Montana University System

PROGRAM REVIEW

Institution: **MSU-Northern**

Program Years: **2010-2011**

List of the programs reviewed:

- Electrical Technology – AAS
- B.S. in Mathematics
  B.S. in Education 5-12 Mathematics

Decision(s) concerning the future of the program(s), based on the program review criteria established at the campus:

Please see attached.

Rationale or justification for the decision based on the program review process established at the campus. Include graduation numbers and student majors for each of the last seven (7) years for every program under review.

Please see attached detailed Program Review Overviews.

Montana University System

PROGRAM REVIEW

Institution: Montana State University – Northern

Program Years: 2010-2011 Academic Year

List of the programs reviewed:

Electrical Technology – AAS

Decision(s) concerning the future of the program(s), based on the program review criteria established at the campus:

Major (for fall of the year indicated)	2004	2005	2006	2007	2008	2009	2010	2011
Electrical Technology Associates	0	0	12	26	28	38	34	30

Graduates (for academic yr. ending in May)	2004	2005	2006	2007	2008	2009	2010
Associate	0	0	0	6	12	14	12

Enrollment levels have remained strong for the program. Employment rate of graduates is excellent. Based on responses from Advisory Board members, the reputation of the program continues to flourish. Also, these positive program changes are a result of the annual assessment process.

Rationale or justification for the decision based on the program review process established at the campus. Include graduation numbers and student majors for each of the last seven (7) years for every program under review.

Based on strong enrollment numbers, successful program completions, employment of graduates, and continued demand for the program, the potential for ongoing success remains high. The campus recommends that the program be continued as is with additional fiscal support considered to ensure both growth of the program and success of the students in the program.

Additional Justification for the Recommendations are presented below.

Reccommendation 1 – Continue the program on the Havre Campus with a targeted recruiting plan to encourage growth;

Recommendation 2 – Initiate a concerted long range effort for the trades programs to acquire funding for a training building. Faculty have suggested constructing a combined trades training facility to support Electrical, Plumbing, Carpentry, and Sustainable Energy Technology programs at Northern. The proposed facility would consist of an unheated steel building with ½ concrete slab, ½ dirt floor to allow underground and utility pole

work for the trades programs during inclement weather. The facility would serve as a site for construction, plumbing and commercial wiring labs, while serving as a place for 'work at height' training for the Sustainable Energy Technology program.

Montana State University – Northern

Associate of Applied Sciences Electrical Technology Program Assessment Report

MSUN's Associate of Applied Sciences (AAS) Electrical Technology (ET) program has been in existence since the 2006 Fall Semester. In 2007, the ET assessment process began and an instructor was hired to take over the first-year training while a tenure track faculty, taught the second-year students.

From fall 2007 to the present (fall 2011), students have performed consistently better on their electrical technology assessments. At the beginning of the 2010 class, faculty initiated an additional test developed by the International Brotherhood of Electrical Workers (IBEW) Union. This pre- and post-test process will be used to both further our understanding of students' basic knowledge of electrical technology and provide an additional measure of progress at the beginning and end of the second year. Continued review of student test results will allow for changes in curriculum, instruction and/or professional development in areas of training that need improvement.

Changes have been made in training coordination in first and second-year class instruction with a marked result by the 2010-2012 class. A review of the basic fundamentals (e.g. series and parallel inductance and capacitance circuits, motor fundamentals, transformer basics, and circuit troubleshooting analysis, etc.) has been incorporated into the ELEC 111 Motors and Meters coursework. In addition, the mathematics for electricians and National Electric Code codeology has been increased throughout the curriculum. In addition, Journeyman Test Practice Exams have also been incorporated as assigned work.

Some of the IBEW test results indicated a need for additional coursework such as hand signals for crane operation and an increase concentration in the types of knots used in construction work. Faculty are in the process of learning what needs may be identified from the IBEW assessment, but have recognized that a more intense focus must be placed on making sure the students grasp the basic rudiments of electrical safety and circuit analysis. Utilizing the results from the MSU-N Assessment Test, further program alterations are being made to insure that students achieve higher understanding of the electrical circuit relative to the series and parallel circuit as it relates to loading and voltage/current values when transformer design or panel loading is concerned.

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PROGRAM REVIEW

Institution: MSU-Northern

Program Years: 2010-2011

List of the programs reviewed:

B.S. in Mathematics
B.S. in Education 5-12 Mathematics

Decision(s) concerning the future of the program(s), based on the program review criteria established at the campus:

Retain both programs

Rationale or justification for the decision based on the program review process established at the campus. Include graduation numbers and student majors for each of the last seven (7) years for every program under review.

Graduates of the mathematics program have found employment in education, those who have the B.S. in education as well as one student that has the B.S. in mathematics. One graduate is preparing to go into a graduate program. The reputation and viability of the program is slowly growing. There has been no marketing for the programs and most area students do not know that there is a mathematics program at MSU-Northern.

B.S. in Mathematics	2004	2005	2006	2007	2008	2009	2010	2011
Students in program	0	0	0	0	1	5	4	2

B.S. in Education – Math	2004	2005	2006	2007	2008	2009	2010	2011
Students in program	0	0	0	2	5	7	5	3

Graduates	2004	2005	2006	2007	2008	2009	2010	2011
B.S. Math	0	0	0	0	0	0	0	2
B.S. in Ed. – Math	0	0	0	0	0	1	1	0

Enrollment in the Math B.S. program seems to be stabilizing. The math program provides an alternative for students that start out in civil engineering technology or other programs. The enrollment in the B.S. Education in Math has faltered due to students that are in the Math program are also enrolled in Elementary Education – double major. In most cases, students drop the math major and focus primarily on the elementary education

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major. In these cases, students are trying to develop additional possibilities for employment but fine the elementary education program all consuming. Interestingly, students who graduate with the B.S. in Math can get a temporary teaching license for schools that have not been able to find a math instructor.

Faculty members in the College of Education, Arts & Sciences, and Nursing (CEASN) will do the following to build enrollments in both programs:

1. **Focused recruitment**—faculty members and administration in the CEASN will work closely with the new director of admissions and recruiters to sell the B.S. Education in Math and B.S. in Mathematics to prospective students in the local, out-of-state and international markets;

2. **Develop articulation agreements**—the Dean of the CEASN will (in consultation with faculty) meet with two year programs in the State and Canada to develop articulation agreements the B.S. Education in Math and B.S. in Mathematics programs;

3. **Curriculum adjustments** – faculty will work with other programs on campus, such as business and civil engineering technology, to develop areas of concentration or minors that will also support the mathematics program; and

4. **Dual Credit**—math faculty will work with local mathematics instructors through the dual credit program offerings and thus can help in the recruitment efforts for the math programs.