Academic & Student Affairs
Committee Meeting

Hensler Auditorium, Applied Technology Building
Montana State University-Northern
Wednesday, May 31, 2006
1:00 – 4:30 p.m.

(Committee members: Committee Chair and Regent Lynn Hamilton, Regent Mike Foster, Regent Lila Taylor and Regent Heather O'Loughlin)

Note: The Board of Regents may take action on any item on the Committee agenda.

(Public comment is welcome during the meeting.)

a. Roll Call.
b. Review and adoption of the agenda.
c. Approval of the minutes from the March 1, 2006, meeting of the Committee. (pg. 341)
d. **Portion of the Meeting Devoted to Topics of Concern to Both Academic and Student Affairs Officers.**
    1. Discussion of the Board of Regents' Strategic Plan – David Gibson and Tyler Trevor. (pg. 345)
    2. Discussion of Distance Education – Tom Gibson. (pg. 350)
    3. Discussion of Emergency Preparedness – Lowell Goetting. (pg. 374)
    4. Discussion of Policy 940.29, tuition for post-baccalaureate students. (pg. 377)
e. **Portion of Meeting Devoted to Topics of Concern to Chief Academic Officers.**
    1. Level I memorandum. (pg. 378)
    2. Level II items. (pg. 448)
        a. --**Action: ITEM 130-301-R0306:** Certificates of Applied Science, Flathead Valley Community College. (pg. 450)
        b. --**Action: ITEM 130-2851-R0306:** A.A.S. degree in Radiologic Technology, MSU-Great Falls College of Technology. (pg. 452)
        c. --**Action: ITEM 130-2852-R0306:** Certificate of Practical Nursing, MSU-Great Falls College of Technology. (pg. 462)
        d. --**Action: ITEM 130-2804-R0306:** Civil Engineering Technology program in Great Falls, MSU-Northern. (pg. 471)
        e. --**Action: ITEM 130-1018-R0306:** Irish Studies minor, UM-Missoula. (pg. 481)
        f. --**Action: ITEM 130-1503-R0306:** Bachelor and Master's degree in Electrical Engineering, Montana Tech. (pg. 490)
    3. **--Action: ITEM 131-101-R0506:** Additional revisions to the model nursing curriculum. (pg. 515)
    4. Review the Scope of the University of Montana-Missoula Paleontology Center and an associated Fort Peck Field Station.

f. **Announcements.**
    1. Delay in Flathead Valley's LPN nursing program.
    2. Academic administrative changes at UM-Western.
g. Other business.
h. Public comment.
i. Close: Review assignments, meeting schedule and meeting's main points.

DRAFT Minutes of
THE ACADEMIC & STUDENT AFFAIRS COMMITTEE
of the Montana Board of Regents

Library Conference Room
The University of Montana-Western, Dillon, Montana
Wednesday, March 1, 2006
1:00 – 5:00 p.m.

Committee Members: Chair Regent Lynn Morrison-Hamilton, Regent Mike Foster, Regent Lila Taylor and Regent Heather O'Loughlin

Public comment is welcome during the meeting.
The Board of Regents may take action on any item on the committee agenda.

Regent Lynn Hamilton, Committee chair, called the meeting to order at 1:00 p.m. and welcomed the new members of the Committee, Regents Taylor and O'Loughlin.

a. Roll Call.
Regent Foster was excused. All other committee members were present.

b. Review and adoption of the agenda.
Regent Taylor moved to adopt the agenda. Motion carried.

c. Approval of the minutes from the November 16, 2006, meeting of the Committee.
Regent O'Loughlin moved to approve the minutes. Motion carried.

d. Portion of the Meeting Devoted to Chief Academic Officers.
    1. Level I memorandum
    Deputy Commissioner Barber presented the Level I memorandum for the Regents' information. The Regents had no questions or concerns about the memorandum.

    2. Level II Items—All Action Items
        a. ITEM 130-1002-R0106: Bachelor's degree in Media Arts, UM-Missoula

        b. ITEM 130-1003-R0106: Bachelor's degree in Accounting, UM-Missoula
        Regent Hamilton asked what the employment outlook is for students with a four-year degree instead of the five-year Master's of Accountancy degree. Students graduating with the baccalaureate degree are eligible to sit for the CPA exam.

        c. ITEM 130-1004-R0106: Bachelor's degree in Finance, UM-Missoula

        d. ITEM 130-1005-R0106: Bachelor's degree in Information Systems, UM-Missoula

        e. ITEM 130-1006-R0106: Bachelor's degree in International Business, UM-Missoula

        f. ITEM 130-1007-R0106: Bachelor's degree in Management, UM-Missoula

g. ITEM 130-1008-R0106: Bachelor's degree in Marketing, UM-Missoula
Regent Hamilton asked if any of the options that are being converted to majors were previous degree programs that were consolidated under a program review process. They were not.

h. ITEM 130-1010-R0106: Master's degree in Information Systems, UM-Missoula
Regent O'Loughlin asked about the difference between this program and the Master's in Computer Science offered at MSU-Bozeman. The Computer Science program focuses on technical aspects and theory, while the Information Systems program is more management focused. It can be thought of as the "workforce arm," blending theory and practice. Provost Dooley was enthusiastically supportive.

i. ITEM 126-1601-R0106: Associate degree in Natural Horsemanship, UM-Western
This item seeks continuation of a provisionally approved program. Regent Hamilton asked why the program carries the Associate of Applied Science credential instead of the Associate of Science designation. Provost Ulrich said that it is because the A.S. can't carry a major designation and the designation is important for students. The A.A.S. articulates fully into the bachelor's program in Natural Horsemanship. Regent Taylor asked about the on-going commitment from La Cense. The letter of agreement between Western and La Cense guarantees that if the agreement were terminated, existing students would be allowed to finish their programs.

j. ITEM 130-201-R0106: Certificate in Agricultural Marketing, Dawson Community College

k. ITEM 130-202-R0106: Associate degree in Web Development, Dawson Community College

By consensus, all of the action items will be forwarded to the full Board with a recommendation for approval.

3. Level II submission memorandum
Deputy Commissioner Barber explained the two-step approval process for new program proposals. The Level II items on submission at this meeting are informational, and will be on the action agenda for the next Board meeting. The Regents were asked to forward questions or concerns about any of these items to Deputy Commissioner Barber.

e. Portion of the Meeting Devoted to Topics of Concern to both Academic and Student Affairs Officers
1. Action: ITEM 130-101-R0306: Transfer goals
The proposed transfer goals were developed by the Chief Academic Officers in response to a request from this Committee. The first goal focuses on students transferring from two-year to four-year programs. This type of transfer deserves special attention because it can be particularly problematic, and because of the Board's emphasis on the importance of two-year education. Goal two emphasizes multiple pathways including some new ones relating to common coursework and learning outcomes.

Shannon Taylor, chair of the Faculty Council at MSU-Bozeman, proposed the addition of a fifth transfer goal, aimed at preserving the integrity and quality of campus-specific programs. Grant Mitman, chair of the Faculty Senate at Montana

Tech, said that their Curriculum Review Committee takes a special interest in transferability when developing courses, but there are some courses that don't have equivalencies elsewhere in the system due to the uniqueness of the program or accreditation issues. Deputy Commissioner Barber noted that accreditation issues shouldn't impede advancing transfer goals, and if necessary, the accrediting agencies can be called on for assistance.

In response to a question from Regent Taylor about tracking transfer students since the performance audit, Deputy Commissioner Barber discussed the need for good data to assess the success of the new transfer policies. Tyler Trevor, the new data person at OCHE, will help identify remaining problem areas. There are also places on the website for students to tell their transfer stories, as well as to give feedback on the transfer website itself.

Regent Hamilton asked if the Committee wanted to add a fifth goal respecting the quality of campus programs. Dr. Taylor said that if the spirit of honoring faculty and the quality of individual programs was present, he had no objection to the goals as presented. The Committee will forward the goals to the full Board as written.

2. Next steps in the transfer area
    a. Enhancements to the transfer website
    Recent additions include exceptions to the Minimum Grade policy and courses that fulfill the Montana University System Core, both listed by campus. More information will be added as it becomes available, including exceptions to the Outdated Coursework policy. Deputy Commissioner Barber asked that each campus establish a prominent link from their website to the OCHE transfer website.

    b. The proposed budget initiative on transferability
    The initiative includes funds for a comprehensive data system and resources to support faculty workgroups developing common course outcomes and evaluating general education courses. It does not include funds for additional campus staff to assist with implementing the new transfer policies, which Regent O'Loughlin noted is an issue for the smaller campuses. The Committee endorsed the budget initiative by consensus.

3. Action: <u>ITEM 130-102-R0306:</u> Revisions to Policies 301.1 and 301.2
The proposed revisions to policies 301.1 and 301.2 would formalize the admissions program being phased in at the University of Montana-Missoula. This program, which has been briefly discussed with the Board in the past, directs students meeting the minimum requirements for admission to a four-year institution but deemed at risk of failure to begin their studies at UM-Missoula's affiliated College of Technology.

After lengthy discussion, the Committee declined to act, and the item was forwarded to the full Board without a recommendation. *The key issue was that the suggested changes would allow campuses to force students into two-year programs even when a student meets the admission criteria for entry to a four-year program. Whether or not this improves the student's chance of succeeding, it has the potential of depriving the student of the ability to make his/her own choice. The discussion illuminated the need for a broader conversation regarding admission standards and preparing students for success in post-secondary education.*

4. Action: ITEM 130-104-R0306: Revisions to Policy 301.5.1
The revision is a housekeeping item, to insure that the provisions in Policy 301.5.1 mesh with the expectations of Policy 301.5. Regent Taylor moved to forward this item to the full Board. The motion carried.

5. Discussion of Policy 940.29, tuition for post-baccalaureate students
Regent Hamilton asked to revisit this "super-tuition" policy that was adopted at a time when moving students through the university system quickly was a priority. She said that the policy flies in the face of life-long learning, career changers and the needs of teachers. Provost Dooley said that the difference in tuition would be approximately $600,000 on the Bozeman campus, and this would have to be shifted to other students. All campuses were asked to report on the fiscal impact of charging post-baccalaureate students the same tuition as undergrads for the May meeting.

e. Portion of the Meeting Devoted to Topics of Concern to Student Affairs Officers.
(Because it was late in the day, the action item was taken before the discussion item.)

2. Action: ITEM 130-105-R0306: ISBN numbers and textbooks
This is a follow-up to Regent French's suggestion, allowing students to comparison shop for textbooks. Several campuses are already doing this. The bookstore representatives present at the meeting, David Knickerbocker and Jeni Luft support the policy as written. There was consensus to forward this item to the full Board.

1. Discussion of institutional liability, in light of the MIT decision
OCHE staff attorney Cathy Swift was asked to discuss the ramifications of a recent decision denying summary judgment in the Shin v. MIT case. In this case, the parents of a student sued the university, administrators, and mental health staff for failing to protect the student from suicide.

Ms. Swift said that even though this was a preliminary decision and it has no direct application to the Montana University System, it shows the law moving in a new direction. Traditionally courts have hesitated to hold institutions responsible for suicide, holding the person responsible for their own actions. However, people who commit suicide are now seen as victims. The essential finding in this ruling is that there can be a duty to prevent if the action was foreseeable.

Regent Hamilton asked about parental notification. Ms. Swift said that there is an exception under FERPA in emergency situations, and parents can be contacted in an emergency. She also said that mental health issues are ADA issues, and that due process must always be followed when working with a student with mental health problems. She encouraged campus staff to work with a team including counseling staff, parents and an attorney when students are in crisis. Campuses should also follow the protocols they have in place for emergency situations, and work closely with campus or community-based mental health services as needed.

g. Other business
There was none.

h. Public comment
No additional comments were offered.

The meeting adjourned at 5:20 p.m.

Submitted by Cathy Doyle

Academic Affairs Strategic Plan Items Key Decisions

The following goals and objectives concern issues generally discussed in the Academic Affairs Committee. The current draft strategic plan describes these in some detail. In order to finalize the plan we would like some guidance on the intended approach or, in some cases, how we should proceed to set long-term goals.

Goal	Description	Critical Task for Committee Discussion
1.4.2	Outreach to top achieving students	Recommend how to set goals for 2007 & 2010
1.4.3	Increase AP/dual-enrollment participation	Discuss working with P-20 Committee to set goals
1.5.2	Expand non-traditional programs	Recommend how to set goals for 2007 & 2010
3.2.3	Improve transferability	Review plan & goals for 2006

For easier reference, these sections of the draft strategic plan are excerpted on the following pages.

1.4.2 Expand outreach to top academic achievers graduating from Montana high schools as to the importance and accessibility of postsecondary education and the quality of the Montana University System.

Table 1.4.2

Top Performing Students in the Montana University System

Montana High School Graduates Attending MSU-Bozeman & UM-Missoula

Note: Data are currently available for only MSU-Bozeman and UM-Missoula

MSU - Bozeman & UM - Missoula	Fall 2003	Fall 2004	Fall 2005	Fall 2006 (est.)	Fall 2009 (goal)
ACT Top Quartile					
Freshmen taking ACT	1,811	2,231	2,033		
# of Freshmen scoring in top quartile*	605	715	676		
% scoring in top quartile	33%	32%	33%		
Top 10% of High School Class					
Freshmen Reporting High School Percentile	2,303	2,357	2,443		
# of Freshmen in top 10% of high school class	373	388	394		
% in top 10% of high school class	16%	16%	16%		

*score between 25 & 36

source: MUS institutional report

1.4.3 Increase dual enrollment and advanced placement programs

Table 1.4.3

Advanced Placement Testing in Montana High Schools

	2000-01	2001-02	2002-03	2003-04	2004-05	2006-07 (est.)	2009-10 (goal)
Number of Students Taking Exam	1,688	1,886	1,927	1,996	2,189		
Number of Exams Taken	2,368	2,763	2,726	3,029	3,250		
Exams Scoring 3 or Higher	1,543	1,964	1,894	2,144	2,115		
% Exams Scoring 3 or Higher	65%	71%	69%	71%	65%		

Dual-enrollment and dual-credit are not measured consistently across the state. This lack of consistency, particularly with regard to transcripting, means that current data is unreliable or unavailable. The OCHE has surveyed individual two-year programs to attempt to determine baseline data for existing dual-enrollment & credit, but the response rate for this survey was low. Consequently, no reliable baseline data exists as to the current extent of dual-enrollment & credit in the state.

A dual-enrollment task force has been convened by the Board of Education P-20 Committee to review current status and to recommend policy that would provide consistency and standardization in dual-enrollment offerings. Three areas of concern remain:

- Courses to be offered;
- K-12 licensure of postsecondary faculty; and
- Compliance with ARM 10.55.907 for distance delivery.

Until this task force resolves these major policy issues, and better data are available for current dual-enrollment & credit participation, it is not possible to set meaningful goals in this area.

Goals for 2006-2007:

- Develop reliable data systems to measure dual-enrollment & credit across the state;
- Continue working with the P-20 Committee to reach agreement on the major policy impediments to expanding dual-enrollment & credit; and
- Establish subsequent goals for 2007-2010 based on this baseline data.

1.5.2 Increase programs and classes for non-traditional students, including evening and weekend programs.

The university system does not currently compile consistent system-wide data on the numbers of programs/classes for non-traditional students in evening/weekend programs. The goal for 2006 is to agree on a common definition for "non-traditional" student, as well as "outreach program", and compile benchmark data on what the university system is currently offering. Subsequent goals for increasing the number of these programs will then be developed by the end of 2006.

3.2.3 Improve articulation and transferability among all 2-year and 4-year institutions, including community colleges and tribal colleges.

The following goals for transferability were adopted at the March 2006 meeting of the Board of Regents

- Facilitate the transfer process for students who start at a 2-year institution and decide to continue their education at a 4-year institution.
- Develop multiple pathways that transfer students can follow to complete their postsecondary educational plans. Those pathways may include course equivalency guides, articulation agreements, common learning outcomes, common coursework or course content, "block" transfers, and other creative options.
- Reduce the number of credits that transfer students need to complete so that the number is as close to the total number of credits required to earn a degree as possible. (i.e. 60-72 credits for an associate degree and 120-128 for a baccalaureate degree, depending on the degree program.)
- Develop policies and procedures that clarify and simplify the transfer process; and provide complete and comprehensive transfer information for students in the Montana University System.

By the end of 2006, we will develop 2007-2010 goals for the following measures:

- Percent of students earning "transfer" associate degrees* who transfer to a MUS 4-year institution in the semester immediately following graduation.
- Percent of students earning "transfer" associate degrees* who transfer to a 4-year MUS institution in the semester immediately following graduation and graduate from college with a Bachelor's degree within three years of transferring.

*Associate of Arts, Associate of Science, & Associate of Business

The Montana Board of Regents of Higher Education
Academic & Student Affairs Committee
eLearning & Distance Education Update
Havre, MT May 31, 2006

Activities to Date

- Reconstituted the former Shared Leadership Steering and Advisory Committees into a single, on-going Implementation Committee
  - Retained some of the external advisory members and added additional campus representatives
- Hosted a meeting in Butte on March 8-9 to discuss and plan the implementation of the remaining goals from the Shared Leadership report
- Explored and discussed approaches used in other states for achieving an integrated, multiple campus approach to *eLearning*
- Gathered baseline data on *eLearning* activities and results on each of the MUS campuses and at the community colleges (Appendix I)
- Developed common definitions for initial data reporting across all campuses, in order to gather better course and program data that are also consistent and comparable
- Compiled a benchmark listing of truly on-line campus academic programs, for degrees and certificates, at the undergraduate and graduate levels, for all of the MUS campuses (Appendix II)
- Established a monthly MetNet meeting for all campus representatives and other interested persons, to discuss current goals and issues, and to share opportunities and collaborate

Major Issues & Challenges Identified

- Transferability of distance education courses and issues related to Registrar vs Continuing Education credit courses
- Responding to cost and market pricing for distance education in order to compete with the growing presence of private providers and in a more global market
- Need to fully support and coordinate distance education to meet U.S. Dept of Education accreditation guidelines ("*Evidence of Quality in Distance Education Programs"* in the areas of:
    - Mission considerations, Curriculum & instruction, Faculty support, Student & academic services, Sustainability & growth, Evaluation & assessment (Summary: Appendix III; Full report: Appendix IV)
- Need for better dissemination of "best practices" in providing on-line student services (Appendix V)
- Need for better understanding of how on-line academic and continuing education programs and services are delivered and funded at each institution
    - This needs to include the tuition and fee structures utilized at each institution and how the student credit hour generation is being reported for FTE formula funding purposes
- Need to better identify the administrative, financial, and technology business and policy barriers to successfully creating and sharing collaborative academic programs across multiple campuses and to reaching target markets

Remaining Major Goals for 2006-7 (Next Steps)

- Continue to meet frequently with representatives from all campuses to improve collaboration and sharing of best practices
- Plan and implement placing the MUS General Education core on-line at a single, easily accessed site, allowing students to rely upon a single application, and to expect full transferability of all core credits to a single transcript at their selected "home" institution
- Foster the development of at least two new collaborative academic programs, using courses and resources already available from the MUS campuses, and creating a financially viable and sustainable business plan to serve as a model for all future collaborations
- Foster additional collaboration and sharing in the procurement and use of *eLearning* software across the campuses
- Seek to refine/establish the necessary Regents' policies to allow for all participating campuses to succeed in collaborative distance education efforts and the growth of on-line access and education

Montana University System
On-Line Education Summary Stats
Fiscal Year Ended June 30, 2005

Draft #3 - 6 May 2006

MASTER

eLearning in FY05 Report Statistics: Number of:	MSU	UM	MSU-B	UM-W	MSU-N	MT TECH	GF COT	Helena COT	FVCC	DCC	MCC
1. Total Fully on-line degree PROGRAMS	3	5	21	0	1	3	7	0	0	3	3
a) Total Through the Registrar -	0	3	19	0	1	2	7	0	0	3	3
Professional Certificate Programs			5				3				3
Two Year Degree Programs		1	4				4			3	
Undergraduate Degree Programs			7		1						
Graduate Degree Programs		2	3			2					
b) Total Through Continuing Education -	3	2	2	0	0	1	0	0	0	0	0
Professional Certificate Programs	1	1									
Two Year Degree Programs											
Undergraduate Degree Programs			1			1*					
Graduate Degree Programs	2	1	1								
2. Total Fully on-line COURSES:	80	192	251	103	30	74	72	6	327	97	0
Total Through the Registrar -	24	192	240	55	30	70	72	6	17	0	0
a) Credit Courses	24	187	240	55	30	70	72	6	12		
b) CPE & Professional Courses		5							5		
Total Through Continuing Education -	56	0	11	48	0	4	0	0	310	97	0
a) Credit Courses	50			4		4				97	46
b) Non-credit Courses	2			44					310		
c) CPE & Professional Courses	4		11								
3. Total On-line HYBRID COURSES:	0	650	0	0	0	12	20	1	9	0	12
Total Through the Registrar -		650	0	0	0	0	20	1	8	0	12
a) Credits Delivered and Reported as FTE		650					20	1	8		12
b) Non-credits/CPE/Professional Cr - Delivered & Reported											
Total Through Continuing Education -	0	0	0	0	0	12	0	0	1	0	0
a) Credits Delivered and Reported (non-FTE)						12					
b) Non-credits/CPE/Professional Cr - Delivered & Reported									1		
4. Total - Primarily on-site with on-line Support:	190	0	0	691	0	90	44	7	0	0	279
Total Through the Registrar -	188	0	0	691	0	90	44	7	0	0	0
a) Credit Courses	188			(see note)		90	44	7			
b) Non-credit/CPE/Professional Credit Courses											
Total Through Continuing Education -	2	0	0	0	0	0	0	0	0	0	279
a) Credit Courses											
b) Non-credit/CPE/Professional - Credit Courses	2										279
5. Total Credit Hour Generation & Reporting:	5,952	1,692	21,036	2,149	1,074	3,740	10,378	195	0	179	813
Total Through the Registrar - (Fully on-line/Hybrid)	1,118	1,692	20,746	1,736	1,074	3,701	10,378	195	0	179	813
a) Non-credit/CPE/Professional Hours Delivered & Reported											
Total Through Continuing Education - (Fully on-line/Hybrid)	4,834	0	290	413	0	39	0	0	0	0	0
a) Credit Hours Reported as FTE						39					
b) CPE & Professional Credit Hours Reported			290								
6. Total - Other Distance & Totally On-Line Offerings:	53	20	0	0	0	16	0	0	24	0	78
Total Through the Registrar - How Many Courses:	53	20	0	0	0	12	0	0	24	0	39
a) Primary platform-based delivery (Note Type)	WebCT	Black board	eCollege	WebCT	now WebCT	Black board	WebCT	BlacK board			
b) Video-based delivery - credit	53	20							24		39
c) ITV, TV & Other delivery _____											
Total Through Cont Educ - How Many Courses:	0	0	0	0	0	4	0	0	0	0	39
a) Platform-based delivery (Note Type)						4					
b) Video-based delivery - non-credit											39
c) ITV, TV & Other delivery _____											
7. DE Courses NOT delivered as CE or Registrar	Two	None	None	None	None	None	None	None	None	None	None

Definitions for this Survey:

** **Fully On-line**: (No. 1 & 2) Means that there is no need for a student to travel to the host institution for any reason for the program or the course, or for the faculty to travel to the student.

** **Hybrid Course**: (No. 3) The preponderence of delivery is on-line, though occasional on-site visits to the host institution or other central site are necessary to complete the course.

** **On-site with On-Line Support:** (No. 4) The delivery is primarily on-site, but students in the course may use on-line support in the form of syllabi, course description, test schedule, etc., or to occasionally replace course seat time.

** **Credit Hour Generation & Reporting**: (No. 5) Each entry will likely show two figures - the fully on-line hours and the hybrid course hours. Do NOT include on-site assistance course hours.

** **Other Distance & On-Line Offerings**: (No. 6) Platform-based is using a course management system over the internet. Video-based is using a course management system, offering either synchronous or asynchronous delivery, reporting only the on-line. Other delivery may involve using a course management system for ITV or public television delivery.

** **DE Courses NOT delivered as CE or Registrar**: (No. 7) There may be some situations where colleges or departments are offering distance education course opportunities directly.

Montana University System - Fully On-Line Program Inventory
Fiscal Year Ended June 30, 2005

Campus & Program	Total Credits	Two Plus Two Model?	Mode of Delivery	Certificate or Degree Level	Delivered via Registrar or Cont'g Education?	Program Partners	Number of Partner Courses
UM - Missoula							
Surgical Technology	66		On-line*	AAS	Registrar	MSU-B	7 > 90% on-line
Library Media Endorsement	25		On-line	Endorsement	Cont'g Educ	UM-Western	5
Forensic Studies	18		On-line	Certificate	Registrar		
Customer Relations	34		On-line	Certificate	Registrar		
Educational Curriculum	37		On-line*	Masters	Registrar		> 90% on-line
Educational Leadership	36		On-line	Masters	Registrar		
Public Administration	36		On-line	Masters	Cont'g Educ		
(*Denotes on-site lab or class requirement)							
UM - MT Tech							
Industrial Hygiene	37		On-line	Masters	Registrar		
Project Engineering Management	30		On-line	Masters	Registrar		
Occupational Safety & Health *	128		On-line	Bachelors	Cont'g Educ	Any accredited university	32
*Note: 30 cr delivered on-line by UM-Tech							
UM - Western							
Library Media Endorsement	25		On-line	Endorsement	Cont'g Educ	UM-Missoula	5
Elementary Education	44	Yes	On-line	Bachelors	Registrar		Must already have AS
(All faculty MUST post their course syllabi on-line)							
MSU - Bozeman							
Family Financial Planning	42		On-line	Masters	Cont'g Educ	7 States	12
Educational Leadership	33		On-line	Masters	Registrar		
NPTT Curriculum & Instruction	30		On-line	Masters	Cont'g Educ		
School Library Media	21		On-line	Grad Certificate	Cont'g Educ		
MSU - Billings							
Accounting Assistant	36		On-line	Certificate	Registrar		
Computer Assistant	47		On-line	Certificate	Registrar		
Human Resource Management	35		On-line	Certificate	Registrar		
Human Resource Management "Essentials"	23		On-line	Certificate	Registrar		
Office Assistant	37		On-line	Certificate	Registrar		
General Education Requirements	37		On-line	AS/AA/BS/BA/BAS	Registrar		
Accounting Technology	69		On-line	AAS	Registrar		
General Studies	60	Yes	On-line	AS	Registrar		
Human Res Mgmt - General Applied Emphasis	60	Yes	On-line	AS	Registrar		
HRM - College of Business Articulated Emphasis	60	Yes	On-line	AS	Registrar		
Applied Science	120	Yes	On-line	BAS	Registrar		
Business Administration	120		On-line	BSBA	Registrar		
Communication - Organizational	120		On-line	BA	Registrar		
Communication - Mass	120		On-line	BA	Registrar		
Education (BS) *	124		On-line	BS	Registrar	> 90% on-line	
Health Admin (BSHA)	120		On-line	BSHA	Registrar		
Public Relations (BS)	120		On-line	BS	Registrar		
Liberal Studies (BSLS)	120	Yes	On-line	BS	Registrar	GF-COT;FVCC	
Education - Interdisciplinary Studies *	36		On-line	M.Ed.	Registrar	> 90% on-line	
Health Admin (MHA)	53		On-line	MHA	Registrar		
Post Bac Teaching Cert *	45		On-line	M.Ed.	Registrar	> 90% on-line	
Public Relations (MSPR)	30		On-line	MSPR	Registrar		
(* Denotes an on-site requirement as well)							
MSU - Northern							
Nursing	120	Yes	On-line	BS	Registrar		Must already have AS
(AS with 72 cr and BS with 48 cr)							
MSU - Great Falls CoT							
General Education	60	Yes	On-line	AS	Registrar	MSU-B, MUS All	
General Education	60	Yes	On-line	AA	Registrar	MSU-B, MUS All	
Health Information Coding	46		On-line	Certificate	Registrar		
Health Information Technology	72		On-line	AAS	Registrar		
Medical Billing	41		On-line	Certificate	Registrar		
Medical Transcription	34		On-line	Certificate	Registrar		
Medical Transcription	64		On-line	AAS	Registrar		
Microcomputer Applications	24		On-line	Endorsement	Registrar		
Professional Communications	21		On-line	Endorsement	Registrar		
(plus other mixed delivery programs)							

Evidence of Quality in Distance Education Programs,
drawn from interviews with the accreditation community.
U.S. Dept. of Education, Office of Postsecondary Education
March 2006

Executive Summary, by T. H. Gibson

Highlights:

- The U.S. Dept of Education (ED), identified guidance in the form of best practices, for use by the accrediting agencies in their evaluation of distance education (DE) at institutions under accreditation review.
- Included in the Regional Accrediting Associations which participated in the discussions was the Northwest Commission on Colleges and Universities.
- There was little discussion of the evaluation of correspondence or self-paced distance education, focusing instead on cohort-based delivery models, such as those used by the MUS.
- It was noted by many, and voiced by the NCHEMS Vice President, that distance education is often held to a higher standard than traditional education is, when judging quality.

Mission Considerations - Ensure that distance education is appropriate to the mission of the institution under review.

- Reviewer would expect the institutional mission statement to be explicit about increasing access, or reaching out to underserved or special populations such as working adults.
- When institutions offer only courses, but no programs, or only a couple of programs, the reviewer would expect to find a well articulated statement of why the institution is developing the courses/programs.
- Reviewer should examine what populations are actually being served by distance education.

Red Flags:

- ✓ Senior administrators are not able to articulate the strategic importance of DE and its role in the broader mission of the institution.
- ✓ A review of course and program offerings reveals a shift in the balance between traditional and DE programs, when the two formats serve significantly different student populations.
- ✓ Program documents, faculty, or staff identify target populations for DE offerings that are different from the populations the institution has served in the past.

Curriculum & Instruction – Determine whether traditional existing academic structures are employed in the development of DE courses and curricula.

- Reviewers look for evidence that faculty who are involved in governance have oversight of the curriculum.
- Examine the documentation of the program planning and evaluation process.
- Interview the faculty leadership about the program planning and evaluation process.
- Reviewers should determine that faculty have defined course scope and objectives, and that faculty review the courses after they have been developed.
- Reviewers should look at the qualifications of the educational director (including experience with DE) and for evidence of student success in the programs the director has overseen.
- Reviewers should look at the process the institution uses to identify and solicit resources, and evaluate the qualifications of outside experts to fulfill their assigned roles.
- Reviewers should look for evidence that the institution has researched the industry, reviewed programs offered by mainstream schools, and adopted mainstream texts.
- In developing a coherent curriculum, reviewers should look for:
  1. a logically sequenced course development schedule,
  2. faculty training sessions that are aligned with the development schedule,
  3. the use of a common delivery platform for on-line courses,
  4. some consistency in course formats, and
  5. a schedule of course offerings for the next few years to assist students in planning.
- Reviewers should expect the curriculum planning documents to specifically address how labs and other hands-on learning components will be provided and what kind of processes are in place to ensure adequate oversight by qualified personnel.

- Reviewers should expect to see provisions in a contract that address how the experience provided by a contracted provider (i.e. clinic) will support the learning outcomes.
- A review of DE curricula should also include an appraisal of actual courses to see whether they are clearly stated and mapped to the learning objectives.
- When courses are offered both for DE and traditional modes, reviewers should look for comparable or equivalent learning objectives.
    1. The structure of a course is a critical element and should reveal benchmarks, deadlines, and recommended schedules.
    2. Reviewers should assess the degree of importance of interaction between faculty and students, and among students.
    3. Use of the same interface (course management system) lessens confusion for on-line students and is a good indicator of good course design and institutional oversight.
- Reviewers should evaluate the courses as they are in progress, and several that they choose themselves, in addition to those provided initially by the institution.
- Reviewers should examine the extent to which faculty add value beyond what a student would read in a textbook.

Red Flags:

- ✓ Procedures for approval of DE curricula differ from those for traditionally delivered curricula.
- ✓ The curriculum plan indicates that a large number of students are expected to enroll in each section of an on-line course.
- ✓ The curriculum design does not take into consideration the target population.
- ✓ The use of only a single method of assessment in a course might indicate that the course does not adequately link assessments and outcomes.
- ✓ Students express dissatisfaction with the quality of their distance education.
- ✓ Courses lack objectives.
- ✓ Courses are all very much alike, indicating a "cookie cutter" approach to course development.
- ✓ The discussion board in an on-line course reveals little or no activity.
- ✓ The majority of student postings lack substance and show little evidence of critical thinking.
- ✓ There is rapid turnover of adjunct faculty assigned to teach courses.
- ✓ Course materials have not been updated in over five years.

Faculty Support – Faculty development is a critical component for ensuring quality in DE, and a faculty support system needs to be in place to ensure a quality experience. An institution needs to approach DE in a systematic manner.

- Reviewers should ask about the extent and frequency of training that is provided, and it should be broader than simply software training.
- It should be clear to reviewers which organizational unit is responsible for providing the training and the on-going support for faculty.
- Reviewers should ask what resources the faculty are given and about their satisfaction with the support that the institution provides.
- Reviewers should look for the availability of someone with instructional design skills during course development, and for the availability of personnel to resolve technical problems arising during delivery.
- Adjunct faculty should have training and support comparable to that provided the regular faculty, and reviewers should seek evidence of the involvement of adjunct faculty in committees, forums, and meetings.

Red Flags:

- ✓ Faculty indicate that they have directly translated their traditional course to a DE course.
- ✓ Faculty are assigned primary responsibility for resolving technical issues for students.
- ✓ A number of faculty engage in DE course development while also carrying a full-time load.
- ✓ Student evaluations of course sections taught by adjunct and regular faculty show wide variation between the two.

Student & Academic Services – Institutions with DE programs must provide the full range of services at times and in ways that are convenient for DE students. There should be little difference between the way that DE and traditional students are served.

- The institution should provide prospective DE students with a self-assessment of their skills and aptitude for distance learning.
- The institution should provide a DE program orientation or primer.
- The institution's website for DE students should include "Frequency Asked Questions" about

textbooks, equipment needed, requirements for on-campus work, and a way to contact a faculty advisor.

- Reviewers should evaluate that technology support services are sufficient and that students do not experience significant delays in getting the resources they need.
- Faculty should provide information to students about the timeframe in which they will respond to questions and assignments.
- Information should be provided to students about how to contact an academic advisor.
- Reviewers should confirm that DE students are provided information and training on how to access and use electronic library resources, and students should have multiple accesses to request assistance or services.

Red Flags:

- ✓ An institution that offers full DE programs requires students to come to campus for some services.
- ✓ The DE office must provide all student services rather than providing services by specialized staff.
- ✓ The student grievance process requires face-to-face meetings.
- ✓ DE students don't know who to contact if they have questions or problems.

Planning for Sustainability & Growth – Institutions should provide evidence that they are using a systemic approach whereby student, academic, and faculty services related to DE are integrated into the various components of the institution, and need to ensure that adequate resources are strategically provided to serve growing numbers of DE students, including qualified and trained faculty, a scalable technical infrastructure, and funds for course development and marketing new programs.

- The institution's intent to increase the number of DE programs and students is explicitly stated in institutional planning documents and by institutional leaders.
- The strategic plan includes specific growth targets with budgets and justification for enrollment projections.
- There is a five year technology plan that addresses the institution's DE goals for enrollment, services, course development, and faculty support.
- There is a strategy for identifying, hiring, and training new faculty for new programs and growth.
- The revenue from DE programs is invested to sustain and strengthen to the capacity to provide quality programs and services.
- Results are used to make decisions about resource allocation.

Red Flags:

- ✓ The DE administrators are the only staff who discuss plans for institutional DE.
- ✓ Faculty and staff interviews reveal that enrollment growth exceeds the institution's capacity to provide appropriate academic and student support services.
- ✓ There are no internal agreements about how DE programs will be supported when DE is limited to one or two departments.
- ✓ There is a history of introducing programs and discontinuing them before enrolled students have had the opportunity to complete them.
- ✓ New programs are launched on the basis of perceived need, but without any research indicating that there is a market for them.

Evaluation & Assessment – Reviewers will want to be able to document how the institution measures student learning, how it assesses the student experiences, and what changes it makes based upon the assessments.

- Reviewers should review course evaluations and ask faculty what changes were made based on input.
- Reviewers should ask whether and how evaluations yield information for improving faculty training and development.
- Faculty interviews should yield information on how their traditional teaching has improved as a result of their DE experience.
- Reviewers should look for evidence that there is some institutional response if students don't perform as required, in order to more quickly refer them to advisors and tutors, as necessary.
- Reviewers should determine what processes are in place to document weaknesses in services to students, and examples of ways in which services have been improved as a result of assessment.

- Reviewers should look for evidence that the program outcome assessment for DE programs compares well with traditional programs in such areas as grade comparison and student performance in capstone courses.

  Red Flags:
  - ✓ Students taking DE courses that are prerequisites are not doing well in follow-up courses.
  - ✓ Large numbers of students are not completing DE courses or persisting in the program.
  - ✓ Trend analysis reveals that retention, persistence, or completion rates for DE courses and programs are declining.
  - ✓ Similar complaints from DE students are received from semester to semester.

EVIDENCE OF QUALITY IN DISTANCE EDUCATION PROGRAMS DRAWN FROM INTERVIEWS WITH THE ACCREDITATION COMMUNITY

U.S. Department of Education
Office of Postsecondary Education

March 2006

INTRODUCTION

This report is in response to the GAO Report to Congressional Requesters on Distance Education (GAO-04-279). The GAO recommended that the Secretary of Education "(1) develop, with the help of accrediting agencies and schools, guidelines or a mutual understanding that would lead to more consistent and thorough assessment of distance education programs, including developing evaluative components for holding schools accountable for such outcomes and (2) if necessary, request authority from the Congress to require that accrediting agencies use these guidelines in their accreditation efforts."

The Office of Postsecondary Education, in responding to these recommendations, agreed to engage in discussions with accrediting organization staff and other experts to identify best practices in the accreditation of distance education. Further, it agreed to use the information gathered from these discussions to develop guidance for staff in the Accreditation and State Liaison Unit to use in evaluating accrediting agency reviews of distance education when making an initial recommendation about whether to include the evaluation of distance education in an agency's scope and when an agency petitions for renewal of recognition, and to share the guidance with the accreditation community.

The guidance contained in this report, which is in the form of best practices, was developed in a manner that is sensitive to the Department of Education's limited authority to regulate accrediting agencies. The Department believes that accrediting agencies already have the authority to apply these best practices in their evaluation of distance education in the context of their individual standards.

Department staff identified twelve accrediting organizations whose scope of recognition as determined by the Secretary of Education includes the evaluation of distance education and invited staff from these organizations to participate in one of two discussion sessions. One discussion group consisted of representatives from each of the seven regional accrediting agencies; the other included representatives from five of the ten national accrediting agencies that meet the criterion. The following accrediting organizations participated in the discussions:

<u>Regional Accrediting Associations</u>
Middle States Association of Colleges and Schools, Commission on Higher Education (MSA)
New England Association of Schools and Colleges, Commission on Institutions of Higher Education (NEASC)
North Central Association of Colleges and Schools, The Higher Learning Commission (NCA)
Northwest Commission on Colleges and Universities (NWCCU)
Southern Association of Colleges and Schools, Commission on Colleges (SACS)
Western Association of Schools and Colleges, Accrediting Commission for Community and Junior Colleges (WASC Junior)
Western Association of Schools and Colleges, Accrediting Commission for Senior Colleges and Universities (WASC Senior)

<u>National Accrediting Associations</u>
Accrediting Commission of Career Schools and Colleges of Technology (ACCSCT)
Accrediting Council for Continuing Education and Training (ACCET)
American Speech-Language-Hearing Association, Council on Academic Accreditation in Audiology and Speech-Language Pathology [1] (ASHA)

[1] Not recognized for Title IV purposes.

Next, Department staff asked the participating organizations to provide contact information for one or more individuals with experience serving on evaluation teams for schools offering distance education programs. Nineteen of the twenty educators recommended by the accrediting agencies agreed to be interviewed concerning how they have approached the evaluation of distance education and what they have considered to be appropriate evidence that the standards have been met. A complete list of participants is included at the end of this report.

Accreditation Standards and Types of Distance Education

The accrediting organizations that were included in this examination vary in the way that they formally address the evaluation of distance education. Four of them (ACCSCT, ATS, DETC, and MSA) have separate or additional standards related to distance education. ACCET, ASHA, NEASC, NWCCU, and SACS have developed policies or guidelines that direct reviewers to the standards that should be looked at most closely when evaluating distance education. WASC Junior includes in its *Distance Education Manual* specific questions reviewers should use in their evaluation. NCA refers to *Guidelines for Distance Education* that the regional accrediting associations mutually developed and agreed to, which are used by reviewers in conjunction with the accreditation standards. In talking with reviewers, there was remarkable consistency in how they evaluated distance education programs, and in what they considered to be most important indicators, in spite of the differences in the accrediting organizations' standards and means of addressing distance education.

It should be noted that, with the exception of the Distance Education and Training Council (DETC) staff and evaluator who were interviewed, there was little discussion of the evaluation of correspondence or self-paced programs. DETC representatives remarked that DETC's standards and criteria were developed with correspondence education in mind, but that the standards can also be applied to a web-based online learning environment. The evaluator also commented that there is increasing use of online distance education by DETC-accredited schools. Several of these schools are using cohort-based models, particularly in degree programs, rather than the self-paced model that is a hallmark of correspondence education. In a cohort-based model, all of the students begin and end the course at the same time, which allows for greater interaction among students. The evaluator observed that the success rates are higher in a cohort-based model than in a self-paced model.

While the regional accrediting agencies do have among the institutions they accredit those that offer some correspondence or self-paced education, the staff primarily discussed the evaluation of electronically-delivered distance education programs. Evaluators for regional accrediting agencies reported that they had not been called upon to review correspondence or self-paced programs and noted that there is a preponderance of online distance education being offered by regionally-accredited institutions. Many of these institutions are redesigning their correspondence courses for online delivery. The vast majority of new distance education programs are offered online with a cohort-based model. The national accrediting agencies, other than DETC, that were included in this analysis do not accredit correspondence programs.

GOOD PRACTICES AND RED FLAGS

The discussions with the nineteen evaluators from the accrediting organizations that have distance education included in their scope of recognition yielded a great deal of specific information about the kind of evidence they consider to be indicative of quality in distance education, and also indicators of possible problems with the way the institution or program is approaching distance education. While their reviews were guided by different standards, the evidence they identified can be organized into several general categories. It should be noted that the good practices are limited to evidence that is specific to distance education and does not constitute the totality of evidence reviewers would consider in making assessments of the quality of an institution or program. On the other hand, no accrediting agency would need to include all of the evidence detailed in this report in order to make judgments about the quality of distance education.

Peter Ewell, Vice President of the National Center for Higher Education Management Systems (NCHEMS), has observed that distance education is often held to a higher standard than traditional education when judging quality. This observation was echoed by several of the reviewers.

This evidence is presented below as "good practices" and "red flags". It is intended primarily to serve as a resource for analysts in the Department's Accreditation and State Liaison Unit in assessing

accreditation agency applications and supporting documentation that address the evaluation of distance education. However, it is anticipated that this information may also be of interest to the accreditation community.

Mission

Evaluators were clear about the importance of ensuring that distance education is appropriate to the mission of the institution under review. The rapid increase in the number of institutions offering distance education courses and programs in the last decade, and the pressure to launch distance education initiatives, can lead an institution or program in directions that are not congruent with its mission. The discussion around this issue yielded good examples of the kinds of evidence that reviewers have found to be indicative of a match between mission and distance education.

- For an institution with significant numbers of distance education programs, the reviewer would expect the institutional mission statement to be explicit about increasing access, or reaching out to underserved or special populations (such as working adults). Most reviewers see distance education programs as serving students who need flexibility in terms of time and location.

- For an institution that is offering courses but no full programs, or only a program or two, the reviewer expects to find a well-articulated statement of why the institution is developing the courses/programs. This might be included in planning documents or be noted by the academic dean or department head during interviews. The statement would make clear how this strategy will further the institution's mission. For example, an institution might be using distance education as a way to serve on-campus students by providing them the flexibility they need to complete degree requirements in a timely fashion. Alternatively, it might be extending a program to populations that the institution or program could serve but who are unable to travel to onsite locations.

- In either case, a key factor to examine is what populations are being served. Distance education is obviously a good fit for working students and for those whose schedules involve frequent travel. Online education may be appropriate for institutions that place a strong emphasis on developing technical fluency in their graduates, since successful online students learn how to work effectively in a distributed environment using technical tools.

- If the institution is a traditional university whose mission is to serve traditionally-aged college students where socialization is an important role, distance education could be an appropriate strategy to develop technical fluency. However, it would raise questions if the programs serving these students were to be delivered entirely via distance education with no provision for fulfilling the institution's socialization role.

Red flags

- Senior administrators are not able to articulate the strategic importance of distance education and its role in the broader mission of the institution.

- A review of course and program offerings reveals a shift in the balance between face-to-face and distance education, when the two formats serve significantly different student populations. This may be evidence of an institution drifting from its mission, unless it is part of the institution's strategic plan. Alternatively, it could signal the need for a revised mission.

- Program documents, faculty, or staff identify target populations for distance education offerings that are significantly different from the populations the institution has served in the past, such as international students.

Curriculum and Instruction

Historically, distance education was not part of the mainstream of higher education. At traditional institutions, it was often under the purview of the continuing education division, where administrative control was relatively strong and faculty often played different roles than in their academic units. In some continuing education operations and in less traditional institutions, the development of curricula and courses was centralized, with faculty serving on teams as "content experts" or "curriculum specialists". The faculty/content expert/curriculum specialist might be one of several instructors – including adjunct faculty – assigned to teach the course, using the centrally-developed materials.

These models continue to be reflected in current practice at many institutions. Other institutions – particularly the more traditional institutions that are moving into online education – have employed existing academic structures in the development of their distance education courses and curricula. In these cases, faculty typically develop and teach their own courses. However, as these programs grow, the likelihood of the institution employing adjunct faculty with online teaching experience increases. Whatever the approach, reviewers look for evidence that the process used will result in coherent curricula and well-designed courses, and that there is appropriate academic oversight.

Reviewers for regional accreditation agencies look for evidence that faculty who are involved in governance have oversight of the curriculum.

- A good practice is to examine the documentation of the program planning and evaluation process or to interview the faculty leadership about the process. The reviewers then confirm that the processes are followed by looking for additional evidence such as minutes from faculty meetings, interviews with individual faculty about their involvement in planning and decision-making, and written assessments of curricular materials.

- In situations where outside experts are used to build courses, the reviewers ensure that faculty have defined course scope and objectives and that faculty review the courses after they have been developed.

In the national accrediting agencies, there is often less emphasis on the role of faculty and greater reliance on outside subject matter experts (including advisory committees) who work with the educational director or chief academic officer to establish curricula and to identify, review and develop appropriate materials.

- A good practice is for reviewers to look at the qualifications of the educational director (including experience with distance education) and for evidence of student success in the programs the director has overseen.

- In addition, the reviewers look at the process the institution uses to identify and solicit resources, and evaluate the qualifications of outside experts to fulfill their assigned roles.

- Reviewers look for evidence that the school has researched the industry, has reviewed curricula of programs offered by mainstream schools, and has adopted mainstream texts. These activities should lead to better-informed decisions about curricular goals, course objectives and instructional resources, which will provide students with marketable knowledge and skills.

The development of a coherent curriculum, rather than a collection of courses, requires a systematic and coordinated approach to planning. A good practice for evaluators of distance education programs is to look for:

- a logically sequenced course development schedule that will ensure the availability of courses as students need them;

- faculty training sessions that are aligned with the development schedule;

- the use of a common platform (for online courses);

- some consistency in course formats; and

- a schedule of course offerings for the next few years to assist students in planning.

Curricula that include laboratories, hands-on learning components and practicums pose challenges when they are adapted for distance education delivery.

- A reviewer expects the curriculum planning documents to specifically address how these components will be provided and what kind of processes are in place to ensure adequate oversight by qualified personnel.

- If an institution contracts with others (some examples include another educational institution, a clinic, or a private technical training company) to provide any of these resources, evaluators expect to see provisions in the written agreement addressing elements that are key to ensuring the experience will support the learning outcomes.

The review of distance education curricula also includes an appraisal of actual courses.

- A good practice is to review a sample of syllabi to see whether course descriptions and learning objectives are clearly stated and whether the assignments and other assessment strategies are mapped, or connected to, the learning objectives.

- If the courses are offered in both face-to-face and in distance education modes, reviewers look for comparable or equivalent learning objectives.

- The structure of the course is also a critical element. Courses that are designed with benchmarks and clear deadlines or recommended schedules provide evidence that the institution is aware of some of the time management challenges, and risk of attrition, of distance learning students, who are typically juggling a variety of roles including work, family and study.

- A close examination of the course syllabus is a strategy for reviewers to assess the degree of importance of interaction between faculty and student and among students. Some evidence might include requirements for students to: participate in discussions, evaluate drafts of other students' work, and work in small groups on projects. Other evidence would be the inclusion in the grading rubrics of "quality of participation" in discussions and group work.

- Use of the same interface (in online courses) or layout (in print-based courses) lessens confusion for students and is an indicator of good course design and institutional oversight. In print-based courses, "layout" would encompass the course overview and course objectives, unit objectives, narrative discussion, learning activities, and review questions. For online courses, the use of the same course management system will result in a common interface and basic course structure.

Reviewers evaluate instruction in online courses by accessing the courses themselves as they are in progress, or by reviewing transcripts of courses previously offered.

- It is a good practice for reviewers to request access to several courses in addition to those the institution initially provides in order to avoid seeing only those that are considered exemplary. A review of a variety of courses allows the evaluator to determine whether there is some consistency in quality as evidenced by course design, basic pedagogical approach, use of tools, and level and types of interaction among students and between students and faculty.

- Further, the reviewers examine the extent to which faculty add value beyond what a student would read in a textbook. For example, the faculty member might provide additional information or resources to assist students in understanding difficult concepts; pose questions and facilitate and summarize group discussions; be available to answer individual questions about course material and assignments; and give detailed feedback on assignments.

Red flags

- Procedures for approval of distance education curricula differ from those for traditionally-delivered curricula. For example, the distance education curricula are not reviewed by the faculty curriculum committee.

- The curriculum plan indicates that a large number of students are expected to enroll in each section of an online course. This could compromise the effectiveness of interaction between the students and faculty unless additional provision is made to accommodate large numbers.

- The curriculum design does not take into consideration the target population. For example, an online curriculum designed for shift workers includes courses that require students to participate in synchronous activities (such as online chat sessions) at a specified time. This could conflict with some of the students' work (or sleep) schedules.

- The use of only a single method of assessment in a course might indicate that the course does not adequately link assessments and outcomes.

- Students express dissatisfaction with the quality of their distance education courses.

- Courses lack objectives.

- Courses are all very much alike, indicating a "cookie-cutter" approach to course development. While the use of the same platform will provide some consistency in online courses, a reviewer expects courses to make use of different instructional strategies and tools to fulfill their individual objectives.

- The discussion board in an online course shows little or no activity.

- The majority of student postings lack substance and show little evidence of reflection or critical thinking.

- There is rapid turnover in adjunct faculty assigned to teach courses.

- Course materials have not been updated in over five years. For certain curricula, the updating should be done more frequently.

Faculty Support

Distance education places new demands on faculty. Most faculty come to distance education with classroom experience, and few have experienced distance education either as instructors or as students. They are used to functioning independently – developing courses without assistance from others and managing the classroom on their own. Conditions are different in a distance learning environment, where a support system needs to be in place to ensure a quality experience. Reviewers were united in their conviction that an institution needs to approach distance education in a systemic manner, which includes providing a range of faculty support services.

Faculty development is a critical component for ensuring quality in distance education.

- It is a good practice for reviewers to ask about the extent and frequency of the training that is provided. Good training is broader than software training. It addresses distance education pedagogy, with specific emphasis on instructional strategies to foster interaction, to convey concepts, and to assess student learning. It also provides guidance to a faculty member on how to translate an onsite course to the distance delivery mode being used in order to achieve specific learning outcomes.

- It should be clear what organizational unit is responsible for providing the training and on-going support for faculty.

Providing faculty access to specialized resources and technical support for course development and delivery is also a sign of a quality distance education initiative.

- In interviews with faculty, it is a good practice for reviewers to ask about what resources faculty are given and their satisfaction with the support the institution provides.

- In addition to a high level of faculty satisfaction, indicators include the availability of someone with instructional design skills during course development and of personnel who are able to resolve technical problems that arise during delivery.

In order to achieve some consistency in the quality of instruction, adjunct faculty should have training and support comparable to that provided the regular faculty. Additionally, adjunct faculty need to be integrated into the culture of the institution.

- It is a good practice for reviewers to interview some adjunct faculty members to determine the kind of training and support they receive and their sense of engagement with the institution.

- Additional evidence of adjunct faculty integration includes their participation in faculty meetings, service on faculty committees, involvement in discussion forums, and selection as mentors to new faculty.

Red flags

- Comments from faculty indicate that they have directly translated their traditional course to a distance education course. This may indicate inadequate consideration of distance education pedagogy.

- Faculty are given primary responsibility for resolving technical issues for students or are required to produce their own courses (upload materials, find or design graphics, etc). This may indicate that the support structure for distance education is lacking.

- A number of faculty engage in distance education course development and delivery, while carrying a full-time teaching load. This may be a sign that the institution is not building the appropriate systems to sustain a growing distance education initiative.

- Student evaluations of sections of courses taught by adjunct and regular faculty show wide variation between the two.

Student and Academic Services

Students who are enrolled in distance education programs often are unable to come to the campus or off-campus location for the administrative, student and academic services they need. Institutions offering full programs via distance education need to provide the full range of services at times and in ways that are convenient for these students. These services include admissions and registration, enrollment advising, academic advising, financial aid, career counseling, library resources, textbook ordering, technical assistance, and veterans and disability assistance. Advances in technology have had a significant impact on the way that institutions provide services, particularly administrative and library services, to all of their students. This has helped to narrow the differences in the way distance education and residential students are served, but it does not always result in distance education students receiving a full range of services.

To be successful, students who are admitted to distance education programs need to have the appropriate equipment and personal characteristics, such as being self-directed and having good time management skills. A good practice is for evaluators to review the kinds of information and resources an institution provides prospective students.

- Providing prospective distance education students with a self-assessment of their skills and aptitude for distance learning is good evidence that the institution is attempting to enroll students with the appropriate characteristics in their distance education programs.

- A distance education orientation program, or primer, can give prospective students an idea of how they will fare in a distance education course.

- A website that serves prospective distance education students would include a thorough description of how the courses will be offered, how students will get textbooks and other materials, the kinds of equipment needed (which may include an online equipment check), any requirements for on-campus work, and a way to contact an advisor.

Distance education students should not experience significant delays in getting the resources they need to be successful academically. Reviewers look for policies and practices that indicate a commitment to providing distance learning students with timely and accessible services and information.

- For electronically-delivered courses, evidence that technology support services are sufficient includes specific standards for response time to problem reports and data on actual response times and problem resolution, combined with student survey or interview data showing satisfaction. Ideally, technical support is available 24/7 (24 hours a day, seven days a week). If this is not present, reviewers look for technical support being available during some evening and weekend hours and provision for dealing with an emergency situation. In addition, there should be a means to communicate with students if a technical problem, such as a network outage, will affect them.

- Faculty provide information to students (in the syllabus, for example) about the timeframe in which they will respond to questions and assignments. These fall into parameters established by the institution or program.

- Information is provided to distance education students on how to contact an academic advisor. Students are able to consult academic advisors from a distance – by phone, fax, email, and/or online chat.

Library resources (i.e., electronic databases) are increasingly available in electronic form for both onsite and distance education students. Nonetheless, there are things that need to be in place to ensure that distance education students are well-served.

- Reviewers examine the online library site to confirm that distance education students are provided information and training on how to use these resources, and that they have access to a librarian by phone, fax, email and/or online chat to request assistance or services, such as inter-library loan.

- Further, reviewers look for evidence that students use these services, such as statistics on number of webpage hits or number of database searches and syllabi that include course assignments requiring library research.

Red flags

- An institution that offers full programs by distance education, with no onsite components, requires students to come to campus for some student services.

- The distance education office is responsible for providing all services to students, rather than having services provided by specialized staff. This could indicate a lack of institutional commitment to distance education students.

- The student grievance process requires face-to-face meetings.

- Students don't know whom to contact if they have questions or problems.

Planning for Sustainability and Growth

As should be evident from the preceding information, successful distance education initiatives draw on many different types of expertise, which typically are provided by staff from various parts of an institution. In instances where distance education programs involve only one or two departments, the distance education support system may be housed in a special administrative unit that provides direct service and also functions as a liaison to the relevant institutional components. If the initiatives involve more than one or two departments, evaluators would look for evidence that the institution is using – or moving toward – a systemic approach whereby student, academic and faculty services related to distance education are integrated into the various components of the institution. This systemic approach is most conducive to long-term sustainability.

The potential for growth in enrollments in distance education programs is great. The demand is large, particularly by students who benefit from the flexibility of distance education to balance multiple demands on their time from work, family and community. The constraints on growth that are operative in site-based programs, including a geographically-limited potential market and classroom availability and capacity, do not apply to distance education. Institutions need to be strategic about growing their distance education programs to ensure adequate resources to serve growing numbers of students. Chief among these resources are qualified and trained faculty to staff additional sections of courses; sufficient capacity in student and academic services and personnel; a robust, scalable technical infrastructure; and funds for course development and marketing of new programs.

In assessing the adequacy of an institution's planning for sustainability and growth of distance education, evaluators combine a review of strategic planning and budget documents with interviews with various constituents, including faculty, administrators and technologists. The kinds of evidence they consider to be positive indicators of adequate planning for sustainability and growth include:

- The institution's intent to increase the number of distance education programs and students is explicitly stated in planning documents and by institutional leaders.

- The strategic plan includes specific growth targets with budgets to support the additional marketing, academic and administrative costs. In addition, the plan includes some justification for the enrollment projections, such as marketing surveys, and contingency plans in the event that the targets are not met.

- There is a five-year technology plan that addresses the institution's goals for distance education related to enrollment, academic and student services, course development, and faculty support.

- There is a strategy for identifying, hiring and training faculty needed for new programs and for those that are expected to grow.

- The revenue derived from distance education programs is invested to sustain and strengthen the institution's capacity to provide quality distance education programs and services.

- Results are used to make decisions about resource allocation.

Red flags

- The distance education administrators are the only staff who discuss plans for distance education. Without executive commitment and knowledge, the institution is unlikely to have the resources in place to sustain the programs and support enrollment growth.

- Interviews with faculty and staff reveal that growth in enrollments exceeds the institution's capacity to provide appropriate academic and student support services.

- There are no internal agreements about how distance education programs will be supported in institutions for which distance education is limited to one or two departments. Without such agreements, there is a danger that changes in personnel will result in lack of support.

- The institution has a history of introducing programs and discontinuing them before enrolled students have had the opportunity to complete them.

- New programs are launched on the basis of perceived need, but without any research indicating there is a market for them.

Evaluation and Assessment

Evidence of educational effectiveness at institutions offering distance education programs differs little from the evidence reviewers look for at institutions offering no distance education. Essentially, reviewers want to know how the institution measures student learning, how it assesses the experiences that lead to those outcomes, and what changes it makes based on the assessments.

In the interviews, reviewers frequently cited the importance of adequate feedback loops in the areas that are closely associated with quality in higher education – student and academic services, faculty development, and course development and delivery.

- At the course level, it is a good practice for reviewers to look at course evaluations, and to interview faculty about how they have used the course evaluations to improve their courses and about how these changes have affected student performance and outcomes.

- Course evaluations can also yield important information for improving faculty training and development. Reviewers ask those who design the training whether and how it has changed in response to course evaluations and other assessment information.

- In institutions where courses are developed centrally and individual sections are taught by faculty (including adjunct faculty) who were not involved in the original development, it is a good practice for reviewers to confirm that there is a mechanism in place to get information from the instructional faculty on how the courses can be improved, and that this is reflected in course revisions.

- Positive evidence that can be derived from faculty interviews includes information about how their onsite teaching has improved as a result of their distance education experience, accompanied by specific examples illustrating a positive impact on student performance.

- In terms of student performance, reviewers look for evidence that there is some response if students don't perform as required, such as referral to an academic advisor or tutor, or to some other resource. It is a positive indicator if an institution identifies struggling students who are enrolled in their first one or two distance education courses and provides them with the support they need to succeed in this environment, or to pursue a more traditional educational path.

- Reviewers query administrators about what processes are in place to document weaknesses in services to students, and ask for examples of ways the services have been improved as a result of the assessment. The ability to adapt and make change quickly is a strong indicator that the institution or program is student-centered.

Assessment of program outcomes is a critical component of educational effectiveness.
Reviewers who were interviewed generally considered it appropriate to compare outcomes for programs offered both by distance education and onsite, if possible, while recognizing that individual students in the programs might have taken a mix of onsite and distance education courses.

- Some sources of evidence include: faculty evaluations of portfolios, which give good insight into the quality of student work over time; grade comparison at the program level; and student performance in capstone courses. Where employment is a purpose, reviewers look for post-graduate follow-up data involving both the graduates and employers.

- A good practice is to ask faculty, assessment specialists and the academic leadership about how they analyze the data from various sources and use it to make improvements. Reviewers request specific information about what has been learned so far about the quality of the programs offered by the institution and what changes have been made as a result.

Red flag

- Students coming out of distance education courses that are prerequisites are not doing well in follow-up courses.

- Large numbers of students are not completing distance education courses, or are not persisting in the program.

- Trends over time indicate that the retention, persistence or completion rates for distance education courses and programs is declining.

- The same complaints are received from distance education students from semester to semester.

PARTICIPANTS IN DISCUSSIONS AND INTERVIEWS

Organization	Staff	Evaluators
Accrediting Commission of Career Schools and Colleges of Technology	Michale McComis Associate Executive Director	Dr. Dave Montanari Director of Instructional Technology and Distance Education (retired) Adams State College
Accrediting Council for Continuing Education and Training	Roger Williams Executive Director John Shaheen Chair of the Commission	John Shaheen Executive Vice President American Institute for Paralegal Studies
American Speech-Language-Hearing Association, Council on Academic Accreditation in Audiology and Speech-Language Pathology	Sue Flesher Manager Accreditation Administration Patrima Tice Director of Credentialing	Dr. Dennis Burrows Executive Director Constance Brown Hearing Centers Dr. Colleen O'Rourke Associate Professor of Communication Disorders Georgia State University
Commission on Accrediting of the Association of Theological Schools	Dr. Louis Charles Willard Director, Accreditation and Institutional Evaluation	Dr. Greg Bourgond Vice President for Operations and Strategic Initiatives and Dean of the Center for Transformational Leadership Bethel Seminary
Distance Education and Training Council	Nan Bayster Director of Accreditation Mike Lambert Executive Director	Gary Keisling President and CEO Professional Career Development Institute
Middle States Commission on Higher Education	Mary Beth Kait Associate Director Dr. Jean Avnet Morse Executive Director Dr. Luis Pedraja Executive Associate Director	Dr. Christina Hannah Collegiate Professor and MBA Program Director University of Maryland University College Dr. Gale Tenen Spak Associate VP for Continuing & Distance Education New Jersey Institute of Technology
North Central Association of Colleges and Schools, Higher Learning Commission	Mary Breslin Associate Director Chuck Dull Assistant Director for Information Systems Karen Solomon Assistant Director for Accreditation Services Barbara Taylor Assistant Director for Process Integrity	Dr. Marcia Bankirer President Argosy University/Chicago Dr. Susan Day-Perroots Dean of Extended Learning West Virginia University Dr. Donald Hanna Professor of Educational Communications University of Wisconsin-Madison

New England Association of Schools and Colleges	Dr. Patricia O'Brien Associate Director	Bill Davis Vice President for Administration and Chief Information Officer Bridgewater State College
Northwest Commission on Colleges and Universities	Dr. Ronald Baker, Executive Vice President	John Sneed Director of Distance Education Portland Community College
Southern Association of Colleges and Schools	Dr. Tom Benberg, Vice President	Dr. Darcy Hardy Assistant Vice Chancellor for Academic Affairs and Director, University of Texas Telecampus The University of Texas at Austin
	Dr. Rudy Jackson, Vice President	Dr. Robin Hoffman President DeKalb Technical College
Western Association of Schools and Colleges, Accrediting Commission for Community and Junior Colleges	Dr. Deborah G. Blue, Vice President	Dona Boatright Interim Vice Chancellor (retired) Modesto College
	Dr. Lily Owyang Associate Vice President	Glenn Yoshida Department Chair Natural Sciences Los Angeles Southwest College
Western Association of Schools and Colleges, Accrediting Commission for Senior Colleges and Universities	Christie Jones Program Manager, Substantive Change	Dr. Jim Bryan Associate Dean & Associate Professor School of Education and Behavioral Studies Azusa Pacific University
	Dr. Richard Winn Associate Director	Daniel Granger Director of Distributed Learning and Extended Education (retired) California State University, Monterey Bay

MONTANA UNIVERSITY SYSTEM
Office of the Commissioner of Higher Education

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12 April 2006 (revised April 19, 2006)

To: MUS *eLearning* Representatives

Fr: Thomas H. Gibson

Re: MUS ad hoc Task Force on On-Line Student Services

Just about a month ago, we convened in Butte to talk about the next steps in bringing your quality on-line education to more people across the State, from a University System perspective. In addition to our agreed-upon goal of making the MUS General Education core available as a series of on-line courses which are accepted as transfers by all campuses of the MUS, we also discussed the need to ensure that we are providing the full menu of quality on-line student support and services that are provided to on-site students at the campuses. In that context, I advised that we would create an ad hoc task force to identify what that menu of services and support should be, how the services and support should be accessed and used, the student services and support that are presently offered at each campus, and conduct a gap analysis to see what was missing at each campus and recommend how that gap might be addressed at each campus.

Each of the MUS campuses and community colleges offers an array of on-line credit and non-credit courses, as well as several full academic programs, all at both the undergraduate and graduate levels. In order to do so, each campus offers some or all of a mixed array of on-line student support and services, sometimes on-line, but also through other mediums such as voice, mail, or personal contacts. We know that fully on-line student services and support are a contemporary topic of conversation in the on-line education circles, and that the WCET is presently conducting a research exercise to identify the collective pool of on-line student support and services that are needed to fully compliment an on-line education program, as well as to identify "best practices" as to how those services ought to be provided.

As the campuses continue their respective programs of providing on-line education to varying audiences of students, we want to ensure that the full array of quality on-line student support and services are also available to support those students who will be accessing the MUS General Education core courses as we bring that series of courses on-line. We want to ensure that there is no real difference in the array of support and services offered to on-site students and the support and services offered to on-line students. Only the method of access by the user and delivery by the institution should differ. That is to say, under the U.S. Dept of Education standards accepted by the regional accrediting associations, there should be evidence that each institution is using a systematic approach whereby student, academic, and faculty services related to distance education are integrated into the various components of the institution, rather than creating pockets of service providers just for on-line students.

Ad Hoc Committee Charge

The campuses of the MUS desire to join their respective quality on-line educational offerings with a full array of quality on-line student support services. In doing so, I can offer whatever assistance and support that I am able to, including hosting an occasional meeting in person or on MetNet. I would like this ad hoc Committee to address the following:

1. Inventory the student services presently offered by each of the MUS campuses to support their respective on-line educational courses and programs, including a full identification of the manner and mode in which the services are offered and available.

2. Identify the array of student services generally accepted as available under "best practices" that are offered by institutions to fully complement their respective on-line educational offerings in a manner convenient to distance education students.
3. Identify the gaps that presently exist between the array of fully on-line student services offered and those identified as "best practices" that should be offered, on a campus by campus basis.
4. By no later than July 1, 2006, please identify how each of those fully on-line student services might/will be provided at each of the MUS campuses where identified student services gaps presently exist, and when each will be fully available.
5. At a minimum, please include in the array of service offerings that must be addressed, the following actions that were identified in our discussions or in recent literature:
   - ✓ Distance education web site that serves perspective distance education students, including a distance education orientation and a self assessment for perspective students so that they can evaluate their skills and aptitude for successful *eLearning.*
   - ✓ A clear narrative specifically addressing any requirements for on-campus work associated with any on-line course.
   - ✓ A narrative of how the on-line courses will be offered, including the delivery platform.
   - ✓ A detailed narrative on how students engaged in *eLearning* will get textbooks and other materials.
   - ✓ A detailed narrative on the kinds of equipment that a prospective student engaged in *eLearning* will need, and whether there is an on-line equipment check.
   - ✓ A catalog of on-line courses and programs, with course descriptions.
   - ✓ An on-line application and the ability to pay the application fee on-line.
   - ✓ An on-line Federal FAFSA and institutional financial aid application.
   - ✓ An on-line financial aid award letter and student acceptance response.
   - ✓ An on-line registration/course selection, and associated complete tuition and fee statement.
   - ✓ An ability to pay tuition and fees fully on-line for all courses.
   - ✓ An ability to establish/assign an on-line student ID.
   - ✓ An ability to assign an on-line faculty advisor and instructions on how a potential student can make the initial contact.
   - ✓ The ability for a student to access quality on-line library services.
   - ✓ The ability for an on-line student to initiate and process a course drop/add form, a withdrawal request, and to obtain a refund.
   - ✓ The ability for an on-line student to participate, for each course, in an on-line evaluation of course content, delivery, and faculty performance.
   - ✓ The ability for faculty to post grades for students to view their on-line transcripts.
   - ✓ The ability for students to prepare and submit graduation documents.

Remember: We are conducting this exercise from the perspective of the potential on-line student, and we want to make the end results user friendly. In addition, where applicable, we are letting the business needs drive the technology needs, rather than vice versa.

Ad Hoc Committee Membership

At the Butte meeting, Ryan Schrenk (MSU-CoT) and Kirk Lacy (MSU-Billings) agreed to co-chair this ad hoc Committee effort, assisted by Ralph Johnson at UM-Msla and by Ed Johnson (UM-Tech). I received no other feedback from anyone interested in this effort, but I request that you to keep at least one representative from each campus on the working committee and in the communications loop as you go through this exercise so that the exercise is complete for all campuses, including the community colleges if they choose to participate. I encourage you to keep the people on this distribution list periodically apprised of the activities and status of the Committee efforts, and I will be regularly in touch with the Co-chairs and working ad hoc Committee. Thank you for leading this exercise and providing this valuable service to our campuses.

Montana University System Disaster Preparedness Survey (Revised October 2005)

Campus Location: _____

Section 1: Pre-Disaster Mitigation			YES	NO	PART
1		Do you have a pre-disaster mitigation plan? (If yes or part, complete items a, b, and c below.)			
	a.	Does it identify the resources used to develop the plan?			
	b.	Does it include a hazard identification inventory for your campus?			
	c.	Does it include a risk assessment inventory of your campus?			
2		Does your plan provide for the protection of critical research?			
3		Has your pre-disaster mitigation plan been formally adopted by your leadership?			
4		Has your pre-disaster mitigation plan been implemented?			
5		Has your pre-disaster mitigation plan been approved by FEMA?			

Section 2: Disaster/Emergency Response & Recovery			YES	NO	PART
6		Do you have an disaster/emergency response plan? (If yes answer a, b, c, and d below.)			
	a.	Was the plan developed with input from all local stakeholders?			
	b.	Does the plan include a method for communicating with the public?			
	c.	Does the plan include a process to account for students, faculty and staff?			
	d.	Does the plan use the National Incident Management System?			
	e.	Does your plan include provisions for critical research?			
	f.	Does the plan address responses to short- (fire, hazardous materials, public disorder) term natural and manmade disruptions to operations?			
7		Do you have a disaster recovery plan? (If yes, answer a, b, c, d, and e below.)			
	a.	Does your recovery plan minimize the impact of a disaster upon your instructional mission?			
	b.	Does your recovery plan minimize the impact of a disaster upon your research mission?			
	c.	Does your recovery plan minimize the impact of a disaster upon your administrative functions?			
	d.	Does your recovery plan minimize the impact of a disaster upon your outreach program?			
	e.	Does your plan provide contingencies for the displacement of your critical functions?			
	f.	Has your plan been distributed to all those responsible for implementation?			
	g.	Does the plan provide for the protection and/or evacuation of disabled students, faulty and staff?			
8		Does the plan include a strategy for including individuals, at all levels of responsibility, in exercising (drills, tabletop exercises, functional exercises) elements of the plan on a regular basis?			

Section 3: Post-Disaster/Emergency Restoration			YES	NO	PART
9		Does the plan provide for the restoration of instruction?			
10		Does the plan provide for the restoration of research?			
11		Does the plan provide for the restoration of administrative functions?			
12		Does the plan provide for the restoration of outreach programs?			
13		Does the plan provide for the restoration of critical facilities and infrastructure?			
14		Does the plan provide for a comprehensive post-disaster/emergency review?”			
15		Does the plan provide a method for incorporating the results of that review into a revised			

During 2004 a survey of the disaster preparedness planning for the eight campuses within the Montana University System (MUS) was conducted. This survey was funded by Montana Disaster and Emergency Services under the auspices of the Commissioner of Higher Education. In retrospect, that survey was inadequate, and a new survey is being developed. The initial survey was redistributed to a variety of interested parties, including representatives of all eight campuses, employees of Montana Disaster and Emergency Services, Montana Extension Service, and employees of the Office of the Commissioner of Higher Education, accompanied by a request for suggestions on how to improve the document.

In redesigning the survey, several considerations were taken into account:

- the survey should provide the Board of Regents with valuable information regarding the current status of disaster preparedness within the MUS.

- the questions on the survey should stand the test of time. They should be useful in making the initial survey responses a baseline for subsequent studies.

- the survey should look at the status of preparedness from a strategic level.

- the survey should allow the respondents enough latitude in the answers to accurately demonstrate the condition of the campus.

- the survey should be user friendly. Studies show that surveys limited to one page have a greater likelihood of producing accurate results.

The revised survey accomplishes the above objectives:

1) the survey is divided into three logical sections: before, during and after the event. While this necessitated the combination of categories such as emergencies and disasters, the overall picture of the campus's status is not negatively impacted.

2) the questions within each section are derived from a variety of sources. The questions in Section 1, which deals with Pre-Disaster Mitigation, are taken from the Federal Emergency Management Agency's (FEMA) Disaster Resistant University series. This publication outlines, in detail, the specific steps which must be taken to develop an approved pre-disaster mitigation plan. (As an aside, the Office of the Commissioner of Higher Education has received a FEMA grant which will fund the creation of this plan for all eight campuses. At the completion of this project, if it is given an emphasis by the leadership, each campus will be able to answer "yes" to all questions in Section 1.) The questions in Section 2 were, for the most part, developed by using materials from the Federal Emergency Management Institute's course, "Multi-Hazard Emergency Planning for Schools." Although that course is designed to help K-12 schools develop their plans, much of the information is easily converted to higher education. The questions in Section 3 are based on input from people who were

asked for suggestions at the beginning of the survey modification process. They are designed to determine if there is a plan to return to business in a "before the event" status.

3) the questions do not ask "how" anything is accomplished. Instead, they ask whether something is accomplished or not.

4) the questions are written from an institutional level (i.e. does the plan include a strategy for including individuals, at all levels of responsibility, in exercising elements of the plan on a regular basis?).

5) the addition of a "Partial" response field to each of the questions enables the campuses to more accurately portray their situation. In depth information can be obtained by asking for a written explanation of each "Partial" or "No" response.

6) the quality of the product has not been compromised, even though the survey has been limited to one page.

In all sections, the goal of the survey is to determine if the continuity of business for the major functions of the campus (education, research, outreach, administration, and finance) are considerations in the plans.

POLICY 940.29

Board of Regents' Policy 940.29 requires Montana residents to pay so-called "super tuition" if they already hold a baccalaureate degree and they return to the Montana University System to take additional coursework. The four-year campuses were asked to estimate the loss in revenue if the policy was repealed, and the following table sets out those estimates. A copy of Policy 940.29 is set out below the table.

UM-Missoula	$200,000
MT Tech	$12,800
UM-Western	$23,000
MSU-Billings	$49,500
MSU-Bozeman	$240,000
MSU-Northern	$25,000

Board Policy:

Residents of Montana who take additional courses after earning a baccalaureate degree will be charged 120% of the resident undergraduate rate at the four-year campuses. The exceptions to this policy will be granted for post-baccalaureate students who enroll for courses offered by the colleges of technology or post-baccalaureate students at The University of Montana-Western and Montana State University-Northern when it can be documented that a student is pursuing an associate degree. Nonresident students will pay the resident assessment plus a nonresident fee equivalent to nonresident graduate tuition.

MEMORANDUM

DATE: May 31 – June 2, 2006

TO: Montana Board of Regents

FROM: Roger Barber, Deputy Commissioner for Academic & Student Affairs

SUBJECT: Level I Approvals and Announcements

This memorandum is intended to inform you of the Level I changes in academic programs that have been approved in the Office of the Commissioner of Higher Education since the March 2006 meeting of the Board of Regents. It also includes announcements that may be of interest to the Board.

The University of Montana-Missoula:

- **ITEM 131-1008+R0506:** The University of Montana-Missoula requested permission to rename its Minor in Office Systems Management to *Administrative Systems Management.*

- **ITEM 131-1010+R0506:** The University of Montana-Missoula asked for authority to add an Option in Forest Operations and Applied Restoration to its Bachelor of Science degree in Forestry.

- **ITEM 129-1001+R1105:** The University of Montana-Missoula filed a Notice of Intent to terminate its Bachelor of Arts Education degree in Business and Information Technology Education at the November 2005 meeting of the Board of Regents. All of the steps for terminating a degree program have been completed, including the 60-day notice period. The degree program is, therefore, eliminated from The University of Montana-Missoula's degree and program inventory.

- **ITEM 130-1001+R0306:** The University of Montana-Missoula filed a Notice of Intent to terminate its Option in Scientific Applications in the Bachelor of Science degree in Computer Science at the March 2006 meeting of the Board of Regents. All of the steps for terminating a degree program have been completed, including the 60-day notice period. The degree program is, therefore, eliminated from The University of Montana-Missoula's degree and program inventory.

- **ITEM 130-1002+R0306:** The University of Montana-Missoula filed a Notice of Intent to terminate its Option in Software Systems in the Bachelor of Science degree in Computer Science at the March 2006 meeting of the Board of Regents. All of the steps for terminating a degree program have been completed, including the 60-day notice period. The degree program is, therefore, eliminated from The University of Montana-Missoula's degree and program inventory.

- **ITEM 131-1007+R0506:** The University of Montana-Missoula College of Technology asked permission to change the name of its Associate of Applied Science degree in Accounting and Business Technology, with an Option in

Accounting Technology, to an Associate of Applied Science degree in *Accounting Technology*. The current Option in Accounting Technology will obviously be eliminated.

- **ITEM 130-1007+R0306:** The University of Montana-Missoula College of Technology filed a Notice of Intent to terminate its Certificate program in Baking at the March 2006 meeting of the Board of Regents. All of the steps for terminating a degree program have been completed, including the 60-day notice period. The degree program is, therefore, eliminated from The University of Montana-Missoula College of Technology degree and program inventory.

- **ITEM 130-1008+R0306:** The University of Montana-Missoula College of Technology filed a Notice of Intent to terminate its Associate of Applied Science degree and Certificate in Human Services at the March 2006 meeting of the Board of Regents. All of the steps for terminating a degree program have been completed, including the 60-day notice period. The degree program is, therefore, eliminated from The University of Montana-Missoula College of Technology degree and program inventory.

- **ITEM 130-1009+R0306:** The University of Montana-Missoula College of Technology filed a Notice of Intent to terminate its Associate of Applied Science degree in Legal Support Services at the March 2006 meeting of the Board of Regents. All of the steps for terminating a degree program have been completed, including the 60-day notice period. The degree program is, therefore, eliminated from The University of Montana-Missoula College of Technology degree and program inventory.

- **ITEM 130-1010+R0306:** The University of Montana-Missoula College of Technology filed a Notice of Intent to terminate its Option in Food and Beverage Management in the Associate of Applied Science degree in Management at the March 2006 meeting of the Board of Regents. All of the steps for terminating a degree program have been completed, including the 60-day notice period. The degree program is, therefore, eliminated from The University of Montana-Missoula College of Technology degree and program inventory.

Montana Tech of The University of Montana:

- **ITEM 131-1501+R0506:** Montana Tech of The University of Montana asked for permission to eliminate its Certificate program in Behavioral Health Nurse Assistant. This Notice of Intent is included in the Level I memorandum to satisfy the public notice requirements associated with the termination of a program of study in the Montana University System.

- **ITEM 131-1504+R0506:** Montana Tech of The University of Montana requested permission to change the name of its Bachelor of Science degree in Information Technology and Design to *Network Technology.*

- **ITEM 131-1505+R0506:** Montana Tech of The University of Montana asked for authority to establish a minor in Networking Technology.

- **ITEM 131-1502+R0506:** Montana Tech of The University of Montana College of Technology asked for permission to offer a Certificate and Associate of Applied Science degree in Construction Technology-Carpentry under the temporary approval process developed by the Montana Board of Regents.

The University of Montana-Western:

- **ITEM 131-1604+R0506:** The University of Montana-Western asked for authority to offer its Bachelor of Science degree in Elementary Education in Butte. UM-Western will collaborate with Montana Tech of The University of Montana to deliver the program in that community.

- **ITEM 131-1605+R0506:** The University of Montana-Western asked for permission to change the name of its Bachelor of Science degree in Secondary Education, Health and Human Performance (K12), to *Physical Education and Health.*

Montana State University-Bozeman:

- **ITEM 131-2008+R0506:** Montana State University-Bozeman requested permission to add an Option in Policy and Management to its Bachelor of Science degree in Environmental Sciences.

- **ITEM 131-2009+R0506:** Montana State University-Bozeman asked for authority to add an Option in GIS/Planning to its Bachelor of Science degree in Earth Sciences.

- **ITEM 131-2012+R0506:** Montana State University-Bozeman asked for authority to offer five dual Bachelor of Science degree programs with Kadir Has University in Istanbul, Turkey.

- **ITEM 130-2008+R0306:** Montana State University-Bozeman filed a Notice of Intent to terminate the Community Health/Public Health focus in its Option in Clinical Nurse Specialist at the March 2006 meeting of the Board of Regents. All of the steps for terminating a degree program have been completed, including the 60-day notice period. The focus is, therefore, eliminated from Montana State University-Bozeman's degree and program inventory.

Montana State University-Billings:

- **ITEM 131-2703+R0506:** Montana State University-Billings College of Technology asked permission to eliminate its Certificate program in Automobile Collision Repair and Refinishing Technology. This Notice of Intent is included in the Level I memorandum to satisfy the public notice requirements associated with the termination of a program of study in the Montana University System.

- **ITEM 131-2704+R0506:** Montana State University-Billings College of Technology asked for authority to eliminate its Certificate program in Computer Assistant. This

Notice of Intent is included in the Level I memorandum to satisfy the public notice requirements associated with the termination of a program of study in the Montana University System.

- **ITEM 131-2705+R0506:** Montana State University-Billings College of Technology asked permission to terminate its Certificate program in Human Resource Management "Essentials." This Notice of Intent is included in the Level I memorandum to satisfy the public notice requirements associated with the termination of a program of study in the Montana University System.

Miles Community College:

- **ITEM 131-401+R0506:** Miles Community College asked permission to offer online certificate programs in Health Information Technology, Medical Coding Option and Health Information Technology, Medical Transcription Option.

Miles Community College has also decided to place the Associate of Applied Science degrees in those two Health Information Technology programs on moratorium, along with the Associate of Applied Science degree in Office Information Technology.

Recognition of Out-of-State Institutions:

The Office of the Commissioner of Higher Education has received documentation from Park University in Parkville, Missouri, to comply with the requirements of Montana statute 20-25-107, and Board of Regents' policy 320.1. Those documents confirm that Park University is accredited by The Higher Learning Commission of the North Central Association of Colleges and Schools. Park University has been offering degrees at Malmstrom Air Force Base in Great Falls, Montana, for many years. It has no plans to offer degree programs at any other site in Montana at the present time.

The Office of the Commissioner of Higher Education has also received documentation from Embry-Riddle Aeronautical University in Daytona Beach, Florida, that it intends to add a Bachelor of Science degree in Aviation Maintenance Management to its program offerings at Malmstrom Air Force Base in Great Falls, Montana. In addition to those program plans, the documentation also confirms that Embry-Riddle is accredited by the Southern Association of Colleges and Schools.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-1008+R0506**	**Date of Meeting:**	**May 31-June 2, 2006**
Institution:	**The University of Montana-Missoula**		
Program Title:	**Minor in Office Systems Management**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☒ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☒ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☐ 6. Program revisions; and
- ☐ 7. Distance delivery of previously authorized degree programs.

☐ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges of Technology where changes require Board action;*
- ☐ 3. Consolidating existing programs and/or degrees.

☐ **C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

Item No.: 131-1008+R0506	Institution: The University of Montana—Missoula

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

The University of Montana—Missoula requests permission to re-title the minor in Office Systems Management to a minor in Administrative Systems Management to better reflect changes in the curriculum.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-1010+R0506**	**Date of Meeting:**	**May 31-June 2, 2006**
Institution:	**The University of Montana-Missoula**		
Program Title:	**BS Forestry, Forest Operations and Applied Restoration option**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☐ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☐ 6. Program revisions; and
- ☐ 7. Distance delivery of previously authorized degree programs.

☒ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☒ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges of Technology where changes require Board action;*
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Item No.: 131-1010+R0506	Institution: The University of Montana-Missoula

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:
The University of Montana – Missoula proposes to introduce an undergraduate Option in Forest Operations and Applied Restoration (FOAR) to the existing B.S. in Forestry currently offered by the College of Forestry and Conservation.

M O N T A N A B O A R D O F R E G E N T S
NEW ACADEMIC PROGRAM PROPOSAL SUMMARY

Institution: University of Montana - Missoula

Program Title: BS Forestry, Forest Operations and Applied Restoration option

1. How does this program advance the campus' academic mission and fit priorities?

   This program will produce resource managers and scholars with the ability to design forest operations to meet the evolving needs of Montana and inland west forestland owners.

2. How does this program fit the Board of Regents' goals and objectives?

   This option is consistent with Board of Regents goals A, C and D to provide a stimulating, responsive and effective environment for academic achievement and learning, to deliver higher education in an efficient and coordinated manner, and to be responsive to market, employment, and economic development needs.

3. How does this program support or advance Montana's needs and interests?

   The management of forests in Montana is shifting towards a model where forests are managed primarily for ecosystem services and social benefit with the production of timber and other extractive resources as a byproduct. This proposed option will produce graduates with the technical expertise, biological knowledge, and social awareness to design forest operations for a wide variety of goals and objectives.

4. How will this program contribute to economic development in Montana? (Note projected annual economic impact both regionally and statewide.)

   By designing forest operations for multiple goals with strong considerations for the social, biologic, and economic aspects of forest management, graduates of the FOAR program will help to ensure the continued viability of Montana's forests and forest products industry.

5. What is the program's planned capacity?

• Break-even point?	10 FTE students
• Enrollments / year?	15-20
• Graduates / year?	15-20
• MT jobs / year?	5-20

6. Resource Allocation:

• Total program budget?	$ 0
• Faculty FTE?	0
• Staff FTE?	0

7. Does this program require new resources? ☐ Yes ☒ No
If yes, what is the amount? $ _____

8. How will the campus fund the program?

N/A

9. If internal reallocation is necessary, name the sources.

N/A

Specify Request:

I. Objectives and Needs

1. Description of Program: The University of Montana-Missoula proposes to introduce an undergraduate Option in Forest Operations and Applied Restoration (FOAR) to the existing BS in Forestry currently offered by the College of Forestry and Conservation. The educational objective of the FOAR option is to provide students with the basic forestry and technical skills needed to develop and implement forest management plans and restoration projects. These skills include location, design, and management of low-volume forest road systems; physical and economic evaluation of alternative harvesting systems; applications of forest operations to ecological restoration problems; and methods to minimize impacts of roads and operations on soil, water, scenic, social, and wildlife values. In short, the graduates from this program will have the ability to design and implement safe, economical, socially acceptable, and environmentally sound forest operations.

The FOAR Option includes a core of biology, chemistry, mathematics, economics, and forestry courses required for all Forestry degree options. Additional requirements for the FOAR option include physics, forest operations problem solving, and advanced forest operations courses. Some of these courses are currently being taught in the Physics department and the College of Forestry and Conservation, while the others are proposed as new course offerings.

This program utilizes existing resources and does not require additional faculty lines. Costs will be minor and only needed to cover increased transportation costs that will be incurred by the addition of three classes with a field component. These costs will be covered by the supertuition already paid by all forestry students. By requiring students to take Advanced Harvesting and Roads at the same time as Forest Operations Evaluation and Project Planning, many field trips for these two classes can be combined.

The College of Forestry and Conservation strives to provide the foundations and tools necessary for developing sustainable land management in part by producing graduates at the undergraduate level that possess the knowledge essential for guiding conservation, management, and restoration activities that are consistent with social, economic, and biological realities. Economically competitive forestry practices in the northern Rocky Mountains are being driven by innovative harvesting technology coupled with new silvicultural techniques to restore and maintain naturally functioning and healthy forest ecosystems. This curriculum would produce graduates that are capable of implementing such management. Students wishing to specialize in restoration work will greatly increase their skills and marketability by combining a BS in Forestry, Forest Operations and Applied Restoration option with a minor in Restoration Ecology (proposed).

2. Need for program: Public concern over the management of forest lands has dramatically increased. Forest management activities must be conducted in an environmentally and socially acceptable manner while remaining technically and economically feasible. Furthermore, a wide range of forest landowners, from those owning small woodlots, to large industrial firms have specialized, and in many cases unprecedented needs for innovation in forest harvesting technology to operate within this

rapidly changing environment. Forest and grassland restoration, fuel wood reduction, and road decommissioning are relatively new and rapidly expanding practices which require novel approaches, just to cite some examples. Roads must be carefully located and maintained, the impacts of forest operations on the environment should be thoroughly assessed, and efficient forest plans need to be developed and appropriately implemented to meet society's many demands from forest lands. Most of these tasks, however, require well developed engineering skills, an understanding of physical and biological aspects of natural resources, and the ability to adapt to rapidly developing technologies.

In addition, here in the northern Rocky Mountains there are many unique challenges to forest operations, owing to complex geology, as well as social and economic constraints. Students that are trained here with this new degree option should have a distinct advantage over students from other locales in being able to apply this knowledge to the extensive area of interior western forests in the US and in analogous settings throughout the world.

The College of Forestry and Conservation needs the FOAR option to 1) make the College more competitive in attracting students, 2) educate students to perform a wide range of tasks associated with timber management and forest restoration treatments, and 3) address the demand of forestry students and the public for the balanced natural resources management by training students to integrate the mechanical and economic requirements of forest operations with the biological requirements of the forest and the need to conserve resources such as forest productivity, biodiversity, soil, water, and wildlife in socially acceptable ways. Combined with the proposed B.S. in Restoration Ecology, this FOAR option helps position the College as a leader in the restoration and conservation of forestland in the inland west.

The goal of this proposed option is to provide students with the knowledge and skills to implement and plan for environmentally sound, socially acceptable, technically feasible, and financially viable forest operations. Public forestry agencies, other government agencies, non-governmental organizations, private forestry firms, and construction companies are seeking individuals with these skills.

3. Curriculum

* Indicates new courses. Pre-requisite courses are listed in parenthesis.

First Year		Credits
FOR 180	Careers in Natural Resources	2
CHEM 151N	General Chemistry	3
ENEX 101	Composition	3
MATH 121	Pre-Calculus	4
BIOL 120N	General Botany (including lab)	3
MATH 150	Applied Calculus	4
PHYS 121	Fundamentals of Physics I	5
ECON 111S	Introduction to Microeconomics	3
FOR 200	Natural Resources Measurements Camp	2
Total required credits in first year		29
Electives and general education credits in first year		1

Second Year		Credits
*FOR 235	Problem Solving for Forest Operations (MATH 150, PHYS 121)	4
FOR 201	Biometrics	3
FOR 210N	Introductory Soils (CHEM 151N)	3
FOR 202	Forest Mensuration (FOR 201)	4
FOR 220	Technical Writing	2
FOR 241	Dendrology (BIOL 120N)	3
Nature and Society Elective		3
Total Required credits in second year		22
Electives and general education credits in second year		8

Third and Fourth Years		Credits
FOR 320	Forest Economics (MATH 150, ECON 111)	3
FOR 330	Forest Ecology (FOR 210)	3
FOR 385	Watershed Hydrology	3
FOR 340	Harvesting and Products	4
FOR 347	Silviculture (FOR 330, BIOL 340)	3
FOR 351	Photogrammetry and Remote Sensing (MATH 121)	3
FOR 422	Natural Resources Policy and Administration	3
*FOR 435	Advanced Timber Harvesting and Forest Roads (FOR 235, FOR 347, FOR 340, FOR 351)	5
*FOR 436	Forest Operations Evaluation and Project Planning (FOR 435 co-req.)	3
*FOR 437	Forest Operations and Applied Restoration Capstone (FOR 385, FOR 435, EVST 167)	3
FOR 455	Riparian Ecology and Management (FOR 385)	3
Total Required credits in third and fourth years		36
Electives and general education credits in third and fourth years		24

Program Total	120
Total required credits in program	87
Required FOR credits in program	59
Electives (18) and General Education (15)	33

All writing skills requirements are met by the FOAR option (ENEX 101, FOR220, FOR422). Additionally, all mathematics and foreign language/symbolic systems requirements are met by the FOAR option (MATH121, MATH150).

The following courses satisfy the nature and society elective requirement:

EVST 167H	Nature and Society	3
FOR 1xx	Nature of Montana (proposed)	3
EVST 225	Community and Environment	3
EVST 327E	Environmental Ethics I	3
FOR 478	Montana Community Analysis	3

The following courses are suggested electives:

GEOL 100N	General Geology	2
GEOL 101N	General Geology Laboratory	1
COM 111A	Introduction to Public Speaking	3
FOR 230	Forest Fire Management	2
FOR 232	Forest Insects and Diseases	2
FOR 303	Introduction to Geographic Information Systems	3
FOR 360	Range Management	3
WIBO 370	Wildlife Habitat Conservation and Management	3
FOR 465	Restoration Ecology	3
FOR 485	Watershed Management	3

Four new courses will be created to serve students within this option (see attached course forms for additional details).

FOR 235 Problem Solving for Forest Operations 4 cr.
Offered autumn. Pre-requisite: MATH 150, PHYS 121. GEOL 100N is strongly recommended. Introduction to problem solving including the fundamentals of statics and mechanics of materials presented in the context of forest operations.

FOR 435 Advanced Timber Harvesting and Forest Roads 5 cr.
Offered autumn. Pre-requisite: FOR 235, FOR 347, FOR 340, FOR 351; Co-requisite: FOR 436. This course covers the fundamentals of logging feasibility and cost analyses of various timber harvesting systems including the characteristics and performance of ground vehicles, cable and aerial systems; cost factors and cost analysis procedures; safety issues; and environmental impacts of harvesting systems as well as forest road location, surveying, design, construction and maintenance, and management of existing road systems.

FOR 436 Forest Operations Evaluation and Project Planning 3 cr.
Offered autumn. Pre-requisite: FOR 320. Co-requisite: FOR 436. This course introduces sensitivity analysis; break-even analysis; risk analysis; multistage sequential analysis; multi-attribute analysis; project planning; and contracting.

FOR 437 Forest Operations and Applied Restoration Capstone 3 cr.
Offered spring. Pre-requisites: FOR 385, FOR 435, EVST 167. The following courses are strongly recommended: FOR 230, FOR 360. Principals of ecological restoration and techniques for implementing restoration strategies for terrestrial and aquatic systems

II. Adequacy, Accreditation and Assessment

1. Adequacy of present faculty, facilities, equipment, and library holdings: Present faculty, facilities, equipment, and library holdings are all sufficient to offer this new option and to allow for accreditation by the Society of American Foresters.

2. Accreditation: Accreditation for the FOAR option will be sought during the next regular program review by the Society of American Foresters (SAF) in 2008. This curriculum meets the accreditation standards of SAF.

3. Assessment plan: All undergraduate curricula within the College of Forestry and Conservation are under the supervision of the CFC undergraduate curricula committee. Assessment of this option will become part of the assessment of the BS in Forestry for which an assessment plan is in place.

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

1. Additional faculty requirements: No additional faculty, library holdings, facilities, equipment, or support services are needed to offer this option.

2. Impact on facilities: No new space/capital requirements are needed to offer this option.

3. Costs: No new costs will be incurred with this proposal. Transportation for field labs will be covered by the per semester fee already assessed to all Forestry majors.

4. Impact on enrollment: This program will likely draw many students from out of state. Anticipated enrollment is 15-20 students per year.

5. Relationship to other programs on campus: The Forest Operations and Applied Restoration option will not be competing directly with any other programs within Montana University System. This degree program is designed to complement, not compete with other existing programs within the Montana University System such as the Forest Resources Management option within the BS in Forestry and proposed programs such as the BS in Restoration Ecology.

6. Relationship to other institutions: The most direct competitors of the FOAR option will be programs offered by other state's institutions of higher education. However, no other programs that we are aware of offer a similar focus of applying restoration principals within the design of forest operations.

The University of Idaho offers a BS in Forest Products with an option in Timber Harvesting. This program is "designed to prepare students for rewarding careers in an array of forest-products industries" (University of Idaho Catalog). This program places a greater emphasis on forest products. This program graduates 10-12 students per year and has remained at this level for many years.

Oregon State University offers an ABET-accredited program in Forest Engineering that prepares students for professional licensing in forest engineering. This program is weighted heavily towards engineering skills and production forestry and primarily prepares students for careers in the forest industry. This program has graduated 5-20 students per year over the last eight years.

IV. Process Leading to Submission of Proposal

The FOAR option proposal was developed over several months through a collaborative process that included forest management faculty, forestry students, forestry practitioners, and faculty within the College of Forestry and Conservation, specifically those developing the proposed Restoration Ecology program. This proposal has been reviewed and approved by the Departments of Forest Management, Society and Conservation, and Ecosystem and Conservation Sciences in the College of Forestry and Conservation, and by the Academic Standards & Curriculum Review Committee, the Provost and Vice President for Academic Affairs, and the Faculty Senate of The University of Montana.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-1007+R0506**	**Date of Meeting:**	**May 31-June 2, 2006**
Institution:	**The University of Montana-Missoula College of Technology**		
Program Title:	**Accounting and Business Technology A.A.S.—Accounting Technology Option**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☒ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☒ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☐ 6. Program revisions; and
- ☐ 7. Distance delivery of previously authorized degree programs.

☐ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges of Technology where changes require Board action;*
- ☐ 3. Consolidating existing programs and/or degrees.

☐ **C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

Item No.: 131-1007+R0506	Institution: The University of Montana—Missoula College of Technology

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

The University of Montana—Missoula College of Technology requests permission to re-title the major in Accounting and Business Technology A.A.S.—Option in Accounting Technology to a major in Accounting Technology A.A.S., with no option listed.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-1501+R0506**	**Date of Meeting:**	**May 31, June1-2, 2006**
Institution:	**Montana Tech of The University of Montana**		
Program Title:	**Behavioral Health Nurse Assistant Certificate Program**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☐ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
X 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
☐ 3. Adding new minors or certificates where there is a major;
☐ 4. Adding new minors or certificates where there is an option in a major;
☐ 5. Departmental mergers and name changes;
☐ 6. Program revisions; and
☐ 7. Distance delivery of previously authorized degree programs.

☐ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

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Item No.: 131-1501+R0506	Institution: Montana Tech of The University of Montana

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Specify Request:

According to Board of Regents Policy 303.4 Program Termination, Montana Tech of The University of Montana College of Technology request to terminate the Behavioral Health Nurse Assistant Certificate Program effective August 15, 2006. The program was approved by the Board of Regents May 17, 2001. Since the approval of the program there have been no students enrolled in the program.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-1504+R0506**	**Date of Meeting:**	**May 31, June 1-2, 2006**
Institution:	**Montana Tech of The University of Montana**		
Program Title:	**Information Technology and Design**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☐ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

X 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
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Item No.: 131-1504+R0506	Institution: Montana Tech of The University of Montana

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Specify Request:

Montana Tech of The University of Montana requests permission to change the title of the B.S. in Information Technology and Design to a B.S. in Network Technology. Modifications of the degree evolved to the state that the curriculum does not contain multimedia coursework as is implied in the title. The curriculum prepares a student to design, develop, administer, secure, and support computer networks. A change in title will more appropriately represent the curriculum content and clearly guide the prospective students with an AAS in Network Technology to this 2+2 degree.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-1505+R0506**	**Date of Meeting:**	**May 31, June 1-2, 2006**
Institution:	**Montana Tech of The University of Montana**		
Program Title:	**Information Technology and Design**		

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☐ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

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X 3. Adding new minors or certificates where there is a major;
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All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

Montana Tech of The University of Montana requests permission to offer a minor in Networking Technology. A number of incoming students have completed the early coursework in the Cisco Networking Academy but are seeking degrees outside of the Networking options. Establishing a minor may encourage some students to continue studies in the networking academy that would lead to a higher level of certification. All courses in the minor are regularly scheduled courses required in the sequence of course offerings in the AAS in Network Technology and/or the BS in Information and Technology Design.

Brief description of the proposed new minor

Montana Tech of The University of Montana requests permission to offer a minor in Network Technology. The minor is a 22 credit sequence of courses in the Cisco Networking Academy. The courses are already taught as part of the BS Information Technology and Design or the AAS in Network Technology.

Assessment leading to request

The Registrar's office suggested implementing this minor after noticing that a number of incoming students have completed courses in the Cisco Networking Academy while in high school but are pursuing degree options outside of the networking field. Establishing a minor may encourage some students to continue in the networking academy and through that participation reach higher levels of certification.

Minor in Network Technology

The minor in Network Technology is designed for students who have completed courses in the Cisco Networking Academy during their secondary or post-secondary education. This minor may be of particular interest for students who are pursuing a degree at Montana Tech besides Network Technology and wish to continue, and be recognized for, coursework in the Cisco Networking Academy.

Course Requirements		Credits
I.T.0130/1306	Introduction to Windows Server	3
I.T.0115/1156	Network Design & Documentation	3
I.T.3016	Advanced Routing (CCNP 1)	4
I.T.3026	Remote Access Networks (CCNP 2)	4
I.T.4016	Multilayer Switching (CCNP 3)	4
I.T.4026W	Network Troubleshooting (CCNP 4)	4
		22 credits

ITEM 131-1502+R0506 **Approval of Proposal to Implement an Associate of Applied Science in Construction Technology – Carpentry and a Certificate of Applied Science in Construction Technology**

THAT: The Board of Regents of Higher Education authorizes Montana Tech of The University of Montana to offer an AAS and Certificate of Applied Science in Construction Technology – Carpentry.

EXPLANATION: Montana Tech of the University of Montana – College of Technology seeks approval from the Montana Board of Regents to offer a Construction Technology -- Carpentry Certificate of Applied Science and Associate of Applied Science degree under the option to propose a Level I Temporary AAS and Certificate for two years. Continuation of the program beyond the two years will be followed by the normal program approval process as a Level II Proposal.

This program will prepare the student with skills and knowledge for a career in residential or commercial construction. The program coursework will provide the student with a mix of technical education, general studies, theory and hands-on learning experiences. The student in this program progresses from basic skills to those required of a carpenter. General areas of study include building codes, blueprint reading and sketching, estimating, site layout, concrete, framing, interior and exterior finish, cabinet making and installation, and decks. The Carpentry AAS program will provide graduates with skills required of a carpenter in a variety of building construction settings common in both rural and metropolitan areas. Students will earn a national certification after each level and a one-year Certificate of Applied Science or a two year Associate of Applied Science degree.

At the successful completion of this program, the student is eligible for certification with National Center for Construction Education and Research (NCCER) National Registry.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-1502+R0506**	**Date of Meeting:**	**May 31, June1 -2, 2006**
Institution:	**Montana Tech of The University of Montana – College of Technology**		
Program Title:	**Construction Technology – Carpentry AAS and Certificate of Applied Science**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☐ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☐ 6. Program revisions; and
- ☐ 7. Distance delivery of previously authorized degree programs.

☐ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges of Technology where changes require Board action;*
- ☐ 3. Consolidating existing programs and/or degrees.

☒ **C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

Montana Tech of the University of Montana – College of Technology seeks approval from the Montana Board of Regents to offer a Construction Technology -- Carpentry Certificate of Applied Science and Associate of Applied Science degree under the option to propose a Level I Temporary AAS and Certificate for two years. Continuation of the program beyond the two years will be followed by the normal program approval process as a Level II Proposal.

This program will prepare the student with skills and knowledge for a career in residential or commercial construction. The program coursework will provide the student with a mix of technical education, general studies, theory and hands-on learning experiences. The students in this program progress from basic skills to those required of a carpenter. General areas of study include building codes, blueprint reading and sketching, estimating, site layout, concrete, framing, interior and exterior finish, cabinet making and installation, and decks. The Carpentry AAS program will provide graduates with skills required of a carpenter in a variety of building construction settings common in both rural and metropolitan areas. Students will earn a national certification after each level and a one-year Certificate of Applied Science or a two year Associate of Applied Science degree. The addition of the Construction Technology – Carpentry degree to Montana Tech COT will compliment the Historic Preservation degree currently being offered.

At the successful completion of this program, the student is eligible for certification with National Center for Construction Education and Research (NCCER) National Registry.

The driving force behind this proposal is the need for a common statewide, nationally accredited curriculum in carpentry. Montana Tech of The University of Montana – College of Technology partnered with MSU-Billings COT, UM-Missoula COT, and MSU-Northern in a U.S. Department of Labor Community-Based Job Training Grant “Montana BILT”. This grant will allow the partnership to offer one-year Certificate of Applied Science and two-year Associate of Applied Science degrees with similar curriculum requirements. The chosen curriculum is based on NCCER standards ensuring statewide commonality at each of the partnered institutions. Therefore, transfer among programs should be seamless for students.

The state was not awarded the BILT grant until late Fall 2005. Because of the expectations and short time frame for implementation of the grant, it is essential that Montana Tech College of Technology request the approval of the implementation of this program as a Level I inorder for the program to start Fall 2006. Attached is a copy of Montana Tech’s portion of the BILT grant budget totaling $327,681. The expectation of the grant is for the program to intake students Fall 2006. The budget includes the hire of a full time construction instructor starting August 2006.

Montana Tech College of Technology 3 Year Constuction Trades Budget

		FY2006 Expenses				FY2007	FY2008
		Budgeted	Actual	Accrued	Unliquidated Obligations		
Personnel							
	Instructor for AAS carpentry degree					$39,000.00	$40,560.00
	Fringe Benefits					$13,583.00	$14,625.00
	Adjunct	$8,500.00	$5,656.00			$8,500.00	$8,500.00
	Fringe Benefits	$1,471.00				$1,471.00	$1,471.00
Equipment > $5000.00							
		$51,000.00	$32,931.53		$3,184.95	$6,500.00	$3,500.00
Equipment < $5000.00							
	Forklift	$20,000.00	$16,875.00				
	Pickup	$28,000.00	$28,609.95				
Consumables							
		$2,000.00				$12,000.00	$12,000.00
Travel							
		$2,000.00				$3,500.00	$3,500.00
Other							
	Modifications/additions to current laboratories for new programs	$15,000.00				$15,000.00	$16,000.00
			$85,072.48				
	Totals	**$127,971.00**				**$88,554.00**	**$100,156.00**
						Montana Tech COT total	**$327,681.00**

Actual Expenses – even if you have charged them somewhere else and are planning on recharging them to the grant

Accrued Expenses – equipment/supplies received but not paid for including personal services and benefits.

Unliquidated Obligations – Purchase Order commitments that have been given

Construction Trades Grant Budget-NEW-.xls

NEW ACADEMIC PROGRAM PROPOSAL SUMMARY

Institution: Montana Tech of The University of Montana – College of Technology

Program Title: Construction Technology – Carpentry AAS and Certificate of Applied Science

1. **How does the program advance the campus' academic mission and fit priorities?**

   Montana Tech of The University of Montana provides programs from occupational through graduate levels in engineering and selected other fields. In the strategic plan for Montana Tech, "Building the Future While Honoring Our Heritage," Goal III relates to economic development and work force training. This proposal fits the Montana Tech of The University of Montana – College of Technology's mission and it enables the College to be responsive to a significant workforce need.

2. **How does this program fit the Board of Regents' goals and objectives?**

   The proposed Construction Technology - Carpentry AAS program will support: Goal B1, which is to identify or seek creative funding alternatives that will expand public and private colleges; Goal D1, 3, & 4 to offer programs and services consistent with the spectrum of higher education needs and opportunities for 2-year, 4-year and graduate and professional education; and Goal 4, to make the Montana University System more accessible and responsive to business, government and other constituencies.

3. **How does this program support or advance Montana's needs and interests?**

   The Construction Technology - Carpentry Program AAS degree supports the significant workforce training needs and employment sector of Montana which comprises 6.3% of the entire labor workforce (Montana Bureau of Labor and Statistics, "Montana Economy at a Glace," 2005).

4. **How will this program contribute to economic development in Montana? (Note projected annual economic impact both regionally and statewide)**

5. **What is the program's planned capacity?** 30 students

6.

Break-even point?	15
Enrollments/year	15/year
Graduates/year?	12 AAS 10 Certificate
MT jobs/year	The Montana Bureau of Labor and Statistics reports an average of 620 carpentry job openings per year.

7. **Resource Allocation:**

Total program budget	
Faculty FTE?	Years 1-5 1.0 FTE Permanent Faculty and 0.3 FTE in Part Time
Staff FTE?	0

8. **Does this program require new resources?** ☒ **Yes** ☐ **No**
   If yes, what is the amount? $168,000

9. **How will the campus fund the program?**
   Start up costs will be grant funded. Sustainable enrollment will fund the program beyond that time.

10. **If internal reallocation is necessary, name the sources.** Reallocation is not necessary.

PROGRAM PROPOSAL

1. Brief description of the proposed new program. Program Description

Montana Tech of The University of Montana – College of Technology will be working with MSU-Billings COT, UM-Missoula COT, and MSU-Northern to standardize carpentry based curriculum. The program will be developed in accordance with the National Center for Construction and Education Research (NCCER) national accreditation standards. One of the goals is to offer the standardized curriculum at the four grant-partnered institutions by Fall 2006. Another goal is to disseminate the curriculum to other colleges and high schools in the state that offer construction trades programs. This dissemination of the curriculum will be aided by Tech Prep and other agreements between institutions. The makeup of the NCCER curriculum allows the institutions to offer many short courses for industry. Each of the partnering institutions is currently negotiation articulation between the AAS degrees and their local apprenticeship programs.

The new Construction Technology – Carpentry program will empower students with skills and knowledge for a career in residential or commercial construction. The new program coursework will provide the student with a mix of technical education, general studies, theory and hands-on learning experiences. The students in this program progress from basic skills to those required of a carpenter. General areas of study include building codes, blueprint reading, basic exterior finish and cabinet installation. The Carpentry AAS program provides graduates with skills required of a carpenter in a variety of building construction settings common in both rural and metropolitan areas as well as residential and commercial construction. Students will earn a national certification after each level and a one-year Certificate of Applied Science or an Associate of Applied Science Degree.

Upon the completion of the required coursework, students will be eligible for certification with National Center for Construction Education and Research (NCCER) National Registry and a one-year Certificate or a two year Associate of Applied Science degree.

2. Summarize the needs assessment.

For the student searching for a vital and meaningful profession in the Montana Construction Industry, the Construction Technology – Carpentry AAS provides an affordable, quality education. This challenging career provides a wide variety of opportunities and financial prospects.

The Construction Technology – Carpentry program is designed to meet the needs of the local, state and national demand for trained carpenters.

According to Montana Department of Labor occupational forecasts between 2002 and 2012, Montana is projected to need 4,100 carpenters, 2,260 general operations managers, 1,750 construction laborers, 1,290 first-line supervisors and managers of construction trades and extraction workers, 1,210 painters and construction maintenance personnel, 1,080 construction managers, and 820 electricians. In a presentation to the Montana Workforce Conference held in Great Falls, Montana, on June 22, 2005, Bryon Roberts, Executive Director of the Montana Building Industry in Helena, Montana noted that "the construction industry in Montana is larger than mining, larger than timber and larger than the entire manufacturing center," with an increase of 2,800 net jobs in 2004. On June 22, 2005, there were approximately 400 job openings in the construction trades in Montana which represents 12% of the 3,400 open jobs posted on the www.jobs.mt.gov website.

The construction industry in Montana represents 5.8% of Montana's Gross State Product and the industry's contribution to the economy exceeded 1.48 billion dollars in 2003. The U.S. Department of Labor reports 3,680 employees in the construction field, not counting those that are self-employed. Based on the median income of this population this represents over $123 million in local wages.

A well trained workforce is critical for Montana business and industries to meet their production schedules. In particular, the Montana construction industry has sorely felt the impact of the lack of trained workers in the construction industry and particularly in carpentry. Residential and commercial projects fall behind schedule resulting in a negative economic impact. According to a report developed by Dr. Paul Polzin of the Bureau of Business and Economic Research at The University of Montana and presented to the Montana Board of Regents on September 22, 2005, 21.6% of all businesses surveyed in Montana stated they had a shortage with construction and health care topping the list.

Two-Year Career Wages and Job Outlooks
Construction Careers

Occupation	Mean Annual	Mean Hourly	Hourly Median[1]	Hour Median	Hourly Median[2]	Employment in 2000	Employment in 2004
Cabinetmakers & Bench Carpenters	$24,760	$11.91	$9.72	$11.41	$14.00		
Carpenters	34,300	$16.49	$13.75	$16.41	$19.50	3980	4820
Heating, A/C, & Refrigeration Mechanic	33,860	$16.28	$10.72	$15.88	$21.09	220	520
Plumbers, Pipefitters & Steamfitters	44,580	$21.43	$17.47	$23.16	$25.90	680	1140
Structural Metal Fabricators & Fitters	26,550	$12.76	$9.83	$12.55	$15.54	100	330
Welders, Cutters, & Braziers	30,410	$14.62	$10.60	$13.54	$18.12	910	800
Architectural & Civil Drafters	33,700	$16.20	$13.69	$15.85	$18.32	220	340
Electrical & Electronics Drafters	43,830	$21.07	$16.56	$20.07	$25.10	100	n/a
Mechanical Drafters (CAD Drafters)	33,260	$15.99	$12.64	$14.16	$17.43	90	190
Drafters, All Other	39,950	$19.21	$14.31	$16.84	$22.16	n/a	n/a
Civil Engineering Technicians	33,390	$16.05	$12.39	$16.53	$19.74	370	520
Environmental Engineering Technicians	32,720	$15.73	$12.16	$13.63	$17.62	70	70

[1] Low End of Middle Range Wages
[2] High End of Middle Range Wages

3. Explain how the program relates to the Role and Scope of the Institution as established by the Board of Regents.

Implementation of an Associate of Applied Science in Construction Technology – Carpentry program is within the Role and Scope of Montana Tech of The University of Montana, as established by the Board of Regents.

Philosophy

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

Mission

The Mission of the College of Technology is to provide education resulting in certification, certificates, and Associate of Applied Science degrees leading to attainment of individual goals.

The Construction Technology – Carpentry program will help students to become proficient in technological skills, communication, problem solving, and informational literacy by incorporating these key areas in virtually every class. The concentration of courses that make up the carpentry program inherently require students to develop excellent problem solving, verbal and non verbal communication skills. Mistakes on construction sites are made daily due to the fact that many of the workers fail to speak, listen, and execute instructions correctly.

4. Affect on administrative structure.

The Construction Technology – Carpentry program will be housed within the Trades and Technical Department. It will not impact the institution's administrative structure. IT is anticipated that the new program will work closely with other programs in the department such as Drafting, Metals Fabrication and Historic Preservation.

5. Extent similar programs are offered in Montana and the region.

THE MUS awards construction related degrees at three post-secondary institutions. Theses degrees are not structured under a nationally crepitated program as described in this proposal. Work is currently underway to have all of the seven MUS post-secondary institutions use the same core curriculum as it related to carpentry. Having a common core curriculum will help address a concern of industry and apprenticeship program statewide – a skilled consistently trained workforce.

6. Accrediting agencies concerned with this proposed program.

The National Center for Construction Education and Research (NCCER) National Registry and the Northwest Commission on Colleges and Universities is an approved body for program accreditation.

7. Proposed Curriculum

Construction Trades – Carpentry-AAS

Students completing the program will be able to do the following:

- Demonstrate problem solving, informational literacy, technological and communication skills in team and individual learning exercises.
- Exhibit a sense of pride in one's work and the desire to progress and excel in the carpentry profession.
- Ability to use manual and power equipment typically used in industry.
- Skills that will promote occupational growth and life-long learning.

1st Semester

*CARP	0120	Carpentry Basics and Rough-in Framing (Level 1)	5
*CNST	0100	Construction Technology Fundamentals	3
ENGL	0102	Intro to Writing	3
I.T.	1416	Microcomputer Software	3
MATH	0101	Introduction to Algebra	4
		Total	18

2nd Semester

**CARP	0130	Exterior Finishing, Stair Construction, and Metal Stud Framing (Level 3)	4
**CARP	0150	Carpentry Practicum I	3
**CNST	0110	Blueprint Reading, Codes and Estimation for Construction (Core)	3
**H.P.	0140	Shop and Site Safety	1
PSYC	1000	General Psychology	3
**CNST	0130	College Mathematics for Trades	3
		Total	17

3rd Semester

*CARP	0140	Introduction to Site Layout (Level 2)	3
*CARP	0220	Interior Finishing (Level 3)	4
*CNST	0200	Basic Rigging (Core)	1
*D.T.	0125	AutoCAD I	3
*D.T.	0250	Building Methods and Materials	4
M.T.	0220	Employment Strategies	2
		Total	17

4th Semester

**CARP	0230	Advanced Roof, Floor, Wall, and Stair Systems (Level 4)	4
**CARP	0250	Carpentry Practicum II	3
**CARP	0260	Concrete Forms, Reinforcement and Handling (Level 4)	5
**MFAB	0140	Basic Welding	2
**CARP	0270	Metal Buildings (Level 4)	1
		Total	15

Minimum credits for an AAS degree in Construction Trades – Carpentry 67

* Offered only in Fall ** Offered only in Spring

Completion of the first two semesters may result in CERTIFICATE OF APPLIED SCIENCE IN CARPENTRY. Student must complete a course in each of the following areas: *English, Math, and Psychology* to receive a certificate.

This program is designed for fall entry. If a spring entry is desired, it will take longer than two years to complete.

8. Faculty and Staff Requirements

Construction Technology-Carpentry Program Faculty

Steve Luft, Department Head, Trades and Technical
Kent Pederson, Drafting faculty
Dennis Noel, Metlas Fabrication faculty

New Faculty

1 new full time faculty position will be filled and additional 0.3 FTE part time hired.

Support Personnel

No new additional support personnel are required.

3. Capital Outlay, Operating Expenditures and Physical Facilities

Proposed Program: Construction Technology - Carpentry

Campus: Montana Tech of The University of Montana - College of Technology

Estimated **ENROLLMENT**										
FTE Enrollment	15		20		25		30		30	
Estimated Incremental **REVENUE**										
Use of Current General Operating Funds										
State Funding for Enrollment Growth					56,640		56,640		56,640	
Tuition Revenue										
A. Gross Incremental Tuition Revenue (tution year 1 = 65% of 3238/yr incremented 5% thereafter)	31,575		44,205		58,019		60,920		63,966	
B. Reductions to Incremental Tuition										
C. Net Tuition Revenue (A-B)	31,575		44,205		58,019		60,920		63,966	
Program/Course Fees					10,000		12,360		12,800	
External Funds	112,554		115,156							
Other Funds (please specify)										
TOTAL - Estimated Incremental Revenue	144,129		159,361		124,659		129,920		133,406	
Estimated Incremental **EXPENDITURES**										
Personal Services	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**
Faculty	1.3	62,554	1.3	71,554	1.5	90,220	1.5	93,377	1.5	96,646
Other Staff										
Operating Expenses	35,000		34,000		35,700		37,485		37,485	
Equipment (grant funded)	48,000		48,000							
Start-up Expenditures										
TOTAL - Estimated Incremental Expenditures	145,554		153,554		125,920		130,862		134,131	
Estimated Revenues Over/(Under) Expenditures	(1,425)		5,807		(1,261)		(942)		(725)	

Tuition revenue was calculated based on a tuition of $3238 per year and increased 5%. All $3238 is not available to the programs. On the average 65% of those monies are funneled to the academic programs.

The startup funds from other sources are the result of a Department of Labor, High Growth grant in consortium with MSU-Billings, MSU-Northern, UM – Missoula COT, and Montana Tech – COT.

Faculty FTE includes 1 FTE for the carpentry program and additional part time for carpentry and in the area of general education.

Operating expenses are high because of the large component of consumable materials. In the third year, there is a need for a program fee of $200 per student per term to enable the purchasing of wood, nails and other materials that are consumed in the learning process.

10. Library Resources

Library resources will be increased each year by the funding currently provided to each program. Each degree has an allocation of approximately $300 for reference materials. The online resources of the library will be utilized to access building codes and construction law.

11. Physical Space

Room 126 located at the College of Technology has been identified to house the program. This space has many of the requirements needed for a program of this nature such as:

- Large open lab space
- Expandable main electrical boxes for large stationary equipment
- Water supply
- Air supply lines
- Metal ducting for dust collection
- Large garage door access
- Spray booth

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-1604+R0506**	**Date of Meeting:**	**May 31 – June 2, 2006**
Institution:	**The University of Montana-Western**		
Program Title:	**B.S. in Elementary Education**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

X **A.** **Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☐ 1.Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☐ 2.Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3.Adding new minors or certificates where there is a major;
- ☐ 4.Adding new minors or certificates where there is an option in a major;
- ☐ 5.Departmental mergers and name changes;
- ☐ 6.Program revisions; and
- **X** 7.Distance delivery of previously authorized degree programs.

☐ **B.** **Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges of Technology where changes require Board action;*
- ☐ 3. Consolidating existing programs and/or degrees.

☐ **C.** **Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

The University of Montana-Western (UMW) and Montana Tech of The University of Montana (MTUM) wish to collaborate to offer a Bachelor of Science (B.S.) in Elementary Education to UMW students beginning fall semester 2006. This program is designed to meet the needs of an identified population of full-time employed students in the Butte and surrounding areas who need courses offered at night, on weekends or online. Through UMW, students will complete required education coursework at the MTUM campus and/or online to obtain a B.S. Degree in Elementary Education from UMW. Through MTUM, students will complete the general education coursework on the MTUM campus or a combination of on-campus and online courses to satisfy general education requirements for the UMW B.S. in Elementary Education degree. UMW and MTUM coursework will be offered during fall, spring and summer semesters and will be offered based on an agreed upon 4-year UMW and MTUM course schedule.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-1605+R0506**	**Date of Meeting:**	**May 31 – June 2, 2006**
Institution:	**The University of Montana-Western**		
Program Title:	**B.S. in Secondary Education, Health and Human Performance Major**		

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☒ **A.** **Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☒ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☐ 6. Program revisions; and
- ☐ 7. Distance delivery of previously authorized degree programs.

☐ **B.** **Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges ofTechnology where changes require Board action;*
- ☐ 3. Consolidating existing programs and/or degrees.

☐ **C.** **Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will

require the All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

Change the title of the BS: Secondary Education Health & Human Performance K-12 Broadfield Major to BS: Secondary Education Physical Education and Health K-12 Major.

The Physical Education and Health K-12 Major more accurately reflects Montana OPI licensure terminology and ensures that UMW students will be considered highly qualified under NCLB guidelines, helping to promote the UMW degree as a good choice for students interested in teaching health and physical education.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-2008+R0506**	**Date of Meeting:**	**May 31 - June 2, 2006**
Institution:	**Montana State University - Bozeman**		
Program Title:	**B.S. in Environmental Sciences, Policy and Management Option**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☐ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☐ 6. Program revisions; and
- ☐ 7. Distance delivery of previously authorized degree programs.

☒ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☒ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges of Technology where changes require Board action;*
- ☐ 3. Consolidating existing programs and/or degrees.

☐ **C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

Item No.: 131-2008+R0506	Institution: Montana State University - Bozeman

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

Montana State University – Bozeman seeks approval from the Montana Board of Regents to add a Policy and Management option to the degree of B.S. in Environmental Sciences.

The MSU College of Agriculture, Department of Land Resources and Environmental Sciences, currently offers B.S., M.S. and Ph.D. degree programs. The proposed Policy and Management option in the existing Environmental Sciences B.S. program is designed specifically for Turkish students from Istanbul Technical University, who would attend MSU for two years of a four-year program and thereby be awarded bachelor's degrees from both institutions. The proposed Duel-degree program would build on the Department's and MSU-Bozeman's existing strengths, and ultimately attract a cohort of 30 students per year.

M O N T A N A B O A R D O F R E G E N T S

NEW ACADEMIC PROGRAM PROPOSAL SUMMARY

Institution: Montana State University – Bozeman

Program Title: B.S. in Environmental Sciences, Policy and Management Option

1. How does this program advance the campus' academic mission and fit priorities?

   The first category of MSU's Five Year Vision Document (revised February 2004) speaks to the institution's student body, and item E of that category states the following specific goal: "The number of international students will increase from 300 to 500 (67%)". The proposed program will move MSU a substantial distance toward that target. Moreover, the students in the ITU-MSU program will be students from a first-rank institution who are seeking a degree as well as a new educational experience, and who are from a part of the world which is of increasing significance to the state and nation.

2. How does this program fit the Board of Regents' goals and objectives?

   By creating a curriculum tailored to the needs of top-quality foreign students from Turkey's premier science and technology institution, the proposed program will enhance the international character of MSU's student body in an economically sustainable manner.

3. How does this program support or advance Montana's needs and interests?

   It will advance Montana's needs and interests by enriching the academic and cultural environment of MSU, making the institution a more stimulating academic destination for Montana students.

4. How will this program contribute to economic development in Montana? (Note projected annual economic impact both regionally and statewide.)

   The principal economic impact will be the yearly presence of 60 (half in the senior year, and half in the sophomore year) international students paying full tuition as well as their living costs.

5. What is the program's planned capacity?

• Break-even point?	0 FTE students
• Enrollments / year?	120 (60 at MSU, 60 at ITU)
• Graduates / year?	30
• MT jobs / year?	0

6. Resource Allocation:

The tuition revenue provided by these students will be sufficient to cover the direct instructional costs that their presence will create. This will include courses in all impacted departments.

• Total program budget?	$
• Faculty FTE?	
• Staff FTE?	

7. Does this program require new resources? ☐Yes ☒ No (See #6, above.)

If yes, what is the amount? $ _____

8. How will the campus fund the program?

The Land Resources and Environmental Sciences (LRES) Department in the College of Agriculture (CA) has had a successful B.S. degree program in Environmental Sciences, with options in Environmental Biology and Soil and Water Science, since 1998. Student demand for the Environmental Sciences degree continues to increase, and with this initiative we will take advantage of our outstanding reputation and acknowledged leadership in this area to expand and take on an international flavor. Required expansion of some courses and advising capacity will be funded through tuition revenues generated by the proposed new degree option. The additional revenue will be sufficient to provide adequate resources to the host department, the College of Agriculture, and other affected campus departments and programs.

9. If internal reallocation is necessary, name the sources.

n/a

PROPOSAL FOR A POLICY AND MANAGEMENT OPTION UNDER THE EXISTING BACHELOR OF SCIENCE DEGREE PROGRAM IN ENVIRONMENTAL SCIENCES AT MONTANA STATE UNIVERSITY—BOZEMAN

A Proposal by the

Department of Land Resources and Environmental Sciences
College of Agriculture
Montana State University, Bozeman

Implementation date: Fall 2006

Objective

The proposed Policy and Management Option under the existing Environmental Sciences B.S. degree program in the Department of Land Resources and Environmental Sciences (LRES), College of Agriculture, is to take advantage of our outstanding reputation and ongoing instructional programs in this area to increase the diversity and international outreach of MSU-Bozeman curricula by bringing students from Istanbul Technical University (ITU) to MSU-Bozeman. The Environmental Sciences degree was implemented in 1998 and has seen steady growth since its inception.

The MSU-Bozeman course requirements for the proposed dual-degree option are similar to those for the two current options under the Environmental Sciences degree, with the primary exception that all courses for Years 1 and 3 would be offered by and taken at ITU. During the first year at ITU, students would complete foundation Math, Science, Turkish Language, and other introductory courses. Students would attend MSU-Bozeman Summer Session before the second year to complete courses in English writing and public speaking. During Year 2, at MSU, students would complete additional foundational science and general education courses. Year 3 at ITU would cover policy, management, planning and other courses not offered at MSU. Finally, during Year 4 at MSU, students would complete upper division environmental sciences courses in LRES and other departments. These senior year courses are broken out by topical areas to provide some flexibility in meeting student and/or institutional interests, consistent with the existing LRES undergraduate degree requirements. This proposed duel-degree option will be available only to Turkish students enrolled at ITU.

Faculty, Facilities, Equipment and Library Holdings

Faculty

Faculty for this program already reside at Montana State University. The program will be located in the Department of Land Resources and Environmental Sciences (LRES), College of Agriculture. The LRES Department currently offers three B.S. degrees, two of which have two options apiece; the proposed program would add a third option to one of these. LRES also offers graduate degrees in Land Rehabilitation (M.S.), Land Resources and Environmental Sciences (M.S., Ph.D.), and participates in the cross-departmental Entomology M.S. degree program. LRES faculty are recognized for their outstanding and well-integrated research, teaching and Extension programs. Courses outside the LRES Department similarly represent excellent faculty instructors with terminal degrees in their respective disciplines.

Facilities

No additional facilities are required for implementation of this program. Existing classroom, housing, and other facilities are adequate to service the proposed new degree option.

Equipment

Depending on course selection patters, especially in optional blocks, some additional equipment (for example in spatial sciences, field, and lab courses) may be necessary.

Library Holdings

The current library holdings are adequate for the related B.S. degree programs and options, and for the existing MSU-Bozeman courses offered in the proposed curriculum. Thus, no additional library holdings are required.

Expected Number of Degrees to Be Granted

The proposed B.S. degree option will enroll 30 new ITU students per year. After four years there will be a total of 120 new students enrolled in LRES, with 60 students in residence at MSU-Bozeman (30 completing sophomore year courses and 30 completing senior year courses) and 60 in residence at ITU. We therefore expect up to 30 graduates per year beginning with the fourth year of the program.

New Courses and Course Requirements for the Degrees

The course requirements for this degree option are provided in an attachment that accompanies this proposal. The Advanced Electives section is very similar to those for existing LRES undergraduate degree alternatives. As noted above, students will complete courses for Years 1 and 3 at ITU, and Years 2 and 4 at MSU-Bozeman.

Most new courses proposed will be at ITU during Years 1 and 3. The LRES Department will create a new course in Water Quality and a Senior Project course specifically designed for this curriculum. Resources will be made available from the additional tuition revenues generated by this program.

Planning Process and Recommendation to Submit

MSU-Bozeman and ITU administrators entered into discussions concerning potential dual-degree programs during 2004. The intent was to take advantage of selected areas of excellence at MSU-Bozeman to provide outstanding post-secondary training for some of the most promising students at Turkey's premier technical university, and to simultaneously advance MSU-Bozeman's goals in increasing the diversity of campus programs and its student body.

Because ITU strongly desired a program in Environmental Sciences, with an emphasis in Policy and Management, the LRES Department was determined as the appropriate home due to its existing Environmental Sciences B.S. degree and the directly relevant disciplinary expertise of its faculty. The LRES Department, the Colleges of Agriculture and Letters and Science, and the MSU Office of International Programs worked with ITU representatives to develop an appropriate program of study distributed among the two campuses (alternate years). This

program of study meets all MSU-Bozeman degree requirements as well as those at ITU. The program was reviewed and endorsed by MSU-Bozeman's Undergraduate Studies Committee.

ITU will have responsibility to screen students for admission to this program, and to ensure that applicants meet the international student English proficiency requirements. Students will also complete courses in English writing and public speaking as part of the proposed curriculum.

We anticipate that this program might also provide opportunities for identifying and enrolling ITU dual-degree graduates into MSU-Bozeman graduate degree programs, as they will have completed a strong undergraduate curriculum, and we will have the opportunity to evaluate the aptitudes of individual students during their residence at MSU-Bozeman.

ITU-MSU Dual Degree Undergraduate Program
B.S. in Environmental Sciences, Policy and Management Option

Draft: February 27, 2006

1. Semester (at ITU)		2. Semester (at ITU)	
Course Title	Credit Hours	Course Title	Credit Hours
Calculus I	4 (3+2)	Calculus II	4 (3+2)
Physics I	4 (3+2)	Physics II	4 (3+2)
General Chemistry	4 (3+2)	Environmental Chemistry	4 (3+2)
General Biology	3	Microbiology	4.5 (3+3)
Earth Systems	2	Global Environment	2
Introduction to Comp. and Info. Systems	2 (1+2)	Knowledge, Language and Logic	2 (1+2)
Turkish I	2	Turkish II	2
	21		**22.5**
		2.5 Summer Semester (MSU)	
		Course Title	Credit Hours
		College Writing I (ENGL 121W)	3
		Intro Public Commun. (COM 110US)	3
			6
3. Semester (at MSU)		**4. Semester (at MSU)**	
Course Title	Credit Hours	Course Title	Credit Hours
Principles of Genetics (BIOL 301)	3	Principles of Ecology (BIOL 303)	3
Soil Resource (LRES 201IN)	3	Science, Environ.,Technol., Society: Common Exper. (HIST 224RH)	3
Elementary Statistics (STAT 216Q)	3	Economics & The Environment (ECON 132)	3
Economic Way of Thinking (ECON 101IS)	3	Elements of Organic Chemistry (CHEM 215)	5
	**	Technical Writing (ENGL 223) or College Writing II (ENGL 221)	3
	12**		**17**
5. Semester (at ITU)		**6. Semester (at ITU)**	
Course Title	Credit Hours	Course Title	Credit Hours
Geographic Information Systems	3	Community and Ecosystems Ecology	3
Energy and Environment	3	Environmental Projects Management	2
Environmental Quality Management	3	Principles of Environmental Policy and Legislation	3
Basic Principles of System Management	3	Environmental Risk Management	3
Environmental Impacts of Land Use Planning	3	Development of Sustainable Communities	2
		Industrial Development and Environment	3
History of Atatürk's Principles and	2	History of Atatürk's Principles and	2

Reforms I		Reforms II	
	17		**18**
7. Semester (at MSU)		**8. Semester (at MSU)**	
Course Title	Credit Hours	Course Title	Credit Hours
Landscape Analysis (LRES 454)	3	GPS Fundamentals & Applications in Mapping (LRES 357)	3
Watershed Hydrology (LRES 444)	3	Soil Remediation (LRES 460)	3
		Senior project/Individual study	3
Advanced Electives	9-12	Advanced Electives	6-9
	15-18		**15-18**

ADVANCED ELECTIVES:

Soil and Water Sciences (take at least 2 courses)

Nutrient Cycling	LRES 351	3	S
Water Quality	LRES 3XX	3	?
Soil & Environmental Chemistry	LRES 355	3	S odd yrs.
Soil & Environmental Microbiology	LRES 452	3	S odd yrs.
Soil & Environmental Physics	LRES 453	3	F even yrs.
Watershed Analysis	LRES 445	3	S
Limnology	BIOL 404	3	F
Aquatic Field Ecology	BIOL 427	3	F
Surface Water Resources	ESCI 432R	3	F
Groundwater Resources	ESCI 440	3	S

Ecology and Organismal Biology (take at least 2 courses)

Weed Ecology and Management	LRES 443	3	F
Restoration Ecology	LRES 461	3	F
Microbial Diversity Ecol. Evol.	LRES 415	3	S even yrs.
Appl. Environmental Microbiology	MB 433	4	F
Stream Ecology	BIOL 439	3	F
Plant Physiology	BIOL 430	3	S
Plant Systematics	BIOL 436	3	F even yrs.

Spatial Sciences & Technologies (take at least 1 course)

Remote Sensing & Spatial Anal.	LRES 426	3	F
Air Photo Interpretation	ESCI 311	4	F
Advanced GIS Spatial Anal.	ESCI 411	3	S even yrs.

Human Systems (take at least 1 course)

Science, Pseudo-Sci. and Subj.	PHIL 225CS	3	S
Natural Resource Policy	POLS 350	3	S even yrs.
Environmental Sociology	SOC 328	3	S even yrs.
Sociology of Science & Technol.	SOC 351	3	F
U.S. Environmental History	HIST 466	3	on demand
World Environmental History	HIST 469	3	F,S alt. yrs.
Holistic Thought and Management	LRES 451	4	S

KJ
ITU-MSU Dual Degree Undergraduate Program
B.S. in Environmental Sciences, Policy and Management Option
Draft: February 27, 2006

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Environmental Impacts of Land Use Planning	3	Development of Sustainable Communities	2
		Industrial Development and Environment	3
History of Atatürk's Principles and Reforms I	2	History of Atatürk's Principles and Reforms II	2

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Aquatic Field Ecology	BIOL 427	3	F
Surface Water Resources	ESCI 432R	3	F
Groundwater Resources	ESCI 440	3	S

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Weed Ecology and Management	LRES 443	3	F
Restoration Ecology	LRES 461	3	F
Microbial Diversity Ecol. Evol.	LRES 415	3	S even yrs.
Appl. Environmental Microbiology	MB 433	4	F
Stream Ecology	BIOL 439	3	F
Plant Physiology	BIOL 430	3	S
Plant Systematics	BIOL 436	3	F even yrs.

Spatial Sciences & Technologies (take at least 1 course)

Remote Sensing & Spatial Anal.	LRES 426	3	F
Air Photo Interpretation	ESCI 311	4	F
Advanced GIS Spatial Anal.	ESCI 411	3	S even yrs.

Human Systems (take at least 1 course)

Science, Pseudo-Sci. and Subj.	PHIL 225CS	3	S
Natural Resource Policy	POLS 350	3	S even yrs.
Environmental Sociology	SOC 328	3	S even yrs.
Sociology of Science & Technol	SOC 351	3	F
U.S. Environmental History	HIST 466	3	on demand
World Environmental History	HIST 469	3	F,S alt. yrs.
Holistic Thought and Management	LRES 451	4	S

BUDGET ANALYSIS

Proposed Program: ITEM 131-2008+R0506 B.S. in Environmental Sciences, Policy and Management Option

Campus: MSU Bozeman

	Year 1		Year 2		Year 3		Year 4		Year 5	
Estimated **ENROLLMENT**										
FTE Enrollment (Bozeman only)	0		30		30		60		60	
Estimated Incremental **REVENUE**										
Use of Current General Operating Funds	0		0		0		0		0	
State Funding for Enrollment Growth	0		0		0		0		0	
Tuition Revenue (use current rates)										
A. Gross Incremental Tuition Revenue			$429,660		$429,660		$859,320		$859,320	
B. Reductions to Incremental Tuition										
C. Net Tuition Revenue (A-B)			$429,660		$429,660		$859,320		$859,320	
Program/Course Fees	0		$0		$0		$0		$0	
External Funds										
Other Funds (please specify)										
TOTAL Estimated Incremental Revenue										
Estimated Incremental **EXPENDITURES**(note)**										
Personal Services	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**
Faculty										
Other Staff										
Operating Expenses										
Equipment										
Start-up Expenditures										
TOTAL Estimated Incremental Expenditures	0		$285,840		$285,840		$571,680		$571,680	
Estimated Revenues Over/(Under) Expenditures	0		$143,820		$143,820		$287,640		$287,640	

note: Expenditures are estimated based on MSU-Bozeman's average cost of education using the most recent data. We therefore estimate incremental costs at $9,528 per year for each additional student. This estimate is likely high (conservative from a planning standpoint), but serves to demonstrate that sufficient resources will be available to ensure that no negative impacts (e.g., limited course availability) will result from the introduction of this program. Indeed, the expectation is the domestic students will benefit from the additional courses and equipment made possible by this revenue stream.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-2009+R0506**	**Date of Meeting:**	**May 31 – June 2, 2006**
Institution:	**Montana State University - Bozeman**		
Program Title:	**GIS/Planning Option within B.S. in Earth Sciences**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☐ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
☐ 3. Adding new minors or certificates where there is a major;
☐ 4. Adding new minors or certificates where there is an option in a major;
☐ 5. Departmental mergers and name changes;
☐ 6. Program revisions; and
☐ 7. Distance delivery of previously authorized degree programs.

☒ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

☒ 1. Options within an existing major or degree;
☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges of Technology where changes require Board action;*
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Item No.: 131-2009+R0506	Institution: Montana State University - Bozeman

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

Montana State University – Bozeman seeks approval from the Montana Board of Regents to add an option in GIS/Planning to its existing B.S. in Earth Sciences. This option would join the options in Geography, Geohydrology, Geology, Paleontology, and Snow Science, which are currently offered under this major.

MSU-Bozeman currently offers all of the coursework that would be required under the proposed new option, and offers a minor in GIS, which is not open to Geography majors; many Geography majors already take GIS courses as electives. The proposed option is designed to provide a more cohesive curricular structure for those students interested in this growing area as well as allowing them to more clearly market themselves as GIS-planners. It is anticipated that the greatest interest will come from students in the existing Geography option.

M O N T A N A B O A R D O F R E G E N T S

NEW ACADEMIC PROGRAM PROPOSAL SUMMARY

Institution: Montana State University – Bozeman

Program Title: GIS/Planning Option within B.S. in Earth Sciences

1. How does this program advance the campus' academic mission and fit priorities?

   This proposal is a direct response to growing interest by students and demand by employers in the state for students whose education includes a mix of human and physical geography and the technical skills associated with Global Information Systems (GIS). Providing this level of responsiveness is central to MSU-Bozeman's mission.

2. How does this program fit the Board of Regents' goals and objectives?

   The proposed option directly addresses a state need, in both the public and private sector, for planners trained in the use of GIS technology. Every year, the Earth Sciences Department receives a growing number of requests from employers (for interns and employees) for precisely the type of students who will be trained under this new Option.

3. How does this program support or advance Montana's needs and interests?

   See #2 above.

4. How will this program contribute to economic development in Montana? (Note projected annual economic impact both regionally and statewide.)

   The qualitative aspects are provided above. Quantitative impacts cannot be projected with any accuracy.

5. What is the program's planned capacity?

• Break-even point?	0 FTE students
• Enrollments / year?	10
• Graduates / year?	10
• MT jobs / year?	?

6. Resource Allocation:

• Total program budget?	$ 0
• Faculty FTE?	3
• Staff FTE?	0

7. Does this program require new resources? ☐ Yes ☒ No

   If yes, what is the amount? $ _____

8. How will the campus fund the program?

   All of the courses required for this option are currently in place and being taught by existing faculty within current resource limitations. Growth in interest, should it occur at a significant level (e.g., double current estimates), will have to be handled through reallocation.

9. If internal reallocation is necessary, name the sources.

   Not applicable at this time.

Proposal for a New Undergraduate Option in GIS/Planning within the Earth Sciences Major MSU—Bozeman

Prepared by: William Wyckoff, Stuart Challender, Jian-yi Liu
Department of Earth Sciences
Montana State University
10 April 2006

A. OBJECTIVES and DESCRIPTION:

The proposed GIS (Geographic Information Science)/Planning option in the Department of Earth Sciences is designed to offer students a mix of technical skills and academic training that prepares them for careers in local, state, and federal planning as well as opportunities in private consulting firms that are involved in the planning process. The GIS/Planning option recognizes the dramatic and growing importance of Geographic Information Systems and Science in our society and how these tools are utilized in a wide variety of settings. With GIS computer technology, planners and others can map and analyze a tremendous variety of geographical data (for example, local soils, topography, drainage, population density, zoning requirements, housing data, socioeconomic variables, etc.) as they assess land use changes.

The GIS/Planning option emphasizes providing students with a solid background in human and physical geography because both planners and other users of GIS require the integrating and synthesizing skills utilized by geographers. In addition, students acquire a set of technical skills they can use in both the public and private sector. Students graduating with this option will more clearly be able to market themselves as GIS-trained planners, thus opening up new employment opportunities in both the public and private sector.

Pedagogically, the option's objectives at the Freshman and Sophomore level focus on providing students basic courses in physical and human geography as well as introductory skills classes in GIS and cartography, statistics, technical writing, and design graphics. In addition, courses in economics and political science lay the foundation for understanding the broader context of the planning process.

The option's objectives at the Junior and Senior level focus on offering more specialized training, including advanced work in a) GIS-related skills classes, b) upper division planning-related courses within the Earth Sciences Department (both in human and physical geography) and c) selected additional courses outside the Earth Sciences Department that also contribute to a and b above. Students complete an advanced two-course sequence in GIS/Spatial Analysis (GEOG 305/411) and take skills-related coursework in Aerial Photo/Remote Sensing and in GPS technologies. They also take courses in geographical planning, tourism and recreational planning, and in the politics of state and local government. All students complete basic coursework in soils and geomorphology because these variables are critical in the planning process. Electives in advanced classes in urban and economic geography, public/urban policy and political science, water resources, and/or ecology allow students to specialize in areas of particular interest and develop their own interests in subjects related to the planning process. All students take the Department's Geographical Thought Capstone course (GEOG 405) as this class emphasizes the broad integrative skills within the discipline of Geography.

B. EXISTING SUPPORT PERSONNEL AND FACILITIES:

MSU Bozeman is ideally situated to offer this option within its existing infrastructure because 1) the Department of Earth Sciences and related departments have supported GIS-related facilities and undergraduate courses on campus for the past 15 years and 2) the Department of Earth Sciences has a long-term commitment (more than 25 years) to offering undergraduate training in geographical planning and it has a broad-based offering of classes in both human and physical geography that are essential background in the planning process. In addition, given MSU-Bozeman's comprehensive range of related programs, students in the option can also enhance their training with outstanding courses offered by departments such as Political Science, Land Resources and Environmental Sciences, Ecology, and Economics.

Existing Geography faculty in the Earth Sciences Department would have primary responsibility for advising these students and for offering many of the required courses. Specifically, Professor Stuart Challender has developed a three-course sequence in GIS (in concert with the Departments of Land Resources and Environmental Sciences and Ecology) (GEOG 211/305/411) that will offer students an outstanding technical background in that side of the field. In addition, Professor Jian-yi Liu will be responsible for teaching two upper-division courses (GEOG 334/425) specifically focused on the planning process and Professor William Wyckoff will teach the Capstone course experience (GEOG 405) for all students in the option. Other existing classes in the Department of Earth Sciences will also serve as required and/or elective courses in the option and are taught by a broad range of both geography and geology faculty (Lageson, Hansen, Skidmore, Ashley, Custer, and Locke).

Existing lab facilities, equipment, software, and library resources are already on site to support the required classes in the option. MSU-Bozeman has an excellent GIS-related center (GIAC) and lab space to support student demand.

C. ADDITIONAL FACULTY REQUIREMENTS:

All the demand for this option can be met through existing faculty. No new faculty requirements are needed to meet advising and teaching needs of students in this option. The courses contained in this option are already in place and taught within existing resources.

D. ESTIMATED STUDENT ENROLLMENTS AND BUDGET INFORMATION:

Most anticipated "new" enrollment in the option will be derived from students switching from the general Geography option into GIS/Planning. That process should have no budgetary impacts, but it will offer these students a more targeted, focused option geared to their interests in GIS and Planning and it will offer them a much better-defined set of courses (and the option listed on their graduation transcripts) that might be useful in seeking employment. Approximately 10-15 students per year might be anticipated to pursue the option and these numbers could be accommodated through existing faculty and course offerings at the MSU-Bozeman.

E. ESTIMATED TEN-YEAR GRADUATION RATES:

Between 2008 and 2017, approximately 100-150 students will likely benefit from this option. These students will gain a real advantage with a focued, targeted education at MSU-Bozeman that both accentuates cutting-edge GIS technology (which will no doubt continue to change greatly over the next ten years) as well as the broad-based training in human and physical geography that is essential in the planning process. Since many of our students desire to

remain in Montana and in the Rocky Mountains, this option has the real potential to train a significant cohort of the region's future planners at a variety of levels and positions. Students from outside of the region will also be attracted to the option since it offers them training in a field with growing employment opportunities all around the country.

F. NEW COURSES AND OPTION REQUIREMENTS:

The Department of Earth Sciences has already modified key elements of its Curriculum to prepare for this option. Specifically:

* The Department redesigned its 3-course sequence in Cartography and GIS. Under the direction of Professor Challender (and in consultation with other related MSU Departments), the Department now offers an integrated GEOG 211/305/411 course sequence that takes students from the basics of map design to GIS fundamentals to advanced, project-oriented labs and experience with GIS applications, using both physical and human geography settings.

* In the most recent catalogue, the Department reworked its Geographical Planning class. Under the direction of Professor Liu, this class will now be taught as an upper division class and give students the opportunity to focus in greater detail on particular applications of the planning process, both in Montana and elsewhere.

* Under the direction of Professor Liu, the Department has developed a new senior-level class in Tourism and Recreational Planning (GEOG 425), which will be required of all students in the option. While not all students will be involved in this end of the planning field, the Department believes a course focused on this topic is essential for many students who may be employed within this region.

For specific year-by-year requirements for the option, see the attached 2-page Curriculum Checking Sheet appended to this document.

G. INTER-DEPARTMENTAL IMPLICATIONS:

Impacts beyond the Department of Earth Sciences are expected to be modest, given that new enrollments in the option will mainly come from students in the more general Geography option. At the Freshmen and Sophomore levels, most of the courses required outside the Department will be Core courses that all MSU students are required to take regardless of their major. However, some new enrollments in either ENGL 221 or 223 and in either ME 115/116 or TE 230 can be anticipated. At the Junior and Senior levels, students in the option are required to take courses in the LRES (2 courses) and POLS (1 course) departments. Other Upper Division courses outside the Department at the Junior and Senior levels (see check sheet) offer students choices that add flexibility to the option and should minimize impacts upon any one course. Many of the optional courses are already taken by students in the existing Geography option.

H. BACKGROUND OF THE OPTION:

The demand for the option is driven both by the market and by student needs. Many years ago, the Department of Earth Sciences offered an option in "Geographical Planning," but much of this was eventually folded into the existing Geography option more than 15 years ago. Then, the GIS revolution transformed both the discipline of Geography and the professional field of Planning, creating the need for the GIS/Planning option. Particularly, in the past 5-7 years, local and state agencies have increasingly needed students with GIS experience to fill jobs. Indeed,

many MSU students with some GIS background have successfully completed internships and job openings, taking advantage of these opportunities. Given current trends, these opportunities will continue to grow rapidly in the next 10-20 years, and the proposed, more focused GIS/Planning option will give prospective employers broadly trained human/physical geographers who also have the increasingly specialized skills necessary to perform well. From the student perspective, there has been a consistent and growing call for an option that will address their needs to clearly train and then market themselves for many of these new job opportunities. Every year, the Department receives a growing number of requests from employers (for interns and employees) for precisely the type of student that will be trained under this new option.

Last year, several geography faculty worked through the detailed curriculum for the option. Professor Challender retooled the Mapping and GIS course sequence and Professor Liu created the new course offering in Tourism and Recreational Planning. In addition Professors Wyckoff and Challender met with Jon Wraith (LRES) and Dave Roberts (Ecology) to ensure that the new Map and GIS courses would continue to meet the curricular needs of their students. After being approved by the Department of Earth Sciences faculty, the option was forwarded to the College of Letters and Sciences Dean's Office and to the Undergraduate Studies Committee for further discussion and final approval through the Office of the Provost.

Name: _____
Advisor: _____
Banner ID: _____

GIS/PLANNING OPTION

CURRICULUM CHECKING SHEET
(2006-2008 Catalog–pending approval)

COURSES REQUIRED IN DEPARTMENT

		CREDITS	SEMESTER TAKEN	GRADE
FRESHMAN YEAR				
ESCI 111N	Physical Geology	4		
ESCI 112CS	Physical Geography	4		
GEOG 105D	World Regional Geography	3		
ECON 101IS	Economic Way of Thinking	3		
CHEM 121/131	General Chemistry	4		
Take 1 of the following:				
ECON 102	Principles of Macroeconomics	3		
ECON 132	Economics and the Environment	3		
University Core and Electives		9		
	TOTAL	30		
SOPHOMORE YEAR				
GEOG 201D	Human Geography	3		
GEOG 211	Fund. of GIS and Cartography	3		
STAT 216Q	Elem. Statistics	3		
STAT 217	Inter. Statistics	3		
POLS 206IS	Govt of the US	3		
Take 1 of the following:				
ENGL 221	College Writing II	3		
ENGL 223	Technical Writing	3		
Take 1 of the following:				
ME 115 and 116	Engineering Design Graphics	2		
TE 230	2-D Computer Aided Drafting	2		
University Core and Electives		10		
	TOTAL	30		

JUNIOR YEAR

GEOG 305	GIS and Spatial Analysis	3		
GEOG 334	Geographical Planning	3		
ESCI 301	Earth Science Writing	2		
POLS 208	State and Local Govt	3		
LRES 201	Soil Resource	3		
LRES 357	GPS Fund. and Appl. in Mapping	3		
Take 2 of the following:				
GEOG 331	Urban Geography	3		
GEOG 332	Economic Geography	3		
ESCI 432	Surface Water Resources	3		
Take 1 of the following:				
ESCI 310	Aerial Photo Interpretation	4		
LRES 426	Remote Sensing	3		
University Core and Electives		3 or 4		
	TOTAL	30		

SENIOR YEAR

ESCI 307	Prin. of Geomorphology	4		
GEOG 411	Advanced GIS and Spatial Analysis	3		
GEOG 405	Geographic Thought	3		
GEOG 425	Tourism and Recreational Planning	3		
Take 3 of the following:				
BIOL 303	Princ. of Ecology	3		
LRES 444	Watershed Hydrology	3		
LRES 421	Holistic Thought and Management	3		
POLS 350	Natural Resource Policy	3		
POLS 351	Public Policy Analysis	3		
POLS 355	Prin. of Public Administration	3		
POLS 415	Montana Local Politics and Policy	3		
POLS 457	Urban Politics	3		
Additional Advisor-approved upper division courses in ESCI, GEOG, or LRES		3		
University Core and Electives		5		
	TOTAL	30		

BUDGET ANALYSIS

Proposed Program: ITEM 131-2009+R0506 GIS/Planning Option in B.S. in Earth Sciences Degree

Campus: Montana State University--Bozeman

	Year 1		Year 2		Year 3		Year 4		Year 5	
Estimated **Enrollment**										
FTE Enrollment	10		20		30		40		40	
Estimated Incremental **Revenue***										
Use of Current General Operating Funds	0		0		0		0		0	
State Funds	0		0		0		0		0	
State Funding for Enrollment Growth	0		0		0		0		0	
Tuition Revenue	0		0		0		0		0	
A. Gross Incremental Tuition Revenue	0		0		0		0		0	
B. Reductions to Incremental Tuition	0		0		0		0		0	
C. Net Applied Tuition Revenue (A-B) →	0		0		0		0		0	
Program Fees										
External Funds										
Other Funds										
TOTAL Estimated Revenue	0		0		0		0		0	
Estimated Incremental **Expenditures**										
	FTE	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**
Personal Services										
Operating Expenses										
Equipment										
Start-up Expenditures										
TOTAL Estimated Expenditures	0		0		0		0		0	
Estimated Revenues Over/Under (-) Expenditures	0		0		0		0		0	

* Although the proposed option could result in an overall increase in FTE through improved recruitment or retention, the ability to support the option is not contingent on increased resources and therefore the most conservative estimate is to assume no incremental revenue. Further, even if small increases do occur, these will likely fall within the range of normal fluctuations and impossible to attribute to a specific program.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-2012+R0506**	**Date of Meeting:**	**May 31 - June2, 2006**
Institution:	**Montana State University-Bozeman**		
Program Title:	**Dual Degree Programs with Kadir Has University (Istanbul, Turkey) in Bachelor of Science Programs: Computer Science, Economics, Electrical Engineering, Computer Engineering and Industrial Engineering**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☒ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☒ 6. Program revisions; and
- ☐ 7. Distance delivery of previously authorized degree programs.

☐ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges of Technology where changes require Board action;*
- ☐ 3. Consolidating existing programs and/or degrees.

☐ **C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

Item No.: 131-2012+R0506	Institution: Montana State University-Bozeman

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

Authorization to offer dual degree programs with Kadir Has University (Istanbul, Turkey) in the following existing Bachelor of Science programs: Computer Science, Economics, Electrical Engineering, Computer Engineering and Industrial Engineering. Turkish students will fulfill MSU's standard degree requirements in their chosen major in addition to completing the Kadir Has degree requirements. MSU will accept the academic work completed while in residence at Kadir Has. The Northwest Commission on Colleges and Universities has reviewed and accepted this dual degree relationship between MSU-Bozeman and Kadir Has University.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-2703+R0506**	**Date of Meeting:**	**May 31 – June 2, 2006**
Institution:	**Montana State University – Billings College of Technology**		
Program Title:	**Automobile Collision Repair and Refinishing Technology Certificate**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☒ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☒ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☐ 6. Program revisions; and
- ☐ 7. Distance delivery of previously authorized degree programs.

☐ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools with the exception of the five Colleges of Technology where changes require Board action;
- ☐ 3. Consolidating existing programs and/or degrees.

☐ **C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or

public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

MSU-Billings College of Technology requests approval to delete the Automobile Collision Repair and Refinishing Technology Certificate.

The Board of Regents of Higher Education defines a Certificate of Applied Science as

- a short program of study (31-40) credits that is designed for completion in two semesters or, at most, one calendar year; and
- a limited number of general education credits, (6-9), that meet accreditation requirements and are ordinarily applied in nature.

The Automobile Collision Repair and Refinishing Technology Certificate contains 72 credits, which can not be completed in two semesters or, at most, one calendar year.

There are 3 students currently enrolled in the certificate program at this time; however, they will be allowed to finish out the program under the previous catalog provided there is no break in enrollment. Two students can finish after successful completion of the current semester and Fall 2006. The third student should complete the certificate in Spring 2007.

Deleting this program will not affect any instructor course load. Student may still earn a 37-credit Certificate of Applied Science in Automobile Collision Repair Technology or a 38-credit Certificate of Applied Science in Automobile Collision Refinishing Technology.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-2704+R0506**	**Date of Meeting:**	**May 31 – June 2, 2006**
Institution:	**Montana State University – Billings College of Technology**		
Program Title:	**Computer Assistant Certificate**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☒ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☒ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☐ 6. Program revisions; and
- ☐ 7. Distance delivery of previously authorized degree programs.

☐ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools with the exception of the five Colleges of Technology where changes require Board action;
- ☐ 3. Consolidating existing programs and/or degrees.

☐ **C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private

or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:
MSU-Billings College of Technology requests approval to delete the Computer Assistant Certificate.

The Board of Regents of Higher Education defines a Certificate of Applied Science as

- a short program of study (31-40) credits that is designed for completion in two semesters or, at most, one calendar year; and
- a limited number of general education credits, (6-9), that meet accreditation requirements and are ordinarily applied in nature.

The Computer Assistant Certificate contains 47 credits, which can not be completed in two semesters or, at most, one calendar year.

There are no students enrolled in the certificate program at this time.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-2705+R0506**	**Date of Meeting:**	**May 31 – June 2, 2006**
Institution:	**Montana State University – Billings College of Technology**		
Program Title:	**Human Resources Management "Essentials" Certificate**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☒ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☒ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☐ 6. Program revisions; and
- ☐ 7. Distance delivery of previously authorized degree programs.

☐ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools with the exception of the five Colleges of Technology where changes require Board action;
- ☐ 3. Consolidating existing programs and/or degrees.

☐ **C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:
MSU-Billings College of Technology requests approval to delete the Human Resources Management "Essentials" Certificate.

The Board of Regents of Higher Education defines a Certificate of Applied Science as

- a short program of study (31-40) credits that is designed for completion in two semesters or, at most, one calendar year; and
- a limited number of general education credits, (6-9), that meet accreditation requirements and are ordinarily applied in nature.

The Human Resources Management "Essentials" Certificate only contains 23 credits and no general education requirements. The Essentials Certificate was designed for students who have already earned an associate, bachelor's, or graduate degree.

The "Essentials" Certificate is essentially a duplication of the current 35-credit Human Resource Management Certificate.

Students may still pursue the 35-credit Human Resource Management Certificate; however, MSU-Billings College of Technology is requesting the deletion of the 23-credit Human Resources Management "Essentials" Certificate.

M O N T A N A B O A R D O F R E G E N T S

LEVEL I REQUEST FORM

Item No.:	**131-401+R0506**	**Date of Meeting:**	**May 31-June2, 2006**
Institution:	**Miles Community College**		
Program Title:	**Health Information Technology: Certificates in Medical Coding and Medical Transcription**		

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☒ **A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐ 3. Adding new minors or certificates where there is a major;
- ☐ 4. Adding new minors or certificates where there is an option in a major;
- ☐ 5. Departmental mergers and name changes;
- ☐ 6. Program revisions; and
- ☒ 7. Distance delivery of previously authorized degree programs.

☐ **B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐ 1. Options within an existing major or degree;
- ☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges of Technology where changes require Board action;*
- ☐ 3. Consolidating existing programs and/or degrees.

☐ **C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

Item No.: 131-401+R0506	Institution: Miles Community College

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

Miles Community College seeks approval from the Montana Board of Regents to deliver via online courses these two certificate programs:

Certificate: Health Information Technology, Medical Coding Option
Certificate: Health Information Technology, Medical Transcription Option.

This change recognizes that students in this program enroll in online courses due to the fact that these courses better fit their lifestyles; these students often have a job, family and other outside responsibilities. In addition, individuals employed in these fields often work from home ("telecommute") using a computer and the Internet.

MEMORANDUM

DATE: May 31 – June 1 and 2, 2006

TO: Montana Board of Regents

FROM: Roger Barber, Deputy Commissioner for Academic & Student Affairs

RE: Level II Action Items

Under the Level II approval process, several new academic programs or changes were proposed by some of the campuses of the Montana University System in March 2006. All of the proposed programs or changes were listed in the academic plans submitted by the respective campuses earlier this year. The proposals were reviewed and approved by the academic officers, in March 2006, and now move to the Montana Board of Regents for action.

Flathead Valley Community College:

- **ITEM 130-301-R0306:** Flathead Valley Community College asked for permission to change the name of several of its current Certificates to Certificates of Applied Science. The revision of Montana Board of Regents' Policy 301.12, which was part of the package of policies adopted last year in response to the Transfer of Credits audit, authorized another name for certificates. I.E., Certificates of Applied Science. Flathead Valley Community College has decided to use that designation for some of its certificate programs. Ordinarily, a change in degree name requires a Level II request, with extensive documentation. Since that documentation seems unnecessary and tedious, if the only change in the degree program is from Certificate to Certificate of Applied Science, I have "authorized" the campuses to forego that detail if they decide to take advantage of the recent policy change in names for certificate programs. Flathead Valley Community College is the first to do so. The certificate programs that will become Certificates of Applied Science are: Accounting Technology; Building Trades; Business Administration; Goldsmithing Bench; Heating, Ventilation, Air Conditioning, and Refrigeration; Information Technology; Medical Coding; Medical Transcription; and Office Technology Clerical.

Montana State University-Great Falls College of Technology:

- **ITEM 130-2851-R0306:** Montana State University-Great Falls College of Technology requested permission to offer an Associate of Applied Science degree in Radiologic Technology. The program will be developed in collaboration with Benefis Healthcare and the Great Falls Clinic.

- **ITEM 130-2852-R0306:** Montana State University-Great Falls College of Technology asked for authority to change its current Associate of Applied Science degree in Nursing to a Certificate of Practical Nursing, to comply with the model curriculum for Licensed Practical Nursing programs that was approved by the Montana Board of Regents in May 2005. The Level II document also included information about course and program revisions that were part of the model curriculum.

Montana State University-Northern:

- **ITEM 130-2804-R0306:** Montana State University-Northern requested permission to offer its Bachelor of Science degree in Civil Engineering Technology in Great Falls, in collaboration with Montana State University-Great Falls College of Technology. As part of the collaboration, students in the program could also be awarded an Associate of Science degree from the MSU-Great Falls College of Technology when they have finished the appropriate coursework for that credential. The coursework in the Associate of Science degree would include a program of study in Civil Engineering Technology.

The University of Montana-Missoula:

- **ITEM 130-1018-R0306:** The University of Montana-Missoula asked for authority to establish a minor in Irish Studies.

Montana Tech of The University of Montana:

- **ITEM 130-1503-R0306:** Montana Tech of The University of Montana asked for authority to offer a Bachelor of Science degree and a Master of Science degree in Electrical Engineering. Montana Tech currently has an Option in Electrical Engineering, in both its Bachelor of Science and Master of Science degrees in General Engineering. This program request would change those options to stand-alone baccalaureate and graduate degrees.

ITEM 130-301-R0306 **Authorization to Change the names of approved Certificates to Certificates of Applied Science; Flathead Valley Community College**

THAT: The Board of Regents of Higher Education authorizes Flathead Valley Community College to change the name of the following programs from Certificates to Certificates of Applied Science:

Accounting Technology
Building Trades
Business Administration
Goldsmithing Bench
Heating, Ventilation, Air Conditioning, and Refrigeration
Information Technology
Medical Coding
Medical Transcription
Office Technology Clerical

EXPLANATION: Because the Montana Board of Regents' Policy 301.12, Undergraduate Degree Requirements: Associate Degrees and Certificates of Applied Science, adopted in May 2005, creates a Certificate of Applied Science as a new degree in the Montana University System, Flathead Valley Community College seeks approval to change the name of approved Certificates to Certificates of Applied Science. All the Certificates of Applied Science listed above will remain the same. The name of the program and the number of credits in the program will remain the same. The only change that is requested is the name of the degree, which will become a Certificate of Applied Science.

M O N T A N A B O A R D O F R E G E N T S

LEVEL II REQUEST FORM

Item No.:	**130-301-R0306**	**Date of Meeting:**	**March 1-3, 2006**
Institution:	**Flathead Valley Community College**		
Program Title:	**Certificates of Applied Science**		

Level II proposals require approval by the Board of Regents.

Level II action requested (check all that apply): Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

☒ 1. Change names of degrees (e.g. from B.A. to B.F.A.)
☐ 2. Implement a new minor or certificate where there is no major or no option in a major;
☐ 3. Establish new degrees and add majors to existing degrees;
☐ 4. Expand/extend approved mission; and
☐ 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

Montana Board of Regents' Policy 301.12, Undergraduate Degree Requirements: Associate Degrees and Certificates of Applied Science, adopted by the Board in May 2005, creates a Certificate of Applied Science as a new degree in the Montana University System. Before the adoption of that new policy, a Certificate was the only name available for such a credential.

A name change for a degree program (i.e., from Certificate to Certificate of Applied Science) ordinarily requires a Level II document with all of the supporting paperwork and information. This Level II request is being submitted, without all of that documentation, to change the following Certificates to Certificates of Applied Science:

Accounting Technology
Building Trades
Business Administration
Goldsmithing Bench
Heating, Ventilation, Air Conditioning, and Refrigeration
Information Technology
Medical Coding
Medical Transcription
Office Technology Clerical

All of the Certificates of Applied Science listed above will remain the same. The name of the program and the number of credits in the program will remain the same. The only change that is requested is the name of the degree, which will become a Certificate of Applied Science.

ITEM 130-2851-R0306 **Authorization to establish an Associate of Applied Science Degree in Radiologic Technology**

THAT: The Board of Regents of Higher Education authorizes Montana State University – Great Falls, College of Technology to establish an AAS degree program in Radiologic Technology.

EXPLANATION: Montana State University – Great Falls seeks approval from the Montana Board of Regents to establish an AAS degree in Radiologic Technology. This program will be developed as a partnership with Benefis healthcare and the Great Falls Clinic to increase the supply of trained radiographic technicians in the Great Falls region.

M O N T A N A B O A R D O F R E G E N T S

LEVEL II REQUEST FORM

Item No.:	**130-2851-R0306**	**Date of Meeting:**	**March 1-3, 2006**
Institution:	**Montana State University – Great Falls, College of Technology**		
Program Title:	**Associate of Applied Science degree in Radiologic Technology**		

Level II proposals require approval by the Board of Regents.

Level II action requested (check all that apply): Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

☐	1.	Change names of degrees (e.g. from B.A. to B.F.A.)
☐	2.	Implement a new minor or certificate where there is no major or no option in a major;
☒	3.	Establish new degrees and add majors to existing degrees;
☐	4.	Expand/extend approved mission; and
☐	5.	Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

MSU-Great Falls, College of Technology proposes the creation of an Associate of Applied Science degree program in Radiologic Technology. The proposed program will provide the didactic and clinical training necessary for a graduate to pass the American Society of Radiologic Technologists national certification examination as well as provide the skills necessary to enter the work force as a Registered Radiologic Technologist (RT). The proposed Radiologic Technology program requires 23 credits of prerequisite work designed to be taken over the course of an academic year. Students who complete all of the pre-requisite courses with a grade of C- or better may submit an application for entry into the program itself. The program advisory board meets each April to review applications and select the incoming class for the following fall semester. The Radiologic program is made up of a total of 65 credits distributed over four semesters and one summer session. The program will be offered as a partnership with Benefis Hospital and the Great Falls Clinic. MSU-Great Falls will fund a program director and provide instruction in all pre-requisite courses and some radiology courses. Benefis hospital will fund a full-time instructor and clinical supervisor while the Great Falls Clinic will fund a half-time (.5 fte) instructor and clinical supervisor.

M O N T A N A B O A R D O F R E G E N T S

NEW ACADEMIC PROGRAM PROPOSAL SUMMARY

Institution: Montana State University - Great Falls, COT

Program Title: Associate of Applied Science degree in Radiologic Technology

1. **How does this program advance the campus' academic mission and fit priorities?**

MSU-Great Falls is committed to addressing the educational and workforce development needs of the Golden Triangle and the state. The institution has a well-deserved reputation for responding to the needs of the healthcare industry. Radiologic technologists are in short supply locally, statewide, and nationally with increasing demand anticipated as the field of radiology develops more diverse applications. The development of the Radiologic Technology program at MSU-Great Falls is the result of a partnership with Benefis Hospital and the Great Falls Clinic. Under this collaborative effort, the two hospitals are providing financial support for the Radiologic Technology program by financing an instructor/clinical coordinator at each institution.

2. **How does this program fit the Board of Regents' goals and objectives?**

The mission of the Montana University System is to serve students through the delivery of high quality, accessible postsecondary educational opportunities, while actively participating in the preservation and advancement of Montana's economy and society. In particular the Montana University System is committed to "be responsive to market, employment, and economic development needs of the State and the nation."

The Radiologic Technology program provides accessible, affordable, efficient, and practical learning opportunities for individuals in Great Falls and Montana. Benefis Healthcare approached MSU-Great Falls requesting the institution join it in a collaborative effort to transform its radiology program it into a college based degree program. The program being phased out has been very successful contributing six highly qualified, well paid, graduates to the local and state economy every year since 1954. The new college based program will expand that number and provide improved training thanks to MSU-Great Falls rigorous pre-requisite courses.

3. **How does this program support or advance Montana's needs and interests?**

Montana's needs for a well trained radiology workforce will continue to increase as the current labor pool ages and workers retire. Healthcare and Social Services are projected to have the largest nonagricultural sector increase in terms of payroll for 2003-2005 as per the Labor Day Report 2004. Radiologic Technology and Technician job growth is expected to increase 26% from 710 in 2002 to 890 in 2012. The average annual job openings in radiologic technology during this time period are projected at 30 positions per year. Due to the wage difference between Montana and other states, it has been very difficult for the healthcare community to recruit Radiologic Technologists from out of state.

The Radiologic Technology program at MSU-Great Falls will increase the pool of certified technologists. Without an available resource pool of technologists to perform radiographic examinations, the resultant shortage of qualified radiologic technologist could have an adverse impact on the quality of healthcare in Montana.

State and National Trends

	Employment		Percent Change	Average Annual Job Openings
Montana	**2002**	**2012**		
Radiologic Technologists and technicians	**710**	**890**	**+26%**	**30**
	Employment		**Percent Change**	**Average Annual Job Openings**
United States	**2002**	**2012**		
Radiologic Technologists and technicians	**174,100**	**214,100**	**+23%**	**7,250**

Source: U.S. Dept. of Labor, America's Career InfoNet: Occupation Profile

4. **How will this program contribute to economic development in Montana? (Note projected annual economic impact both regionally and statewide.)**

The healthcare industry is one of the largest economic segments of the State of Montana. Benefis Hospital, the largest healthcare provider in the state requested the assistance of MSU-Great Falls in preserving a Radiologic Technology program in Great Falls and the Great Falls Clinic the second major healthcare provider in the area offered its assistance as soon as it was asked. Currently the Benefis Program graduates six individuals a year, the addition of clinical sites at the Great Falls Clinic allows the program to immediately increase to 8 with 10 graduates the target in the third year. The graduates have the potential to earn approximately $35,000 per year. The 10 graduates each year after year three will be compensated approximately $350,000 in yearly salary, which will have a positive effect on the local economy.

5. **What is the program's planned capacity?**

• Break-even point?	20 FTE students
• Enrollments / year?	10 3rd year and after
• Graduates / year?	10
• MT jobs / year?	10

6. **Resource Allocation:**

• Total program budget?	$ 53,500
• Faculty FTE?	2.5 fte
• Staff FTE?	0

7. **Does this program require new resources?** X Yes ☐ No

If yes, what is the amount? $ 53,500

8. **How will the campus fund the program?**

Through tuition, state allotment, student fees and funding in the form of salaries from local industry.

9. **If internal reallocation is necessary, name the sources.**

None needed

Associate of Applied Science in Radiographic Technology

PROGRAM DESCRIPTION

1. Briefly describe the proposed new program. Please indicate if it is (a) an expansion of an existing program or a new program; (b) a cooperative effort with another institution, business, or industry; or (c) an on-campus or off-campus program. Attach any formal agreements established for cooperative efforts.

The proposed program in Radiologic Technology at MSU-Great Falls is a two year Associate of Applied Science program. It is designed to provide the didactic and clinical training necessary for a graduate to pass the American Society of Radiologic Technologists national certification examination as well as provide the skills necessary to enter the work force as a Registered Radiologic Technologist (RT). The proposed Radiologic Technology program requires 23 credits of prerequisite work designed to be taken over the course of an academic year. Students who complete all of the pre-requisite courses with a grade of C- or better may submit an application for entry into the program itself. The program advisory board meets each April to review applications and select the incoming class for the following fall semester. The Radiologic program is made up of a total of 65 credits distributed over four semesters and one summer session.

(b) The program will be offered as a partnership with Benefis Hospital and the Great Falls Clinic. MSU-Great Falls will fund a program director and provide instruction in all pre-requisite courses and some non-clinical instruction. Benefis hospital will fund a full-time instructor and clinical supervisor while the Great Falls Clinic will fund a half-time (.5 fte) clinical supervisor.

(c) All pre-requisite courses and some radiology courses will be delivered at MSU-Great Falls, the remaining didactic, procedural (lab) courses, and clinicals will be delivered at Benefis and the Great Falls Clinic. Specific rotation will be determined by academic requirements.

2. Summarize the needs assessment conducted to justify the proposal.

Benefis hospital and its predecessor institutions have offered a very successful hospital based radiology program since 1954 however, the profession is moving away from hospital based programming towards programs accredited through institutions of higher education. Similar changes have already taken place in Billings and Kalispell, Montana. In March of 2005 the staff of the Radiologic program at Benefis hospital approached MSU-Great Falls about taking over management of the program. The hospital based program has produced a minimum of six graduates a year throughout its operation all of its graduates have found employment.

The need for trained radiologic technicians will only increase as the number of imaging exams performed per year rises, retirement from the field will also create an increasing demand over the next ten years. Available and well trained healthcare workers are vital for maintaining the health of Montana's population. For a number of years the healthcare facilities within this region have had significant problems filling vacant positions for technologists. The American Hospital Association reported the current hospital vacancy rate of radiologic technologists at 15.3% (17% in the west). The U.S. Department of Labor reported the United States will need 55,000 more technologists by 2008. This program is designed to provide high quality, certified radiologic technologists to meet this current and projected shortage.

3. Explain how the program relates to Role and Scope of the institution as established by the Board of Regents.

MSU-Great Falls is charged by the Montana Board of Regents with responding to regional workforce needs by training students for high skills jobs that will contribute to the economy. This proposal fits these criteria perfectly as industry is no longer able to offer Radiologic training as a hospital based program.

4. State (a) what effect, if any, the proposed program will have on the administrative structure of the institution. Also indicate (b) the potential involvement of other departments, divisions, colleges, or schools.

The Radiologic program will be administered as a part of the Health Sciences department at MSU-Great Falls and will have its own Advisory Board drawn from industry.

5. Describe the extent to which similar programs are offered in Montana, the Pacific Northwest, and states bordering Montana. How similar are these programs to the one proposed?

Four AAS degrees in Radiological Technology are currently offered in Montana, At MSU-Billings, Montana Tech, Flathead Valley Community College, and UM-COT at Missoula, the programs serve the needs of widely scattered geographic regions. The proposed program is modeled on the program delivered at Flathead Valley Community College.

6. Please name any accrediting agency (ies) or learned society (ies) that would be concerned with particular program herein proposed. How has this program been developed in accordance with criteria developed by said accrediting body (ies) or learned society (ies)?

The program conforms to the requirements of the Northwest Commission on Colleges and Universities. A request for substantial change will be submitted to NWCCU upon approval by the Board of Regents. The American Registry of Radiologic Technologists (ARRT) recognizes the Northwest Commission on Colleges and Universities as an approved accrediting body, students graduating form the program will be qualified to take the ARRT licensing exam.

7. Prepare an outline of the proposed curriculum showing course titles and credits. Please include any plans for expansion of the program during its first three years.

MSU-Great Falls' Radiologic Technology program spans five semesters (four regular semesters plus one summer semester). Students average 40 hours per week in classroom, lab, and clinical work in fulfilling the 65 credits leading to an Associate of Applied Science degree. After graduation, students are eligible to take the American Registry examination for credentialing as a Registered Radiologic Technologist. The program will be delivered at three separate sites, MSU-Great Falls, Benefis Hospital and the Great Falls Clinic.

To be considered for admission into the program, applicants are required to submit documentation showing completion of the following courses with a grade of C- or better.

Current capacity of the hospital based program is 6 students per year. With the

addition of clinical sites at the Great Falls Clinic this will increase to 8 and to 10 students per year (20 at any one time) by the third year. One final intake of students into the current hospital based program will take place in fall of 2006. Students intending to enroll in the proposed program will be advised into pre-requisite classes for the 2006/2007 academic year. The first intake of students into the proposed MSU-Great Falls program will be in fall 2007.

Prerequisite Courses

ENGL 121	Composition I	3
AH 145	Intro Med Terms	1
MATH 103	Introductory Algebra	4
CHEM 111	Princ. of Inorganic Chem **OR**	
BIO 107	Human Biology	4
BIO 213	A & P I	4
BIO 214	A & P II	4
	Human Relations	3
		23

Students in the Radiologic Technology Program must earn a "C-" or better in ALL classes in the two-year program. Any grade less than a "C-" in any class will result in the student having to retake that class.

Radiologic Technology

1st Fall Semester

RAD 235	Radiation Bio & Protection	4
RAD 105	Intro Radiography	2
RAD 110	Radiographic Proc I	2
RAD 115	Radiographic Princ I	2
RAD 140	Clinical Education I	8
		18

1st Spring Semester

RAD 111	Radiographic Proc II	2
RAD 116	Radiographic Princ II	2
RAD 130	Patient Care	2
RAD 141	Clinical Education II	6
		12

Summer Semester

RAD 240	Clinical Education III	9
		9

2nd Fall Semester

RAD 106	Radiation Physics	4
RAD 210	Radiographic Proc III	2
RAD 220	Radiographic Princ III	2
RAD 241	Clinical Education IV	6
		14

2nd Spring Semester

RAD 215	Radiographic Proc IV	2

RAD 242	Clinical Education V	8
RAD 270	Registry Review	2
		12

Total Credits 65

FACULTY AND STAFF REQUIREMENTS

1. **Please indicate, by name and rank, current faculty who will be involved with the program proposed herein.**

Cherie Mckeever, Anatomy and Physiology Instructor, Level 3
Roger Peffer, Biology Instructor, Level 2
Adam Wentz, Chemistry Instructor, Level 1
Colleen Hazen, English Instructor, Level 3
Jana Carter, English Instructor, Level 2
Rebecca Johnson, Mathematics Instructor, Level 2
Mark Plante, Mathematics Instructor, Level 2
Heidi Pasek, Psychology Instructor, Level 3

2. Please project the need and cost for new faculty over the first five years of the program. Include special qualifications or training. If present faculty is to conduct the new program, please explain how they will be relieved from present duties.

Program Director, full-time – to be funded by MSU-Great Falls the program director will provide student advising, oversee admissions into the program, conduct Advisory Board meetings, supervise instructors and clinical supervisors, liaison between partners, handle academic administration. The director must hold a Masters degree and have experience with radiology. Salary - $50,000

Radiographic instructor and clinical supervisor, full-time – to be funded by Benefis Healthcare – will provide didactic and laboratory instruction as well as clinical supervision for that portion of the course work to be delivered onsite at Benefis hospital.

Radiographic instructor and clinical supervisor, half-time (.5 fte) – to be funded by the Great Falls Clinic - will provide didactic and laboratory instruction as well as clinical supervision for that portion of the course work to be delivered onsite at the Great Falls Clinic.

3. Please explain the need and cost for support personnel or other required personnel expenditures.

None needed.

CAPITAL OUTLAY, OPERATING EXPENSES AND PHYSICAL FACILITIES

1. Please summarize operating expenditure needs.

Supplies -	1,000
Communications -	1,000
Total -	2,000

2. Please evaluate library resources. Are they adequate for operation of the proposed program? If not, how will the library need to be strengthened during the next three years?

A substantial amount of library resources are available at Benefis hospital, this material, which is non-circulating, will be supplemented by material purchased by the MSU-Great Falls library out of the library's collection development budget. The Chief Librarian will work closely with the Program Director to develop the collection.

3. **Please indicate special clinical, laboratory, and/or computer equipment that will be needed. List those pieces of equipment or computer hardware presently available in the department.**

All specialized equipment is currently available at either Benefis or the Great Falls Clinic, classroom and lab facilities required for the pre-requisite courses are currently available at MSU-Great Falls.

4. Please describe facilities and space required for the proposed program. Are current facilities adequate for the program? If not, how does the institution propose to provide new facilities?

No new facilities are required.

BUDGET ANALYSIS

Proposed Program: Associate of Applied Science Degree in Radiological Technology

Campus: Montana State University - Great Falls, College of Technology

	Year 1		Year 2		Year 3		Year 4		Year 5	
Estimated **ENROLLMENT**										
FTE Enrollment	8		16		20		20		20	
Estimated Incremental **REVENUE**										
Use of Current General Operating Funds										
State Funding for Enrollment Growth	15,104		15,104		7,552		-		-	
Tuition Revenue										
A. Gross Incremental Tuition Revenue	22,208		45,920		57,400		57,400		57,400	
B. Reductions to Incremental Tuition										
C. Net Tuition Revenue (A-B)	22,208		45,920		57,400		57,400		57,400	
Program/Course Fees	1,200		2,400		3,000		3,000		3,000	
External Funds										
Other Funds (please specify)										
TOTAL Estimated Incremental Revenue	23,408		48,320		60,400		60,400		60,400	
Estimated Incremental **EXPENDITURES**										
Personal Services	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**
Faculty										
Other Staff	1	50,000	1	51,500	1	51,500	1	51,500	1	51,500
Operating Expenses	2,000		2,000		2,000		2,000		2,000	
Equipment										
Start-up Expenditures										
TOTAL Estimated Incremental Expenditures	52,000		53,500		53,500		53,500		53,500	
Estimated Revenues Over/(Under) Expenditures	(28,592)		(5,180)		6,900		6,900		6,900	

ITEM 130-2852-R0306 **Authorization to convert an Associate of Applied Science Degree in Practical Nursing to a Certificate of Practical Nursing; Montana State University-Great Falls, College of Technology**

THAT: The Board of Regents of Higher Education authorizes Montana State University – Great Falls College of Technology to convert its existing AAS degree in Practical Nursing to a Certificate of Practical Nursing.

EXPLANATION: Montana State University – Great Falls seeks approval from the Montana Board of Regents to convert its existing AAS degree in Practical Nursing to a Certificate of Practical Nursing in order to bring its program into conformity with the common curriculum for two-year nursing programs recently adopted by the Office of the Commissioner for Higher Education. MSU-Great Falls has offered an AAS Degree in nursing for 11 years, graduating an average of 16 students a year. For the last 12 years our students have maintained a 100% pass rate on the Licensed Practical Nurse exam, with all but two students in that time period passing the exam on their first attempt. Licensed practical nurse employment in the Great Falls area will continue to increase in response to long-term care needs of an increasing elderly population and the expansion of health care facilities such as the new Sletten Cancer Institute in Great Falls. Conversion to a Certificate program will allow MSU-Great Falls to remain in conformity with state-wide academic standards and to continue to serve the medical needs of our community.

M O N T A N A B O A R D O F R E G E N T S

LEVEL II REQUEST FORM

Item No.:	**130-2852-R0306**	**Date of Meeting:**	**March 1–3, 2006**
Institution:	**Montana State University – Great Falls**		
Program Title:	**Practical Nursing Certificate**		

Level II proposals require approval by the Board of Regents.

Level II action requested (check all that apply): Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- ☒ 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- ☐ 2. Implement a new minor or certificate where there is no major or no option in a major;
- ☐ 3. Establish new degrees and add majors to existing degrees;
- ☐ 4. Expand/extend approved mission; and
- ☐ 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

Montana State University – Great Falls College of Technology seeks permission to convert its existing Associate of Applied Science degree in Practical Nursing to a Certificate of Practical Nursing in accordance with the common curricula for two-year nursing programs adopted by the Office of the Commissioner of Higher Education.

M O N T A N A B O A R D O F R E G E N T S
NEW ACADEMIC PROGRAM PROPOSAL SUMMARY

Institution: Montana State University - Great Falls College of Technology

Program Title: Certificate of Practical Nursing

1. **How does this program advance the campus' academic mission and fit priorities?**

MSU-Great Falls has offered the AAS in Practical Nursing since 1995 to respond to the needs of the healthcare industry for qualified nurses. During that time the institution has graduated over 200 students, the majority of whom secured employment in Great Falls or in the Golden Triangle. In order to continue to respond to the healthcare needs of the community and remain in compliance with Board of Regents criteria, it is necessary to transform the program from its current state as an AAS degree to a Certificate program.

2. **How does this program fit the Board of Regents' goals and objectives?**

The LPN program has responded to the regional needs since its inception in 1995. The need for licensed practical nurse employment will only increase in coming years in response to the long-term care needs of an increasing elderly population and the general growth of health care (U.S. Department of Labor). The demographics of Cascade and Chouteau Counties show a growing increase in the elderly population. In 2000, the Montana population of those 65 years and older was 13.4 percent (13.4%). While the national figure was 12.4 percent (12.4%). In Cascade County, the percentage of people 55 and older increased by over 15% between 2000 and 2004 (U.S. Census Bureau).

3. **How does this program support or advance Montana's needs and interests?**

The Montana Hospital Association conducted a recent survey on healthcare worker needs in the state. Seventy-five percent (75%) of all Montana hospitals participated in the survey. The following data is from that report, which was presented to the Nursing Coordinating Group in June 2004:

Thirty-nine licensed practical nursing (LPN) positions were vacant, representing 5.7 percent (5.7%) of the budgeted LPN positions;

The vacancy rate is significantly higher at so-called "critical access hospitals," which are the smaller, more rural facilities. At those facilities, the vacancy rate for LPNs is 9.7 percent (9.7%).

According to the respondents, they spent approximately $27 million in the previous year on "replacement strategies" such as overtime pay and travelers. That figure included all healthcare workers, but most of the money was spent on additional nursing staff.

Conversion of the current program from a two-year AAS degree to a Certificate program will not only bring MSU-Great Falls into conformity with current OCHE requirements but will also allow students to complete their degree in one year, increasing the number of graduates to fill critical nursing vacancies in the Great Falls region.

4. **How will this program contribute to economic development in Montana? (Note projected annual economic impact both regionally and statewide.)**

The Montana Department of Labor & Industry, Research & Analysis Bureau reports that out of the state's 20 top employers, six are hospitals. The Bureau predicts that Montana will employ 2,812 LPNs by the year 2010. Montana can keep up with the nursing demand only by educating more nurses. Montana's Nursing Program Directors report that graduates are readily hired. In Montana, licensed practical nurses average $25,450 annually, plus benefits. Providing individuals with employment opportunities upon graduation contributes to the economic development of the state and region. In Montana, employment for licensed practical nurses is projected to grow faster than the statewide average for all occupations through 2012 (Montana Department of Labor & Industry - Research & Analysis Bureau).

The health care industry includes establishments ranging from small town private physician practices employing only one licensed practical nurse to nursing homes, which provide the majority of jobs. Many health services establishments operate around the clock and need staffing at all hours. Shift work is common in LPN

practice. The economic impact of Montana's health care industry shown in the tables below illustrates all sectors of the economy are interconnected, and the impacts are captured in multipliers, which are ratios used to calculate the estimated total economic effect for a variety of economic activities. The multipliers quantify the induced and indirect effects of the health care industry and add it to the known demand and supply side effects. According to 2001 data below, employment multipliers were generated for hospitals and nursing and residential care facilities in Montana:

Total Employment Impact of Montana's Hospitals:
Jobs from Hospitals
Hospital employment 19,123 number of workers
Hospital multiplier 2.03 (in rural settings, the multiplier be lower than in rural areas)
Jobs created in other businesses 19,774
Total Jobs 38,897

Total Employment Impact of Montana's Nursing and Residential Care Facilities:
Jobs from nursing and residential care facilities
Nursing and residential care facilities employment 9,704
Nursing and residential care facilities multiplier 1.36
Jobs created in other businesses 3,537 Total Jobs 13,241

Source: Research and Analysis Bureau, Montana Department of Labor and Industry, QCEW program Summary

There is a shortage of LPNs statewide and regionally. In addition, there are limited numbers of instructors and directors for Practical Nursing programs, which could provide an opportunity for those who graduate from this Practical Nursing program to pursue further education and consider teaching or directing. With Montana's aging population and rural setting, providing quality health care will continue to become an increasing problem. Without additional support to create solutions to nursing shortages, health care will increasingly become unavailable and unaffordable.

5. **What is the program's planned capacity?**

• Break-even point?	Program does not break even
• Enrollments / year?	22 FTE students
• Graduates / year?	16
• MT jobs / year?	16

6. **Resource Allocation:**

• Total program budget?	$ 183,512
• Faculty FTE?	3 FTE (down 1 FTE from current level)
• Staff FTE?	0

7. **Does this program require new resources?** ☐ Yes X No

If yes, what is the amount? $ _____

8. **How will the campus fund the program?**

Through tuition, fees and the State allocation as previously

9. **If internal reallocation is necessary, name the sources.**

None Required

Licensed Practical Nursing -- PROGRAM DESCRIPTION

1. Briefly describe the proposed new program. Please indicate if it is (a) an expansion of an existing program or a new program; (b) a cooperative effort with another institution, business, or industry; or (c) an on-campus or off-campus program. Attach any formal agreements established for cooperative efforts.

The proposed transformation of the Licensed Practical Nursing (LPN) program at MSU-Great Falls College of Technology will continue our tradition of providing well qualified Practical Nurses to the healthcare industry in Great Falls and throughout the Golden Triangle. The program will transform itself from its current configuration as an Associate of Applied Science degree of 65 program credits, to a Certificate degree program of 50 credits. The transformation will allow students to pass through the program faster and bring the program into conformity with the common curriculum adopted by the Board of Regents.

2. Summarize the needs assessment conducted to justify the proposal.

From 2002 to 2004 MSU-Great Falls graduated 32 LPNs, all of whom are currently employed in the field. The success of the program in placing 100% of its graduates over the last 3 years and the continuing demand, both locally and at the state level, for healthcare professionals indicate the need to continue the well-established program under the new Board of Regents configuration.

3. Explain how the program relates to Role and Scope of the institution as established by the Board of Regents.

MSU-Great Falls is charged with responding to the workforce needs of Great Falls and the North Central Montana region. Our servicing of the healthcare industry is a large part of that mission. Conversion of the current AAS program in Practical Nursing to a Certificate program will allow the institution to continue serving the needs of the healthcare industry.

4. State (a) what effect, if any, the proposed program will have on the administrative structure of the institution. Also indicate (b) the potential involvement of other departments, divisions, colleges, or schools.

As a change in culminating award for an existing program, the Certificate program will have no impact on administrative structure and no new impact on other departments. Currently the Arts and Sciences department provides general education courses to satisfy that portion of the Nursing curriculum and under the new proposal will continue to do so.

5. Describe the extent to which similar programs are offered in Montana, the Pacific Northwest, and states bordering Montana. How similar are these programs to the one proposed?

There are currently five other Practical Nursing programs offered in Montana at UM-Helena, UM, COT – Missoula, MSU-Billings, Montana Tech in Butte and at Flathead Valley Community College. All of these programs will be converting to the mandated

Board of Regents program and all serve regional and state wide Licensed Practical Nursing needs.

6. Please name any accrediting agency (ies) or learned society (ies) that would be concerned with particular program herein proposed. How has this program been developed in accordance with criteria developed by said accrediting body (ies) or learned society (ies)?

The proposed changes to the Practical Nursing program, should it be approved by the Board of Regents, will be submitted for approval to the Montana Board of Nursing at its October 2006 meeting. A memo reporting a substantive program change will also be submitted to the Northwest Commission on Colleges and Universities upon approval by the Montana Board of Regents.

7. Prepare an outline of the proposed curriculum showing course titles and credits. Please include any plans for expansion of the program during its first three years.

The LPN curriculum consists of 50 credits divided between 26 pre-requisite credits and 24 nursing credits. Students will also have the opportunity to enroll in a one credit IV therapy seminar, a specialized course requested by the local healthcare community and open to all interested persons not just those enrolled in the LPN program, as an option enhancing local employability. The course titles and credits are listed below courses will be sequenced based upon student demand, faculty resources and availability of clinical sites.

Pre-requisite courses: Many students need preliminary math, science, and English courses before enrolling in the LPN prerequisite coursework. These courses may increase the total number of program credits.

BIO 213 Anatomy & Physiology I w/lab - 4 credit hours

BIO 214 Anatomy & Physiology II w/lab - 4 credit hours

ENG 121 Composition I - 3 credit hours

CHM 111 Inorganic Chemistry w/lab - 4 credit hours

MATH 161 College Algebra - 3 credit hours

AH 221 Human Nutrition - 2 credit hours

PSY 109 Lifespan Developmental - 3 credit hours

AH/NURS 140 Pharmacology - 3 credit hours

Nursing Courses:

NURS 100 Introduction to Nursing - 1 credit hour

NURS 150 Fundamentals of Nursing - 7 credit hours

NURS 250 Gerontology - 2 credit hours

NURS 260 Adult Nursing - 7 credit hours

NURS 270 Maternal/Child Nursing - 3 credit hours

NURS 280 Mental Health Nursing - 2 credit hours

NURS 290 Nursing Leadership - 2 credit hours

Transition of Students:

One more intake of students into the AAS program in Practical Nursing will take place in August of 2006. Students entering at that time will complete the current program with the last graduating no later than December of 2007. Students may also begin the proposed Certificate program in 2006 as well. The first certificate class will graduate in August of 2008.

FACULTY AND STAFF REQUIREMENTS

1. **Please indicate, by name and rank, current faculty who will be involved with the program proposed herein.**

Cheryl Alt, Nursing Program Director, Level 2
Patti Kercher, Nursing Instructor, Level 2
Cynthia Myles, Nursing Instructor, Level 2
Susan Cooper, Nutrition Instructor, Level 2
Cherie Mckeever, D.V.M., Anatomy and Physiology Instructor, Level 3
Roger Peffer, Biology Instructor, Level 2
Adam Wentz, Chemistry Instructor, Level 1
Heidi Pasek, Psychology Instructor, Level 3
Rebecca Johnson, Mathematics Instructor, Level 2
Mark Plante, Mathematics Instructor, Level 2

2. **Please project the need and cost for new faculty over the first five years of the program. Include special qualifications or training. If present faculty is to conduct the new program, please explain how they will be relieved from present duties.**

No new faculty positions will be needed. Instead the reduction in credits from 65 to 50 will allow for a reduction in the size of the current nursing program. Such reductions will be carried out in accordance with the collective bargaining agreement and institutional policies.

3. **Please explain the need and cost for support personnel or other required personnel expenditures.**

None needed.

CAPITAL OUTLAY, OPERATING EXPENSES AND PHYSICAL FACILITIES

1. Please summarize operating expenditure needs.

Contracted Services –	3,000
Supplies -	1,000
Communications -	1,800
Rent -	100
Repairs and Mntn -	400
Misc -	300
Total -	6,600

2. Please evaluate library resources. Are they adequate for operation of the proposed program? If not, how will the library need to be strengthened during the next three years?

Library resources for the Practical Nursing program are regularly evaluated and updated by the Chief Librarian in consultation with the Nursing Faculty. Books and other materials housed in the Library's general fund.

3. **Please indicate special clinical, laboratory, and/or computer equipment that will be needed. List those pieces of equipment or computer hardware presently available in the department.**

The Practical Nursing program currently has primary use of R-220, a 35-seat classroom equipped with 10 computer terminals. The program also has use of a fully equipped nursing lab complete with beds, sinks, and all necessary nursing supplies and equipment.

4. Please describe facilities and space required for the proposed program. Are current facilities adequate for the program? If not, how does the institution propose to provide new facilities?

Current facilities have been and will continue to be adequate to house the program.

BUDGET ANALYSIS

Proposed Program: LPN

Campus: Montana State University - Great Falls College Of Technology

	Year 1		Year 2		Year 3		Year 4		Year 5	
Estimated **ENROLLMENT**										
FTE Enrollment	22		22		22		22		22	
Estimated Incremental **REVENUE**										
Use of Current General Operating Funds										
State Funding for Enrollment Growth										
Tuition Revenue										
A. Gross Incremental Tuition Revenue	61,072		62,040		62,040		62,040		62,040	
B. Reductions to Incremental Tuition										
C. Net Tuition Revenue (A-B)	61,072		62,040		62,040		62,040		62,040	
Program/Course Fees	2,970		2,970		2,970		2,970		2,970	
External Funds										
Other Funds (please specify)										
TOTAL Estimated Incremental Revenue	64,042		65,010		65,010		65,010		65,010	
Estimated Incremental **EXPENDITURES**										
Personal Services	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**
Faculty	3	183,512	3	189,017	3	189,017	3	189,017	3	189,017
Other Staff										
Operating Expenses	6,600		6,600		6,600		6,600		6,600	
Equipment										
Start-up Expenditures										
TOTAL Estimated Incremental Expenditures	190,112		195,617		195,617		195,617		195,617	
Estimated Revenues Over/(Under) Expenditures	(126,070)		(130,607)		(130,607)		(130,607)		(130,607)	

ITEM 130-2804-R0306 **Approval of Proposal to Offer a Bachelor of Science Degree in Civil Engineering Technology (Montana State University-Northern) and an Associate of Science Degree with a Program of Study in Civil Engineering Technology (Montana State University – Great Falls College of Technology)**

THAT: The Board of Regents of Higher Education authorizes Montana State University-Northern to award a Bachelor of Science Degree in Civil Engineering Technology, and Montana State University – Great Falls College of Technology to award an Associate of Science Degree with a Program of Study in Civil Engineering Technology

EXPLANATION: Montana State University-Northern and Montana State University – Great Falls College of Technology propose the creation of a Bachelor of Science degree program in Civil Engineering Technology (CET) to be offered jointly in Great Falls through a 2+2 articulation agreement of the Associate of Science degree offered by MSU – Great Falls with the Bachelor of Science degree offered by MSU-Northern. The Civil Engineering program is also offered in Havre at the MSU-Northern campus. Students entering the program will take 124 credits leading to a BS degree in CET. MSU-Great Falls will offer the lower division courses, with the exception of four specialized courses that will be offered by MSU-Northern. One lower-division course, CET 173, will continue to be offered by MSU-Great Falls, but MSU-Great Falls will retain MSU – Northern faculty to teach the course in order to preserve program continuity and meet accreditation requirements. All other CET courses will be offered through and taught by MSU-Northern on the MSU – Great Falls Campus. Upon the completion of the General Education core and 27 additional program credits, students will be eligible to receive an Associate of Science degree from MSU-Great Falls.

M O N T A N A B O A R D O F R E G E N T S

LEVEL II REQUEST FORM

Item No.:	**130-2804-R0306**	**Date of Meeting:**	**March 2-3, 2006**
Institution:	**MSU-Northern and MSU-Great Falls**		
Program Title:	**Bachelor of Science Degree in Civil Engineering Technology (Montana State University Northern), and Associate of Science Degree w/ Program of Study in Civil Engineering Technology (Montana State University – College of Technology Great Falls)**		

Level II proposals require approval by the Board of Regents.

Level II action requested (check all that apply): Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

☐	1.	Change names of degrees (e.g. from B.A. to B.F.A.)
☐	2.	Implement a new minor or certificate where there is no major or no option in a major;
X	3.	Establish new degrees and add majors to existing degrees;
☐	4.	Expand/extend approved mission; and
☐	5.	Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

MSU-Northern and MSU-Great Falls propose the creation of a Bachelor of Science degree program in Civil Engineering Technology (CET) to be offered jointly in Great Falls through a 2+2 articulation agreement of the Associate of Science degree offered by MSU – Great Falls with the Bachelor of Science degree offered by MSU-Northern. The Civil Engineering program is also offered in Havre at the MSU-Northern campus. Students entering the program will take 124 credits leading to a BS degree in CET. MSU-Great Falls will offer the lower division courses, with the exception of four specialized courses that will be offered by MSU-Northern. One lower-division course, CET 173, will continue to be offered by MSU-Great Falls, but MSU-Great Falls will retain MSU –Northern faculty to teach the course in order to preserve program continuity and meet accreditation requirements. All other CET courses will be offered through and taught by MSU-Northern on the MSU – Great Falls Campus. Upon the completion of the 32 credit General Education core and 30 additional program credits (for a total of 62 credits) students will be eligible to receive an Associate of Science degree from MSU-Great Falls.

M O N T A N A B O A R D O F R E G E N T S

NEW ACADEMIC PROGRAM PROPOSAL SUMMARY

Institution: **MSU-Northern and MSU-Great Falls**

Program Title: **Bachelor of Science Degree in Civil Engineering Technology.**

1. How does this program advance the campus' academic mission and fit priorities?

MSU-Northern's Mission Statement commits the institution to providing high quality education in mechanical and engineering technologies while MSU-Great Falls is committed to providing technical training to serve workforce needs and provide access to higher degrees. The proposed program fits the mission of both institutions as it prepares individuals to advance into a four year program that graduates students into well paid jobs that fill the needs of local and national industry for Civil Engineers.

2. How does this program fit the Board of Regents' goals and objectives?

Among the Board of Regents goals is the promise to deliver higher education services in a manner that is efficient, coordinated, highly accessible and responsive to market, employment, and economic development needs of the State and the nation. The proposed program helps the Board of Regents meet both goals by delivering a high value program in an area where the need has been articulated by local employers. The proposed program will be delivered in a collaborative partnership format between two institutions, MSU-Northern and MSU-Great Falls. The Great Falls campus will rely on its current offerings to provide students with the Associate of Science degree, but will rely heavily on MSU-Northern's established lower-division course work for the program of study in Civil Engineering Technology. In turn, MSU – Northern will bring its upper division course work to the Great Falls campus to make it possible for students to complete with Bachelor of Science degree in Great Falls. This program is an example of partnerships encouraged by the Board of Regents where different institutions within the Montana University System share their resources in order to create better access for students.

3. How does this program support or advance Montana's needs and interests?

The types of projects that a CET graduate would be involved in includes design and construction projects for the municipal sector; like subdivisions, airports, traffic designs and configurations, water treatment plants, and sewage treatment plants; for county government with parks, recreational areas, and county roads; for state government with large regional plans, water supply facilities, flood control projects, interstate highway system and state roads, and for the federal government with every department and agency. A student graduating with a CET degree could seek employment at each level of government, with private firms (consultants) and contractors employed by various governments. The governmental agencies, consultants, and contractors could all be located within Montana. For example, Montana has over 1,200 miles of interstate highway and thousands more miles of paved and unpaved roads. Registered professional civil engineers are an essential element in the construction, repair and maintenance of these transportation links, which are vital to the economic and social health of the State. In addition the offering of this program in Great Falls was requested by Malmstom Air Force Base as a vehicle for the training of military engineers who respond to regional and national disasters and play a vital role in national defense.

4. How will this program contribute to economic development in Montana? (Note projected annual economic impact both regionally and statewide.)

By the third year of it operation, the CET program in Great Falls is anticipated to be at 29 students per year. This number is conservative and allows for part-time enrollment of Malmstrom Air Force Base personnel. The CET program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineers and Technology, 111Market Place, Suite 1050, Baltimore, MD 21202-4012 – telephone (410) 347-7700 (TAC/ABET). As a graduate with a TAC/ABET CET program students can choose to fulfill the requirements to become a Licensed Registered Professional Engineer in the State of Montana. Montana Department of Labor statistics indicate that there are 38 openings per year for Civil Engineers in the state. As

of 2002, 1,222 civil engineers were employed in Montana in various capacities. Demand is projected to increase over the next decade reaching 1,401 by 2012. The annual mean income for civil engineers in Montana is $53,720. The offering of MSU-Northern's program in Great Falls will provide additional individuals to fill the hiring needs of the profession in Montana to plan and manage large scale building projects.

In the 1960s and 1970s governmental activities like the development of the National Aeronautics and Space Administration (NASA) and increase protections for the environment through the creation of Environmental Protection Agency increased the need and participation in engineering and science education. During that period the enrollments in colleges and universities offering degrees in engineering and science increased. Since then the enrollments in these programs have been decreasing while at the same time many of those graduates are beginning to retire. The engineering community is concerned about an adequate supply of graduates to fill the anticipated vacancies in the near future. Governmental agencies and private industry are continually looking for trained and qualified personnel to fill the vacancies. In addition to the Civil Engineer projections stated above, there continues to be the need for adequately trained personnel to work in association with Civil Engineers such as graduates in Civil Engineering Technology. For students who do not plan to acquire a license as a Registered Professional Engineer, there is increasing demand for their knowledge and expertise.

5. What is the program's planned capacity?

• Break-even point?	9
• Enrollments / year?	12
• Graduates / year?	7
• MT jobs / year?	10 (new)

6. Resource Allocation:

• Total program budget?	$115,480 by year 5
• Faculty FTE?	1.50 by year 5 plus utilization of existing faculty
• Staff FTE?	.25

7. Does this program require new resources? **X** Yes No

If yes, what is the amount?

For MSU-Northern, $76,400 per year by year 3 (see budget analysis) For MSU – Great Falls, $7,800 by year 2 to develop and provide instruction for general education course work needed for the degree.

8. How will the campus fund the program?

Through tuition, fees and state allocation for FTE

9. If internal reallocation is necessary, name the sources.

None required

Montana State University – Northern
and
Montana State University - College of Technology Great Falls

Program Description

1. **Briefly describe the proposed new program. Please indicate if it is an expansion of an existing program; a new program; cooperative effort with another institution, business or industry; or an on-campus or off-campus program. Attach any formal agreements established for cooperative efforts.**

   The proposed delivery of the B.S. degree in Civil Engineering Technology at the Great Falls College of Technology is intended to provide access for individuals in the Great Falls area to a four-year degree program in Civil Engineering Technology. The program is nationally accredited (ABET) and has been delivered for over 15 years by MSU-Northern.

2. **Summarize a needs assessment conducted to justify the proposal. Please include how the assessment plan was developed or executed and the data derived from this effort.**

   During 2003, personnel from Malmstrom Air Force Base requested a meeting with MSU-Northern personnel to discuss the feasibility of delivering the bachelor's degree in Civil Engineering Technology (CET) in Great Falls for base personnel. After discussions with MSU – Great Falls and the Great Falls Higher Education Center Advisory Council, the two institutions concluded that the feasibility of offering the degree in Great Falls was possible if the two institutions developed a closely aligned partnership and articulation agreement for delivery of the program. The agreement between the two institutions allows the Great Falls COT to deliver all lower division course work (excluding four required CET courses) and MSU-Northern to deliver the four lower-divison CET courses and all upper division coursework. One additional lower-division CET course (CET 173) will continue to be delivered by the Great Falls COT; however, MSU – Great Falls will retain an MSU-Northern-approved instructor in the CET program to teach the course.

3. **Explain how the program relates to the Role and Scope of the institution as established by the Board of Regents.**

   The program represents two-year transfer education and four-year baccalaureate education demanded by Montana business and industry. The delivery of this program would be a natural extension of the mission of both institutions and would provide access to a program needed by one of the largest employers (Malmstrom) in Great Falls. The delivery of the program also provides a close alliance between a two-year and four-year institution.

4. **Please state what effect, if any, the proposed program will have on the administrative structure of the institution. Also indicate the potential involvement of other departments, divisions, colleges, or schools.**

   There will be no change to the administrative structure of either institution. All courses and activities will take place either on-site within the Great Falls College of Technology, online, or via NorthNet. The delivery of the program will also enhance access to lower division math and science courses for students in the Great Falls area. Coordination of the program and related services such as advising, marketing, and curriculum revision will be ensured through regular communication between MSU-N's CET Program Director, dean and provost with MSU-Great Falls' Associate Dean for Academic Affairs.

5. **Describe the extent to which similar programs are offered in Montana, the Pacific Northwest, and the states bordering Montana. How similar are these programs to the one proposed.**

   MSU-Northern is the only institution that provides a bachelors degree in Civil Engineering Technology. MSU-Bozeman and Montana Tech of the University of Montana offer engineering degrees. Since all personnel at Malmstrom Air Force Base are full-time employees and are limited in area where they can take the courses, all course work will be offered late afternoon, evenings, weekends, or online. However, the program and courses will be available to all interested individuals.

6. Please name any accrediting agency/ies or learned society/ies that would be concerned with the particular program herein proposed. How has this program been developed in accordance with criteria developed by said accrediting body/ies or learned society/ies?

The bachelors degree in Civil Engineering Technology offered by MSU-Northern is accredited by ABET.

7. Prepare an outline of the proposed curriculum showing course titles and credits. Please include any plans for expansion of the program during its first three years.

Overview of Curriculum

Program Tech Requirements		***Institutional Responsibility***	
CET 173	3	GF-COT taught by MSU-N faculty	
CET 220	3	MSU-N	
CET 221	3	MSU-N	
CET 181	3	MSU-N	
CET 232	3	MSU-N	
CET 375	3	MSU-N	
CET 385	4	MSU-N	
CET 307	3	MSU-N	
CET 305	3	MSU-N	
CET 315	4	MSU-N	
CET 361	4	MSU-N	
CET 411	4	MSU-N	
CHEM 111 (meets Gen. Ed. Cat III)		GF-COT (CHM 150)	(3)
CIS 110 (meets Gen. Ed. Cat IX)		GF-COT (CS 110 or CHAL 104)	(3)
CIS 171		GF-COT (CS 205)	3
ISET 410	3	GF-COT	
DRFT 131		GF-COT (DRFT 131)	4
DRFT 156		GF-COT (DRFT 156)	3
DRFT 244	3	GF-COT	
EET 110		GF-COT (EET 110)	3
ENGL 111 or Adv Approved Comm El		GF-COT (ENGL 121)	(3)
ENGL 112 (meets Gen. Ed. Cat I)		GF-COT (ENGL 122)	(3)
ENGL 366 (meets Gen. Ed. Cat I)*	3	MSU-N	
IET 480	1	MSU-N	
IET 481	2	MSU-N	
IT 100	3	GF-COT	
IT 111	2	GF-COT	
MATH 112 (meets Gen. Ed. Cat II)		GF-COT (MATH 130)	(4)
MATH 125		GF-COT (MATH 131)	3
MATH 133		GF-COT (MATH 181)	4
MATH 220		GF-COT (MATH 182)	4
GSCI 412*	3	MSU-N	
ELECTIVE		Taught by either campus	2
MFGT 427	3	MSU-N	
PHYS 231 (meets Gen. Ed. Cat III)		GF-COT	(3)
PHYS 234 (meets Gen. Ed. Cat III)		GF-COT	(1)
CAT IV – Social Sciences		GF-COT	(3)
CAT V – History		GF-COT	(3)
CAT VI – Cultural Diversity		GF-COT	(3)
CAT VII – Fine Arts		GF-COT	(3)
CAT VIII – Humanities		GF-COT	(3)
General Education Requirements		***GF-COT Equivalencies***	
Cat I – Communications (6 credits)			

ENGL 112 (required Gen.Ed course)	ENGL 122	3
ENGL 111 (required for this degree) (See proposal for Adv. Communication)	ENGL 121, RI 121	3
Cat II – Mathematics (3 credits)		
MATH 112 (required for this degree)	MATH 130	4
Cat III – Natural Sciences (6 credits)		
CHEM 111 (required for this degree)	CHM 150	3
PHYS 231 (required for this degree)		3
PHYS 234 (required for this degree)		1
Cat IV – Social Sciences (3 credits)	MEETS GF-COT GEN ED.	
Cat V – History (3 credits)	MEETS GF-COT GEN ED.	
Cat VI – Cultural Diversity (3 credits)	MEETS GF-COT GEN ED.	
Cat VII – Fine Arts (3 credits)	MEETS GF-COT GEN ED.	
Cat VIII – Humanities (3 credits)	MEETS GF-COT GEN ED.	
Cat IX – Technology (3 credits)	MEETS GF-COT GEN ED.	
CIS 110 (required for this degree)	CS 110, CHAL 104	3

Course Descriptions

Since this degree is an existing degree, all course descriptions are included in the MSU-Northern or Great Falls COT online or hard copy catalogs.

Faculty and Staff Requirements

1. Please indicate, by name and rank, current faculty who will be involved with the program proposed herein.

Michael Miller, MS, PE
Larry Strizich, MS, PE
Jeremy Siemens, BS, PE
Mark Plante, MS
Rebecca Johnson, MS
Adam Wenz, MS
Colleen Hazen, MA
Grayce Holzheimer, MFA
Kirk Mattingly, adjunct

2. Please project the need for new faculty over the first five years of the program. Include special qualifications or training. If present faculty are to conduct the program, please explain how they will be relieved from present duties.

It is projected that during AY 2008, a new faculty member in Civil Engineering Technology will be hired by MSU-Northern for the Great Falls site. This individual will also coordinate and assist with delivery of the program. The Great Falls COT will use adjunct faculty to deliver the additional math and science courses required for the degree until increased enrollment necessitates the hiring of a full-time faculty member. Existing core classes will continue to be offered by current faculty.

3. Please explain the need for support personnel or other personnel expenditures.

No additional support personnel costs are expected. Current support personnel will assist with the program.

Capital Outlay, Operating Expenditures and Physical Facilities

1. Please summarize operating expenditure needs.

All equipment, labs and facilities are in place to support the required courses at either the Havre campus or the Great Falls campus. During the first two years of the program, lab equipment used in the CET classes will be rotated between the Havre campus and the Great Falls campus. Once the

new building in completed in Great Falls, new lab equipment for the physics classes and the CET classes will be added. In order to have an up-to-date CET lab for the Great Falls site, the further development of industry partnerships will continue to be a priority.

2. **Please evaluate library resources. Are they adequate for operation of the proposed program? If not, how will the library need to be strengthened during the next three years?**

   All online library resources to support the proposed degree are already in place. The librarians at the two campuses will continue to work closely together to provide library materials that will support the program at both locations.

3. **Please indicate special clinical, laboratory, and/or computer equipment that will be needed. List those pieces of equipment or computer hardware presently available in the department.**

   MSU-Northern already has a fully-equipped CET lab. During the first two years of the program (and until the new building is completed) equipment will be rotated between the Havre and Great Falls sites.

4. **Please describe facilities and space required for the proposed program. Are current facilities adequate for the program? If not, how does the institution propose to provide new facilities?**

   The space demands will be met by making space available in the present auto body facility, which is under-utilized in the late afternoon and evening hours.

Evaluation of the Proposed Program

1. **Please name faculty committees or councils that have reviewed and approved the program herein proposed.**

   The proposed program has been reviewed by the faculty and administration at Montana State University – Northern and the Great Falls College of Technology.

BUDGET ANALYSIS

Proposed Program: B.S. Civil Engineering Technology

Campus: Great Falls

Estimated **ENROLLMENT**	**Year 1**		**Year 2**		**Year 3**		**Year 4**		**Year 5**	
FTE Enrollment	7		17		29		39		45	
Estimated Incremental **REVENUE**										
Use of Current General Operating Funds										
State Funding for Enrollment Growth	$13,216		$32,096		$54,751		$73,632		$84,960	
Tuition Revenue										
A. Gross Incremental Tuition Revenue	$28,567		$69,377		$118,349		$159,152		$183,645	
B. Reductions to Incremental Tuition	$0									
C. Net Tuition Revenue (A-B)										
Program/Course Fees	$0		$1,275		$2,175		$2,925		$3,375	
External Funds										
Other Funds (please specify)										
TOTAL Estimated Incremental Revenue	$41,783		$102,748		$175,276		$235,709		$271,980	
Estimated Incremental **EXPENDITURES**										
Personal Services	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**
Faculty		$15,600		$27,300	1.25	$76,400	1.25	$83,580	1.5	$99,180
Other Staff		$6,000		$6,000		$6,000		$7,000		$7,000
Operating Expenses	$4,300		$4,700		$3,200		$3,400		$3,600	
Equipment	$3,000		$4,000		$12,000		$3,500		$3,500	
Start-up Expenditures *Includes Library*	$1,000		$1,000		$2,000		$2,100		$2,200	
TOTAL Estimated Incremental Expenditures	$29,900		$43,000		$99,600		$99,580		$115,480	
Estimated Revenues Over Expenditures	$11,883		$59,748		$75,676		$136,129		$156,500	

INSTRUCTIONS

***Please Note**: The narrative that is prepared for Level II items may be used to explain and expand the information in the budget analysis. In fact, a discussion of the numbers is encouraged.*

Estimated Enrollment

FTE Enrollment

Provide estimates for each year until the proposed program is fully implemented and expenditures/revenues/enrollment reflect a mature program. For example, a two-year program would probably include estimated enrollment for only 2-3 years. If possible, in the Level II narrative, please provide an estimate of both new students and current students who may shift to this program. Although student FTE estimates are always tricky, additional details like number of resident, non-resident and WUE students may be appropriate information for the Level II narrative.

Revenue
General Operating Funds:
Include existing general operating funds allocated to support the proposed program. Please specify where the reallocated funds are coming from. For example, is another program being reduced?
State Funding for Enrollment Growth:
Include $1,888/FTE for each year of the biennium following the next consideration of resident enrollment growth by the Legislature. For example, a program proposed in November 2003 could not receive enrollment growth funding until FY06.
Tuition:
Use lines A, B, & C to determine the tuition revenue available to be applied directly to the program.
Incremental Tuition Revenue:
Include gross incremental tuition revenue generated by the increased enrollment in the proposed program (enrollment times tuition rate, by category). Obtain these rates for your institution from the Inventory of Fees.
Reductions to Incremental Tuition:
Include fee waivers, academic support, institutional support, etc. Provide detail in narrative.
Net Tuition Revenue:
Calculate net revenue as gross incremental tuition revenue minus tuition reductions, then copy to next column(s).
Program/Course Fees:
Identify the estimated amount to be collected.
External Funds:
Include federal funds, state earmarked dollars, grant funds, private funds, and other external funds.
Expenditures (Incremental Expenditures for Proposed Program Only)
Personal Services:
Itemize new employee FTE salary and benefits using your institution's budgeted benefits rate. If faculty time is being reallocated, you may want to include this information in the Level II narrative along with the impact that will have on current responsibilities.
Operating Expenses:
Include library resources, professional services, travel, materials, supplies, equipment <$5, 000, etc.
Equipment:
Include only capitalized equipment (>$5,000). Equipment with a per item cost of less than $5,000 should be included with operating expenses.
Start-up Expenditures:
Include one-time only expenditures, marketing expenditures, accreditation expenditures, etc.

ITEM 130-1018-R0306 **Approval of a minor in Irish Studies; The University of Montana-Missoula**

THAT: In accordance with Montana University System Policy, the Board of Regents of Higher Education authorizes The University of Montana-Missoula to create a minor in Irish Studies.

EXPLANATION: The College of Arts and Sciences, in collaboration with The School of Fine Arts, proposes a minor in Irish Studies that will provide students with access to instruction in the fields of language, history and literature. This academic and artistic approach to the subject of Irish culture involves an interdisciplinary and inter-collegiate collaboration that brings together leading scholars in the humanities and in the creative arts. A key objective of this minor is to build on the high quality of scholarship produced by past and present faculty and to enhance the reputation of The University of Montana as a center of excellence in language, literature, history and the creative arts.

M O N T A N A B O A R D O F R E G E N T S

LEVEL II REQUEST FORM

Item No.:	**130-1018-R0306**	**Date of Meeting:**	**March 1-3, 2006**
Institution:	**The University of Montana - Missoula**		
Program Title:	**Minor in Irish Studies**		

Level II proposals require approval by the Board of Regents.

Level II action requested (check all that apply): Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- ☐ 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- ☒ 2. Implement a new minor where there is no major;
- ☐ 3. Establish new degrees and add majors to existing degrees;
- ☐ 4. Expand/extend approved mission; and
- ☐ 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

The College of Arts and Sciences, in collaboration with The School of Fine Arts, proposes a minor in Irish Studies that will provide students with access to instruction, in the fields of language, history and literature. This academic and artistic approach to the subject of Irish culture involves an interdisciplinary and inter-collegiate collaboration that brings together leading scholars in the humanities and in the creative arts.

M O N T A N A B O A R D O F R E G E N T S

NEW ACADEMIC PROGRAM PROPOSAL SUMMARY

ITEM 130-1018-R0307

Institution: The University of Montana - Missoula

Program Title: Minor in Irish Studies

1. How does this program advance the campus' academic mission and fit priorities?

A key objective of this minor is to build on the high quality of scholarship produced by past and present faculty and to enhance the reputation of The University of Montana as a center of excellence in language, literature, history and the creative arts.

2. How does this program fit the Board of Regents' goals and objectives?

This unique program provides an educational expereince across disciplines that focuses on scholarship and creative contribution. In addition, the program further promotes international exchange with the University College-Cork in Ireland.

3. How does this program support or advance Montana's needs and interests?

Given our historical connections in Montana to Ireland, the establishment of an Irish Studies minor will not only provide a greater understanding of the Irish, but also the people of Montana. Furthermore, the minor, by explicating the depth and breadth of Montana's and the nation's diversity, will contribute positively toward incorporating diversity as an integral component of Montana and The University of Montana's past, present, and future.

4. How will this program contribute to economic development in Montana? (Note projected annual economic impact both regionally and statewide.)

There are major cultural and economic benefits that could accrue to The University of Montana and to the state of Montana in general through the Irish Studies minor. Increased enrollment and acquisition of federal, international, and community funding will result from having the minor. A cross-disciplinary Irish Studies minor also will enhance a number of cooperative ventures between departments, colleges, and other universities in the region.

There are no developed Irish Studies programs in the American West that offer such a scholarly program. Thus we would attract students from a large market, with the potential to attract a broad spectrum of students.

5. What is the program's planned capacity?

• Break-even point?	8 FTE students
• Enrollments / year?	27
• Graduates / year?	NA
• MT jobs / year?	NA

6. Resource Allocation:

• Total program budget?	$ 37,000
• Faculty FTE?	1
• Staff FTE?	0

7. Does this program require new resources? ☐ Yes ☒ No

If yes, what is the amount? $ _____

8. How will the campus fund the program?

Current funding within the College of Arts and Sciences and the School of Fine Arts will cover the expenditures associated with the program. In addition, external funding is being pursued in order to supplement tuition income.

9. If internal reallocation is necessary, name the sources.

NA

I. Objectives and Need

1. Description of Program: The College of Arts and Sciences, in collaboration with The School of Fine Arts, proposes a minor in Irish Studies that will provide students with access to instruction in the fields of language, history and literature. This academic and artistic approach to the subject of Irish culture involves an interdisciplinary and inter-collegiate collaboration that brings together leading scholars in the humanities and in the creative arts.

A key objective of this minor is to build on the high quality of scholarship produced by past and present faculty and to enhance the reputation of The University of Montana as a center of excellence in language, literature, history and the creative arts. Courses in Irish history will focus on the experience of the Irish in the United States, their role in shaping the course of American history and their impact on their homeland. Students in the history courses will receive a solid training in the skills and practices of primary research to complement the excellence of instruction imparted to them in the classroom.

Closely allied to the study of history is the study of literature in both the English and Irish languages. Irish writers in the English language such as Joyce, Beckett, Yeats and others form a core of writers whose work has been the subject of courses offered at The University of Montana for years. In addition, new coursework will focus on writing emanating from the contemporary conflict in Northern Ireland. This literature provides an understanding of the ravages of sectarian violence, as well as a look at the hopefulness of the peace process and its model for tolerance and multi-ethnic inclusiveness.

This minor assumes a pioneering role in offering students the opportunity to study the literary tradition of the Irish language, and offers a way to understand how the experience of conquest and colonization can be connected to the experience of other cultures and identities such as Native American peoples. By providing students with access to the literature of Gaelic Ireland in translation, The University of Montana stands alone as the only institution west of the Mississippi to offer such courses.

This minor is unique in the West for the centrality it accords Irish Gaelic culture in general and the Irish language in particular and in so doing places The University of Montana alongside the University of Notre Dame as the only two institutions in the country with this emphasis. While this commitment may be seen as a logical extension of UM's long involvement in the promotion of the Irish language, it is also true that the need to investigate the place of the Irish language and culture in the formation of the Irish identity in America is an equally important consideration. The dearth of investigative research in this area can be traced to a lack of scholars familiar with the Irish language. This minor proposes the first step towards producing a future crop of scholars with the linguistic training necessary to engage this important aspect of the Irish historical experience.

This minor also recognizes the need to accommodate a growing local and nationwide demand for instruction in the language. Indeed, it was in response to this demand that the University initially got involved in teaching Irish and became aware of the great need for teachers. This minor takes a bold step in meeting this need by providing students with intensive courses designed to produce fluent speakers and competent teachers of the language.

Coupled with the language and history courses are courses that give students access to the music, dance and various other artistic aspects of the Irish culture. It is an aim of this minor to bring together the artistic and imaginative impulse that has shaped theatre and film in Montana and Ireland in a manner that is not only intellectually rewarding for our students, but also appealing to the larger community.

Finally, the minor creates an opportunity for others to make a significant investment of financial and intellectual resources to the university. It will be an attractive investment for the Irish-American community, while, at the same time, will provide a means to access the financial support made available for programs of this sort through the Irish government and the European Union. Intellectually, it facilitates the development of new relationships with other institutions engaged in this field of study. Foremost among these institutions is our sister college, University College, Cork, Ireland [UCC], This minor will mediate the collaboration of student and faculty, the exchange of knowledge and expertise, and the integration of the Irish and American perspectives between both institutions. Such an alliance will be fruitful and will allow this minor to be a natural complement to the existing courses at UM and as a genuinely international program of study.

2. Documented Need for the Program: For the past five years faculty, students, Irish diplomats and members of the administration have been engaged in conversation regarding the implementation of an Irish Studies minor. One clear reason for the enthusiasm demonstrated by such conversations is that students themselves are keen to take courses in Irish Studies. Currently offered Irish and Irish-American history courses are popular, always full to capacity (80-100 students). Similarly, courses in Irish Literature are highly subscribed.

The Irish language courses, once they are listed in the course catalogue and accorded credit status by Modern and Classical Language, will be in equal demand.

This demand for coursework in Irish Studies is the result of a number of factors: the role of the Irish Diaspora in the forging and development of American history; a renaissance in Irish and Irish American culture; the place and role of Ireland in discourses and activities central to the development and devolution of nationalism and imperialism in the twentieth century; the connections between Irish and Native American Indians under colonialism; the regionally specific labor and ethnic experience of Butte; and, finally, the resurgence of the Irish language.

The plans for an Irish Studies minor at The University of Montana have already attracted a good deal of international attention. The former Irish Consul-General in San Francisco, Dónal Denham traveled to Montana several years ago in order to promote such a program. Moreover, one of Ireland's premier institutions of higher education, University College, Cork, has already guaranteed its support for such a program. University College Cork has already developed connections with The University of Montana.

There are major cultural and economic benefits that could accrue to The University of Montana and to the Montana in general through the Irish Studies minor. Increased enrollment and acquisition of federal, international, and community funding will result from having the minor. A cross-disciplinary Irish Studies minor also will enhance a number of cooperative ventures between departments, colleges, and other universities in the region.

There are no developed Irish Studies programs in the American West that offer such a scholarly program. Thus we would attract students from a large market, with the potential to attract a broad spectrum of students. Furthermore, the minor, by explicating the depth and breadth of Montana's and the nation's diversity, will contribute positively toward situating diversity as an integral component of Montana and University of Montana's past, present, and future.

3. Additional Courses and Course Requirements

The minor in Irish Studies will require the successful completion of at least six courses (18 credits), including four courses in the core area.

Required Courses: At least 18 credits, including twelve credits from the required core courses (4 classes) and six credits from the elective courses (2 classes).

Core Courses: Irish language, history, literature, and culture. The core courses are a required cluster of twelve credits (4 classes) for all students pursuing the minor.

MCLG 195 Irish Language Studies: Irish I	3 credits
MCLG 195 Irish Language Studies: Irish II	3 credits
HIST 249 The Irish and Irish-Americans	3 credits
ENLT 322 Irish and/or Northern Irish Literature (in English)	3 credits
or	
ENLT 395 Special topics in Irish and/or Northern Irish Literature, Culture, and Film	

Elective Courses: Students will complete at least six credits (2 classes) from the following courses:

DAN 195 Irish Dance	3 credits
DAN 395 Irish Dance	3 credits
DRAM 395 Irish Theatre: From Yeats to McDonagh	3 credits
ENLT 321 Major Author: Joyce	3 credits
ENLT 322 Irish/Northern Irish Literature	3 credits
ENLT 325 Poetry and Partition	3 credits
ENLT 395 Literature of the Gaelic Revival	3 credits
ENLT 395 Gaelic Culture in Crisis	3 credits
ENLT 395: Four Green Fields: Irish/Irish-American Film	3 credits
ENLT 395 The Troubles and its Tales	3 credits
ENLT 430 Multicultural British Literature	3 credits
ENLT 431 Senior Seminar: James Joyce	3 credits
HIST 249 The Irish and Irish-Americans	3 credits
LS 381 Special Topics: Irish Film	3 credits
MCLG 195 Irish Language Studies: Irish III	3 credits

MUS 195 Traditional Music in Ireland	3 credits
MUS 495 Traditional Music in Ireland	3 credits

The majority of core and elective courses are offered under the current curriculum structure.

II. Adequacy, Accreditation, and Assessment Issues

1. Adequacy of Present Faculty, Facilities, Equipment, and Library Holdings: All members of the faculty who will participate in the Irish Studies minor are active teachers and researchers with advanced degrees from major institutions of higher learning. Current faculty include:

Professors/Academic Areas

Ione Crummy: Language acquisition theory, French, French and Irish political and cultural relations, Irish language.
David Emmons: The Irish in the West, history of Butte, labor history, historiography, Irish-American history, Irish history.
Janet Finn: Labor, feminism, and Butte, social work, women's studies and Latin American studies.
Gregory Johnson: Artistic Director of the Montana Repertory Theatre, Irish theatre, Abbey Theatre, acting, directing.
John Hunt: Contemporary Irish Fiction, Joyce, literature of the English Renaissance.
Katie Kane: Irish and Native American colonial and post-colonial experience, ethnic studies, seventeenth century Ireland.
Michael Murphy: Film, film theory, filmmaking, Irish film, and Irish-American film.
Sean O'Brien: Irish and Irish American film, documentary, filmmaking, practical ethics, philosophy.
Traolach Ó Ríordáin: Irish language, nationalism, Gaelic culture, Irish literature in Irish, Irish history, Irish religious history and philosophy.
Eric Reimer: Contemporary Irish and Northern Irish literature and film; Troubles fiction; contemporary British literature; postcolonial theory.
Patrick Williams: music, composition, theory, aural perception, and 16th- and 18th-century counterpoint, Irish Music
Affiliated Faculty:
Kevin Canty: Creative writing, contemporary fiction.
Deirdre McNamer: Creative writing, contemporary fiction, literature of Montana.

Library Resources: A review of library holdings indicate that there exists a resource baseline, covering contemporary Irish literature, Irish history, Irish-American history, Butte, history of the American West, and colonial and post colonial theory. Particular strengths in history and culture lie in literature about Native Americans of North America, with additional strengths in Western history. There is, therefore, a strong infrastructure already in place that would allow for holistic, comparative, diachronic research.

Any deficiencies in research holdings are currently being addressed by several kinds of electronic-access procedures. Access to vital resources is further improved by interlibrary loan for student and faculty research. Future additions will be requested as part of the library's existing processes.

Facilities and Equipment: To implement the proposed minor requires no special equipment. Each faculty office is provided with a computer that is replaced on a three-year rotational cycle. The affiliated departments and Colleges operate and maintain language laboratories, theatre space, classrooms, and presentation technology. The departments have adequate faculty, facilities, equipment, and library holdings to maintain a successful minor. Space for physically housing all faculty is at capacity, but adequate for current needs.

2. Accreditation Status: There are no accrediting agencies identified that currently would have particular concerns with the program herein proposed. However, faculty at The University of Montana have developed links with at least two important Irish Studies programs in the country who are prepared to make their knowledge and expertise available. The proposed minor program fits the standards of professional training in these other programs.

3. Assessment Issues: The associated departments will use a number of instruments to track the degree of success achieved by students in the Irish Studies minor. Recruitment of undergraduate students and their completion of the minor are the critical points for measurement of program success. The departments and faculty will track the number of applications to the minor as well as the number of students who participate in course work. Students also will be tracked using average course work GPA, competence on exams, and other criteria to monitor program quality. The department also recognizes that student retention rates are an indicator

of program health. Accordingly the department will track the number of matriculating undergraduate students along with the number that complete the minor, withdraw, or are pursuing their degree objectives. Successful employment of graduates will also be tracked. Assessment results are reported to the faculty via the department's annual report and in faculty planning meetings. Based on these data, the associated faculty will make suggestions for changes to the faculty.

III. Impact on Faculty, Costs, Students, and Other Departments and Campuses

1. Additional Faculty Requirements: Dr. David Emmons

2. Impact on Facilities: The proposed program will have no immediate effects on either the College of Arts and Sciences or the College of Fine Arts. Support staff is adequate, given the current number of faculty, teaching assistants, students, and other departmental activities.

3. Cost Analysis

BUDGET ANALYSIS

Proposed Program: Minor in Irish Studies

Campus: Mountain

	Year 1		Year 2		Year 3		Year 4		Year 5	
Estimated **ENROLLMENT**										
FTE Enrollment	8		16		22		27		27	
Estimated Incremental **REVENUE**										
Use of Current General Operating Funds	0		0		0		0		0	
State Funding for Enrollment Growth	0		0		41,536		50,976		50,976	
Tuition Revenue										
A. Gross Incremental Tuition Revenue	40,207		80,413		110,568		135,698		135,698	
B. Reductions to Incremental Tuition	0		0		0		0		0	
C. Net Tuition Revenue (A-B)	40,207		80,413		110,568		135,698		135,698	
Program/Course Fees	0		0		0		0		0	
External Funds			0		0		0		0	
Other Funds (please specify)			0		0		0		0	
TOTAL Estimated Incremental Revenue	40,207		80,413		152,104		186,674		186,674	
Estimated Incremental **EXPENDITURES**										
Personal Services	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**
Faculty	1.0	37,000	1.0	37,000	1.0	37,000	1.0	37,000	1.0	37,000
Other Staff	0	0	0	0	0	0	0	0	0	0
Operating Expenses	0		0		0		0		0	
Equipment	0		0		0		0		0	
Start-up Expenditures	0		0		0		0		0	
TOTAL Estimated Incremental Expenditures	37,000		37,000		37,000		37,000		37,000	
Estimated Revenues Over/(Under) Expenditures	3,207		43,413		115,104		149,674		149,674	

4. Enrollment Impact: Planned Student Enrollment

	First Year/05 FTE Headcount	Second Year/06 FTE Headcount	Third Year/07 FTE Headcount	Third Year/08 FTE Headcount	Fifth Year/09 FTE Headcount
A. New Enrollment	6	10	10	15	15
B. Shifting Enrollment	2	6	12	12	12
Total Enrollment	8	16	22	27	27

IV. Process Leading to Submission of Proposal

This proposal will be reviewed and approved by the Departments of English, History, Modern and Classical Languages and Literatures, the Dean of the College of Arts and Sciences, the Dean of the College of Fine Arts, the Provost and Vice President for Academic Affairs, and the Faculty Senate of The University of Montana. No outside consultants were employed for the development of this proposal.

ITEM 130-1503-R0306 **Approval of Proposal to offer an Bachelors of Science and Masters of Science in Electrical Engineering; Montana Tech of The University of Montana.**

THAT: The Board of Regents of Higher Education authorizes Montana Tech of The University of Montana to offer a B.S. and M.S. in Electrical Engineering; Montana Tech of The University of Montana.

EXPLANATION: Montana Tech of the University of Montana proposes that the B.S. and M.S. in General Engineering Electrical Engineering Option be offered as a standalone Bachelor of Science Degree in Electrical Engineering and a Master of Science Degree in Electrical Engineering. The change will improve the marketability and job opportunities for the graduates.

Through internal review and consultation with an external ABET expert, Montana Tech fully expects that the change proposed here will require no added faculty, laboratories, or costs. The BSEE program proposed here is anticipated to meet the requirements for a standalone EE accredited degree. Also, the proposed degrees will be housed within the General Engineering Department and maintain their multi-disciplinary character.

In addition to improving student opportunities, the proposed changes will also help support a growing externally funded research program at Montana Tech. In partnership with MSE Technologies, Montana Tech has recently been awarded a $2,000,000 federally funded research grant to develop intelligent electric power technologies. The majority of this money will be dedicated to conducting research at Montana Tech. Tech's principal goal is to develop a world-class educational and research capability. The proposed degrees are the backbone to this capability.

M O N T A N A B O A R D O F R E G E N T S

LEVEL II REQUEST FORM

Item No.:	**130-1503-R0306**	**Date of Meeting:**	**March 1-3, 2006**
Institution:	**Montana Tech of The University of Montana**		
Program Title:	**B.S. and M.S. General Engineering Electrical Engineering Option**		

Level II proposals require approval by the Board of Regents.

Level II action requested (check all that apply): Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

☐ 1. Change names of degrees (e.g. from B.A. to B.F.A.)
☐ 2. Implement a new minor where there is no major;
☒ 3. Establish new degrees and add majors to existing degrees;
☐ 4. Expand/extend approved mission; and
☐ 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

Montana Tech of the University of Montana proposes that the Electrical Engineering option in both the B.S. and M.S. degrees be offered as a Bachelor of Science Degree in Electrical Engineering and a Master of Science Degree in Electrical Engineering. The change will improve the marketability and job opportunities for the graduates.

M O N T A N A B O A R D O F R E G E N T S

NEW ACADEMIC PROGRAM PROPOSAL SUMMARY

Campus: Montana Tech of the University of Montana

Program Title: B.S. and M.S. in General Engineering Electrical Engineering Option

1. How does this program advance the campus' academic mission and fit priorities?
Montana Tech of The University of Montana is a specialty institution emphasizing science and engineering, with occupational programs through graduate work. The vision is to be a leader for undergraduate and graduate education and research in the Pacific Northwest in engineering, science, energy, health, information sciences and technology. Its mission is to meet the changing needs of society by supplying knowledge and education through a strong undergraduate curriculum augmented by research, graduate education and service.

2. How does this program fit the Board of Regents' goals and objectives?
The fundamental goal of: *Assist in the expansion and improvement of the state's economy through the development of high value jobs and the diversification of the economic base,* is the basis for this program. Energy generation and its delivery to the end user are critical in any economy. Many government and private sector studies have found that to alleviate the growing problem in failing systems, the electric energy industry must apply advanced technology solutions over the next several decades. Because modern electric power systems represent the largest and most complex engineering systems in the world, the projected demand for electrical engineers is significant.

3. How does this program support or advance Montana's needs and interests?
Of the 18 students who reported internships through the career services the last three years, 8 students in the General Engineering – Electrical Engineering Options worked in Montana. Over the last three years, 8 students have been placed in internships with Montana companies, including Northwestern Energy, Maxim Technologies, Stillwater Mining, MSE-TA, Semitool, and MT DOT. There were 28 graduates of the option from 2002, 2003, 2004, 4 were placed in permanent positions in MT. Those companies are Rightnow Technologies, MSE Power Engineer, and ASiMI.

4. How will this program contribute to economic development in Montana? (Note projected annual economic impact both regionally and statewide.)
While there are not clear examples of how this program will contribute to the economic development of Montana, the students will be clearly equipped to work in a variety of areas such as the Missoula Heart Institute.

5. What is the program's planned capacity? 80 full enrollment target

Break-even point? 45 FTE students
Enrollments/year? 15/yr
Graduates/year? 8 or 9
MT jobs/year? 1-4

6. Resource Allocation

Total program budget? $350,000

Faculty FTE? 3.5 S

Staff FTE? 0.25

Does this program require new resources? No

How will the campus fund the program?
The current option in electrical engineering is funded through the General Engineering program.

If internal reallocation is necessary, name the sources
The current options are housed within the administrative structure of the General Engineering Program. Funds currently allocated to the General Engineering Electrical Engineering Option operations will be allocated to the Electrical Engineering program.

Level II Request for a BSEE and MSEE programs at Montana Tech

1. Introduction

Currently, Montana Tech of the University of Montana offers a Bachelor of Science Degree in General Engineering and Masters of Science Degree in General Engineering. Within the Bachelor of Science Degree, students choose from the following emphasis options: Civil Engineering; Electrical Engineering (EE); Mechanical Engineering; Welding Engineering, or no option. The General Engineering BS degree is accredited by the Accreditation Board of Engineering and Technology (ABET) while the options are not accredited. Within the MS degree, students have the choice of an EE option, or no option. When awarded a degree, the student's transcript reads

"B.S. in General Engineering, Electrical Engineering Option," or

"M.S. in General Engineering, Electrical Engineering Option."

Montana Tech of the University of Montana proposes that the Electrical Engineering option in both the B.S. and M.S. degrees be offered as a standalone Bachelor of Science Degree in Electrical Engineering and a Master of Science Degree in Electrical Engineering. This change will allow Montana Tech to seek ABET accreditation for the BSEE portion of the degree. The primary purpose of the change is to improve the marketability and job opportunities for the graduates.

Through internal review and consultation with an external ABET expert, Montana Tech fully expects that the change proposed here will require no added faculty, laboratories, or costs. The BSEE program proposed here is anticipated to meet the requirements for a standalone EE accredited degree. Accreditation will be sought upon approval of the proposal by the BOR. Also, the proposed degrees will be housed within the General Engineering Department and maintain their multi-disciplinary character.

In addition to improving student opportunities, the proposed changes will also help support a growing externally funded research program at Montana Tech. In partnership with MSE Technologies and federal government national labs, Montana Tech has recently been awarded a $2,000,000 federally funded research grant to develop intelligent electric power technologies. The award is part of an expected $9,000,000 over three-year award. The majority of this money will be dedicated to conducting research at Montana Tech. Tech's principal goal is to develop a world-class educational and research capability. The proposed degrees are the backbone to this capability.

2. Background, Objective, and Need

The primary objective of the proposed changes is to improve the marketability of and opportunities for Montana Tech graduates. After completing a rigorous degree program, Montana Tech students deserve the opportunity to compete for professional jobs on a level playing field. The proposed changes will provide this opportunity.

The current B.S. in General Engineering/EE option provides the graduate with a general engineering background with focused emphasis in EE. Graduates gain both the breadth of the general engineering degree and the depth of the traditional EE degree. Students can select upper-division design courses in the areas of instrumentation and control, and electric energy. The instrumentation and control emphasis is a long-standing tradition of the program that serves many needs in the process and minerals industries. The electric energy focus has been developed over the last few years primarily through externally funded research grants to serve the growing demand in the electric power industry. Electric energy technologies focus on the production and delivery of electric power. Modern power production examples include fossil fuel, hydro, wind, and fuel cells. Power delivery typically refers to high-voltage electric power grids.

Electrical Engineering is the largest engineering discipline in the world and serves nearly every modern industry. Approximately one-fourth of all engineering graduates today are of the electrical discipline. Electrical engineers are the principal technologists in areas such as communication systems, computer design, electronics, automation, and energy. The growing demand for electrical engineering expertise is especially acute in the energy industry. There are approximately 290 ABET-accredited BSEE programs in the United States, and the number continues to grow. Within the region, this includes three programs in Idaho (two added since 1999), two in North Dakota, two in South Dakota, one in Wyoming, and one at Montana State University – Bozeman, as well as Montana Tech's proposed program.

There are far fewer General Engineering/EE option programs, with the trend that some are re-accrediting as BSEE programs as proposed by Montana Tech. For example, Idaho State University re-

accredited the B.S. General Engineering/EE option as a BSEE degree in 1999. Their primary reason for the re-accreditation is the same as Tech's (i.e., improved marketability and competitiveness of students).

Despite the success of the current EE option, many potential employers that are not familiar with the program will not consider graduates for positions for which these graduates are qualified. Many employers require an ABET accredited EE degree and do not recognize the General Engineering degree with an EE option as a viable substitute. This occurs primarily because the EE-option portion of the General Engineering degree is not accredited, therefore, upper-level EE courses do not receive the scrutiny and evaluation that they would under an ABET accredited BSEE degree. Therefore, potential employers cannot be assured of the quality of the program. By offering the EE option as a standalone degree, Montana Tech will be able to seek ABET accreditation as a Bachelor of Science in Electrical Engineering program thus assuring quality graduates to potential employers. Renaming the M.S. program to a MSEE program will also benefit student marketability and opportunities.

A second issue in marketing General Engineering/EE option students relates to the method many companies use to search for potential employees. When looking to fill an electrical engineering position, the first contact many applicants will have with the company is the Human Resources (HR) department. The HR staff is typically instructed to screen all candidates with an ABET accredited BSEE or MSEE degree. This immediately removes General Engineering/EE option students. Use of web-based and automated searching software has made the problem worse.

This issue is best illustrated by comments from industry experts in their letters of support for this proposal (see Appendix I). Two examples include the letters from Dr. Matt Donnelly and Mr. Bob Morris. Dr. Donnelly is a senior member of the research staff at Pacific Northwest National Laboratory (PNNL). PNNL is a US Department of Energy (USDOE) national research laboratory employing approximately 4000 researchers and staff located in Richland, WA. His duties include directing and managing several million dollars of USDOE research funding aimed toward the electric energy industry. In this capacity he works closely with many universities and electric energy industrial entities. Also, he is a well-recognized research leader in the industry. In evaluating Montana Tech's proposal, he makes several points, one of them being:

"*A second point I would like you to consider is the changing approach to recruiting within HR departments at large firms such as PNNL. I have appended a currently outstanding job requisition from PNNL's Energy and Engineering Division. Using web-based tools for submitting resumes and applications, most of the initial screening is now being handled by HR professionals with little expertise in my technical area. It would take a highly skilled HR staff member within my firm to recognize that Montana Tech has a high quality EE option within the General Engineering degree. It is more likely that prospective candidates would be screened as not meeting the Minimum Requirements (no EE degree) before the resume ever came to my desk.*"

Mr. Bob Morris is a Montana Tech graduate and has held positions of increasing responsibility at Schweitzer Engineering Laboratories (SEL) since 1991; this includes a Vice President position. SEL is a major supplier of control system components for the electric power industry employing over 1000 people located in Pullman, WA. In relating his experiences, Mr. Morris states:

"*When a job opens up at a company, the first screen is usually a non-technical Human Resources (HR) professional. If the resume doesn't say EE, the HR people discard it before it gets to the hiring manager. Let's remove this obstacle and give the bright, hard working students of Montana Tech a fighting chance. An ABET recognized EE degree will help elevate the General Engineering program to the same prominence as the Petroleum, Mining, Environment Engineering, and Geology/Geophysics degrees.*"

Other letters of support in Appendix I echo similar concerns. From industry, this includes a letter from Mr. Jeff Ruffner, General Manager and Senior Vice President at MSE Technologies in Butte, and a letter signed by the members of the General Engineering Industrial Advisory Board (IAB). The IAB members consist of senior engineers and business leaders from several Montana and Northwest Regional companies and government agencies that employ engineers. A third letter is from students at Montana Tech who are currently in the electrical program. A student survey showing unanimous support was conducted at a student meeting and is contained in Appendix II.

2.1. Industry Needs

Montana Tech's BOR-approved vision is: ***To be a leader for undergraduate and graduate education and research in the Pacific Northwest in engineering, science, energy, health, information***

***sciences and technology*.** Consistent with this vision, the current EE-option programs have focused on serving the needs in the process, minerals, and energy industries. To serve these industries, the General Engineering department offers upper-division elective courses in the areas of instrumentation and control, and electric energy and power. Serving these industries and focus areas will continue to be the principal mission of the new BSEE and MSEE programs proposed here.

The projected demand for engineers in the electric energy industry is especially sharp. It is a well-documented fact that growth of the industry's infrastructure has not kept up with demand over the last four decades. Recent indicators of this include the significant increase in power outages over the last decade; this includes the massive outages experienced by the western North American power system in August and July 1996, and the August 2003 east-coast power outage. These are the first massive outages since the northeast coast outage in 1965. Many government and private sector studies have indicated that to alleviate the growing problem, the electric energy industry must apply advanced technology solutions over the next several decades. This is resulting in significantly increased federal government research funding in this area. Because modern electric power systems represent the largest and most complex engineering systems in the world, the projected demand for electrical engineers has been characterized in several studies to be significant.

Testimony on the regional industry needs are provided from several experts in the attached letters of support. One of these is given by Mr. David Gates, Vice President of Transmission Operation at NorthWestern Energy located in Montana, in his letter of support for this proposal, he states:

> "*The electric power industry is facing something of a crisis due to the lack of new electrical engineers trained in power engineering. NorthWestern Energy itself recently experienced a disappointing lack of qualified candidates for its most sophisticated electrical engineering positions in the area of Transmission Planning. I am pleased to see that you recognize this need and are proposing a solution.*"

Dr. Donnelly adds to this point with:

> "*Finally, I would like to bring to your attention the burgeoning need for engineers in the energy arena. The energy industry is currently bracing for massive retirements as over half of the workforce is expected to retire within the next 7-10 years. This has been reported in numerous journals and periodicals. … Clearly there is a need for more EE graduates in the region and in the nation*."

Because of its abundant natural resources, Montana has considerable potential for participating in the future national energy market. Currently, Montana is a major electric energy exporter despite the fact that Montana has yet to develop fully many of its resources. In a typical year, Montana produces double its consumption for electric energy with the over production transmitted to entities in other states. This occurs despite the fact many of our natural resources have yet to be developed. For example, Montana produces nearly zero energy from wind turbines; yet, it has one of the greatest wind resources in North America. It is the opinion of Montana Tech that the sustainable and environmentally sound development of these natural resources will be done by the hands of Montana's brightest graduates.

To compound the engineering problems faced by the electric energy industry, the industry has a significantly graying population of engineers; at the same time, many universities have reduced energy programs over the last few decades. Many estimate a large demand for power engineers in the near future. Experts estimate that approximately 50% of the engineering workforce in the electric industry will retire within the next 10 years resulting in a significant demand. Here in Montana, NorthWestern Energy is sharing in this crisis (see letter of support from Mr. Gates). In order to serve the industry needs, Montana Tech has added courses focused on electric energy and initiated industry-funded research projects. The goal is to continue to serve the industry in the extend future.

Under the new BSEE and MSEE programs proposed here, these activities will continue. The new advantage is that graduates will have improved marketability resulting in improved job opportunities and competitiveness.

3. Program relationship to the Role and Scope of the institution

Montana Tech of The University of Montana is a specialty institution emphasizing science and engineering, with occupational programs through graduate work. The vision is to be a leader for undergraduate and graduate education and research in the Pacific Northwest in engineering, science, energy, health, information sciences and technology. Its mission is to meet the changing needs of society by supplying knowledge and education through a strong undergraduate curriculum augmented by research, graduate education and service.

4. Please state what effect, if any, the proposed program will have on the administrative structure of the institution. Also indicate the potential involvement of other departments, divisions, colleges, or schools.

There will be no effect on the administrative structure of the institution. The program will remain under the direction of the head of the General Engineering department. This helps the program maintain the interdisciplinary nature.

5. Similar programs offered in Montana, the Pacific Northwest, and states bordering Montana. How similar are these programs to the one herein described?

There are approximately 290 ABET-accredited BSEE programs in the United States, and the number continues to grow. Within the region, this includes three programs in Idaho (two added since 1999), two in North Dakota, two in South Dakota, one in Wyoming, and one at Montana State University – Bozeman, as well as Montana Tech's proposed program.

6. Please name any other accrediting agency(ies) or learned society(ies) that would be concerned with the particular program herein proposed. How has this program been developed in accordance with criteria developed by said accrediting body(ies) or learned society(ies)?

The General Engineering B.S. degree is accredited by the Accreditation Board of Engineering and Technology (ABET) while the options are not accredited. ABET accredits the B.S. or M.S. but not both. Accreditation will be sought for the BS EE if approved.

7. Program Curriculums

7.1. BSEE Program

The new BSEE program will maintain principally the same goals and curriculum as the current EE option. That is, the program will maintain the breadth in general engineering areas while providing the depth of a traditional BSEE program. Students will be offered advanced courses in the areas of instrumentation and control, and electric energy systems. Consistent with ABET policy, the curriculum is centered around fulfilling program objectives. The individual program sets its objectives and then through the use of outcome assessment feedback, it carefully readjusts its curriculum to meet the objectives. The objectives of the BSEE program are provided in Table 1.

Table 1: BSEE program objectives.

The objectives of the BSEE program are to produce graduates who:
1. work effectively on cross-discipline and cross-functional teams, communicating and coordinating with co-workers, clients, contractors, and public agencies;
2. can successfully complete an advanced degree;
3. can apply the principles of mathematics, science, and general engineering science fundamentals (i.e., statics, dynamics, thermodynamics, fluid mechanics, and electric circuits) to solve modern technological problems;
4. are proficient in applying electrical engineering fundamentals to solve modern technological problems; and
5. can design and analyze advanced electrical engineering systems in the areas of instrumentation and control systems, or electrical energy systems.

Objectives 1 and 3 allow the proposed BSEE program to retain the multi-disciplinary nature of the current General Engineering Degree/EE option program. These two objectives are critical to continuing to serve the needs of the process, minerals, and energy industries. In order to meet these two objectives, students will be required to complete many more fundamental general engineering science courses than in a "typical" BSEE program. For example, students in the proposed program must complete 14 credits in fundamental engineering mechanics; this compares to 3 engineering-mechanics credits required in the BSEE program at Montana State University – Bozeman. This is the reason the program requires 136 credits.

Objectives 4 and 5 provide the depth of the program in electrical engineering. The program focuses upper division courses in the areas of instrumentation and control, and electric energy systems. Both these areas are fundamentally multi-disciplinary; therefore, objective 3 strongly supports object 5. For example, in the energy arena, nearly all electric power systems are driven by a thermal or fluid based

systems (this includes fossil fuel, hydro, wind, and fuel-cell based systems). Therefore, it is important for a technology expert in the energy arena to understand the basics of thermodynamics and fluid mechanics; topics left out of many traditional BSEE programs.

Table 2 shows the proposed BSEE curriculum. As stated earlier, the program is the same as the current BS General Engineering/EE option program except for one minor change: ENGR 3350, Mechanics of Materials, has been replaced with a second computer programming elective. This change was implemented based upon the assessment that the program needed more computer-programming exposure. Also, the content of ENGR 3350 was deemed to be of minimal values in meeting the program objectives. The curriculum includes 10 credits of professional electives. Allowed professional electives may be selected from the undergraduate courses listed in Table 3 and the non-seminar graduate courses listed in Table 4.

The professional elective courses in Table 3 allow students to develop expertise in the areas of instrumentation and control or electric energy (often termed power systems). Students desiring to emphasize in instrumentation and control would be advised to select professional elective courses ENGR 4420, 4450, 4460, as well as 5 more credits selected from ENGR 3290, 4470, PHYS 4536, GEOP 4300, or appropriate graduate-level courses. Alternatively, students interested in electric energy would be advised to select professional electives ENGR 4500, 45100, as well as 4 more credits selected from ENGR 4450, 4460, 4520, 4340, or appropriate graduate-level courses.

In addition to the elective and graduate courses listed in Table 3 and Table 4, Tech is currently actively planning to have upper-division and graduate courses from MSU-Bozeman taught on the Tech campus via MetNet (MT Educational Televised Communication Network). This is being planned through a cooperative effort between Tech's General Engineering Department and MSU's Electrical and Computer Engineering Department. The current projected start date for the first course is Fall semester 2006. Similarly, some of Tech's upper division courses will be taught via MetNet on the MSU campus.

The goal of the curriculum is to fulfill the objectives stated above. The curriculum was developed based upon consultation with industry experts, review by Montana Tech faculty, review of other similar programs, and review by an ABET expert. Industry experts included many from the process controls and electric energy industries. The ABET expert, Dr. Subbaram Naidu, visited Montana Tech this past fall semester. Dr. Naidu is a Professor and Associate Dean at Idaho State University. He was the principle leader in developing ISU's new EE program and has been an ABET program reviewer for the past several years. He has extensive knowledge and experience in the ABET requirements.

All courses shown in the BSEE curriculum in Table 2 currently exist at Montana Tech. Also, the curriculum has been approved by Montana Tech's curriculum review committee and the full faculty.

Table 2: BSEE Curriculum

Freshman year, Fall Semester	Credits	Freshman year, Spring Semester	Credits
CHEM 1056 Gen Chem I	3	MATH 1530 Calc II	3
CHEM 1136 Chem Lab I	1	PHYS 1046 Gen Phys	3
MATH 1520 Calc I	3	CHEM 1066 Gen Chem II	3
ENGR 1010 Intro Engr Calc&Problems	3	Social Science Elective	3
ENGL 1046 Engl Comp (C)	3	*Approved Electives	1
ENGR 1050 Intro to General Engring	1	**Computer Programming Elective 1	3
*Approved Electives	2	**Total**	**16**
Total	**16**		

Sophomore year, Fall Semester		Sophomore year, Spring Semester	
ENGR 2050 Engr Mechanics-Statics	3	ENGR 2150 CAD and problem solving	2
MATH 3256 Matrices and Linear Alg.	3	ENGR 2060 Engr Mechanics-Dynamics	3
MATH 2510 Calc III	4	MATH 2236 Differential Equations	3
PHYS 2076 Gen Phys	3	ENGR 2530 Electric Circuits	3
PHYS 2096 Phys Lab	1	ENGR 2550 Electric Circuits Lab	1
**Computer Programming Elective 2	3	PHYS 2086 Gen Phys	3
Total	**17**	PHYS 2106 Phys Lab	1
		Total	**16**

Junior year, Fall Semester		**Junior year, Spring Semester**	
MATH 3316 Statistics	3	****Signals & Systems	3
ENGR 3260 Fluid Mechanics	3	ENGR 3270 Digial Circuit Design	3
ENGR 3550 Circuits II	3	ENGR 3570 Electronic Design	4
PHYS 3036 Electronics	3	PHYS 4056 Electricity and Magnetism	3
ENGR 3210 Technical Writing	3	ENGR 3540 Electric Machines	3
Humanities Elective	3	***Professional Electives	2
Total	**18**	**Total**	**18**

Senior year, Fall Semester		**Senior year, Spring Semester**	
ENGR 4440 Communication Systems	3	Humanities Elective	3
ECON 2600 Economics	3	MEC 3630 Engr Economy	3
ENGR 4410 Control Systems Theory	3	ENGR 4040 Professional Engineering	1
ENGR 4270 Intro. Microprocessors	3	ENGR 4940 Seminar	1
ENGR 3340 Thermodynamics	3	ENGR 4920 Engineering Design (W)	3
***Professional Electives	3	***Professional Electives	6
Total	**18**	**Total**	**17**

PROGRAM TOTAL	**136**

*Approved electives -- do not include CHEM 1006, 1016, 1026, MATH 0XXX, 10XX, 11XX, 13XX, PHYS 1026, 1036

- HPER credits are limited to 2 credits.

**Computer Programming Elective -- select two from: CS 2136, CS 2146, and CS 2156

***Professional Electives -- must be selected from: ENGR 3290, ENGR 4420, ENGR 4450, 4460, ENGR 4470, ENGR 4500, ENGR 4510, ENGR 4520, PHYS 4536, GEOP 4300, graduate level Electrical Engineering courses, or concent of advisor.

****ENGR 3580 or GEOP 4460

Table 3: Undergraduate professional elective courses.

COURSE	**Credits**
ENGR 3290 Printed Circuit Board Construction	1
ENGR 4420 Control Systems Lab	1
ENGR 4450 Instrumentation and Control	3
ENGR 4460 Instrumentation and Control Lab	1
ENGR 4470 Analog and Discrete Network Synthesis	3
ENGR 4500 Power System Analysis	3
ENGR 4510 Power System Protection, Operation, Control	3
ENGR 4520 Power Electronics	3
PHYS 4536 Methods of Theor. Physics	**3**
GEOP 4300 Intro. to Artificial Neural Networks	3

7.2. MSEE Program

Similar to the B.S. program, the new MSEE will maintain principally the same goals and curriculum as the current M.S. General Engineering/EE option program. Course offerings allow students to emphasize in instrumentation and control, or electric energy systems. Other areas of emphasis may be tailored to the students' needs.

The program can be completed under Montana Tech's thesis or non-thesis policies. Under the thesis option, students must complete 20 credits of course work, 2 credits of seminar, and 8 credits of thesis research. Thesis students must also pass a thesis defense. Under the non-thesis option, students must complete 34 credits of course work and 2 credits of seminar; also, at least 6 credits of the course work must be special problems. Non-thesis options students must pass an oral and comprehensive written exam.

Course work must be selected using Table 4 as a guideline. Also, selective courses taught from MSU-Bozeman over MetNet will be allowed in the MSEE program. Students select at least 11 credits of courses from Table 4. The remaining courses may be selected from 4000-level or 5000-level engineering, math, or science courses with approval of the advising committee. All courses listed in Table 4 currently exist at Montana Tech.

Table 4: MSEE courses.

Required		Credits
ENGR 5940	Engineering seminar	1
ENGR 5150	Graduate writing seminar	1
ENGR 5380	Advanced Signals and Systems	3
Select 2 courses from the following		
ENGR 5220	Engineering Optimization	3
ENGR 5270	Embedded Controllers	3
ENGR 5370	Random Signals	3
ENGR 5400	Discrete-Time Control Systems	3
ENGR 5410	Advanced Control Systems	3
ENGR 5550	Power System Dynamics and Control	3

8. Faculty, Facilities, Equipment, and Research Support

The staffing, facilities, and equipment requirements for the new programs will be the same currently dedicated to the General Engineering/EE option programs. No additional resources will be required for the new programs. Also, this change will have no effect on the administrative structure of the institution as the program will be housed within the General Engineering Department.

Currently, an equivalent of three and one-half full-time tenure-track teaching faculty will be dedicated to the EE programs. Within the General Engineering Department, two faculty are dedicated 100% time to the EE programs, one is dedicated 67% time, and one is dedicated 33% time. Also, 50% faculty support is provided by the Geophysical Engineering Department. This staffing level allows all required courses for the BSEE degree to be taught as scheduled in Table 2. Professional elective courses ENGR 4470, 4500, 4510, and 4520 are taught on an every-other-year basis; all other professional elective courses are taught once per year. Also, at least two graduate-level course from Table 4 are taught every year, except the seminar courses which are taught every semester. Several of the faculty dedicated to the program have national or international expertise in their respective areas.

In addition to the above faculty, Tech is currently conducting a search for a new tenure-track electrical engineering faculty position that will be funded initially by a research grant for the first five years. Because the grant has an educational component, this position will also have teaching duties.

Based upon review of similar EE programs within the Northwest region and review by the ABET expert, the laboratory facilities available at Montana Tech are of excellent quality. Teaching laboratory facilities include an electrical engineering laboratory, an electric machines lab, and an instrumentation and controls lab.

8.1. Research Support

Over the past 10 years, Montana Tech has received steadily increasing support through externally funded research dedicated to electric energy research. Most recently, this includes a multi-million dollar grant dedicated to the development of intelligent electric power technologies. This support enables Montana Tech to hire the tenure-track position described above as well as non-tenure-track research faculty, award graduate research assistantships, and fund state-of-the-art laboratory development. Tech's principal goal under this grant is to develop a world-class educational and research capability. The proposed degrees are the backbone to this capability.

In partnership with MSE Technologies, Montana Tech is scheduled to receive a $2,000,000 federal congressional earmark in the federal FY06 budget dedicated to intelligent electric powers research. The overall expected funding for the grant is $9,000,000 over three years. The principal goal for the grant is to develop a world-class research capability at Montana Tech in the area of intelligent electric power and to help serve the US Department of Energy research needs in this area. The majority of this money will be dedicated to intelligent electric power research to be conducted at Montana Tech. This money will be used to hire research faculty with international reputations, pay graduate-student stipends, and develop and conduct laboratory research. The research also has a strong undergraduate participation component.

Prior to this most recent grant, faculty at Montana Tech have secured over $1,000,000 of private and federal government research grants over the past 10 years primarily in the electric energy area. The

majority of this research has been directed toward the applications of wind energy and intelligent power system control.

9. Capital Outlay, Operating Expenditures, and Physical Facilities

Estimated Enrollment: The enrollment history for the General Engineering/EE option programs is summarized in Table 5. Although some growth is expected in the program after the proposed change, it is assumed the change will not be significant. If growth does occur, it is expected that the current staffing and facilities could accommodate approximately 15 B.S. graduates per year. With the increased research funding, it is expected that the number of M.S. graduates will increase to approximately 5 per year. For budget preparation purposes, estimated enrollment are the existing MTECH students in the electrical engineering option that are expected to switch to the major. The curriculum contains 136 credits. The average student takes 5 years to graduate. The average annual credit load is 27.2.

Table 5: Number of General Engineering/EE option graduates (Note: prior to 2002, the options was call the Control System option).

	2005/6 (expected)	2004/5	2003/4	2002/3	2001/2	2001/0
BS Graduates	10	9	5	5	12	8
MS Graduates	2	2	1	3	2	3

REVENUE

Use of Current General Operating Funds The funds currently allocated to the option in the general engineering program will be reallocated to the major. Of the general fund this amounts to 9,741,434 + 843,789 of general fund and COE reallocation for 2058 fte or 5143 per fte. Of the 5143 $/fte 56% is allocated to instruction.

Gross Incremental Tuition Revenue

Tuition revenue is calculated as the tuition for 10% out of state and 90% instate for the flat spot with an average of the upper and lower division

Reductions to Incremental Tuition

Tuition revenue is reduced by 44% that is allocated outside of instruction.

Program Fees

Engineering students pay a $90/semester program fee. $70 is allocated directly to the engineering programs. $20 is shared in the other related engineering labs.

External Funds

Grant funding from Federal Earmark will contribute 1 fte faculty for 5 years.

Equipment Fees

Equipment fees are allocated to General Engineering on the average of 25,000 per year. EE would receive 1.4 of that allocation on the average

Expenditures
Personal Services

The program requires 3.5 FTE. Actual salaries were utilized with 31% benefits. 8% was added each year to allow for promotions and increases.

Operating Expenses

1/4 of the operating expenses for General Engineering were re-allocated to Electrical engineering. This is a paper transaction since the program will continue to be housed under the general engineering umbrella.

Equipment

The equipment is sufficient and currently funded through the equipment fees. That rate will likely continue with some influx from the grant.

NEW FACILITIES AND SPACE

Current space in the Science and Engineering facility is sufficient to satisfy the needs of the program.

EVALUATION OF THE PROGRAM

Reviews:
Faculty in the School of Mines and Engineering - September 23, 2005
Graduate Council – November 18, 2005
Montana Tech Curriculum Review Committee – November 22, 2005
Montana Tech Faculty – December , 2005

Consultants:
Dr. Subbaram Naidu, visited Montana Tech this past fall semester as a consultant to the program. Dr. Naidu is a Professor and Associate Dean at Idaho State University. He was the principle leader in developing ISU's new EE program and has been an ABET program reviewer for the past several years. He has extensive knowledge and experience in the ABET requirements.

10. Appendix II: Student Survey

The following survey was conducted at a student meeting of the Montana Tech student chapter of the Institute of Electrical and Electronic Engineers (IEEE). Most of the students in the club are upper division EE students. 15 students attended the meeting and responded to the survey.

Student Survey
Fall 2005

Montana Tech's General Engineering Department is considering pursuing accreditation of the Electrical Engineering options as standalone BS in Electrical Engineering and MS in Electrical Engineering degrees.

Currently, the EE option degrees read:

"BS in General Engineering, Electrical Engineering option"
"MS in General Engineering, Electrical Engineering option."

The new degrees would read:

"BS in Electrical Engineering"
"MS in Electrical Engineering."

Only minor curriculum changes will be required to accredit under the new names. Also, the program will continue to be housed within the General Engineering Department. The program will continue to focus on instrumentation and control, but, we will also add courses to allow students to focus in the area of energy and power systems.

The principal purpose for the change is to provide graduates with more job opportunities outside the traditional process industries that currently recruit Tech graduates. For more information, please see Professor Dan Trudnowski, SE 308.

As part of the proposal, we would like to poll the students. Please complete the following survey.

1. Are you currently enrolled in the BS or MS General Engineering, EE option program?

   Yes No

   Yes = 12 students
   No = 3 student

2. Do you support the above stated proposal?

   Yes No

   Yes = 15 students
   No = 0 students

3. Comments:

   - I support the BSEE 100%. Looking for jobs now it seems all that is recruited is BSEE. I have never seen a job description requiring someone to have a BSGE/EE option, only BSEE. As an upcoming graduate, I want the best placement opportunities as possible.
   - The implementation of a "BS in EE" will enhance the electrical program and bring new job opportunities to those students in the program.
   - Could you get this through before I graduate please.
   - What was the hold up?
   - I also think you should eliminate any aspect of General Engineering in the EE because for the most part it does not pertain to EE's and those skills will more than likely never be used. If the companies want a General Engineer then they can hire one.
   - Please get this in place before I graduate.
   - GREAT!!

Proposed Program: BS and MS in Electrical Engineering

Campus: Montana Tech of The University of Montana

	06/07		07/08		08/09		09/10		10/11	
Estimated **Enrollment**	45		45		50		50		55	
FTE Enrollment	40.8		40.8		45.3		45.3		49.9	
Estimated Incremental **Revenue**										
Use of Current General Operating Funds	117507		117507		130564		130564		143620	
State Funds										
State Funding for Enrollment Growth										
Tuition Revenue										
A. Gross Incremental Tuition Revenue	280490		207222		230246		230246		253271	
B. Reductions to Incremental Tuition	123415		91177		101308		101308		111439	
C. Net Applied Tuition Revenue (A-B)	157074		116044		128938		128938		141832	
Program Fees	6300		6300		7000		7000		7700	
External Funds	20000		57000		74670		80644		87095	
Other Funds	6250		6250		6250		6250		6250	
TOTAL Estimated Revenue	307131		303101		347421		353395		386497	
Estimated Incremental **Expenditures**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**	**FTE**	**Cost**
Personal Services	3.5	265702	3.5	286958	3.5	309915	3.5	334708	3.5	361485
Operating Expenses	8000		8000		8500		8500		9000	
Equipment	6250		6251		6252		6253		6254	
Start-up Expenditures										
TOTAL Estimated Expenditures	279952		301209		324667		349461		376739	
Estimated Revenues Over/Under (-) Expenditures	27179		1892		22755		3934		9758	

1 Appendix I: Letters of Support

NorthWestern Energy

David G. Gates
Vice President, Transmission Operations
Telephone: (406) 497-2164
Facsimile: (406) 497-2150
David.Gates@northwestern.com

NorthWestern Corporation
d/b/a NorthWestern Energy
40 East Broadway Street
Butte, MT 59701
Telephone: (406) 497-3000
Facsimile: (406) 497-2535
www.northwesternenergy.com

August 1, 2005

Dan Trudnowski, PhD, PE
Montana Tech of the University of Montana
Butte, MT 59701

Dear Dr. Trudnowski;

Thank you for your recent presentation to management staff of NorthWestern Energy regarding your proposal to accredit Montana Tech's General Engineering/EE Option Programs as BS and MS Programs in Electrical Engineering. As you know, NorthWestern Energy employs many Tech graduates and has the highest regard for the school.

NorthWestern Energy strongly supports your proposal to accredit Tech to offer BS and MS degrees in Electrical Engineering. The electric power industry is facing something of a crisis due to the lack of new electrical engineers trained in power engineering. NorthWestern Energy itself recently experienced a disappointing lack of qualified candidates for its most sophisticated electrical engineering positions in the area of Transmission Planning. I am pleased that you recognize this need and are proposing a solution.

If there is anything NorthWestern Energy can do to support you in your efforts, please let me know.

Sincerely,

cc: Dan Berube
Ted Williams
Casey Johnston

SCHWEITZER ENGINEERING LABORATORIES, INC.
2350 NE Hopkins Court • Pullman, WA 99163-5603 USA
Phone: (509) 332-1890 • Fax: (509) 332-7990
Internet: www.selinc.com

August 17, 2005

Dr. Butch Gerbrandt

Montana Tech General Engineering
West Park Street
Butte, MT 59701

Dear Butch,

I am excited to learn that Montana Tech is creating an ABET certified, stand-alone BS/MS Electrical Engineering degree program. I earned two degrees at Montana Tech: a BS Geophysical Engineering in 1984 and an MS Engineering Science – Control Systems Option (now General Engineering, Electrical Engineering Option) in 1991. My Montana Tech education has allowed me to serve in a wide variety of responsibilities in the petroleum and electrical energy industries. I have also learned that Montana Tech is well known in the petroleum industry and is virtually unknown in the electric power industry.

I started my career with a B.S. in Geophysical Engineering. Upon graduation, I had offers from several large oil companies all tripping over themselves to hire a Montana Tech graduate with a high GPA. I had recruiters calling me every week in my last semester. In the petroleum industry circles, Montana Tech is recognized as an industry leader.

After a few years in the oil industry, I decided to pursue a career in the electrical utility industry. I enrolled in the M.S. General Engineering (then Engineering Science) to sharpen my skills in electrical circuits and control systems. In the last few months of my education, I had no recruiters calling me. I applied to a small electrical engineering company for employment. The company did not understand my general engineering degree and asked for my transcripts. The company also invited me out to present my thesis project (automation of a hydro-electric dam spill gate) and learned that I knew what I was talking about. This small company is Schweitzer Engineering Laboratories (SEL), which is now the largest producer of electric power system relays in the world.

Shorty after joining SEL, I applied for membership in the IEEE (Institute of Electrical and Electronic Engineers). The IEEE did not recognize my Montana Tech degree. I had to submit transcripts and get letters of reference from my peers (who had ABET certified degrees) to support my application. Ultimately, I was admitted to the IEEE. Membership in the IEEE allows me to participate in industry meetings and also gets me a great rate on life insurance.

Since joining SEL in 1991, I have held a wide variety of positions including Development Engineer, Engineering Manager, Software Process Manager, Program Manager, Director of Product Development, Vice President of Research and Development, and most recently, Revenue Product Engineering Manager. My Montana Tech education prepared me for a wide variety of multidisciplinary roles. My responsibilites over the past several years include software design, hardware design, mechanical design, technical writing, project management, chemical analysis, executive management, and product marketing. Without my Montana Tech education, I would not have had these opportunities.

I have enjoyed a successful career in the electric power industry because I was able to convince the SEL hiring team that a General Engineering degree is just as good as an EE degree. I got lucky. I fear that many good Montana Tech graduates may not be as fortunate as I. When a job opens up at a company, the first screen is usually a non-technical Human Resources (HR) professional. If the resume doesn't say EE, the HR people discard it before it gets to the hiring manager. Let's remove this obstacle and give the bright, hard working students of Montana Tech a fighting chance. An ABET recognized EE degree will help elevate the General Engineering program to the same prominence as the Petroleum, Mining, Environment Engineering, and Geology/Geophysics degrees.

The electric power industry is great place to invest in education. Since deregulation in 1995, electric utilities in North America have been seeking ways to reduce costs. The result is ten years of underinvestment in infrastructure. During that time, the utilities have lost a generation of experienced engineers and the electric power grid is stretched to the limits of stability. I know of one major utility that is so desperate for engineers that it is funding scholarships and promising jobs for high school graduates who enroll in electrical power systems programs. My company, SEL, has established SEL University that offers outreach education to electrical power industry employees. We offer dozens of technical training sessions throughout North America. The classes are routinely sold out with electric utility engineers and technicians in attendance.

Some people may consider the electric utility industry as "low tech". On the contrary, we are working on major improvements in electrical grid stability through advanced control systems utilizing microsecond precision data acquisition and phasor measurement, wide area network communications, and communications security. Other opportunities exist in military marine propulsion systems, industrial computing platforms and electric power metering systems.

I would like to see Montana Tech graduates earn these jobs. I strongly endorse Montana Tech's ABET accreditation for the EE degree, as it will remove the obstacles I faced in getting my career established.

Sincerely,

Robert E. Morris
Revenue Product Engineering Manager
Schweitzer Engineering Laboratories, Inc.
B.S. Geophsical Engineering – 1984
M.S. Engineering Science - 1991

Pacific Northwest
National Laboratory
Operated by Battelle for the
U.S. Department of Energy

August 30, 2005

Dr. Butch Gerbrandt
General Engineering Dept. Head
Montana Tech
1300 W. Park St.
Butte, MT 59701

Dear Dr. Gerbrandt,

I am writing in support of Montana Tech's proposal to change the General Engineering/EE Option program to an ABET accredited EE program offering both BSEE and MSEE degrees. In our opinion this change would make it easier for your high quality graduates to find jobs in the energy arena as well as improving Tech's ability to market its teaching and research programs to a broader audience. The proposal appears to us to be a win-win – good for PNNL and good for Montana.

Having received my PhD from MSU more than a decade ago, I feel uniquely qualified to comment on the need for multiple EE programs within the state and on the potential benefit to Montana of the proposed change in accreditation. Throughout the 1980's the MSU EE Department was supported in part through research funded by Montana Power. MSU maintained a strong emphasis on power and energy throughout this period. With changes in the research funding profile coupled with faculty retirements, emphasis at MSU began to shift to optics, chip design and microtechnology. While this was a natural and logical response by MSU, it shifted the base of companies who are willing to recruit in Montana. With a broader spectrum of EE programs in the state more companies, such as PNNL, would be willing to make the trip to search for qualified candidates.

A second point I would like you to consider is the changing approach to recruiting within HR departments at large firms such as PNNL. I have appended a currently outstanding job requisition from PNNL's Energy and Engineering Division. Using web-based tools for submitting resumes and applications, most of the initial screening is now being handled by HR professionals with little expertise in my technical area. It would take a highly skilled HR staff member within my firm to recognize that Montana Tech has a high quality EE option within the General Engineering degree. It is more likely that prospective candidates would be screened as not meeting the Minimum Requirements (no EE degree) before the resume ever came to my desk.

Finally, I would like to bring to your attention the burgeoning need for engineers in the energy arena. The energy industry is currently bracing for massive retirements as over half of the workforce is expected to retire within the next 7-10 years. This has been reported in numerous journals and

902 Battelle Boulevard • P.O. Box 999 • Richland, WA 99352

Telephone (509) 372-6472 ■ Email matthew.donnelly@pnl.gov ■ Fax (509) 375-3614

periodicals. Many engineering programs are beginning to move to address the perceived need. The "EE Brochure" on MSU's website reinforces this unfulfilled need saying,

> *Although our graduates can be found working throughout the world, most tend to be found in the West and Northwest due to their rural background. The job opportunities in these regions now exceed the number of graduates.*

Clearly there is a need for more EE graduates in the region and in the nation.

I wish you the best in your efforts to improve the job prospects for Montana graduates. If there is anything I can do to clarify our position or to assist you please don't hesitate to call.

Sincerely Yours,

Matt Donnelly, PhD, PE
Staff Engineer
Program Manager, Bulk Transmission Reliability
Pacific Northwest National Laboratory

APPENDIX - CURRENTLY OPEN PNNL JOB DESCRIPTION
==========

Job Description
Electrical Power System Engineer III/IV Energy Technology Development Group
Energy & Engineering Division Energy Science & Technology Directorate

Description:
This position will provide technical thought leadership and technical oversight to the Laboratory's research in high voltage electrical power system transmission and distribution. This position will focus on the electric power industry in one or more of the following areas: electric power transmission and distribution design and analysis, power system operations and control, and load flow and stability analysis using computer models. Primary emphasis of this position will be the use of industry standard software for load flow and control (e.g. GE PSLF, AREVA DTS). Other duties that would be expected of this position would be the development of automated computer programs and other advanced analysis methods for comprehensive evaluation of the operational performance of the transmission system and conducting operating studies and contingency analyses, including power flow, short circuit, stability, and post-transient analyses, to maintain reliable operation of the grid. Must also provide direction to supporting staff.

Minimum Requirements:
Level III:
-A minimum of a BS in Electrical Engineering with an emphasis in Power Systems Engineering, and 5 years of related experience, or a MS degree and 3 or more years of experience, or PhD degree and 1-2 years experience.
Level IV:
-A minimum of a BS in Electrical Engineering with an emphasis in Power Systems Engineering, and 7 or more years of related experience, or a MS degree and 5 or more years experience or PhD degree and 3 or more years experience.

MSE Technology Applications, Inc.
200 Technology Way
P.O. Box 4078
Butte, MT 59702
(406) 494-7100
FAX (406) 494-7230

Mike Mansfield Advanced Technology Center

January 3, 2006
2006MSE-81

Dr. Butch Gerbrandt
Montana Tech of the University of Montana
General Engineering Department
West Park Street
Butte, MT 59701

Dear Butch:

During a meeting last week with Dan Trudnowski, I was informed about your plans to establish an ABET Certified Electrical Engineering Program. I applaud your efforts to accomplish this action and encourage you to then do the same for a Mechanical Engineering Program and a Civil Engineering Programs. This is long overdue.

I received my B.S. and M.S. Engineering Science degrees from Montana Tech. I remember going on job interviews in 1982 and being asked "is that a real engineering degree." Here I had received a "top notch" engineering education (better than most get) and because of the name of the program was being hindered in trying to get my first job. My training was the same. I had passed the EIT and because of the name of the program was not getting the same opportunities as others.

I remember hearing during my tenure at Montana Tech that they couldn't call it a Mechanical, Electrical, or Civil Engineering Program because these programs were offered at Montana State University and they couldn't have the same programs at two institutions. Well it is time to correct that issue, call the programs what they are, and help graduates when they need it the most, when they are newly minted engineers entering the workforce.

If I can help in any way please do not hesitate to call.

Best regards,

Jeffrey W. Ruffner, P.E.
Senior Vice President and General Manager
Mike Mansfield Advanced Technology Center
MSE Technology Applications, Inc.

JWR/jz

January 19, 2006

Dr. Neil Wahl
General Engineering Acting Dept. Head
Montana Tech
1300 W. Park St.
Butte, MT 59701

Dear Dr. Wahl,

This is a letter of support for the General Engineering Department's proposal to change the General Engineering/EE Option program to an ABET accredited EE program offering both BSEE and MSEE degrees. The Industrial Advisory Board (IAB) is in clear agreement that the change will provide improved opportunities for both BS and MS graduates as well as help fill growing industrial needs. Montana Tech students work hard to complete an excellent academic program and they deserve every opportunity to be successful. These changes will certainly improve our graduate's employment opportunities, and facilitate Montana Tech's continuing contribution in building Montana's and the region's energy economy.

All members of the IAB are very familiar with the high quality of graduates from Montana Tech's General Engineering department. Unfortunately, most companies are unfamiliar with the General Engineering/EE option and do not realize that Montana Tech graduates are qualified to fill many electrical engineering positions. In most companies, hiring managers and human resources recruiters look for graduates with common degrees such as BS in Electrical Engineering and MS in Electrical Engineering. After completing a rigorous degree program, Montana Tech students deserve the opportunity to compete for professional jobs on a level playing field.

The proposed emphasis of the program in the energy and instrumentation & controls areas matches very well with growing Global, US, Northwest regional, and Montana industrial needs. Because of electric power de-regulation and the growing costs of producing energy, the projected needs of these industries for electrical engineering talent out pace the pool of available graduates. Certainly in the industries we represent as a group, we see this void growing larger each year. For example, worldwide demand for electric power is increasing at 4% per year. At the same time, most electric utilities and schools are curtailing their investment in electric power systems. Now is a great time to invest in the future by training more electrical engineers to fuel global, national, regional, and Montana's economies.

Dr. Butch Gerbrandt
August 30, 2005
Page 2

In conclusion, we are in strong support of this proposal and look forward to next phase of its implementation. Please let us know if there is more we can do to help move this important proposal forward.

Sincerely,

Montana Tech's General Engineering Industrial Advisory Board
Stacy Aguirre, District Engineer, Montana DOT
Brad Archibald, President, Pioneer Technical, Butte
Dan Berube, Retired, Montana Power Company, CEO
Robert Carrington, Program Manager, Idaho National Laboratory
Mark Danninger, Maintenance Superintendent, Advanced Silicon Materials, Butte
Leroy Friel, Professor, Montana Tech
Daniel Kunz, President, US Geothermal, Warm Springs
John (Jack) Kovacich, Kalispell Area Manager, NorthWestern Energy Company
Gary Morris, Engineer, CTA Architects Engineers, Missoula
Robert Morris, Revenue Product Engineer Manager, Schweitzer Engineering Labs, Washington
Nathan Ratz, Engineer, CTA Architects Engineers, Missoula
Ray Rice, Senior Engineer, Schweitzer Engineering Labs, Washington
Chris Stoll, Systems Engineer, Honeywell, Utah

ITEM 131-101-R0506 **Modifications and Operational Rules for the PN/RN Model Curriculum**

THAT: The Montana Board of Regents adopt some changes in the PN/RN model curriculum, and approve operational rules for that curriculum. The changes and rules are attached to this item.

EXPLANATION: The directors of nursing programs in the Montana University System, and other interested parties, reconvened in February 2006 to continue their conversations about the PN/RN model curriculum. That discussion was important, because members of the work group had had some time to think about the implementation process for the new curriculum since the meetings a year ago. They had also discovered some additional issues that needed to be addressed, as they worked on implementation.

The changes in the model curriculum can be summarized as follows: course titles were changed, some courses were switched to different semesters, new courses were added and credit totals were changed. The specific changes can be reviewed by comparing the model that was approved by the Board of Regents last spring and the model that is being submitted under this item. The nursing directors believe that the modifications strengthen the program and assist students in preparing for the nursing licensure examinations.

The operational rules were developed to guide nursing programs as they work with the model curriculum. The rules are complicated because there are so many different kinds of nursing programs in the Montana University System, and because there are several different pathways that nursing students can follow to achieve their professional goals. Hopefully, the rules will provide structure and predictability to the model curriculum.

To assist students in working with the model, the Office of the Commissioner of Higher Education will add additional information to the transferability website that will explain and illustrate the model curriculum, and its operational rules, from a student perspective.

ITEM 131-101-R0506

Operational Rules
That Assist with the Implementation
Of the PN/ASN Model Curriculum

An Introduction

Several operational rules have been agreed upon to assist with the implementation of the model nursing curriculum. That model curriculum is intended for all practical nursing (PN) programs in the Montana University System, and for schools that offer both PN and two-year registered nursing (RN) programs. Schools that offer just the registered nursing program are not expected to follow the model curriculum, but they are obligated to develop articulation agreements for students who may want to transfer into their programs.

The operational rules are as follows:

1) Most of the courses listed in Semester One and Semester Two are considered pre-nursing courses. The **recommended** sequence for those courses is set out in the PN/ASN model curriculum table. Nursing programs that follow this model have the right to deliver the pre-nursing courses in a different sequence, however, to accommodate the needs of other programs at their institution that also utilize these courses and to respond to the availability of faculty who teach these courses for the institution. In developing an alternative delivery schedule, the institution cannot create hidden prerequisites that make it more difficult for students to complete the coursework in as timely a fashion as possible. Remedial courses are not considered hidden prerequisites. Because of this flexibility in scheduling, the assessment model should attempt to determine its impact on students, particularly students who transfer between programs.

2) The nursing courses set out in Semester Three, Four, Five and Six **must be delivered** in the order and sequence set out in the LPN/ASN model curriculum table. Nursing students must also be able to complete the nursing courses in two academic years.

3) Students must earn a “C” or better in all of the pre-nursing courses. Those courses are:
anatomy and physiology, Freshman English, inorganic chemistry, college algebra, nutrition, and general psychology. Students must also earn a "C" or better in the microbiology and sociology courses listed in Semesters Five and Six.

4) Students must earn a “C” or better in all of the nursing courses. In addition to the obvious nursing courses, the list includes the Introduction to Nursing course, the Leadership Issues course and the Transition to Registered Nursing course.

5) Students from Practical Nursing (PN) programs, who complete the first four (4) semesters of the model curriculum, can earn a certificate in PN nursing and are eligible to sit for the national licensure examination (NCLEX-PN). Those students:

    a) must complete the two-credit Leadership Issues course set out in Semester 4 to earn that certificate, and sit for the examination.

PN programs are currently offered by Montana State University-Great Falls College of Technology and Montana State University-Billings College of Technology. Flathead Valley Community College is in the process of developing a PN program.

6) The Practical Nursing students, described in part 5) above, may decide to go on to a Registered Nursing program **that follows the model curriculum.** To make that transition, the students:

   a) must complete the didactic portion of the Transition to Registered Nursing course before they apply for admission to the RN program.
   b) must complete the skills portion of the Transition to Registered Nursing course, before they apply for admission to the RN program, if more than three years have elapsed since they completed their PN coursework.
   c) will transfer their coursework from the first four (4) semesters into the RN program, and begin with the courses that are set out in Semester 5.
   d) do not have to take the two-credit Leadership Issues course set out in Semester 4; but in doing so, they will not earn a certificate in PN nursing and they will not be eligible to sit for NCLEX-PN. (Please see Footnote.)

   The Registered Nursing programs that follow the model curriculum are located at Montana Tech of The University of Montana, The University of Montana-Helena College of Technology, and The University of Montana-Missoula College of Technology.

7) Practical Nursing students, described in part 5) above, who decide to go on to a Registered Nursing program that **does not follow the model curriculum**:

   a) must complete the didactic portion of the Transition to Registered Nursing course, before they apply for admission to the RN programs at Miles Community College and Montana State University-Northern.
   b) must complete the skills portion of the Transition to Registered Nursing course, before they apply for admission to the RN programs at Miles Community College and Montana State University-Northern, if more than three years have elapsed since they completed the PN program.
   c) will follow the articulation plan developed by the RN program. That articulation plan may include an escrow of credits until PN students successfully complete the RN program.
   d) do not have to take the two-credit Leadership Issues course set out in Semester 4; but in doing so, they will not earn a certificate in PN nursing and they will not be eligible to sit for NCLEX-PN.

   The Registered Nursing programs that do not follow the model curriculum are located at Miles Community College, Montana State University-Northern and Montana State University-Bozeman. The articulation plans for those programs can be found at the following link.

8) Practical Nursing students **who did not complete the first four (4) semesters of the model curriculum**, and decide to go on to a registered nursing program, must satisfy the following requirements before they apply for admission to an RN program:

   a) complete all of the pre-nursing courses described in part 3) above before they apply for admission to the RN program.

b) complete the didactic portion of the Transition to Registered Nursing course before they apply for admission to the RN program.
c) complete the skills portion of the Transition to Registered Nursing course before they apply for admission to the RN program. The only exception to this skills requirement is licensed practical nurses who completed their PN education from a Montana University System program under a different curriculum model, **and** that program was completed less than three years before they applied for admission to an RN program.
d) be a licensed practical nurse.
e) satisfy the minimum grade requirements set out in parts 3) and 4) above.

If these licensed practical nurses are admitted to an RN program, their PN nursing credits will be placed in "escrow" until they successfully complete the RN coursework. Those escrowed credits will be accepted, as a block, when the students successfully complete the RN curriculum. In order to comply with the "notice requirements" of Board of Regents' Policy 301.5.1, students must be told, in writing, how the escrow process will work.

The coursework that the students must complete will depend on the RN program that accepts them. It will be either a) Semesters Five and Six of the model curriculum; or b) the coursework identified in the articulation plans described in part 7) above.

9) Students in the two-year RN programs **that follow the model curriculum** have the right to "opt out" of the program at the end of Semester 4 and take the LPN licensure examination. To prepare for NCLEX-PN, students must take the two-credit Leadership Issues course set out in Semester 4. (Please see Footnote.)

10) The Transition to Registered Nursing course, referenced above, is currently offered by three (3) nursing programs. Those programs are: Montana Tech of The University of Montana (didactic portion offered on-line); Montana State University-Northern (didactic portion offered on-line); and Miles Community College (didactic portion offered by interactive television). The following details also serve as guides for the Transition course:

a) the transition course will be offered every semester. At this point, Montana Tech will offer the course during Fall Semester; MSU-Northern will offer the course during Spring Semester; and Miles Community College will offer the course during Summer Semester.
b) one of the requirements of the class will be a demonstration of skills appropriate for admission to an RN nursing program. The students who are required to satisfy the skills demonstration requirement are listed in rules 6), 7) and 8) above. Students will have to travel to the campus where they enrolled for the course to complete the skills portion. That will typically be done at a pre-scheduled "skills day."
c) students will be assessed a course fee for the skills portion of the course. The amount of the course fee will be $88, to cover the cost of materials used by the students to demonstrate their nursing skills.
d) additional nursing programs may also decide to offer the Transition course. If they do, the availability of the program will be included in these operational rules.

11) To determine if previous coursework is still current and timely, nursing programs will rely on the Montana Board of Regents' policy entitled "Outdated Coursework." The relevant sections of that policy guarantee that
    - any nursing coursework taken within the last five (5) years will be evaluated for possible use in the nursing program; and
    - any pre-nursing, general education or elective coursework taken within the last fifteen (15) years will be evaluated for possible use in the nursing program.

    The policy does not require nursing programs to accept coursework that falls within the guarantee periods. The policy also does not mandate that nursing programs must reject coursework that falls outside the guarantee periods. Nursing programs have agreed to be as generous as possible, however, in applying the provisions of the policy without sacrificing the quality of their programs.

(Footnote.) The RN program at The University of Montana-Missoula College of Technology follows the model curriculum. At least for the immediate future, that program will require all students to be licensed practical nurses before they can continue with the coursework set out in Semesters 5 and 6. The Missoula program is an exception because it promised the communities in its service area that it would continue to do all it could to prepare LPNs, and to assist practicing LPNs to become RNs.

ITEM 131-101-R0506 New Curriculum

REVISED CURRICULUM FOR 72 CREDIT ASN WITH OPTIONAL PN EXIT AFTER 48(+) CREDITS

("STAND-ALONE" PN PROGRAMS WILL OFFER FIRST FOUR SEMESTERS)

SEMESTER ONE		**SEMESTER TWO**	
Course	**Credits Didactic/Clinical/Lab**	**Course**	**Credits Didactic/Clinical/Lab**
		(Apply for admission to Nursing Program during Semester Two)	
Anatomy & Physiology I	3/0/1 = 4	Anatomy & Physiology II	3/0/1 = 4
Freshman English	3/0/0 = 3	Inorganic Chemistry w/Lab	3/0/1 = 4
College Algebra	3/0/0 = 3	Introduction to Nursing	1/0/0 = 1
Nutrition	2/0/0 = 2	General Psychology	3/0/0 = 3
Total	11/0/1 =12	Total	10/0/2/=12

NOTE: *Admission to Nursing Program required before taking Semester Three coursework*

SEMESTER THREE		**SEMESTER FOUR**	
Pharmacology	3/0/0 = 3	Core Concepts of Adult Nursing	4/3/0 = 7
Fundamentals of Nursing	4/0/3 = 7	Core Concepts of Maternal/Child Nursing	2/1/0 = 3
Gerontology	1/1/0 = 2	Core Concepts of Mental Health Nursing	2/0/0 = 2
Total	8/1/3 = 12	Total	8/4/0 =12
		Leadership Issues (for those opting PN exit)	1/1/0 = 2
		Total	9/5/0 = 14
		Total	**50 credits**

NOTE: *PNs applying for entry in Semester Five must take a 3-credit Transition to Registered Nursing course. A skills assessment may also be required.*

SEMESTER FIVE		**SEMESTER SIX**	
Complex Care Needs—Maternal/Child Client	2/1/0 = 3	Intro Sociology	3/0/0 = 3
Complex Care Needs—Mental Health Client	1/1/0 = 2	Complex Care Needs—Adult Client	2/2/0 = 4
Pathophysiology	3/0/0 = 3	Advanced Clinical Skills	0/0/1 = 1
Microbiology	3/0/1 = 4	Managing Client Care	2/2/0 = 4
Total	9/2/1 = 12	Total	7/4/1 = 12

Clinical credits are 3:1 Lab credits are 2:1

50 credit PN Certificate
- —23 credits cognates, 27 credits Nursing (includes PN exit class)
- —38 credits didactic, 6 credits clinical, 6 credits lab (includes PN exit class)

72 credit ASN
- —30 credits cognates; 42 credits Nursing
- —52 credits didactic, 12 credits clinical, 8 credits lab

TABLE 1

CURRICULUM FOR 72 CREDIT ASN WITH OPTIONAL PN EXIT AFTER 48 (+) CREDITS

("STAND-ALONE" LPN PROGRAMS WILL OFFER FIRST FOUR SEMESTERS)

Course	Credits Didactic/Clinical/Lab	Course	Credits Didactic/Clinical/Lab
SEMESTER ONE		**SEMESTER TWO** *(Apply for admission to Nursing Program during Semester Two)*	
Anatomy & Physiology I	3/0/1 = 4	Anatomy & Physiology II	3/0/1 = 4
Freshman English	3/0/0 = 3	College Algebra	3/0/0 = 3
Inorganic Chemistry w/Lab	3/0/1 = 4	Nutrition	2/0/0 = 2
Introduction to Nursing	1/0/0 = 1	Developmental Psych	3/0/0 = 3
Total	10/0/2=12	Total	11/0/1/=12

NOTE: *Admission to Nursing Program required before taking Semester Three coursework*

SEMESTER THREE		**SEMESTER FOUR**	
Pharmacology	3/0/0=3	Core Concepts of Adult Nursing ("Med-Surg I")	4/3/0 = 7
Fundamentals of Nursing	4/0/3=7	Core Concepts of Maternal/Child Nursing ("OB/Peds I")	2/1/0 = 3
Gerontology	1/1/0=2	Nursing Care of Clients With Alterations in Psychosocial Integrity	2/0/0 = 2
Total	8/1/3=12	Total	8/4/0=12
		Leadership Issues *(for those opting PN exit)*	1/1/0/=2
		Total	9/5/0=14
		Total	**50 credits**

SEMESTER FIVE		**SEMESTER SIX**	
Complex Care Needs—Adult Client ("Med-Surg II")		Intro Sociology	
Complex Care Needs—Maternal/Child Client ("OB/Peds II")		Essentials of Care Management	3/0/0=3
Microbiology		Transition into Practice/Trends & Issues	
		Care Management Practicum (RN capstone course)	1/2/0=3
Total	12	Total	12

Clinical credits are 3:1 Lab credits are 2:1

50 credit PN Certificate
- —23 credits cognates, 27 credits Nursing (includes PN exit class)
- —38 credits didactic, 6 credits clinical, 6 credits lab (includes PN exit class)

72 credit ASN
- —30 credits cognates; 42 credits Nursing
- —xx credits didactic, xx credits clinical, xx credits lab

IMPLEMENTATION TIMELINE
FOR PN/ASN MODEL CURRICULUM

Campus	Implementation Date
UM-Helena COT	Fall, 2006
UM-Missoula COT	Fall, 2006
UM-Montana Tech COT	Fall, 2006
MSU-Billings COT	Fall, 2007
MSU-Great Falls COT	Fall, 2006
Flathead Valley CC	Fall, 2006

Projected implementation date for first entry class (Semester One of new curriculum) includes time required for internal and Board of Nursing review, and for course development if needed. Nursing coursework (Semester Three) will be implemented the following year.

For Helena, Missoula and Butte, implementation also includes the two-year RN program.

e.g. Fall, 2006 for general education courses
Fall, 2007 for certificate practical nursing courses
Fall, 2008 for Associate RN courses

Background on Board of Regents' Approval of the UM-Missoula Paleontology Center and Fort Peck Field Station

FROM THE LEVEL II PROGRAM PROPOSAL SUBMITTED BY THE UNIVERSITY OF MONTANA-MISSOULA (ITEM 128-1002-R0705):

7. Describe any similar programs in Montana and the surrounding region:

Although there are other paleontology programs in Montana and in the surrounding region, the establishment of the proposed Center will expand the collections and enable additional research and teaching opportunities. As stated in section 2.2., the University of Wyoming and the University of Idaho possess limited teaching collections of fossils and restricted teaching in paleontology. Washington State University offers a paleontology emphasis in its Geology Department. The Earth Science program at Montana State University offers paleontology as an emphasis in Geology. The excellent collections at the Museum of the Rockies at MSU focus on anthropology, history, and vertebrate paleontology, especially dinosaur fossils. The websites of the Universities of North and South Dakota indicate that each offered a single course in vertebrate paleontology and North and South Dakota State Universities also have minimal or no offerings in this field. Thus, an objective of The University of Montana Paleontology Center is to provide research and educational emphasis and opportunities predominantly in fields of paleontology other than dinosaurs; this would fill an academic need for Montana as well as for this region of the country.

FROM THE OFFICIAL MINUTES OF THE SEPTEMBER 2005 BOARD MEETING:

Minutes of the Academic and Student Affairs Committee Meeting:

Level II Items

1. Action: ITEM 128-2003-R0705: Pre-Medical Certificate, Montana State University-Bozeman. Request Summary Proposal Budget
2. Action: ITEM 128-2004-R0705: Master of Science degree in Ecological and Environmental Statistics, Montana State University-Bozeman. Request Summary Proposal Budget
3. Action: ITEM 128-2005-R0705: Humanities Institute, Montana State University-Bozeman. Request Proposal Budget
4. Action: ITEM 128-2801-R0705: Associate of Applied Science degree in Electrical Technology, Montana State University-Northern. Request Summary Proposal Budget Appendix 1 Appendix 2
5. Action: ITEM 128-1001-R0705: Minor in Central and Southwest Asian Studies, The University of Montana-Missoula. Request Summary Proposal
6. Action: ITEM 128-1002-R0705: Paleontology Center on campus and field station in Glasgow area, The University of Montana-Missoula. Request Summary Proposal Budget
7. Action: ITEM 128-1501-R0705: Master of Science degree in Interdisciplinary Studies, Montana Tech of The University of Montana-Missoula. Request Summary Proposal Budget
8. Action: ITEM 128-1505-R0705: Revised mission statement, Montana Tech of The University of Montana. Request Vision
9. Action: ITEM 128-1506-R0705: Conversion of option in Medical Assistant to an Associate of Applied Science degree in Medical Assistant, Montana Tech of The University of Montana. Summary Proposal Budget

Questions on items 3 and 6 were raised regarding duplicating programs. Provost Muir introduced Dr. George Stanley, proposed director of the new UM Paleontology Center. Dr. Stanley said the focus of the new center would be invertebrates and plants, not dinosaurs as at MSU-Bozeman. Provost Dooley said

that MSU-Bozeman sees this as synergistic with their programs, not competitive or duplicative and supports the creation of the new Center.

Several people spoke in support of item 4, the A.A.S. in Electrical Technology at MSU-Northern, including several members of the business community.

Regent Foster moved to forward items 1-9 to the full Board. Motion carried.

Minutes of the Full Board Meeting:

Level II Action Items

aa. ITEM 128-1002-R0705: Paleontology Center on campus and field station in Glasgow area, The University of Montana-Missoula. Request Summary Proposal Budget

bb. ITEM 128-1501-R0705: Master of Science degree in Interdisciplinary Studies, Montana Tech of The University of Montana-Missoula. Request Summary Proposal Budget

cc. ITEM 128-1505-R0705: Revised mission statement, Montana Tech of The University of Montana. Request Vision

dd. ITEM 128-1506-R0705: Conversion of option in Medical Assistant to an Associate of Applied Science degree in Medical Assistant, Montana Tech of The University of Montana. Summary Proposal Budget

Regent Hamilton moved APPROVAL of items v. through dd.

Regent Foster indicated he saw duplication in some of the proposed programs, and that there should be an explanation to the Board. He asked how many graduates it takes for a program to pay for itself, what the economic development impact was of each proposal, and if they were duplicative, he requested an explanation. Regent Barrett agreed completely, and believes the burden should be on those requesting the programs. Regent Hamilton noted there is a section in the form that speaks to other programs in the system. Deputy Commissioner Barber indicated the campuses are creative in defining the word duplication. Regent Hamilton said the campuses are good about working together. One problem is that the agendas are very heavy, and she fears they might be shortsighted in their discussions. Chair Mercer again issued a challenge to find a solution for wading through all these documents. He suggested possibly having graduate students review for duplication, but added they need to have the justification in writing. Deputy Commissioner Barber referred to page 258 in the materials which displayed a clear description of the question. He said it could be expanded to include the issues of collaboration. Regent Barrett noted that without the necessary information, there is mission creep all around. He indicated that if the campuses don't complete all the information, they are not to bring the items to the Board. Regent Hamilton said the Board needs to take the responsibility to question duplications, and then their responsibility is not to approve the problem proposal. She said the campuses make good arguments, but the call is the Board's.

Motion APPROVED unanimously on 7-0 vote.

FROM THE UNIVERSITY OF MONTANA'S 2005 PRESIDENT'S REPORT (PAGE 23)

The state Board of Regents gave the nod for a new UM Paleontology Center that includes an associated Fort Peck Field Station amid the fossil-rich Cretaceous formations surrounding Fort Pack and Glasgow. Organized under UM's Department of Geology, the new center will promote paleontology education and research and serve as a repository for important fossil discoveries. It also will boost public outreach in paleontology. To create the center, UM created a partnership with Fort Peck Paleontology, Inc., a nonprofit formed by eastern Montana residents to promote study and research of the area's spectacular fossils, including dinosaurs, plants and invertebrate remains. "It's a paleontology wonderland out there, filled with fossil vertebrates and plants, as well as invertebrate life," says **George Stanley,** UM geology professor and the new center's director.