74)	Handicap Accessible	Y
Remodeled since construction (Year)	Y (1980)	Number of floors	3
Building Square Footage (Gross)	34,899.00	Replacement Cost	$2,687,223.00
Campus Site Map Location Letter	B	Primary Function	Classrooms/Offices
National Register of Historic Places	Y	Building/Roof Material	Masonry/Asphalt

Remodeling in 1980 expanded and converted the S&E Building from a gymnasium into classrooms and laboratories. The gymnasium was considered one of the finest facilities in the state and had an abundance of space for interior sports. A swimming pool, handball courts, showers and locker rooms comprised the lower floor while the main floor offered a hardwood playing floor and seating for 2,500 spectators. The third level included a trophy room, dressing room, lavatories and a hardwood running track.

The building has a newly remodeled state-of-the-art multi-media classroom. (S&E 113)

Department offices in this building are Engineering Science, Environmental Engineering and Safety, Health and Industrial Hygiene, which are part of the School of Mines and Engineering.

An interesting architectural feature is the uniformed gargoyle above the entrance facing Leonard Field.

Prospector Residence Hall

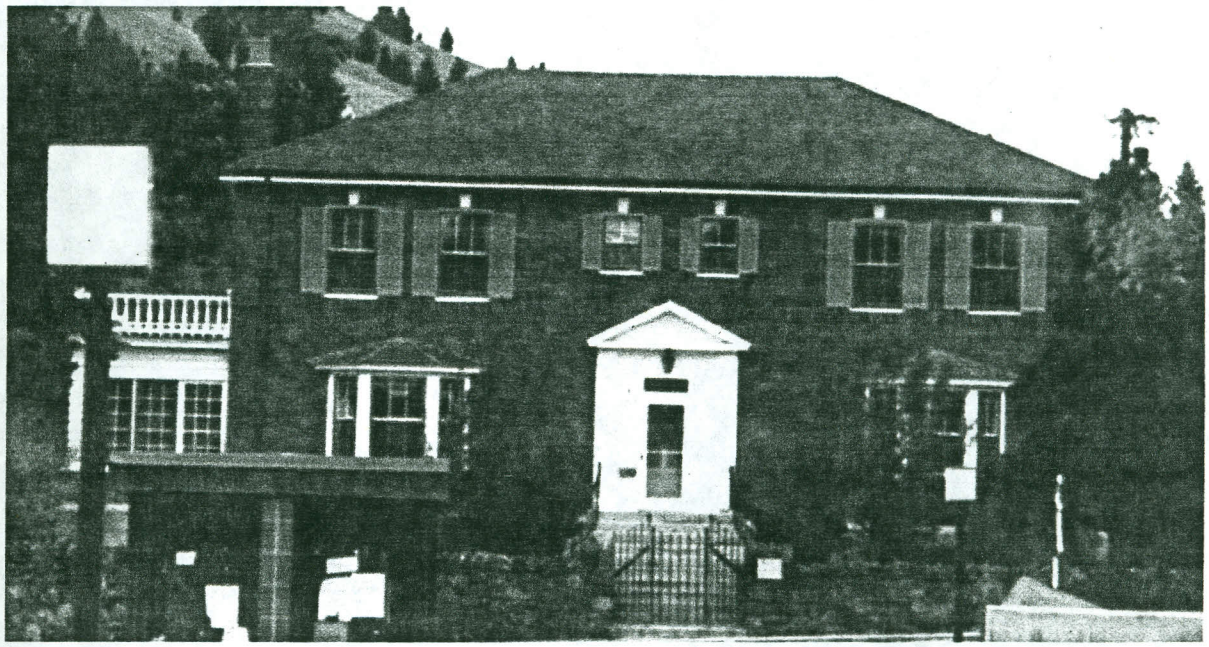
Year Construction began (Age)	1935 (64)	Handicap Accessible	Y
Remodeled since construction (Year)	Y (1985)	Number of floors	4
Building Square Footage (Gross)	53,911.00	Replacement Cost	$4,151,147.00
Campus Site Map Location Letter	T	Primary Function	Residence Hall
National Register of Historic Places	Y	Building/Roof Material	Masonry/Metal

Prospector Hall provides co-educational facilities for approximately 200 students. This facility offers single and double rooms, as well as two and three bedroom suite-style units. The Residence Life Office sponsors an array of extracurricular activities; such as, intramural teams and social activities. Prospector Hall facilities include a computer lab, laundry room, microwave oven, conventional oven, and a desk operation to facilitate students' use of vacuum cleaners, athletic equipment, and mail service.

Each Prospector Hall room is furnished with a desk and chair, super twin (39 x 80) bed(s) which can be made into bunk beds, a large 4-drawer bureau, mattress, wastebasket, closet/shelf space, and each is wired for computers, phone, and cable TV. Students are required to furnish their own bed linens, blankets, bedspreads, towels and pillows.

All students may apply for residence hall housing.

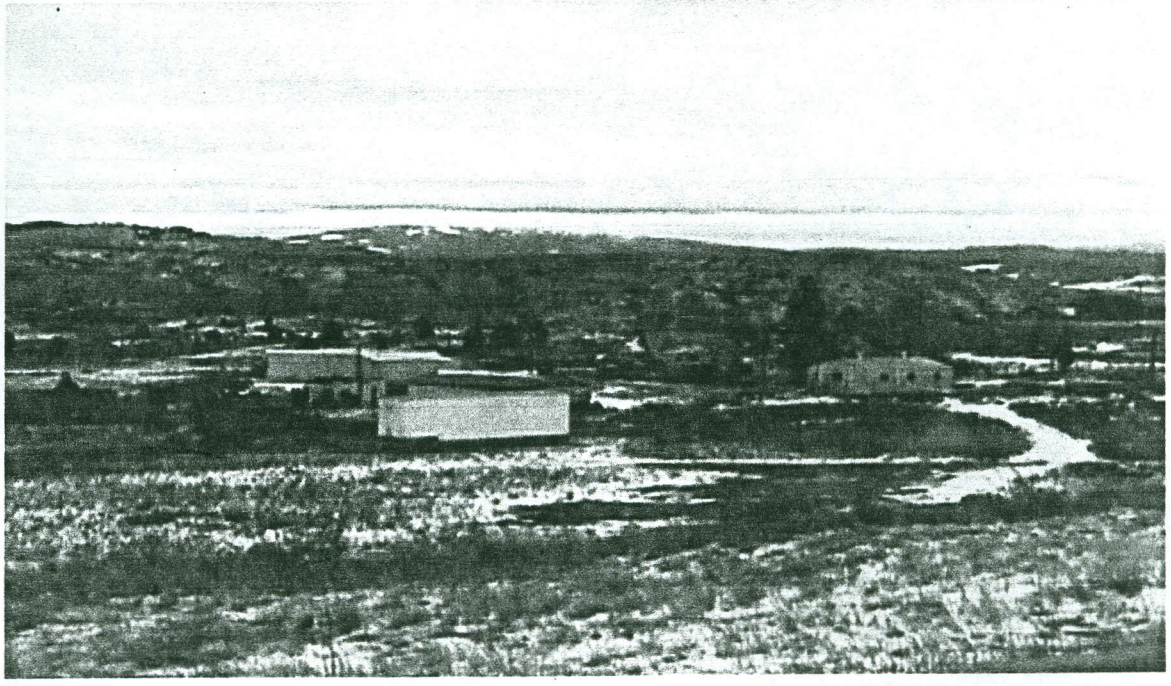
All freshmen having accumulated less than 30 semester credit hours are required to live in one of the two residence halls for the entire academic year. Exceptions are made for those students who are married or living with their immediate family within commuting distance from the institution.



Chancellor's Residence

Year Construction began (Age)	1936 (63)	Handicap Accessible	N
Remodeled since construction (Year)	N	Number of floors	2
Building Square Footage (Gross)	5,077.00	Replacement Cost	$203,080.00
Campus Site Map Location Letter	S	Primary Function	Chancellor's Residence
National Register of Historic Places	Y	Building/Roof Material	Masonry/Asphalt

Erected in 1936 as part of the WPA (Works Project Administration), the Chancellor's residence stands nearly untouched, except for minor remodeling and maintenance. The first president to reside in the house was British born Francis A. Thompson (1928-1950). The fence surrounding the building was brought from his residence in England. There have been six college presidents to reside in the Chancellor's residence.

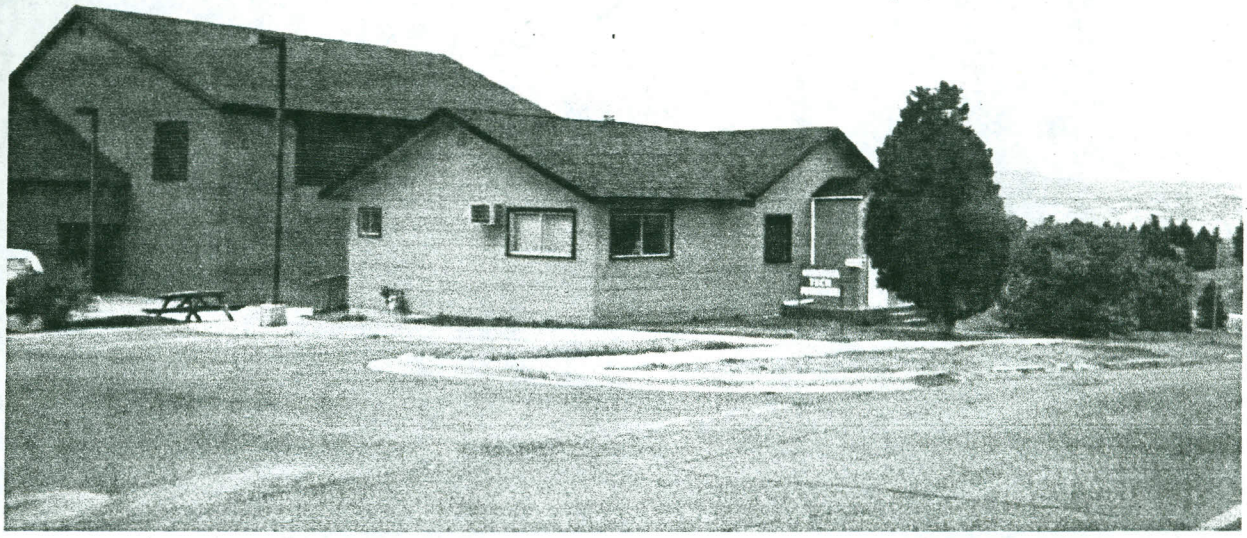


Day Care North and South

Year Construction began (Age)	1938 (61)	Handicap Accessible	N
Remodeled since construction (Year)	N	Number of floors	2
Building Square Footage (Gross)	2,230.00	Replacement Cost	$124,880.00
Campus Site Map Location Letter	W	Primary Function	Day Care
National Register of Historic Places	N	Building/Roof Material	Wood/Asphalt

This on-campus facility, located in two cozy college owned homes, provides licensed childcare for the students, faculty, and staff of Montana Tech.

The Montana Tech Day Care Center participates in the U.S. Department of Agriculture Child Care Food Program and is open to all eligible children regardless of age, sex, color, race, national origin, or handicap.



Montana Tech Foundation Building

Year Construction began (Age)	1940 (59)	Handicap Accessible	Y
Remodeled since construction (Year)	N	Number of floors	1
Building Square Footage (Gross)	1,359.00	Replacement Cost	$104,643.00
Campus Site Map Location Letter	O	Primary Function	Foundation
National Register of Historic Places	N	Building/Roof Material	Wood/Asphalt

The Montana Tech Foundation, a private non-profit corporation, is responsible for fund raising programs that benefit Montana Tech, its faculty, students and programs. Contributions to it may be tax deductible as provided by law.

Governed by a Board of Directors comprised primarily of leaders in business and industry, the Foundation solicits and administers gifts and grants to enhance and enrich the teaching and research of the faculty and to increase educational opportunities for students attending Montana Tech. Gifts are used to partially underwrite costs of instruction, to upgrade laboratories, to support research, to endow scholarships and distinguished professorships and to meet other Institutional needs.

The Foundation also provides alumni and community relations programs for the Institution and maintains the alumni records.

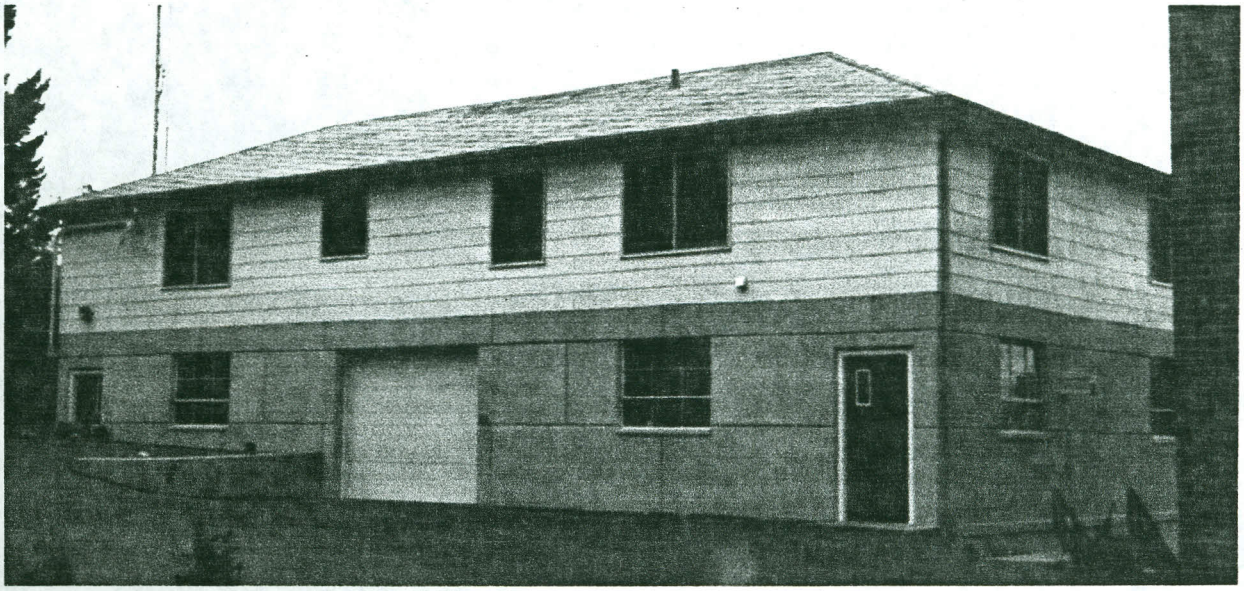
Mineral Museum Building

Year Construction began (Age)	1940 (59)	Handicap Accessible	Y
Remodeled since construction (Year)	N	Number of floors	3
Building Square Footage (Gross)	36,394.00	Replacement Cost	$3,457,525.00
Campus Site Map Location Letter	E	Primary Function	Museum
National Register of Historic Places	Y	Building/Roof Material	Masonry/N A

Montana Tech's Mineral Museum occupies the upper floor of the Museum Building situated on the southeast corner of the campus. The Mineral Museum is open to the public on weekdays and Sunday afternoons during the winter. During the summer, the Museum is open daily including holidays from 8 a.m. to 5 p.m. Guided tours for groups are available by prior arrangement.

For many visitors the most spectacular exhibit is a display of fluorescent minerals housed in a separate, dark room. The Highland Centennial Gold Nugget, weighing a little more than two pounds, is a recent added attraction which, with other gold and precious stone specimens, is displayed in the safe. One case is devoted to large amethyst geodes from Brazil. A fine collection of minerals from the Butte mines is displayed next to an exhibit of minerals found in Montana. A remarkable collection of agate butterflies is also displayed. Crystal specimens from well-known localities throughout the world form many of the exhibits in the main area of the Museum, while on the balconies, more than 700 mineral species are represented in a systematic collection. The collection of the Montana Tech Mineral Museum contains more than 15,000 specimens and is being continually improved both through donations and by the purchase of select specimens.

Also located in this building are the offices of Math, Computer Science and Software Engineering, The Graduate School, The Research Office and the Mine Waste Technology Program.



Physical Plant Building

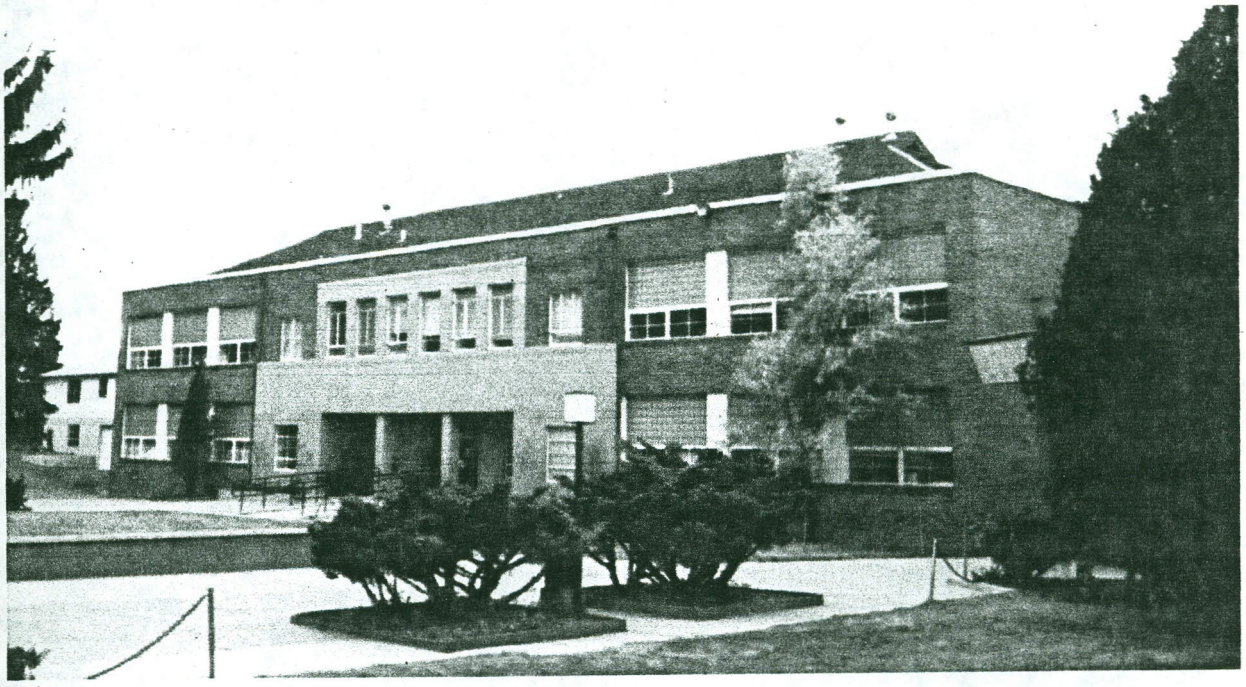
Year Construction began (Age)	1948 (51)	Handicap Accessible	N
Remodeled since construction (Year)	N	Number of floors	3
Building Square Footage (Gross)	6,300.00	Replacement Cost	$212,310.00
Campus Site Map Location Letter	J	Primary Function	Offices/Shops
National Register of Historic Places	N	Building/Roof Material	Masonry/Asphalt

The first floor of the Physical Plant Building has a large shop area. Located of the second floor are offices, including those of the Physical Plant Director and campus security. All building and remodeling plans are kept in this building.

Married Student Housing

Year Construction began (Age)	1950 (49)	Handicap Accessible	N
Remodeled since construction (Year)	Y (1999)	Number of floors	2
Building Square Footage (Gross)	22,633.00/EA	Replacement Cost	NA
Campus Site Map Location Letter		Primary Function	Residence Halls
National Register of Historic Places	N	Building/Roof Material	Wood/Asphalt

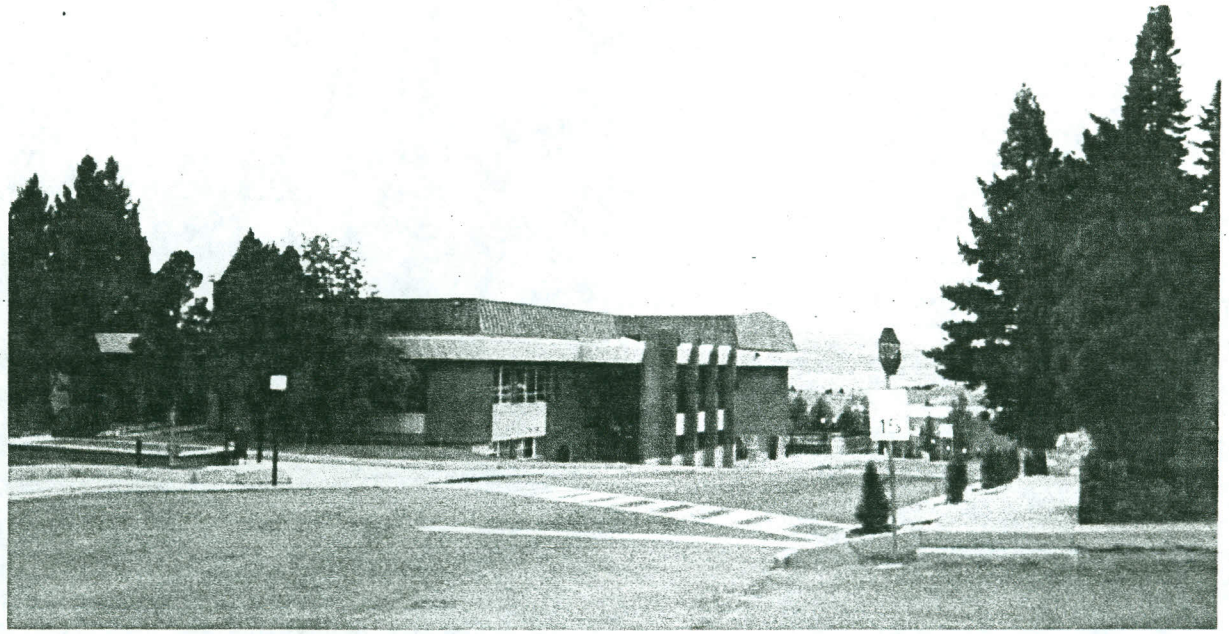
Montana Tech has 60 two and three bedroom apartments, known as the Creams, located approximately one mile from campus. The Creams are leased on a first-come, first-served basis according to a current waiting list. Facilities include a coin-operated laundry room, playground, and a city-operated winter skating rink.



Petroleum Building

Year Construction began (Age)	1953 (46)	Handicap Accessible	Y
Remodeled since construction (Year)	N	Number of floors	3
Building Square Footage (Gross)	21,946.00	Replacement Cost	$1,689,765.00
Campus Site Map Location Letter	K	Primary Function	Classrooms/Offices
National Register of Historic Places	N	Building/Roof Material	Masonry/Asphalt

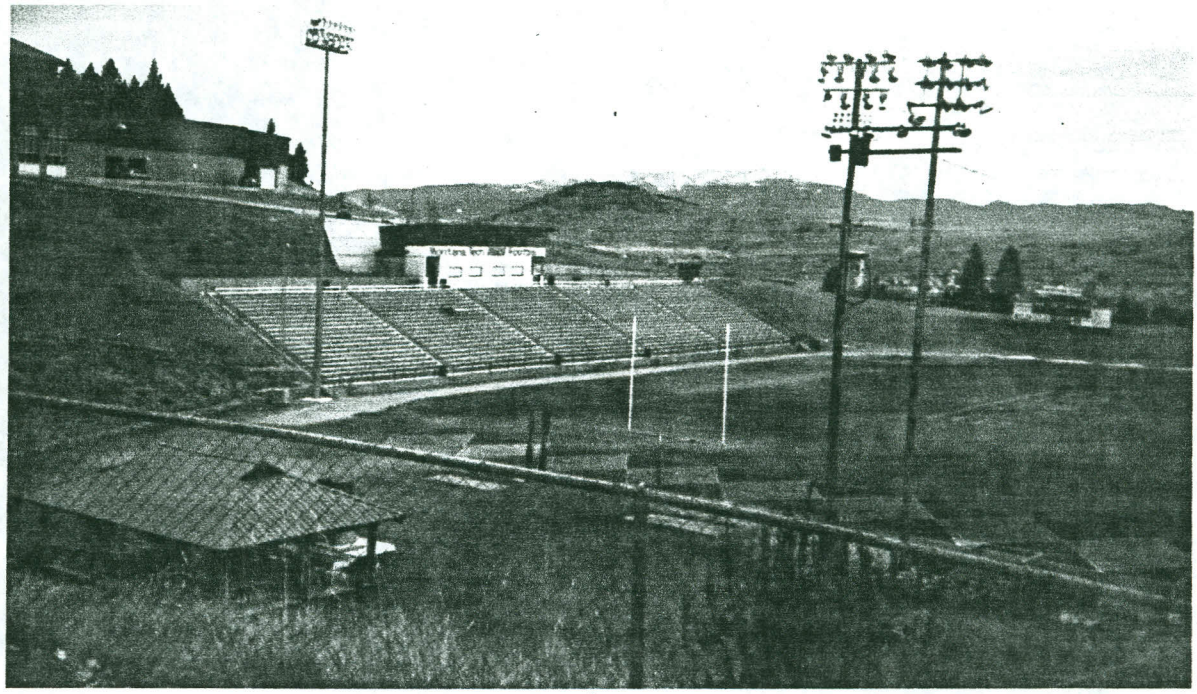
The building is the headquarters for the Petroleum Engineering Department. The building has a newly remodeled state-of-the-art multi-media classroom. (PET 110) The Petroleum Building also contains the offices of the Technical Outreach and STEP programs.



Student Union Building

Year Construction began (Age)	1960 (39)	Handicap Accessible	Y
Remodeled since construction (Year)	Y (1999)	Number of floors	2
Building Square Footage (Gross)	45,015.00	Replacement Cost	$3,466,155.00
Campus Site Map Location Letter	L	Primary Function	Food Service
National Register of Historic Places	N	Building/Roof Material	Masonry/N A

The Student Union Building contains the Marcus Deli, dining facilities, meeting rooms, offices for Student Activities and Student Government, Digger Den game room, Student Health Center, Student Copper Lounge, Mailroom/Copy Center, and offices for the student newspaper and radio station. The Digger Den, in addition to providing pool tables, pinball machines, video games, board games, stereo music, TV/VCR and study area facilities, has an unobstructed view of the Anaconda-Pintlar Wilderness area. The north campus Scheduling Office and student government office (ASMT) are also located in the Student Union.



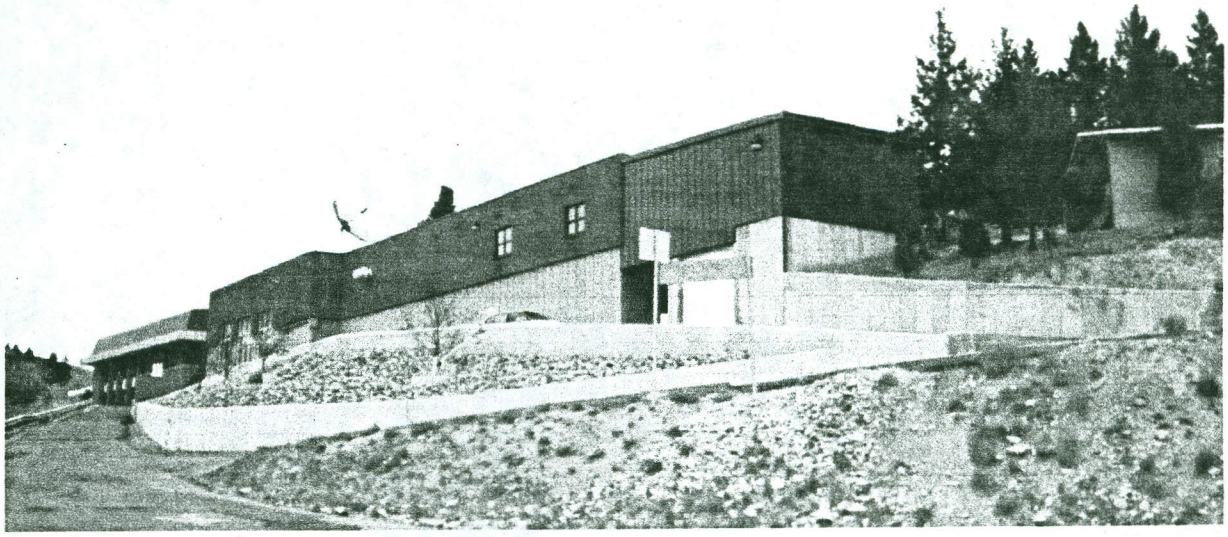
Alumni Coliseum Complex

Year Construction began (Age)	1965 (34)	Handicap Accessible	Y
Remodeled since construction (Year)	Y (1990)	Number of floors	1
Building Square Footage (Gross)	Various	Replacement Cost	Various
Campus Site Map Location Letter	b	Primary Function	Sports Stadium
National Register of Historic Places	N	Building/Roof Material	Various/Metal

Alumni Coliseum is used for Montana Tech Oredigger football and other sporting events and has a permanent seating capacity for 5000.

It is leased for use by a minor league professional baseball team, the Copper Kings, during the summer months.

Leonard Field, located in front of Main Hall, provides additional space for intramural and club sports.

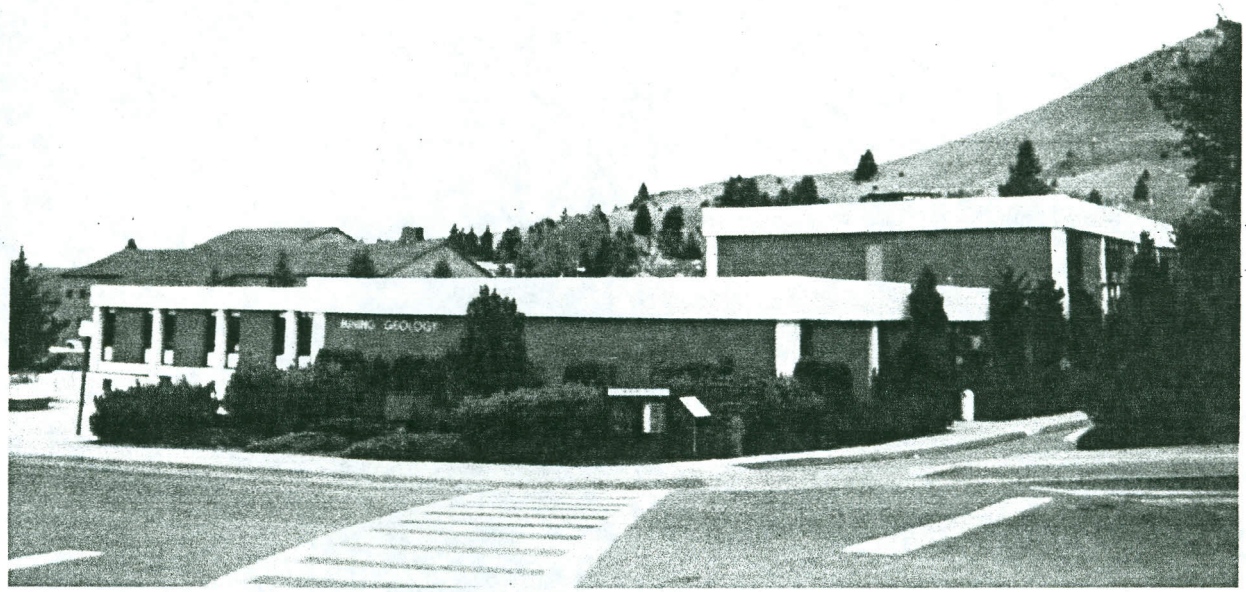


Heating Plant Building

Year Construction began (Age)	1969 (30)	Handicap Accessible	N
Remodeled since construction (Year)	N	Number of floors	2
Building Square Footage (Gross)	9,257.00	Replacement Cost	$879,010.00
Campus Site Map Location Letter	I	Primary Function	Heating Facilities
National Register of Historic Places	N	Building/Roof Material	Masonry/N A

This is the primary heating plant for the institution. Within the plant are two boilers and various work areas.

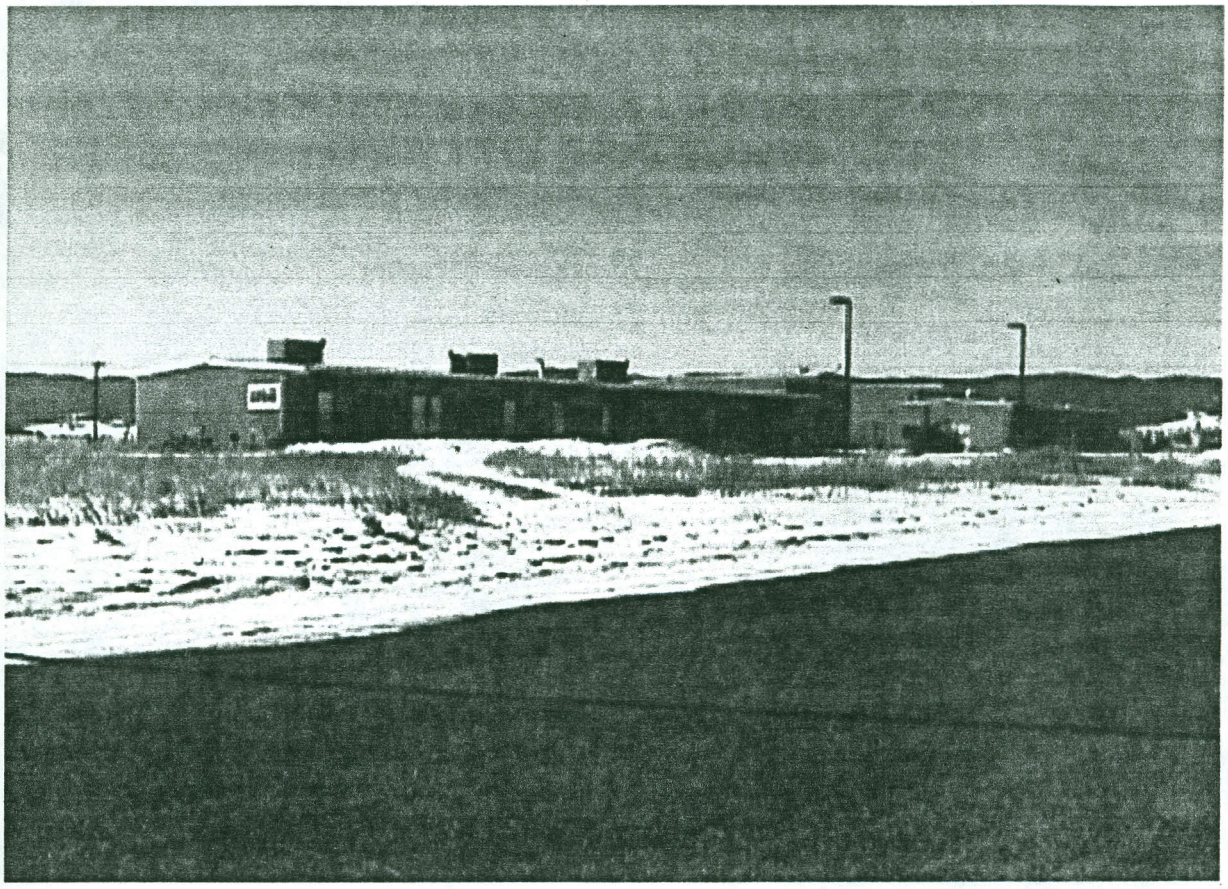
Part of the Long Range Building Plan is to upgrade the heating plant from two to three boilers.



Mining-Geology Building (MG)

Year Construction began (Age)	1972 (27)	Handicap Accessible	Y
Remodeled since construction (Year)	N	Number of floors	3
Building Square Footage (Gross)	42,236.00	Replacement Cost	$3,252,172.00
Campus Site Map Location Letter	R	Primary Function	Classrooms/Offices
National Register of Historic Places	N	Building/Roof Material	Masonry/N A

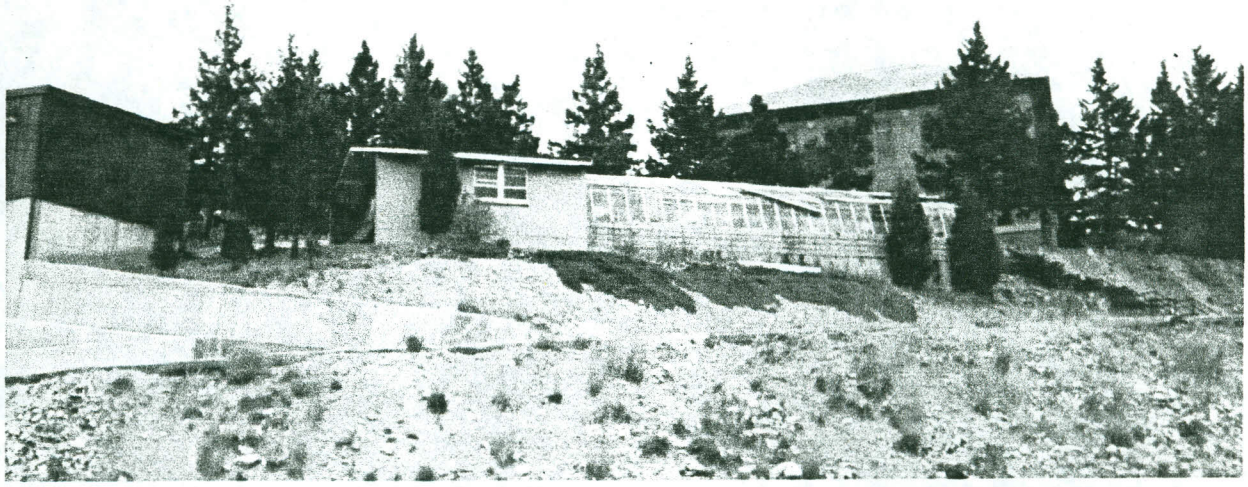
The Mining-Geology Building features a 125-seat multi-media lecture hall and two smaller lecture halls for general use. The west wing of the building houses the offices and laboratories of the Mining and Geological Engineering Departments. The east wing contains the offices of the Chancellor, the Vice/Chancellors and Budget Director on the third floor. On the second floor are the Admissions Office, Registrar's Office and the Business Office. On the first floor of the MG Building is the Computer Center and the Financial Aid Office.



Mineral Research Complex Building

Year Construction began (Age)	1972 (27)	Handicap Accessible	N
Remodeled since construction (Year)	N	Number of floors	1
Building Square Footage (Gross)	16,779.00	Replacement Cost	$1,503,183.00
Campus Site Map Location Letter		Primary Function	Research
National Register of Historic Places	N	Building/Roof Material	Various

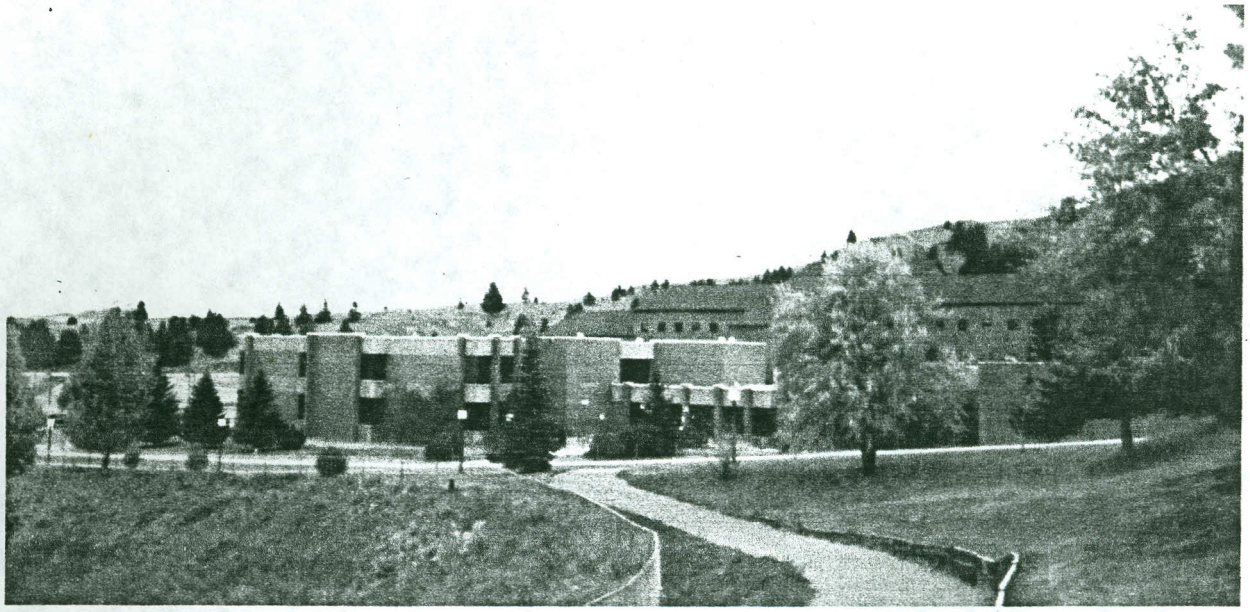
This complex is not located on the Montana Tech campus. The Mineral Research Complex is located in the Industrial Park area, which is south of the College of Technology.



Greenhouse

Year Construction began (Age)	1976 (23)	Handicap Accessible	N
Remodeled since construction (Year)	N	Number of floors	1
Building Square Footage (Gross)	1,596.00	Replacement Cost	$31,920.00
Campus Site Map Location Letter	H	Primary Function	Research
National Register of Historic Places	N	Building/Roof Material	Masonry/Asphalt

The Greenhouse is primarily used for research by the Biology Department.



Library/Auditorium Building

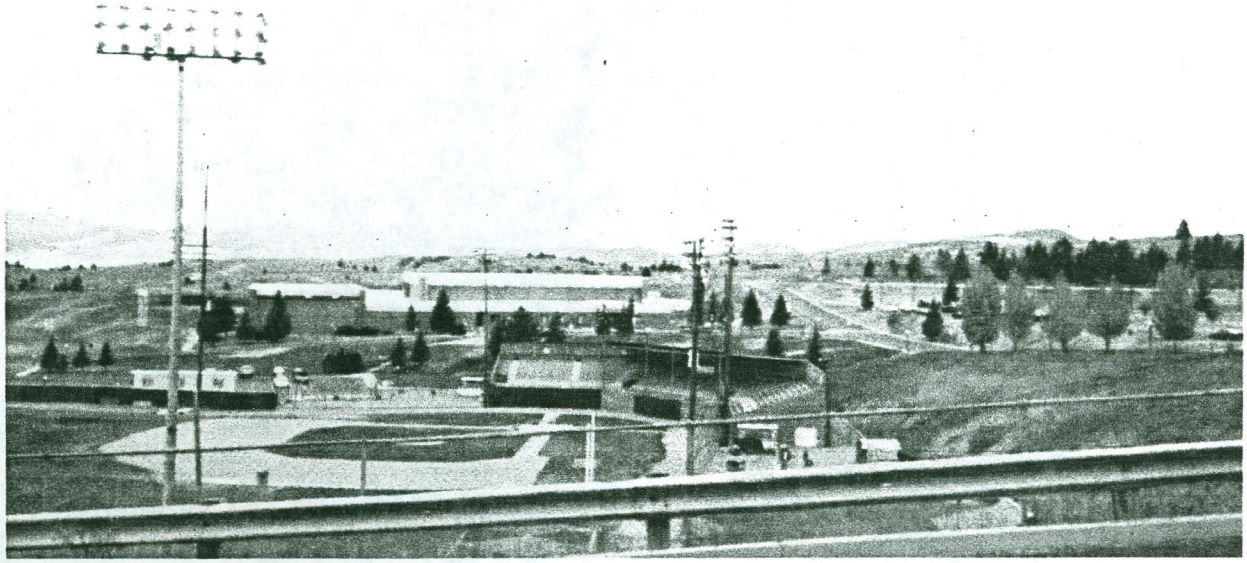
Year Construction began (Age)	1977 (22)	Handicap Accessible	Y
Remodeled since construction (Year)	N	Number of floors	2/1
Building Square Footage (Gross)	39,297.00	Replacement Cost	$3,025,792.00
Campus Site Map Location Letter	P/Q	Primary Function	Library/Auditorium
National Register of Historic Places	N	Building/Roof Material	Masonry/N A

Montana Tech's Library is a modern, airy building with an abundance of natural light and quiet corners, which makes it a comfortable place to study. The book collection is especially strong in engineering and the sciences, but a broad variety of areas are represented. The library's philosophy is, "If we don't have it, we can get it." This is facilitated by a computer-linked interlibrary loan system of over 100 institutions in the Pacific Northwest.

The library contains study rooms, a computer lab, photocopiers, a microfiche reader/printer, and comfortable couches. The library also holds an extensive collection of USGS maps. The library is a repository for U.S. government publications and U.S. patents. To aid in research projects, the librarians will perform computer searches that yield lists of documents and journal articles on specific topics. There is no charge for this service.

Attached to the library is the Auditorium, which enjoys a great deal of community use, as well as serving as Tech's Center for the Performing Arts.

The south campus Media Center Library is open daily from 8:00 a.m. to 4:00 p.m. during the school year. The Resource Media Center contains business, trade, health, technical and industrial textbooks; reference works; occupational information, magazines, periodicals and other materials related to programs taught at the College of Technology.

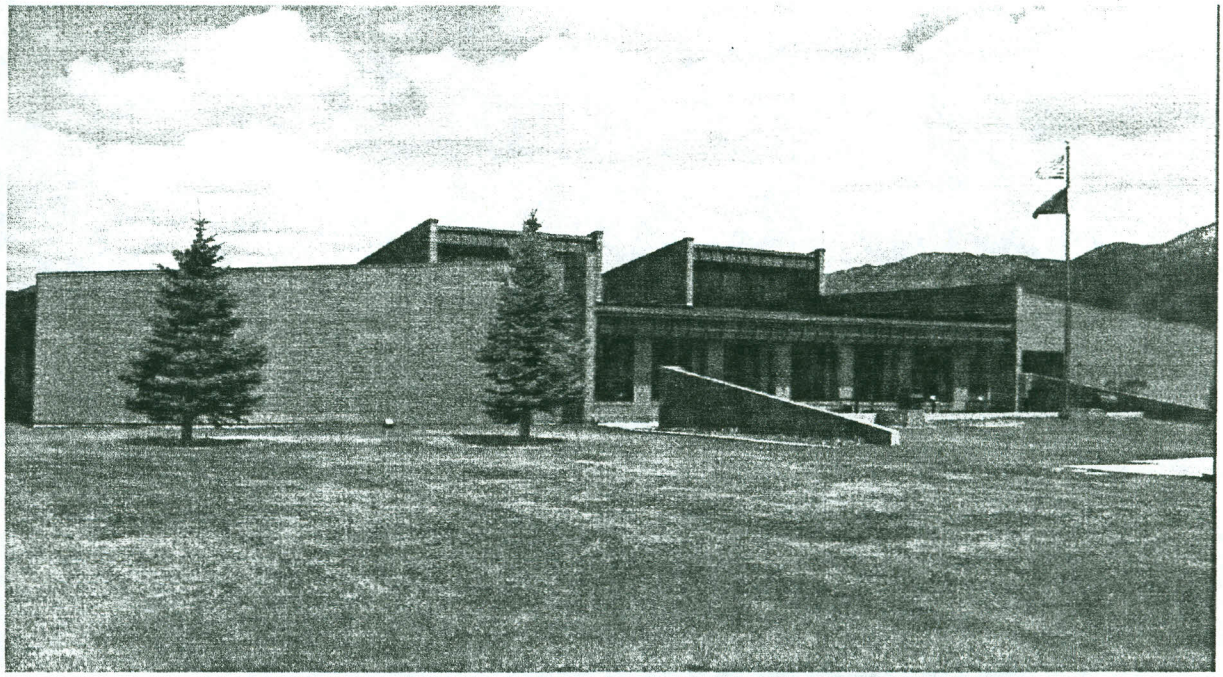


Health, Physical Education & Recreation Building (HPER)

Year Construction began (Age)	1980 (19)	Handicap Accessible	Y
Remodeled since construction (Year)	Y (1985)	Number of floors	2
Building Square Footage (Gross)	86,132.00	Replacement Cost	$4,743,200.00
Campus Site Map Location Letter	B	Primary Function	Athletic Facilities
National Register of Historic Places	N	Building/Roof Material	Masonry/N A

The HPER Complex is a 50,000-sq. ft. facility housing basketball and volleyball areas with seating for 2000; a 25-meter swimming pool; six racquetball courts; and a weight lifting room with free weights and Nautilus equipment. This multi-use facility serves as a center for the institution's and community's recreational and civic activities.

Features on the outside of the HPER are a playing field large enough to accommodate a practice football and soccer field. Also, four tennis courts and a one-kilometer running trail with warm-up and cool-down areas are available.



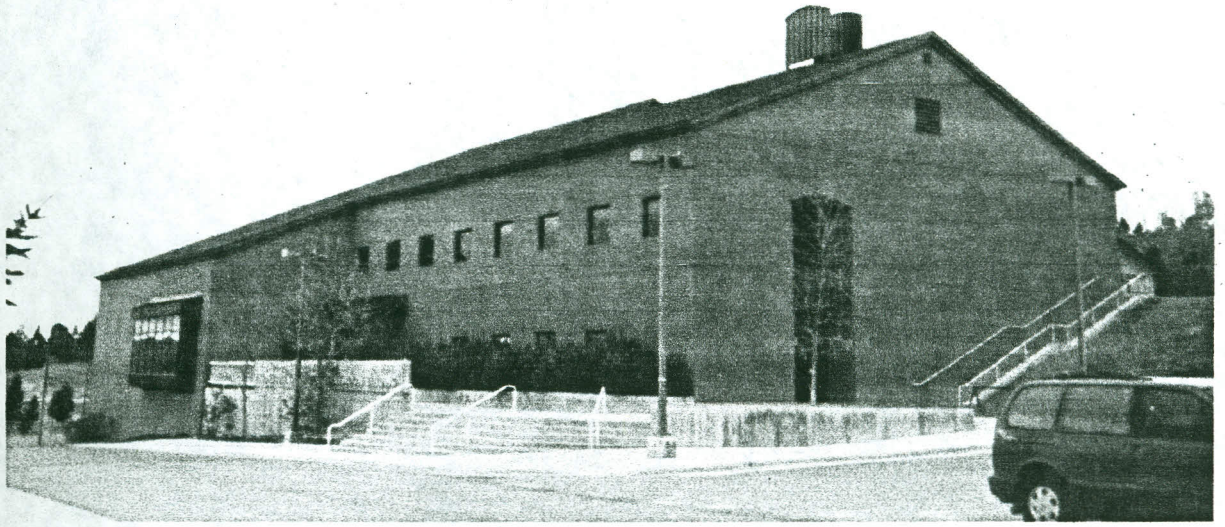
South Campus

Year Construction began (Age)	1983 (16)	Handicap Accessible	Y
Remodeled since construction (Year)	N	Number of floors	1
Building Square Footage (Gross)	99,713	Replacement Cost	$7,700,000
Campus Site Map Location Letter	V	Primary Function	Classrooms/Offices
National Register of Historic Places	N	Building/Roof Material	Masonry/N A

The original Butte Vocational-Technical Center (BVTC) was constructed on the Butte High School site and opened January 1969. In 1974, Butte Public School District No. 1 purchased a forty-one acre site for the construction of the center, currently known as the Montana Tech of The University of Montana, College of Technology, for $90,000 of state general funds. An additional $10,000 was appropriated for planning. The site is located five miles south of uptown Butte. The electorate of Butte-Silver Bow passed a bond issue in November 1980 for the construction of the current College of Technology. Matching state general funds were appropriated by the Legislature in April 1981. The new center, fully equipped, opened in September 1984 at a total cost of $7,391,186.

The south campus is located within a fenced 17-acre parcel at the southern most point of the 41-acre site. The facility provides approximately 100,000 square feet or 5 acres of building space. Other site components include 7 acres of campus landscaping and acres of driveways and parking areas.

The building houses the instructional departments of Trades and Technical, Business, Health, food services, student commons, Library/Media area, student services, administrative offices, boiler and compression rooms, and shipping/receiving stations.



Engineering Laboratory/Classroom Building (ELC)

Year Construction began (Age)	1984 (15)	Handicap Accessible	Y
Remodeled since construction (Year)	N	Number of floors	4
Building Square Footage (Gross)	60,779.00	Replacement Cost	$4,235,000.00
Campus Site Map Location Letter	N	Primary Function	Classrooms/Offices
National Register of Historic Places	N	Building/Roof Material	Masonry/Asphalt

The ELC opened for classes in 1987 and provides state-of-the-art engineering laboratory facilities. The ELC contains offices and laboratory facilities for the Geophysical Engineering, Metallurgical Engineering, and Business and Information Technology Departments. Laboratory facilities include a large, open lab for pilot-scale mineral separation testing. There are general use classrooms in the building as well as a METNET classroom for distance delivery and teleconferencing.

New Residence Hall

Year Construction began (Age)	1999 (1)	Handicap Accessible	Y
Remodeled since construction (Year)	N	Number of floors	4
Building Square Footage (Gross)	32,139.00	Replacement Cost	$1,036,672.00
Campus Site Map Location Letter	U	Primary Function	Residence Hall
National Register of Historic Places	N	Building/Roof Material	Various/Asphalt

New Residence Hall provides co-educational facilities for approximately 100 students.

The New Residence Hall offers computer labs, game rooms, several styles of accommodations from singles to suites, as well as lounges for TV, relaxation, and study. Computer hard wiring is available in each room for students wishing access to Tech's mainframes with their own computers. Each room is equipped with a telephone and is pre-wired for cable television.

INSTRUCTIONAL AND SUPPORT FACILITIES

FACILITIES

General

Montana Tech regulations governing the use of its grounds, buildings, and other facilities are designed to preserve the academic base of the functions and activities of the institution. The uses of these facilities shall be limited to faculty, staff, and students of Montana Tech, except when otherwise specifically authorized by the administration. The use of facilities or services for non-school activities shall be compatible with the educational and public service objectives of Montana Tech as delineated by the Chancellor, and as permissible under applicable Regent's policy.

Student employees, and guests, while on institution property, are required to adhere to the institution's standards of conduct and to abide by policies and campus regulations. The administration has the right, under Montana University System Policy 1005.2, to exclude those deemed detrimental to the institution's well being or incompatible with its mission as an educational institution.

The School of Mines and Engineering

Engineering Department

Classrooms and labs used by the Engineering faculty and students are adequate for the courses and labs taught. Multimedia classrooms exist for those courses that rely on that technology. Labs are supported through capital equipment budgets (which have been decreasing for the last few years), through student lab fees, and through operating budgets. In the last six years two labs have been completely renovated (electric machines lab and the instrumentation and control lab). A new building designed for student projects in the welding option was constructed two years ago. Some labs receive equipment donations from industry (fluids lab, non-destructive examination lab, welding labs). All computer labs specifically in the Engineering Department are supported through the same sources mentioned previously. Maintenance of lab equipment used to be supported through a part-time lab tech, but is now financed through department operating budgets; which have been cut from original levels for the past few years. Computer support for the Engineering Department is from staff assigned to support the newly formed School of Mines and Engineering, through the operating budgets, and student lab fees. The Engineering Department has a full-time lab director (10 month contract) who inventories, maintains (personally or hires), and orders equipment for the labs. Each individual faculty member responsible for teaching labs also inventories parts and supplies and reports equipment problems.

Environmental Engineering Department

The facilities are adequate to meet the mission and goals of the department/program as whole.

The facilities for computer and similar operations are adequate for the operation of individual functions. The facilities for students to work, study and research are extremely good. However, the facilities for faculty could be improved. Maintenance is quite adequate in the facilities used by the department.

Computer facilities for Environmental Engineering students are one of the best. Students use the institutional and departmental computer laboratories very effectively from the freshman year onwards.

All the equipment in the department is well maintained, due to funding from the Montana Tech Foundation.

Geological Engineering Department

Although there is little or no room for expansion, the facilities assigned to the Geological Engineering Department are presently adequate with respect to the achievement of the Geological Engineering Program's mission and goals and the effective operation of the department. They are adequately, but not necessarily, well furnished for work, study and research by students and faculty. The ability to grow is severely limited by space. The department has office space for six faculty members and four laboratory-classrooms dedicated to department use, although others are available on a shared basis particularly with the Mining Engineering Department. The department has had to convert its library/conference room to graduate student office space for some of its teaching assistants, while others share offices with graduate students in the Mining Engineering Department on a space-available basis. Although janitorial services are provided five days/week, only one of the four laboratory-classrooms has been painted in the past 25 years and none have been remodeled. At the present time, none of these laboratory-classrooms meet ADA standards and are not hard-wired for use of networked software for instruction, but are scheduled to be in the Long Range Building Plan. Ventilation of classrooms and offices is a common problem throughout the Mining-Geology Building. Remodeling of these rooms has priority for use of funds raised for the department by the Montana Tech Foundation and the department's Advisory Board. The rooms are, however, reasonably clean and well lighted, and are entirely safe for the activities held in them.

Funding for the replacement and acquisition of major laboratory equipment comes from a variety of sources, including the Montana Tech Foundation and Student Laboratory Equipment Fees. Each spring, the department submits a prioritized, justified list of proposed laboratory acquisitions to the Academic Deans Council, who decides which items to fund from campus resources. Minor equipment items are usually purchased

from the department's laboratory fee account or from its account with the Montana Tech Foundation. The department's five-year laboratory equipment acquisition plan is reviewed and updated annually.

All of the department's laboratory facilities are described and the equipment in each of them tabulated in the department's ABET Self-Study, Volume II, which will be available for review. Montana Tech formally inventories only equipment valued at $5,000 or more.

Geophysical Engineering Department

In general the department's facilities are adequate to achieve the program's mission and goals. The facilities available for the geophysical engineering program are sufficient. The program is housed in a relatively new building (Engineering Laboratory Classroom building) equipped with modern facilities. The physics laboratories, taught by the geophysical engineering faculty, are administered in modern laboratory facilities with full safety features. The geophysical engineering program has one dedicated laboratory, one classroom designed for analysis and demonstrations and a dedicated computer laboratory space with PC and UNIX workstations. The high-level UNIX workstations are maintained in a controlled climate and access environment. In addition, a large garage area is dedicated to the geophysical engineering program for storage of field equipment and field vehicles used for off campus work.

The computer facilities available to geophysical engineering students are the best on campus. The UNIX workstations are equipped with the most recent versions of industry standard software packages available. There are multiple UNIX workstations available accessible by local or remote connections. One of the workstations is configured with dual processors, 2GB of RAM, and access to approximately 50 GB of disk storage space. In addition to the computer hardware and software, the department maintains a full spectrum of geophysical field equipment used to make measurements in all of the key geophysical domains: seismic, electrical, electromagnetic, gravity, magnetic, and ground-penetrating radar. Also, the department owns two relative modern field vehicles for class and research activities.

Some computers are available for remote access work. The MathWorks Inc., package MATLAB is used extensively by the Geophysical Engineering Department, as well as the Engineering Department. This is a powerful computational, visualization package that is easy to learn. A major advantage for students is that the department has "classroom license kits" in place which allow students to use a full working version of the package on his/her home computer for the time period that the program is being used for a class. The students are very pleased with this arrangement.

A full-time Laboratory Director maintains the physics laboratory equipment. Equipment is replaced and upgraded on a regular basis in accordance with a laboratory plan in place. The faculty, on an as-needed basis, maintains the geophysical equipment. Proper field safety procedures are followed when activities warrant them.

The physics Laboratory Director does inventory of all computer hardware and physics laboratory equipment. The geophysical faculty does inventory of all geophysical field

equipment. The physics Laboratory Director does maintenance of the physics laboratory equipment. The geophysical faculty performs system administration for the specialized computers. Upgrades of software are done on a regular basis through research funds and software programs from some of the industry standard software companies. Computer hardware is upgraded using mainly research funds, except for the computers used in the physics teaching laboratories.

Metallurgical Engineering Department

Metallurgical Engineering facilities consist of a number of offices, laboratories and classrooms located in the Engineering Laboratory Classroom (ELC) Building.

All faculty and staff members of the department have an office appropriately equipped to perform their duties. Office equipment consists of updated computers, printers and telephones. An office assistant also has a variety of computer accessories including a scanner, montage unit, and fax machine. All offices include a variety of furniture including file cabinets, shelves, desks, desk chairs and guest chairs.

The "hands-on" philosophy of the Metallurgical Engineering program is carried out in a variety of laboratories. These include the Metallographic Facilities, X-ray Diffraction (XRD) Lab, Scanning Electron Microscope/Energy Dispersive X-Ray (SEM/EDX) Lab, Pyrometallurgy/Heat-Treatment Furnace Area, Mechanical Testing/Non-Destructive Examination Area, Mineral Processing Lab, Inductively-Coupled Plasma (ICP) Lab, High Bay, Thermodynamics/Corrosion Lab, Hydrometallurgy/Wet Chemistry Lab and Particle Characterization Lab. These laboratories are used in the 17 laboratory courses required in the program.

The equipment in the laboratories is well maintained, primarily by a Lab Director but also by faculty. All users, especially students, are required to keep the area clean, which helps to minimize maintenance issues and maximize safety and health concerns. These same laboratories are also used in research efforts by the faculty and their graduate students. Undergraduate students may also utilize the facilities outside their normal education through the undergraduate research program and in their senior design projects. All of the facilities are in excellent condition, in spite of the fact that some are old. This is, of course, attributed to good maintenance. The only notable exception is the SEM, which after 20 years of continual service, is showing signs of failure. Plans are under way with the Montana Tech Foundation to replace it with a modern instrument.

A laboratory plan is in place and followed as closely as budgetary constraints allow. Costs associated with the Chemistry Building remodeling have reduced funds available for capital equipment in each of the past three years. As a result, fund-raising activities have been increased and, for example, a Student Excellence Program was established. Last year adequate funding was raised and hopes are that that amount will be doubled this year to meet additional needs. The lab plan includes an inventory of all equipment and shows when the items are scheduled for maintenance, replacement, etc.

All of the facilities currently meet the needs of the faculty and their research needs. Equipment that is unavailable is often acquired through funded research. On occasion, less expensive items are purchased through Montana Tech Foundation accounts. Match requirements for a proposal are often used in this manner, as well as in hopes of facilitating its acceptance. More expensive items must be purchased through funded research or a special account raised through funding drives in the Montana Tech Foundation.

Mining Engineering Department

Overall, the institutional facilities of Montana Tech are sufficient to achieve the mission and goals of Montana Tech as they relate to the Mining Engineering Program.

Space has become a major limitation of Mining Engineering. In 1993 one faculty office and one large graduate student office was lost to the Continuing Education Program. To provide office space for new faculty, a storage room was converted into an office to house faculty, but the room has poor ventilation, no windows and is not satisfactory. One faculty member has retired and reverted to a 1/3-time contract. Space lost to Continuing Education is being returned to Mining in Spring 2000. This space will be available for faculty offices or graduate students.

Although limited in terms of amount of space, the space utilized is sufficiently furnished for work, study and research. Each faculty member has computers and printers that are no more than four years old. Research equipment varies by laboratory, but in general is adequate for undergraduate education.

Maintenance and operation of the facilities are adequate for continuing quality and safety necessary to support the educational programs.

Computer availability is excellent for faculty and students. The Mining and Geology Computer Laboratory has 20 workstations for student use. This lab is open seven days a week. Weekend and after-hours access is via authorization card given by the Department Head. In addition, Montana Tech has seven other PC laboratories open for student use. These labs presently house over 120 computers. All the computers are linked to a campus wide network maintained by the Network Services. A variety of servers serve the network. Internet access and access to e-mail are available in each lab.

The Mining Engineering Department keeps a laboratory plan as required by the Engineering Accreditation Commission of ABET. This plan gives an inventory of equipment in each lab, its condition, and how the equipment is replaced or upgraded as necessary. The plan also documents the source of funds used to maintain the labs. Course fees and student equipment fees are prime sources of funds to maintain the laboratories.

The computer support personnel in each college maintain faculty and staff computers. Faculty and staff computers are purchased on a four-year cycle. Twenty-five percent of the faculty and staff receive new computers each year.

Petroleum Engineering Department

The Petroleum Engineering Building houses a newly remodeled state-of-the-art multi-media classroom. The department maintains four laboratories that are adequate to achieve the department's goals and objectives. All laboratories have been maintained and upgraded as needed. This has been the primary responsibility of the individual professors in charge of the laboratories.

A comprehensive laboratory safety program has been instituted. This program includes the development and maintenance of laboratory safety manuals, hazardous material inventory and storage and training of personnel in safety practices corresponding to their particular laboratories. Periodic inspections of all laboratories are carried out with the objective of ensuring compliance.

The Petroleum Engineering Department has a full-time Laboratory Director who maintains, inventories, and orders equipment for the labs.

Safety, Health and Industrial Hygiene Department

Facilities assigned to the SH/IH Department are adequate to accomplish the department's goals and objectives for both undergraduate and graduate education in safety, applied health and industrial hygiene.

Adequate office space is provided for faculty and staff. Three laboratories and one teaching laboratory space are assigned to the department. This space is adequate to accomplish its administrative, teaching and research activities.

Offices are appropriately furnished. Laboratories include working benches, stools or permanently mounted chairs, overheads, whiteboards, TV/VCR, sinks and other sample/media preparation areas. A balance room is adjacent to the laboratories. Access is also provided to a microbiological/water/soil preparation laboratory, including incubators, dessicators, etc.

Facilities are well maintained and very clean.

Adequate laboratory equipment, computers, software and library resources are available on campus to support the department's educational and research efforts. Availability of duplicate pieces of equipment or a highly specialized piece is also available on a need basis through industrial contacts or alumni.

A five-year laboratory acquisition and maintenance plan is in place for the SH/IH

Department. The Laboratory Director annually updates a complete inventory, including precisely where each instrument is located. Procedures are in place to control access to equipment and to sign out a piece for a project or assignment.

Each semester equipment warranting immediate maintenance or factory calibration is sent to the appropriate manufacturer. At the end of an academic year, all laboratory equipment and supplies are inventoried and operational status determined. As appropriate, maintenance is completed.

College of Humanities, Social Sciences and Information Technology

Business and Information Technology and Liberal Studies Departments,

Institutional facilities are adequate. Business courses are held in classrooms all over campus and larger courses are moved to larger classrooms as necessary. The library has adequate business books and periodicals.

The Business Information Technology Department has 6 offices, one for each full time faculty member, a computer lab for business students, and a spare office, which is used for part-time faculty, students use, and departmental meetings. The learning center has business tutors for assistance with business related courses.

Each department faculty member has their own computer, and new computers are regularly purchased for faculty (on a three to four-year basis). The department also has two laptop computers that the faculty can take home to continue their work. Students are also allowed to use the laptops for class presentations. Each classroom building on campus has portable projectors that attach to laptops for classroom presentations. Secretaries are responsible for the projectors.

The college of HSSIT has a Computer Coordinator that is responsible for ensuring efficient operation of faculty computers, computers in the business lab and computers in a large lab in Engineering Hall. The coordinator's responsibilities include, but are not limited to: regular maintenance of computers, installation of new software, designing new systems for faculty, installation of new systems, trouble shooting, and minor network maintenance.

Equipment in the classroom (overhead projectors, etc.) is under the supervision of departmental secretaries. The secretaries are responsible for regular maintenance of equipment within assigned classrooms (replace bulbs in overheads, etc.)

Institutional facilities are adequately maintained to ensure the continued quality and safety necessary to support the educational programs.

Professional and Technical Communication Department

In general, classroom and lab facilities and their furnishings are adequate. Recent upgrading of classrooms and labs in Main and Engineering Halls are noted improvements for this department since many departmental courses are taught in Main and Engineering classrooms. Psychology classes (Tech's psychology courses are resident in PTC.), which have the largest enrollment of any campus courses, are taught in the Auditorium. Currently, plans are underway to upgrade the Auditorium as a teaching/learning facility.

Quality of classroom, lab, and office maintenance and cleanliness varies, as it depends largely on the competence and availability of the Physical Plant staff. Presently it is adequate.

As the relevance and quality of work of students enrolled in the PTC program correlates closely with the most current electronic equipment, procuring and upgrading high quality equipment is a constant concern and challenge.

College of Mathematics and Sciences

Biology Department

The institution's facilities are sufficient to achieve the program's goals. However the library holding of biological literature, particularly journals could be strengthened. The computer facilities are good, when compared to other Montana institutions. Currently there are three full multimedia classrooms on campus and a fourth is scheduled for completion this summer. Two of these are in the Chemistry/Biology Building. There is one distance learning facilities on campus.

The newly renovated Chemistry/Biology Building has 14 faculty offices, which are remodeled and refurnished. These offices accommodate both chemistry and biology faculty. Biologists inhabit seven of these offices. The building has student friendly areas where students can work in study groups, and one research laboratory dedicated to their use. Biology has use of two very modern teaching/research laboratories. One lab is set up to accommodate ecological and taxonomic research and the other is a well-equipped microbiology lab. These labs service faculty research needs, student research activities, and aid in teaching small groups of students. Two modern, well ventilated labs equipped with new hoods, student benches, laminar flow hoods, a cadaver room, incubators, etc. are used to teach undergraduate cell biology, microbiology and anatomy-physiology laboratory classes. The Biological Sciences Department has use of the greenhouse for research and growing classroom materials.

The management, maintenance and operation of the institutional facilities are adequate and satisfactory with one exception, maintenance of the Greenhouse is poor.

The items mentioned above are adequate. A capitol equipment fund allows the department to purchase necessary equipment. Equipment is available and stored in the prep room of the laboratories.

The operating budget needs to be increased so that the microscopes can be serviced on a regular basis. All equipment is inventoried.

Chemistry and Geochemistry Department

The Department of Chemistry and Geochemistry has just moved into the extensively renovated Chemistry/Biology Building. This building has modern offices, classrooms, and well-ventilated laboratories. At the start of the Fall 2000 semester, the Chemistry/Biology Building will have two fully equipped multimedia classrooms and a third that will have essential multimedia functionality. Guided and encouraged by discussions with the campus safety officer, the chemistry program has developed and instituted a number of procedures that will insure the safety of those pursuing the program's associated activities. Access to computers and networks are excellent for both students and faculty. The assigning of a computer service technician to each of the schools and colleges has greatly has vastly improved service in this area.

Computer Science Department

Faculty and staff office space is adequate at the present time. The Computer Science Department is in need of an additional computer lab that is not used by classes and is available to students most hours of the day.

Keeping the computers in labs used for classrooms operating is becoming a more constant problem. Labs are scheduled with 35 people in a lab with 30 computers, figuring that about that many people will be absent each day. Often there are only 26 or 27 computers operating. Upgrades are handled well in the classroom labs, but not in the Museum cluster that is used by most students in an out-of-class mode.

At the present time library resources are adequate.

Mathematics Department

The Department of Mathematics is currently located in the Museum Building. This building has adequate offices for the faculty, a single classroom, and a well-maintained computer laboratory. Access to computers and networks is excellent for both students and faculty. The assigning of a computer service technician to each of the schools and colleges has vastly improved service in this area.

College of Technology

Business Department

A large number of classes in the Business Department at the College of Technology require the use of computers and the equipment that goes along with the computers. The Business Department continually strives to upgrade not only the hardware, but also software, whenever the need arises and if the cost is within operational budget constraints. The department has a computer upgrade plan, which has insured up-to-date equipment in the instructional labs.

In the Fall of 1999 a full-time computer specialist was hired to service the computer labs at the College of Technology and this has helped not only students, but also the faculty and staff.

Generally speaking, the budget has been sufficient to accommodate the needs of the department. The department has been able to purchase new computers and other equipment for the computer labs and hopes to continue to do so in the future to retain quality programming.

Health Department

The Health Department has three classrooms, three offices, storage room, and three labs. The labs are adequate in size and well equipped with beds, equipment, sinks, etc. The department has professional magazines, books, computers, and audio-visual equipment available to the students.

Management, maintenance, and operation of the institutional facility are the responsibility of the College of Technology's physical facility personnel.

Academic labs are open and available to all Montana Tech students at both the north and south campus. Labs are financially supported through a student informational technology fee. A computer committee is responsible for developing the plan for computer access, upgrades, and location. Each building is assigned a computer support person who is responsible for hardware, software, and maintenance. Nursing software and equipment needs are identified by the department and purchased through the operational budget.

Trades and Technical Department

There are five academic programs that make up the Trades and Technical Department: Automotive Technology, Combination Welding, Drafting Technology, Engineering Technology and GIS/GPS Technology. The Combination Welding program is currently a one-year program. At the present time, the Montana Board of Regents is reviewing a submission to convert the Combination Welding program to an AAS degree in Metals Fabrication. Since the programs in the Trades and Technical Department are so diverse,

the current operating budget is minimally adequate to service all the programs. The problem with five different programs is that something purchased or repaired for one program does not benefit any other program. The south campus was constructed 15 years ago. Much of the equipment was purchased new when the building was constructed and is now coming into the repair stages, which is consuming much of the budget.

The instructional computers for the department meet the needs of the students at the present time. The drafting and the GIS/GPS programs currently have site licenses for their respective software needs. The rooms that the department uses are in good shape, with one currently remodeled. An increased demand on Computer Aided Drafting (CAD) required a larger room. A switch of the bookstore and the CAD lab was done over the summer of 1999. By increasing the CAD lab from 15 instructional computers to 20, a decrease in required sections was achieved. The cost of the remodel was an estimated $2,200, while the savings by reducing the number of sections are estimated to be $6,500 for FY00. With the increasing use of the computers in the technical area, an additional lab will need to be considered in the next 3 to 5 years.

Graduate Studies and Research

The campus has recently completed two major renovation projects that have added approximately 15,000 square feet of high quality research space to the campus. This should be sufficient to accommodate campus research activities for the next 5 years at the current rate of growth. The campus currently has a Long-Range Building Plan to construct a 100,000 square foot research complex, the Natural Resource Research Facility. When this comes online, it will provide research space adequate to accommodate an additional 5 to 10 years of growth.

Challenges remain to secure sufficient office space for graduate students. The current space is adequate, but planned growth in the graduate school to 200 students will make this an issue.

The research space on campus is of mixed quality. Newest facilities are start-of-the-art with excellent equipment. Other space is older, but in general adequate for the function. Research oriented departments have been systematically working to upgrade their laboratory space as funds allow. Major deficiencies still exist in Main Hall for the Montana Bureau of Mines and Geology (MBMG).

State support for research facility equipment remains non-existent. However, faculty and staff efforts to obtain extramural funding for equipment continues to be very successful and has helped to meet the growing need for start-of-the-art research equipment. In FY99, in excess of $180,000 was spent on research equipment from grants and contracts. Private donations of research equipment valued at $300,000 were received by the Montana Tech Foundation and transferred to the University. In FY2000 spending for equipment will increase slightly, and will be augmented by a major grant from NSF for $200,000.

The campus will offer distance delivered programs via the Internet and via remote live classrooms.

The current Masters in Project Engineering and Management program will be converted to WEB based deliver through a collaborative program with Montana State University-Bozemen and E-College of Denver in AY2000/2002. E-College will host the site and both campuses will work with E-College to insure the distance delivery infrastructure is adequate to meet the needs of both the students and the faculty.

The Masters of Science Degree in Petroleum Engineering will be delivered in Jakarta, Indonesia, by Montana Tech faculty through an agreement with Barata Nusatama Prima, Indonesia in Fall of 2000. Montana Tech will develop standards for classroom facilities, on site libraries and the on site coordinators that will be required for the program.

The Vice Chancellor of Research and Graduate Studies is responsible for insuring that all education standards, including infrastructure requirements, are achieved for graduate programs offered by Montana Tech. He/she works with the cognizant department heads to evaluate the needs for off site programs and works with the departments or collaborating organizations to insure that all required funds are identified and that all responsibilities and authorities are assigned to the appropriate members of the collaboration.

SECURITY, ACCESS FOR PERSONS WITH DISABILITIES AND CAMPUS SCHEDULING

PHYSICAL PLANT

The Physical Plant is responsible for the maintenance and improvement of all campus facilities and grounds. Safety and security, parking, and the campus telephone operator are included within the Physical Plant. Buildings are patrolled and locked per Security Basic Operations. Normal lock-up begins at 8:00 p.m. Requests to remain in, or gain entry into a locked or secured area require students to state their name at the time of request (especially if by phone), produce their student picture ID, and have verifiable (preferably in writing) permission from faculty or staff personnel to access area.

A parking permit is required for on-campus parking. The cost of the decals is $40 per year for the first vehicle and $10 for additional vehicles owned by faculty, staff and students or their immediate family. Residence Hall students have different decals and a reserved lot for their cars. A time-limited visitor's lot is located east of the Mining-Geology Building and on the Library's west side. Faculty, staff and students are not allowed to park in visitors' parking. Spaces for the handicapped are located around campus. A small Mineral Museum visitor's lot is located west of the Chemistry-Biology Building for Mineral Museum visitors from 8:00a.m. -5:00p.m. daily. A copy of the Parking Regulations and map is distributed to students with each registration packet.

South campus students must also purchase a Montana Tech decal. Decals may be purchased at the College of Technology business office.

Parking tickets are issued on campus, courtesy of Campus Security. Officers check the lots frequently and don't hesitate to issue tickets to cars without decals, in visitor or handicapped areas (without permits), or in the yellow-painted "No Parking" areas. The fine is $10 and must be paid within 30 days. If not paid in 30 days, there is an additional $5 late fee added to the fine. The fine for parking in a space reserved for the handicapped is $100. It must also be paid within 30 days, or the late fee will be added.

Campus Security Officers play a wide-ranging role at Tech, patrolling the campus and assisting students and staff whenever and in whatever way they can. Officers provide such services as investigation of thefts, handling of alcohol-related or other behavior problems on campus, parking control, and crowd control at games and concerts. Officers are trained in law enforcement, crisis management, and advanced first aid.

Montana Tech is not responsible for damage or theft of students' belongings and property that students may bring on to the campus. Students are urged to provide adequate security for their possessions and are encouraged to carry appropriate personal property insurance. Questions or issues related to this policy should be directed to the Campus Tort Claims Officer. All thefts are reported to Campus Security.

INSTITUTIONAL SECURITY POLICIES

Criminal action or emergencies are to be reported to Campus Security and/or the Dean of Students. Policy relating to procedures and facilities for students and others to report criminal actions or other emergencies on campus is published in the Student Handbook.

Policy concerning security of and access to campus facilities is published in the Student Handbook under Physical Plant/Campus Facilities. The Residence Hall Handbook addresses specific security and access related to campus living.

Montana Tech contracts for campus security services. Contracted security officers provide such services as investigation of thefts, handling of alcohol-related or other behavior problems on campus, parking control, and crowd control at games and concerts. Officers are trained in law enforcement, crisis management and advanced first aid. Campus security does not have the same enforcement authority associated with police; however, campus security officers work closely with Butte-Silver Bow police. Policy and practice require accurate and prompt reporting to the appropriate police agencies.

Students and employees are informed about campus security procedures and encouraged to be responsible for their own security and the security of others through the Student, Faculty/Staff, and Residence Hall Handbook publications.

Crime prevention has been incorporated into the ongoing campus programming. Safety and security topics and programs are incorporated into orientation & Residence Hall forums and addressed throughout the semester.

Montana Tech does not have recognized off-campus student organizations, and it is not Montana Tech's practice to monitor off-campus activities.

ACCESS FOR PERSONS WITH DISABILITIES

All persons with disabilities have the right to participate fully and equally in the programs and services of Montana Tech. Montana Tech is committed to ensuring full and equal participation by eliminating barriers and making the appropriate accommodations that allow persons with disabilities to have equal opportunity in all aspects of campus life.

Montana Tech is committed to the law and its own values that require all programs at the institution to be readily accessible to and usable by people with disabilities in the most integrated setting appropriate to the needs of the individual and to the maximum extent reasonably possible. Persons who are included in this consideration are students, faculty, staff, prospective students and all other guests and visitors to the campus.

Montana Tech is not a barrier-free institution, but reasonable accommodations will be made for persons with disabilities to have access to facilities and programs. Montana Tech further details its institutional responsibility and commitment in its ADA Self-Evaluation and Transition Plan.

The College has a standing campus "Access Committee" of faculty, students, and staff that advises the Chancellor and the Vice Chancellors on matters related to access and services for persons with disabilities. The Dean of Students chairs this committee. All are welcome to join this committee, and persons with disabilities are especially welcome. It is the ACCESS Committee that conducted the ADA Self-Evaluation and Transition Plan (action plan for remediation of campus physical barriers and program access) The committee meets regularly during the year to deal with current issues and to assess progress on the Transition Plan items.

The AA/EEO Officer and other administrators identified in the Student Handbook respond to complaints based on ADA. Complaints are adjudicated and resolved in accord with the requirements of state and federal law and in accord with institution policy. Regardless of disability, students at Montana Tech must be able to complete the essential requirements of any program with or without a reasonable accommodation to a disability.

All faculty and staff at Montana Tech are responsible for assuring access by providing reasonable accommodations. New and prospective students find the Admissions and Registration Office staff, as well as academic advisors, to be particularly helpful. All persons with disabilities are free to ask questions or make requests of these staff members and

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faculty for accommodation throughout the application, admissions, and registration process. Students with mobility impairments need to contact the Registrar so that he or she can assure an accessible classroom.

The primary campus contact and resource person for students with disabilities is the Dean of Students. The Dean of Student's office is located in Engineering Hall, Room 102. Any persons with a disability needing information or assistance should contact the Dean of Student's office. If assistance is required, the Dean of Students serves as a general resource for all students who might need help and assistance. At the south campus, the Counselor/Career Development Coordinator can be contacted for these purposes. However, the Dean of Students is available to assist all Tech students from both campuses.

The following types of services are offered to students with disabilities: responding to requests for accommodation, assistance in working with faculty members, classroom accessibility assistance, text accommodation in concert with instructors, assistive technology such as special computer equipment for persons with hearing and sight disabilities. TTY's, closed captioned equipment, qualified interpreter services, note taking, counseling, disability evaluation and testing, career services, and requests for assistance with Montana Vocational Rehabilitation are available. Availability of services is subject to a student's eligibility for these and any other services.

CAMPUS SCHEDULING OFFICE

The Scheduling Office schedules rooms and other facilities on campus for meetings and events for the public and the campus community. Arrangements may be made for banquet and catering services. The office also arranges for various institution personnel and services that may be needed to facilitate any program and event, including conference services and summer guest housing.

COMPUTERS, EQUIPMENT AND MATERIALS

CAMPUS COMPUTING RESOURCE

Montana Tech has three main instructional computer labs at the north campus and four main instructional labs at the south campus. Each lab is equipped with up to 30 computers. Students are encouraged to use these labs for word processing, business applications, engineering design projects, and data analysis. These labs are available for general use during non-scheduled class time. Scheduled instructional class times are posted outside each lab. In addition to the three main computer labs, many departments maintain a computer cluster for student use. These clusters are generally not scheduled for instruction but are designated for student use only. Departmental labs have specialized software specific to their area of instruction in addition to the standard software in the

main instructional labs. All computers are networked providing Internet access, full e-mail access, collaborative project designs, and information and resource sharing.

All students are assigned a user account and e-mail mailbox prior to the close of registration. This account remains with them throughout their academic career. Help regarding e-mail and computer use is available from each college's Computer Coordinator. Each college has a designated Computer Coordinator to assist and coordinate computer activities. Montana Tech's Acceptable Use Policy governs computer use and is binding to all those who use campus facilities. While using the Montana Tech computer system, one is bound at all times to adhere to this policy. A copy of the Acceptable Network use Policy will be available as an exhibit.

Montana Tech's microcomputer teaching labs are on a three-year replacement schedule. Machines that are taken from these labs are used in auxiliary non-teaching labs to replace and upgrade older less powerful machines. Faculty and staff computers purchased on a four-year cycle. Twenty-five percent of the faculty and staff receive new computers each year.

A Computer Coordinator who is responsible for hardware and software troubleshooting in the computer labs and for faculty and staff represents each College on campus. These coordinators are responsible for hardware and software upgrades and replacements as needed.

MONTANA TECH COMPUTER LABS (GENERAL PURPOSE)

Engineering 104 Computer Lab

Engineering 104 Computer Lab is a multipurpose teaching lab with 26 machines on a local area network. The laboratory is used for both instruction and independent student work. Courses taught in this lab include English Composition, Introduction to Computer Science, Computer Software, Technical Communications, Business and Professional Writing, and Scientific & Technical Writing.

Equipment and Software:

Hardware:

26 Pentium Pro 200 computers – 2 HP V Laser Printers

Software:

Windows/95 Operating System
MS OFFICE 97 incorporating:
Access, Excel, Word, PowerPoint
Publisher 98
Project
Java ++ 6.0
C++
Visual Basic 5
Front Page 98

Sun Java
Corel Draw 8
WordPerfect 8
Dream 3D
Ventura 8
Logic Coach
Mini-Tab 12
Peach Tree
Cougar Mountain
Saunders Chemistry Interactive

Additional Software Includes:

McAfee Virus Scan
INS VAX
Library Card Catalog + Digger.scr
Win Zip
Acrobat Reader

ELC 322 Computer Lab

ELC 322 Computer Lab is a non-teaching computer lab. There are eight machines in this lab, and they are on a local area network with a laser printer. ELC 322 is a general purpose lab and is not scheduled for classes.

Hardware:

8 Pentium /133 Computers – 1 HP Laser IV Printer

Software:

Windows/95 Operating System
MS OFFICE 97 incorporating:
Access, Excel, Word, PowerPoint
Publisher 98
Project
Java ++ 6.0
C++
Visual Basic 5
Front Page 98
Sun Java
Corel Draw 8
WordPerfect 8
Dream 3D
Ventura 8
Logic Coach
Mini-Tab 12
Peach Tree
Cougar Mountain
Saunders Chemistry Interactive

Additional Software Includes:

McAfee Virus Scan
INS VAX

Library Card Catalog + Digger.scr
Win Zip
Acrobat Reader

Engineering 204 Computer Lab

Engineering 204 Computer Lab is a multipurpose teaching lab with 30 machines. The laboratory is used for both instruction and independent student work. Courses taught in this lab include English Composition, upper-level Computer Science courses, Computer Software, Technical Communications, Business and Professional Writing and Scientific, & Technical Writing.

Equipment and Software:

Hardware:

30 Pentium 500 PII PC's
2 HP 4000 Printers

Software:

Windows 98
Outlook 98
Office Pro 97
Java ++ 6.0
Visual C++ 6.0
Maple
Minitab
Visual Basic 6.0
Front Page 98
Sun Java
McAfee Virus Scan
INS VAX
Acrobat Reader

Museum Lab

The Museum Computer Lab is located on the first floor of the Museum Building. It is a non-scheduled computer lab consisting of 32 machines and two laser printers. Three UNIX workstations, 1 printer, and 4 PC have been set aside for use by the upper-level computer science students. The UNIX workstations are also used to teach UNIX and C classes.

Equipment and Software:

Museum Cluster:

Hardware:

8 GLI P90 PC's
6 Packard Bell P300 PC's
3 Micron P166 PC's
2 Micron Pro PC's
2 Micron P200 PC's
4 Dell P90 PC's
2 HP 4000 Laser Printers

Software:

Windows 98

Windows 95
Outlook 98
Office Pro 97
Java ++ 6.0
Visual C++ 6.0
Maple
Minitab
Visual Basic 6.0
Front Page 98
Sun Java
McAfee Virus Scan
INS VAX
Acrobat Reader
Sanders Interactive Chemistry

Museum 213 Lab

Hardware:

1 DEC Alpha workstation
1 SUN Ultra workstation
1 DEC Alpha Clone workstation
4 Micron P333 PC's
1 HP 4 Laser Printer

Software:

UNIX on the Alpha's and the Ultra
Same software as Museum Cluster on the 4 Microns

MUSEUM 101

Server:

Micron Dual P266's PC
Windows NT
Serves labs in the Museum Building as well as Math and Computer Science Faculty and Staff

CB 001

CB 001 is located in the Chemistry/Biology Building and has 12 machines and a laser printer. These machines are used by Chemistry students for labs and homework.

Hardware:

12 DTL P200 PC's
1 HP 5 Laser Printer

Software:

Windows 98
Outlook 98
Office Pro 97
Labworks
McAfee Virus Scan
INS VAX

Acrobat Reader
Sanders Interactive Chemistry

CB 312

CB 312 is located in the Chemistry/Biology Building and has 8 machines. Chemistry students use these PC's for labs and homework.

Hardware:

8 P90 PC's

Software:

Windows 98
Outlook 98
Office Pro 97
Labworks
McAfee Virus Scan
INS VAX
Acrobat Reader
Sanders Interactive Chemistry

CB 302

CB 302 is located in the Chemistry/Biology Building and has 4 machines and a laser printer. These machines are used by Chemistry students for labs and work after hours.

Hardware:

4 DTC P200 PC's
1 HP II Printer

Software:

Windows 98
Outlook 98
Office Pro 97
Labworks
McAfee Virus Scan
INS VAX
Acrobat Reader
Sanders Interactive Chemistry

CB 221

Server:

P200 PC
Windows NT
Serves labs in the Chemistry/Biology Building as well as Chemistry/Biology Faculty and Staff

CB 015

CB 015 is located in the Chemistry/Biology Building and has 4 machines. These machines are used by Biology students during labs and for work after hours.

Hardware:

2 P60 PC's
2 486 DX2 PC's

3 Spectrometers

Software:

Windows 98
Outlook 98
Office Pro 97
Spectrometer
McAfee Virus Scan
INS VAX
Acrobat Reader

CB 207

CB 207 is located in the Chemistry/Biology Building and has 2 machines and 1 printer. One machine is used by the students to scan photos, produce slides, and to do homework. The other PC is used to view images produced by a microscope.

Hardware:

1 P233 PC
1 P100 PC
1 Nikon Cool Scanner
1 Polaroid Slide maker
1 IMAX flat bed scanner
1 Epson 740C color printer

Software:

Windows 98
Office Pro 97
Outlook 98
IMAX Scanner
Polaroid Slide maker
Nikon Scanner
McAfee Virus Scan
INS VAX
Acrobat Reader

Library computer lab

The Library Computer Lab has 9 machines and 1 laser printer on a local area network. The Library Lab is a general purpose lab and is not scheduled for classes.

Hardware: 9 Pentium 133 – 1 HP IV Printer

Software:

Windows/95 Operating System
Office Pro
Internet 4.01
McAfee Virus Scan
Library Card Catalog + Digger.Scr

Student union computer lab

The Student Union Building has one computer lab on the first floor. The lab consists of 9 machines and a laser printer on a local area network. This lab is a general purpose computer lab.

Hardware: 9 Pentium 133 – 1 HP IV Printer

Software: Windows/95 Operating System
Office Pro
Internet 4.01
McAfee Virus Scan
Library Card Catalog + Digger.Scr

South Campus

The student computer availability at the South Campus consists of six computer rooms, three with 25 seats, one having 20 seats, one having 18 seats, and the Learning Center/Library with 15 seats. Five of the computer rooms are scheduled for classes, but are open for general use outside of those times, from 7:00a.m. until 9:30p.m. week-days only. The Library is open between 8:00a.m. until 5:00p.m. week-days.

Academic software available in these rooms is relevant to the classes taught there and covers the following:

Microsoft Office 97
Visual Basic 6
Front Page 98
Publisher 98
Corel WordPerfect 8
Presentations 8
Novell WordPerfect 6.1
Informs
Glencoe Keyboarding
QuickBooks Pro
ESRI ArcView 3.1
MediSoft
NCLEX-PN
Beginning Nursing
AutoCad 2000

Hardware consists of:

Servers:

One Digital PRIORIS MX 6200 – the main DNS and Banner station
One Pentium 450MHz with 124Meg RAM and two 4GIG and one 9GIG hard drives – the instructional printer and data file station
One Pentium 200MHz with 64Meg RAM and one 4.5GIG hard drive – the administration print and data file station and back-up DNS

- Instructional rooms:

  25 PII 266MHz with 64Meg RAM and 4GIG hard drives
  25 Pentium 133 MHz with 32Meg RAM and 4GIG hard drives
  17 Pentium Pro 200MHz with 32Meg RAM and 2.5GIG hard drives

  8 Pentium 100MHz with 32Meg RAM and 1.2GIG hard drives
  20 PIII 450MHz with 128Meg RAM and 8GIG hard drives

  18 Pentium 100MHz with 32 RAM and 1.6 GIG hard drives
  5 PII 350MHz with 64Meg RAM and 4GIG hard drives
  5 Pentium Pro 233MHz with 64Meg RAM and 4GIG hard drives
  5 Pentium 166MHz with 16Meg RAM and 2GIG hard drives

- Printers:

  Each room is equipped with networked Laser Jet printers, consisting of three HP 4000N's, two HP8000's, and one each of the following: HP Laser Jet III, HP 5MXsi, HP 1600C, and Epson 800C. One room is equipped with both an HP600 and a HP 755CM plotter. All rooms may have network access to the two color printers for final project work.

- Scanners:

  There are four HP ScanJets available for use by all students.

Over recent years one teaching room at the south campus has been replaced with new computers every year. These machines are purchased from the Student Computer Fees budget. The machines taken from these rooms are used to replace and upgrade older less powerful machines in other positions for student use. Current policy for upgrading software follows the national business trend, giving students a sound background to enter into the workforce fully prepared to use the applications available.

The entire institution is using the Windows 98 Operating System, 2nd edition.

Faculty and staff computers are upgraded as is required, dependent on individual budgets, for them to operate their specific software needs. All are using Pentium 75 systems with 32Meg RAM and above. Beginning with the 1999-2000 academic year, faculty and staff will be on a four-year rotation for obtaining a new computer from institutional funds.

All stations at the south campus are networked, with internal and external access, in order to print, access data files, and for Internet. The network lay-out consists of one half of the building being Category 5 (twisted pair) cable, transmitting at 100Mb, and the other being 10Base-T (Coax) cable, transmitting at 10Mb. This part of the building is due for upgrade to 100Mb transmission next year. The north and south campuses are connected through a US West T1 telephone line for all necessary data and voice transfer.

INSTITUTION INVENTORY PLAN

Montana Tech has a perpetual fixed asset inventory system where the records are updated every time a fixed asset is purchased or disposed of, thus, requiring a physical inventory only once every two years. Personnel designated by the Property Coordinator take physical inventories. In no event does the custodian of the property records or the person to whom the fixed assets have been assigned exclusively control inventories.

The cost and acquisition date for fixed assets are entered into Banner as determined from the original cost records (purchase orders, claims, etc.). Because of the age of an item, and non-availability of records, it may be extremely difficult to determine these facts for certain items. In these cases an estimated cost and/or acquisition date must be used by applying the best resources available.

Present property records are utilized whenever possible to assist in locating fixed asset items. Personnel conducting the inventory record all data possible on a worksheet to be utilized in the preparation of Banner forms for individual fixed asset items. Inventory sheets may be utilized for the gathering of property data.

Upon location of individual property items and completion of Banner forms for fixed assets, equipment will be tagged with a tag number and a corresponding blue property tag. If the item can not be physically tagged, the property tag is kept on file with the inventory worksheet, which was used to originally enter the asset information into Banner.

Equipment is inspected during inventories to determine its condition and the appropriate condition code to be entered on the inventory listing. If the personnel conducting the inventory suspect that replacement or extensive repairs may be necessary, it is reported to the Property Coordinator.

The Department of Administration's, Property and Supply Bureau is contacted for proper procedures and instructions prior to disposition of any state property. The Department of Administration has exclusive power to sell, dispose of, authorize the sale of or other disposition of, all materials and supplies, service equipment, other personal property of every kind now owned by the State of Montana, but not needed or used by any state institution or by any department of state government.

HAZARDOUS MATERIALS MANAGEMENT

General

Montana Tech maintains a large inventory of chemicals on the north campus, and a small inventory on the south campus. The Environmental Health and Safety (EH&S) Coordinator oversees the management of the chemicals. The chemicals are stored and used by various departments, mainly for laboratory purposes. Flammable and corrosive chemicals are stored in appropriate cabinets, and other chemicals are stored on shelves

with a lip to prevent them from falling off the shelves. Both campuses also store and use a variety of janitorial supplies; however, these are not tracked through our chemical inventory system.

All other chemicals are managed through a chemical management system and tracked through a computer software program called ChIM (Chemical Inventory Management). Each department at Montana Tech has a Chemical Acquisition Manager (CAM) who is the "gatekeeper" for all chemical acquisitions. Everyone (faculty, staff, and students) must go through a CAM to acquire chemicals. The CAM has the following responsibilities when a user requests a chemical:

1. Check EPA's "p-list" to see if the material is an acutely hazardous material. If it is, the user is asked to consider using a less hazardous material if that is possible.
2. Check the campus chemical inventory to see if the material is already available on campus and if it is available to the person needing the chemical.
3. Request the purchase order number and order the chemical(s) requested.
4. Receive the chemical when it arrives, add the chemical to the campus inventory by placing a bar code sticker on the container, and enter all the pertinent information into the computer system.
5. Ensure that the material safety data sheet (MSDS) was received and distribute it to the appropriate person and the MSDS file or book.
6. Distribute the chemical to the user for proper handling and storage.
7. When a container is empty, remove the chemical from the computer inventory. The CAM must be given the bar code number from the container.
8. Make the appropriate changes in the computer if a chemical is redistributed to another person or department or disposed of as hazardous waste.

The ChIM program allows easy access to the entire chemical inventory. Campus, buildings, departments, or rooms can house the information. Chemicals can be looked up by bar code number or name. Currently, all CAMs and the Environmental Health and Safety Coordinator have access to the ChIM system. Limited access is granted to other individuals on an as-needed basis.

RADIOACTIVE MATERIALS

Montana Tech has a small inventory of radioactive chemicals and instruments that utilize radioactive sources. The EH&S Coordinator serves as the Radiation Safety Officer. The radioactive materials are stored in a room that has limited access; only two people have keys to the room. Employees who work with radioactive materials are required to wear radiation badges that are sent in for analysis every three months. All active sources used in instruments are leak-tested using a smear kit every six months.

HAZARDOUS WASTE

Montana Tech has a hazardous waste program managed by the EH&S Coordinator. When departments or individuals have waste to dispose of, EH&S is called, a Montana Tech internal manifest is completed, and the materials are transferred to the hazardous waste storage room located in the Chemistry/Biology Building. The materials are labeled as hazardous waste and are added to the inventory of hazardous waste. The containers are stored in cabinets appropriate for the waste until shipping time. The storage room maintains 10 air exchanges per hour for ventilation and is under negative pressure in the event of a chemical release or spill.

Montana Tech is registered with the State of Montana as a large quantity generator of hazardous waste. However, the only reason for that designation is because of occasional p-listed wastes that are generated. Only one kilogram (2.2 pounds) of p-listed wastes can be accumulated at any one time, so it doesn't take much to put Montana Tech into the large quantity generator status. Most months, however, Montana Tech is a conditionally exempt generator, which means that it generates less than 100 kilograms (220 pounds) of hazardous waste and less than one kilogram of acute or p-listed hazardous waste. Unless Montana Tech becomes a large quantity generator, it follows the requirements for a small quantity generator. As a small quantity generator, wastes must be shipped every 270 days. Large quantity generators must ship every 90 days. Montana Tech utilizes the services of a waste disposal company, ENSCO, Inc., located in Arkansas and California. The EH&S Coordinator does the physical packing of materials into drums, but ENSCO provides the "pack-on-paper" which sorts the inventory by category for packing and labeling purposes. ENSCO also provides the paperwork including the uniform hazardous waste manifest that is required for all hazardous waste shipments.

CHEMICAL EMERGENCY RESPONSE

Montana Tech is in the process of implementing a program called the Maxcom Chemical Safety and Spill Response System, which is a quick and easy way to respond to a chemical release or spill. All of the inventoried chemicals are categorized using a variety of health, safety and environmental factors. Each chemical is assigned a "Hazard Level Number" and placed into a "Safe Use" category. The Hazard Level Numbers are assigned the colors red, yellow, and green based on the hazardous nature of the material. "Red" chemicals may present significant short or long term effects to health or the environment. Extreme caution should be exercised when handling. "Yellow" chemicals may be harmful to health or the environment. Caution should be exercised when handling. "Green" substances pose little risk to health or the environment. However, direct contact should be avoided.

Each chemical is also assigned a Safe Use Guide Number. The Safe Use Guide is a quick reference for employees handling chemicals as well as first responders to a spill, leak or exposure. It contains information on the potential hazards, safety precautions, emergency

response for spills or leaks, and first aid. The safe use guide is broken down into the following categories:

1. Flammable and combustible liquids
2. Flammable compressed gases and aerosols
3. Lubricants and oils
4. Oxidizers
5. Acids and cleaners
6. Caustics and cleaners
7. Adhesives and sealers
8. Organic peroxides
9. Inert compressed gases
10. General use chemicals
11. Poisonous and toxic chemicals
12. Toxic compressed gases
13. Flammable solids
14. Explosives
15. Flammable/corrosive materials
16. Oxidizing gases
17. Air reactive materials/spontaneously combustible
18. Water reactive materials
19. Corrosive gases
20. Flammable/corrosive gases

Each chemical is assigned a color and a number. For example, a red "1" would indicate a highly flammable or explosive chemical. A green "3" would be a low hazard lubricant or oil. The "Maxcom stations," which will be distributed in buildings where chemicals are used, include a shelf containing a list of the categorized chemicals on the campus, MSDSs for that area, and two color-coded spill response kits. The Safe Use Guides instruct users, which color spill response kit to use.

The projected date to have this system up and running is May 2000.

PHYSICAL RESOURCES PLANNING

A standing board consists of the Chancellor, Vice-Chancellor for Academic Affairs and Research, Vice Chancellor for Administrative and Student Affairs, Vice-Chancellor for Research & Graduate Studies, Director of the Physical Plant and faculty, staff and students. Other members can be added for specific planning projects.

Montana Tech has extensively remodeled three building on the campus over the past three years; the Chemistry-Biology Building, the Mill Building and the Student Union Building. A 100-bed residence hall was also constructed within the same time frame. Table VIII-I contains Montana Tech's Long-Range Building Program (master plan) for the 2000-2001 biennium. Some of the items listed include all of The University of Montana campuses.

The University of Montana and the Governor's Long Range Building Programs are available for review in the document room.

Table VIII-I
Long-Range Building Program
2000-2001 Biennium

Project Number	Title	Page Number
Priority - 1	**Repair/Replacement - Major Utility Systems**	
2438	Heating Plant/Steam Distribution Repair/Upgrade	22-24
2231	Repair/Replacement HVAC system – Mining Geology Building	22-24
Priority – 2	**Renovation – Safety Systems – Disability Access**	
2201	Petroleum Building Elevator	25-27
2203	Main Hall Elevator	25-27
2202	Engineering Hall – Install Elevator	25-27
2204	Retro-Fit/Adaptation Existing Elevators (3)	25-27
2205	Access Routes/Pathways	25-27
2206	Sidewalks/Curb Cuts/Ramps/Railings	25-27
2207	Parking (existing/add)	25-27
2208	Building Entrances (doors/doorways)	25-27
2199	Signs/Directories	25-27
2200	Handrails (Stairs/Tiered Classrooms)	25-27
2209	Adaptations/relocation (Fire alarms & exiting/Tele/exit)	25-27
2210	Laboratory Adaptations (Fume, Hds/Lab Equip/Sinks/Etc.)	25-27
2211	Drinking Fountains	25-27
2212	Signage	25-27
2213	Emergency Evacuation Areas	25-27
2214	Transportation	25-27
2215	Telecommunication Display Devices	25-27
Priority – 3	**Renovation – Safety Systems**	
2439	Replace/Retro-fit Welding Lab Ventilation system	30
2223	Replace Fire Alarm System/Exit Emer. Lighting – Eng. Hall	31
2224	Replace Fire Alarm System/Exit Emer. Lighting – Main Hall	31
2225	Replace Fire Alarm System/Exit Emer. Lighting – Museum Bldg.	31
2240	Replace Fire Alarm System/Exit Emer. Lighting – Petroleum Bldg.	31
2241	Replace Fire Alarm System/Exit Emer. Lighting – S/E Bldg.	31
2250	Retrofit/Install Dust Collection/Ventilation Sys. – Shops	31
Priority – 6	**Repair/Replacement – Roofs**	
2218	Replace Roof Heating Plant	41
2443	Repair Clay Tile – Main Hall	41

Priority – 8	**Repair/Replacement – Envelope**	
2227	Ornamental terra-cotta Repair (tuck point) – Museum Bldg.	47
2226	Masonry Repair (tuck point, replace brick) – Petroleum Bldg.	47
Priority – 9	**New Construction Planning**	
2180	Petroleum Building Renovation	50
2263	New Construction – MT Bureau of Mines & Geology Bldg.	50
Priority – 10	Repair/Replacement Roadways	
2258	Street Repairs	53
2246	Curbs/Gutters/Sidewalks	53
2262	Lighting	53
Priority – 11	**Repair/Replacement – Envelope**	
2238	Replace Windows – Petroleum Bldg.	56
2230	Exterior Finishes (repair/paint) – Campus	56
2229	Repair/Restoration – Main Hall	56
2228	Repair Granite Steps – Main Hall	56
2248	Structural Integrity Study- Engineering Hall	56
2249	Subsidency Investigation – Library	56
Priority – 13	**Repair/Replacement – Mechanical Systems – HVAC**	
2232	Repair/Replace HVAC System – Petroleum Bldg.	62
2253	Install HVAC System – Museum Bldg.	62
2234	Upgrade/Extend HVAC System – Library	62
2240	Repair/Replace Steam & Condensate Mains – Main Hall	62
2241	Repair/Replace Basement Water/Sewer lines – Main Hall	62
Priority – 15	**Renovation – Petroleum Building**	
2264	Petroleum Building Renovations	68
Priority – 18	**New Construction – MBMG Building**	
2263	Montana Bureau of Mines & Geology Bldg.	77
Priority – 21	Renovation – Main Hall	
2265	Renovate/Restoration – Main Hall	86
Priority – 24	**Renovation – Engineering Hall**	
2266	Engineering Hall – Renovation	95
Priority – 27	New Construction – Hazardous Waste Facility	
2268	Hazardous Waste Facility	104
Priority – 33	Repair/Replacement – Envelope	
2236	Install/Repair Security Fencing – Campus	126
2237	Repair Tennis Courts	126

Priority – 34	Repair/Replacement – Utility Distribution Systems	
2235	Lawn/Landscaping Sprinkler Systems – Campus	129
Priority – 35	Repair/Replacement – Flooring	
2242	Recarpet – Library	132
2243	Recarpet – Main Hall	132
2244	Recarpet/Retile – Engineering Hall	132
2245	Recarpet/Retile – Petroleum Building	132
2244	Recarpet Circulation Areas – Science/Engineering Bldg.	132
Priority – 36	**Repair/Replacement – Exterior Site–Sidewalks & Roadways**	
2260	Parking Lots (repair)	135
2261	Parking Lot (new – off Park St.)	135
Priority – 37	Repair/Replacement – Foundations	
2271	Repair/Replace (south, east & west walls) – Greenhouse	138
2272	Repair Retaining Walls & Concrete Decks – M/B Bldg.	138
2247	Tunnel(s) Repair – Campus	138
Priority – 38	**Repair/Replacement – Safety Systems – Asbestos Removal**	
2445	Abate asbestos in crawl – spaces – S/E Bldg.	141
Priority – 41	Repair/Replacement – Electrical Systems	
2239	Campus Telecom Network – Internal Bldg. Wiring	151
2251	Replace Branch Circuits (Phase II) – Main Hall	151
2252	Replace Switch Gear, Sub Panels, Circuits – Eng. Hall	151
2253	Electrical Upgrade (add main circuit panel) – S/E Bldg.	151
2254	Replace Main & Distribution Panels – Petroleum Bldg.	151
Priority - 42	Movable Equipment and Furnishings	
2256	Classroom Desks & Seating – Campus	154
2257	Student work stations – Classrooms/Computer Labs	154
Priority – 49	Land Acquisition	
2269	New Building/Parking Lot Site – Adjacent Campus	175
	Spending Authority	
2447	Construct Chapel (nondenominational)	179

Much of the maintenance at Montana Tech is becoming deferred maintenance instead of preventive. Most of the funding that Montana Tech needs for the items in Table VIII-I is budgeted from the legislature. Unfortunately, the legislature has not seen higher education as its highest priority for funding and, as a result many of the buildings have fallen into deferred maintenance. These buildings that are in repair and remodel condition are some of the oldest buildings on campus, and have played a key role in the educational mission of Montana and Montana Tech for over a century. Montana Tech will strive to complete as much of the above program as possible per the available resources.

Montana Tech's LRBP consists mostly of repairs/replacement/renovations with some new construction planned. Table VIII-II lists buildings being planned and the planning stage:

Table VIII-II
New Construction

Building	Stage
Natural Resource Research Facility	Conceptual
Montana Bureau of Mines & Geology Bldg.	Conceptual
Kathy Lillis Chapel	Design

In the planning of the Natural Resource Research Facility and the Montana Bureau of Mines & Geology Building, some ideas are to combine them into one building.

At the present time Montana Tech has adequate physical resource to meet its mission and goals.

STANDARD EIGHT EXHIBITS

VIII-1	**Campus maps**
VIII-2	**Student Handbook** **a.** Acceptable Network use Policy pages 33 and 34
VIII-3	**ADA Self-Evaluation and Transition Plan**
VIII-4	**Sample of active inventory**
VIII-5	**Montana Tech Emergency Action Plan and forms**
VIII-6	**The University of Montana Long-Range Building Program**
VIII-7	**The Governor's Long-Range Building Program**
VIII-8	**Instructional Room Usage for Fall 1998**
VIII-9	**Instructional Room Usage for Spring 1999**
VIII-10	**Instructional Room Usage for Fall 1999**

STANDARD NINE
INSTITUTIONAL INTEGRITY

ETHICAL STANDARDS

Montana Tech of The University of Montana strives to maintain high ethical standards in all aspects of its management and operations. This includes all of its interactions with students, faculty, staff, and constituents. By the very nature of the institution, many members of Montana Tech's faculty are registered (licensed) professionals and subscribe to explicit and legally binding codes of ethical professional conduct. Student Affairs and Counseling subscribe to the ACPA-NASPA Standard of Ethics and the Business Office subscribes to the NACUBO-Business Office Code of Ethics.

Montana Tech has numerous policies, procedures, and publications governing the ethical and professional conduct of its administrators, faculty, staff, and students. Copies of these documents, which are updated periodically, will be provided as exhibits during the evaluation teams visit. Each is, however, summarized below:

Code of Ethics, Standards of Conduct for State Employees, Board of Regents Policy and Procedures Manual, Section 700. All state employees must abide by this policy. It governs the use of state property, management of state funds, conflicts of interest, acceptance of gifts, and use of public property for private business.

Purchasing Authority Agreement. The University is subject to specific bidding procedures when using public funds. These procedures are specifically outlined in the Purchasing Authority Agreement between the State and the University.

Consulting Services, Faculty and Staff Handbook, Section II-219. In compliance with Board of Regents Policy 401.1, all persons wishing to engage in outside consulting activities must request permission to do so. Permission for consulting will normally be granted only after all responsibilities to the campus, including instruction and research, are fulfilled.

Hiring Procedures, Faculty and Staff Handbook, Section V-501 and Section II-204. All searches and hiring decisions first and foremost seek to identify the most qualified candidate. All employees and applicants for employment are guaranteed equal opportunity.

Conflict of Interest and Financial Disclosure, Personnel Policies and Faculty and Staff Handbook, Section II- 220. The policies' intent is to enable University employees to recognize situations that my raise legal and ethical issues and ensure that such situations are properly reviewed and, if necessary, supervised or monitored in accordance with applicable laws and federal regulations.

Invention and Patent Policy, Board of Regents, Board of Regents Policy 401.2. The policy describes the rights and responsibilities of all University employees with respect to patentable inventions and discoveries.

Scientific and Scholarly Activity Misconduct Policy, Faculty and Staff Handbook. The policy outlines procedures to be used in the event allegations of misconduct are brought against researchers employed or enrolled at Montana Tech.

Faculty Code of Conduct, Faculty and Staff Handbook, Section II-203. Conflicts between the institution and the community, and within the institution itself must not be allowed to interfere with the effective operation of the institution. Members of the faculty, regardless of their rank, are expected to nurture, protect, and exercise academic freedom.

Student Standards, Codes of Conduct, Student Handbook. Every fall, each student is furnished a Student Handbook that lists campus regulations governing their conduct; including discrimination, alcoholic beverages, drugs, and distribution of literature; as well as the process for filing a complaint. The handbooks are readily available at Student Services. The codes of conduct are also published in the catalog. The following topics pertaining to institutional integrity are specifically included in the handbook:

College Community Expectations Program. Any individual within the college community who feels that his or her rights have been infringed upon by student conduct may process a referral to the College Community Expectations Program.

Academic Dishonesty. Enrollment at Montana Tech is an optional and voluntary entrance into an academic community. Therefore, a student voluntarily assumes obligations of academic performance and personal behavior required by Montana Tech. These obligations are more specific than those imposed on all citizens by civil and criminal laws. Any student who feels that they received unfair treatment in regards to cheating should consult with the Vice Chancellor for Academic Affairs, who is also the chairman for the Academic Standards Committee.

Student Right to Privacy. In accordance with FERPA, student academic records will be kept confidential. Directory information will be kept confidential at the student's request.

Montana Tech Minority and Gender Equity Achievement Plan. The Montana University System and Montana Tech recognize that there are various groups who are underrepresented in educational programs and in employment. A specific plan has been formulated and implemented to aid in moving toward correcting these inequities.

Affirmative Action/EEO and Americans with Disabilities Act. Montana Tech is an affirmative action, equal opportunity organization and provides reasonable accommodations to persons with disabilities.

Software/Internet/Network Use, Acceptable Network Use Policy and Board of Regents Policy 1901.1 Software licensing and its use are governed by computer lab managers and Computer Network Services. Board of Regents Policy 1901.1 covers the unauthorized copying and use of

computer software. Specifically, Board policy prohibits making or using any unauthorized copy or copies of computer software or related documentation. Any type of activity that interferes with the ability of Montana Tech's email system/network to fulfill its mission in support of official campus instruction and research is prohibited. This information is given to an individual when they receive an email account and is posted electronically. A computer/software use policy, in addition to the Board of Regents policy, is in the process of being updated by the Telecommunications Committee (1/2000).

Copyright Policy, Faculty and Staff Handbook Section II-218 and Board of Regents Policy 401.3. Employees' work on sponsored research projects are treated in accordance with the agreement negotiated with the sponsor. In the absence of such agreement, such works shall be regulated by the individual employment contract or in a separate document countersigned by the employee. Questions concerning copyrights of library resources are directed to the reference librarian and posted policy.

REGULAR EVALUATION OF POLICIES, PROCEDURES, AND PUBLICATIONS

Campus committees and the Chancellor's Cabinet are the main bodies which periodically review Montana Tech's policies, procedures, and publications to ensure their continuity with its mission and goals and their compliance with federal and state laws and regulations, as well as Board of Regents and University of Montana policies and procedures. Suggested changes to policy, procedures, and publications are usually drafted by standing or ad hoc committees, reviewed by the ASMT, Deans Council, Administrative and Student Affairs Directors Council, Faculty Senate and the general faculty, and presented to the Chancellor for approval and implementation. Representative standing committees are:

Academic Freedom and Tenure Committee
Academic Standards Committee
Associated Students of Montana Tech (ASMT) Senate
Curriculum Committee
Faculty Advisory Committee for College Relations and Marketing
Faculty Advisory to Career Services
Faculty Senate
Graduate Council
Grievance Committee
Research Advisory Committee
Research Advisory Council
Safety Committee
Staff Senate
Student Disciplinary Appeals Committee

As new Montana Tech policies are added or existing policies modified, Montana Tech regularly updates these new policies in its primary marketing and resource publications. The primary policy publications for the campus include the College Catalog, Faculty and Staff Handbook,

Student Handbook, and the campus home page. As policies are added or modified, the publications are updated with the latest additions. All primary campus publications are updated on an annual basis. Web-based publications, such as the catalog, are updated on an on-going basis to reflect changes.

ACCURATE REPRESENTATION

To ensure that the college is representing itself in a clear, concise, accurate, and consistent manner, the Registrar's Office and the Office of College Relations and Marketing work cooperatively on the development and oversight of all major campus publications and communications (i.e., recruitment publications, catalog, advertising, campus video, and public and media relations). Since all primary campus publications are developed and administered through these offices, the college is able to maintain accuracy and consistency in its publications and public communications. All publications and communications that will be directed to external constituencies go through a rigorous process of review and editing to assure integrity and uniformity. Formal college statements are reviewed by the college's spokesperson, the Director of College Relations and Marketing, prior to release to the media, after review by the Chancellor or Vice Chancellors prior to release.

Montana Tech has also recently adopted a graphic standard to ensure that the college's image is accurately and consistently reflected in all external messaging. Adopted by the Chancellor's Cabinet, this standard is administered by the Office of College Relations and Marketing and enforced through the Chancellor's Cabinet. The standard will become fully implemented in FY00.

CONFLICT OF INTEREST POLICY

Montana Tech adheres to both the State Officers/Employees (2-2-121 M.C.A.) Rules of Conduct, as well as those set forth in Montana Tech's Faculty and Staff Handbook, Section II-220. The following constitute conflicts of interest for state employees and are to be avoided and discouraged:

a.) use state time, facilities or equipment for his/her private business purposes;
b.) engage in a substantial financial transaction for his/her private business purposes with a person whom he/she inspects or supervises in the course of his/her official duties;

c.) assist any person for a fee or other compensation in obtaining a contract, claim, license, or other economic benefit from his/her agency;
d.) assist any person for a contingent fee in obtaining a contract, claim, license, or other economic benefit from any state agency; or
e.) perform an official act directly and substantially affecting to its economic benefit a business or other undertaking in which he/she either has a substantial financial interest or is engaged as counsel, consultant, representative or agent.

The following constitute conflicts of interest for Montana Tech employees and are to be avoided and discouraged:

a.) No employee shall accept additional compensation for the same services that are part of the employee's assigned duties.

b.) No faculty member may receive compensation for tutoring students of the institution. A teaching assistant may not receive extra compensation for tutoring students in any section of a course in which he/she has any responsibility.

c.) Any employee who recommends or approves a purchase, and who has any financial interest in the firm involved in the purchase, shall make this fact known at the time. This requirement does not include textbook adoptions where the faculty member is clearly identified as the author or editor of the book in question.

d.) Any employee who recommends or approves a personnel action, and who has any financial interest or business association with the person who is the object of action, shall make this fact known at the time.

e.) No employee may use or distribute information from unpublished institutional research for the benefit of a consulting activity or a private client.

f.) An employee may act in a supervisory relationship with the same student or staff member within the institution and in an external organization, but the work cannot be done during the normal workday of his/her contract period.

Montana Tech's Conflict of Interest statement for Contracts and Grants can be found in the PI Handbook in Appendix D.

COMMITMENT TO THE FREE PURSUIT OF KNOWLEDGE

Montana Tech's Academic Freedom Policy is published in the Faculty and Staff Handbook, Section II-202. This policy, based on that portion of the 1940 Statement of Principles on Academic Freedom and Tenure of the American Association of University Professors endorsed by the Board of Regents (Policy302), is as follows:

> The teacher is entitled to full freedom in research and in the publication of results, subject to the adequate performance of other academic duties; but research for pecuniary return should be based upon an understanding with the authorities of the institution.
>
> The teacher is entitled to freedom in the classroom in discussing the subject, but should be careful not to introduce controversial matter which has no relation to the subject. Limitations of academic freedom because of religious or other aims of the institution should be clearly stated in writing at the time of appointment.
>
> The college or university teacher is a citizen, a member of a learned profession, and an officer of an educational institution. When he/she speaks or writes as a citizen, he/she should be free from institutional censorship or discipline, but his/her special position in the community imposes special obligations. As a person of learning and an educational officer, he/she should remember that the public may judge his/her profession and his/her institution by his/her utterances. Hence, he/she should at all times be accurate, should

exercise appropriate restraint, should show respect for the opinions of others, and should make every effort to indicate that he/she is not an institutional spokesperson.

The Board of Regents place particular emphasis on the last two paragraphs of the above statement, which relate the responsibilities as well as the privileges which members of the profession and professional organizations associate with this important concept of American life. This also applies to students, staff, and administrators as the entire academic community shares the values.

EXHIBITS

IX-1 Faculty and Staff Handbook
IX-2 Graphics Standards Manual
IX-3 Student Handbook
IX-4 BOR policies and procedures (www.montana.edu/wochelp/borpol)
IX-5 State of Montana Purchasing Policies
IX-6 Acceptable Network Use Policy
IX-7 Copies of printed and electronic promotional materials
IX-8 Copies of code of conduct, ethical behavior