

**Montana State University – Northern  
College of Technical Sciences**

**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 Welding certificate program is intended to enhance student qualification for employment. The certificate meets nationally-recognized levels of proficiency in welding. Currently, a departmental certificate is offered. This proposal would provide Board of Regent recognition to an existing departmental certificate.

- 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.**

The certificate program has been an ongoing topic of discussion of industrial advisory board meetings and feedback from students and/graduates.

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

The program represents technical education as demanded by Montana business and industry. This departmental certificate has been offered by Northern and is a natural extension of the mission of the University. The Board of Regents Certificate would provide a benefit to students at no additional cost to the 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 the institution since all courses and activities will take place within the College of Technical Sciences. However, a number of existing degree programs could benefit – for example, a recognized welding certificate for an Industrial Technology graduate would be an enhanced qualification.

- 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.**

Similar certification programs exist at the College of Technology in Helena and at a variety of technical schools in the region, however no such certificate is offered in

North Central Montana, and current MSU-Northern students would not be able to complete welding certification offered at other sites.

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 American Welding Society sets standards used in the program courses and the certifications leading to the certificate. The primary welding instructor holds AWS credentials as an inspector.

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.

**Fall Semester**

METL 140 Introduction to Welding/Cutting	3
METL 154 Gas Arc Welding Processing	3
METL 156 Welding Practice	3
ENGL 111 Written Communication I	3
MAAS 106 Technical Math	3

**Spring Semester**

METL 150 Shielded Metal Arc Weld	3
METL 156 Welding Practice	3
METL 260 Repair/Maintenance Welding	3
METL 285 Weld Certif. Proc. I	3
General Education (Area B)*	3
	<b>30</b>

\*Area B, Social Science

**Course Descriptions**

METL 140 Introduction to Welding and Cutting (3 credits)

An introductory course covering care and use of arc and oxyfuel welding equipment, regulators, torches, cylinders, power sources, electrodes, characteristics of operation, welding of steels and special applications. Introduction to techniques of welding mild steel. Mechanical properties of metals and types of joints are also covered.

METL 150 Shielded Metal Arc Welding (3 credits)

A continuation of METL 140, additional training in welding horizontal, vertical and overhead positions of mild steel. Emphasis is placed on alloys on special applications. Introduction to techniques of welding mild steel. Mechanical

properties of metals and types of joints are also covered. Prerequisites: METL 140 or consent of instructor.

METL 154 Gas Arc Welding Processing (3 credits)

Setup and operation of equipment and control of welding variables, types of power sources, and characteristics of operation, shielding gases, filler materials, quality assurance, and weld defects in metal arc welding, gas tungsten arc welding and flux cored arc welding. Prerequisites: METL 140 or consent of instructor.

METL 155 Machining Processes (3 credits)

An introduction to machining. The student will become familiar with basic theory and operations performed on various manual and automated machine tools. Instruction includes the selection of speeds and feeds and the identification and conditioning of associated cutting tools.

METL 156 Welding Practice (v 2 - 4)

Additional welding practice offered for student enrollment in welding courses. This course may be repeated.

METL 260 Repair and Maintenance Welding (3 credits)

Theory and practice in repair and maintenance of commonly used metals using oxygen fueled, shielded metal arc (SMAW), gas metal arc welding (GMAW), and gas tungsten arc (GTAW) welding processes. Students work on practice exercises and "live" projects. Prerequisites: METL 140 and METL 215 or consent of instructor.

METL 285 Welding Certification Procedures (3 credits)

Procedures and development of manual skills necessary to perform welds acceptable under a structural welding code. Prerequisite: METL 150 or consent of instructor.

ENGL 111 Written Communication I (3 credits)

Writing from observation, personal experience, and research, for narrative, descriptive, expository, and persuasive purposes. Emphasizes strategies for development of ideas, organization, revision, and editing applicable to any writing task. Six or more completed papers will be required.

MAAS 106 Technical Math (3 credits)

This course is designed for certificate or AAS degree students enrolled in career and technical programs. Concepts include measurement systems, use of measuring tools, as well as development of area and volume concepts with respect to technical applications.

### Faculty and Staff Requirements

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

Dr. Virgil Hawkinson – Professor of Metals Technology

- 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.**

No additional faculty is needed to deliver this program.

- 3. Please explain the need for support personnel or other personnel expenditures.**

No additional personnel costs are expected.

### Capital Outlay, Operating Expenditures and Physical Facilities

- 1. Please summarize operating expenditure needs.**

All courses which are part of this degree are currently being offered as part of other degree programs. All equipment, labs and facilities are in place to support the required courses.

- 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 to support the proposed degree are subsets of those required to support the current course offerings.

- 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.**

Welding and fabrication facilities include a 4,689 square foot welding lab and the equipment necessary to support existing programs.

- 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 and space are adequate for the new certificate program. Increased enrollment in existing courses will improve space utilization in the current facilities.

### Evaluation of the Proposed Program

1. Please name faculty committees or councils that have reviewed and approved the program herein proposed.

The proposed curriculum and courses proposed for this degree program have been reviewed by the curriculum process at Montana State University Northern which include the Welding Program faculty, College of Technical Sciences Faculty, MSU-Northern Academic Senate, Curriculum Committee, General Education Committee, and MSU-Northern Full Faculty.

#### FISCAL IMPACT AND BUDGET INFORMATION

##### ***I. PLANNED STUDENT ENROLLMENT***

	FY 05 FIRST YEAR HEADCOUNT	FY 06 SECOND YEAR HEADCOUNT	FY 07 THIRD YEAR HEADCOUNT
A. New Enrollment	5	7	10
B. Shifting Enrollment		-	-
<b><i>GRAND TOTAL PLANNED STUDENT ENROLLMENT</i></b>	5	7	10

##### ***II. EXPENDITURES***

	FIRST YEAR FTE COST	SECOND YEAR FTE COSTS	THIRD YEAR FTE COSTS
<b>A. Personnel Cost</b>	See Note 1	See Note 1	See Note 1
1. Faculty	See Note 1	See Note 1	See Note 1
2. Administrators	See Note 1	See Note 1	See Note 1
3. Adjunct Faculty	See Note 1	See Note 1	See Note 1
4. Graduate/Inst. Assts.	See Note 1	See Note 1	See Note 1
5. Research Personnel	See Note 1	See Note 1	See Note 1
6. Support Personnel	See Note 1	See Note 1	See Note 1
7. Fringe Benefits	See Note 1	See Note 1	See Note 1
8. Other	See Note 1	See Note 1	See Note 1
<b><i>Total Personnel FTE/ Costs</i></b>			
<b>B. Operating Expenditures</b>			
1. Travel	See Note 1	See Note 1	See Note 1
2. Prof. Services	See Note 1	See Note 1	See Note 1
3. Other Services	See Note 1	See Note 1	See Note 1
4. Communications	See Note 1	See Note 1	See Note 1
5. Utilities	See Note 1	See Note 1	See Note 1
6. Materials & Supplies	See Note 1	See Note 1	See Note 1

7. Rentals	See Note 1	See Note 1	See Note 1
8. Repairs & Maintenance	See Note 1	See Note 1	See Note 1
9. Materials & Goods for Manufacturing & Resale	See Note 1	See Note 1	See Note 1
10. Miscellaneous	See Note 1	See Note 1	See Note 1
<b>Total Operating Costs</b>	See Note 1	See Note 1	See Note 1
<i>Note 1: All costs associated with the Welding Certificate are currently part of the University personnel and operating budgets since MSU-Northern already offers a departmental certificate in welding technology.</i>			
	FIRST YEAR FTE COST	SECOND YEAR FTE COST	THIRD YEAR FTE COST
<b>C. Capital Outlay</b>			
1. Library Resources	0.00	0.00	0.00
2. Equipment	0.00	0.00	0.00
<b>Total Capital Outlay</b>	0.00	0.00	0.00
<b>D. Physical Facilities</b>			
Construction or major Renovation	0.00	0.00	0.00
<b>E. Indirect Costs (overhead)</b>	0.00	0.00	0.00
<b>GRAND TOTAL EXPENDITURES</b>	0.00	0.00	0.00
<b>III REVENUE</b>			
<b>A. Source of Funds</b>			
1. Appropriated Funds-reallocation (see note)	Existing program operating at under capacity	Existing program operating at under capacity	Existing program operating at under capacity
2. Appropriated Funds-New	0	0	0
3. Federal Funds	N/A	N/A	N/A
4. Other Grants	N/A	N/A	N/A
5. Fees (see note 2)	\$17,500	\$24,500	\$35,000
6. Other	N/A	N/A	N/A
Total Source of Funds	\$17,500	\$24,500	\$35,000
<b>B. Nature of Funds</b>			
1. Recurring	0	0	0
2. Non- Recurring	0	0	0
<b>GRAND TOTAL REVENUES</b>	\$17,500	\$24,500	\$35,000

Note 2: Assumes \$3,500 per new FTE in tuition dollars.