00-25

1 - Sandi

PROCEDURAL SEQUENCE FOR ACADEMIC SENATE APPROVAL OF PROPOSALS

1. Submit all proposals to the Office of Academic Affairs.
2. The Senate President will log items and forward them to the appropriate Senate subcommittees.
3. The Senate subcommittee will send the proposal to the Senate.
4. Senate proposals will be considered by the Full Faculty.
5. If approved, the proposal will then be forwarded to the Provost/Senior Vice Chancellor.

Proposals that require action to approve/disapprove/table or remand will be sent back to the Senate according to the monthly meeting schedule.

TITLE: Minor in Industrial Technology - Welding Emphasis

SUBCOMMITTEE: Curriculum **PROPOSAL #:** 00-38

PROPOSAL:

To establish a welding emphasis minor for the Industrial Technology degree

Action Signatures:

Submitter — Date 2/26/01

College Chair/Dean — Date 3/30/01

Committee Chair — Approve ✓ Disapprove ____ Date 04/03/01

Committee Chair — Approve ✓ Disapprove ____ Date 4-11-01

Faculty Senate President — Approve ✓ Disapprove ____ Date 4-24-01

Provost/Senior Vice Chancellor for Academic Affairs — Approve ____ Disapprove ✓ Date 5/9/01

Revised: 11/15/99

Chancellor — approve ____ Disapprove X

Date 5/10/01

Program Revision Form

NEW __X__ DROPPED_____ MAJOR REVISION _____ INFORMATION ONLY _____

College of Technical Sciences Program Area Industrial Technology Minor - WeldingEmphasis Date:2-25-01

Please provide in the space below a "before & after" picture of the program with the changes in the program noted. Attach appropriate Course Revision Forms.

MINOR IN INDUSTRIAL TECHNOLOGY
WELDING EMPHASIS

METL	140	Intro. To Welding & Cutting	3
METL	150	Shielded Metal Arc Welding	3
METL	154	Gas Arc Welding Processing	3
		OR	
METL	185	Metal Fabrication	3
METL	215	Metallurgy & Manufacturing Materials	3
METL	260	Repair & Maintenance Welding	3
METL	285	Welding Certification Procedures I	3
METL	356	Welding Certification Procedures II	3
METL	357	Welding Certification Procedures III	3
	3xx	Elective	3

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Form: temp stor/prog rev IT metal emphasis

Course Revision Form

NEW_____DROPPED_____MAJOR REVISION_____INFORMATION ONLY__X___

Department:	College of Technical Sciences: Industrial & Engineering Technology
Program Area:	Industrial Technology
Date:	February 2001
Course pref and no.:	METL 140
Course title:	Intro. To Welding and Cutting
Credits:	3 (sem)
Required by:	Welding & Machining Certificate Agriculture Technology, Associate (Selective) Ag Mechanics Technology, Associate (sel) Agriculture Mechanics Technology, B.S., No Minor (Selective) (F) Automotive Technology, B.S., Broadfield, No Minor (Selective) (F) Automotive Technology, Automotive Body, Associate (selective) Diesel Technology, Associate (F) Diesel Technology, B.S., Broadfield, (F) Railroad Maintenance & Operations A.S. Industrial Technology B.S. teaching/non-teaching
General Education:	D
Lecture:	
Lecture/Lab:	X
Contact Hrs. Lecture:	1 hrs/wk
Contact Hrs. Lab:	4 hrs/wk

Current Catalog Course Description (include prerequisites):

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.

Proposed Catalog Course Description (include prerequisites):

This introductory course covers the care and use of arc and oxyfuel welding equipment, regulators, torches, cylinders, power sources, electrodes, characteristics of operation, arc welding of steels and special applications. Techniques of welding mild steel, and the mechanical properties of metals and types of joints are also introduced.

Course Objectives:

To provide an introduction to gas welding and arc welding principles and practices.
To gain an understanding of the safe use and care of welding equipment.
To identify different metals and select the appropriate processes and procedures to weld them.

New and/or Additional Equipment Required:

New and/or Additional Library Resources Required:

Special Facility Needs Required: (laboratory space, specialized labs, rooms to facilitate large groups, computer labs):

weld shop - oxyfuel equipment- arc welding equipment - metal cutting and grinding machines

Course Revision Form

NEW_____DROPPED_____MAJOR REVISION____INFORMATION ONLY___X__

Department:	College of Technical Sciences: Industrial & Engineering Technology
Program Area:	Industrial Technology
Date:	February 2001
Course pref and no.:	METL 150
Course title:	Shielded Metal Arc Welding
Credits:	3 (sem)
Required by:	Welding Certificate Railroad Maintenance & Operations
General Education:	D
Lecture:	
Lecture/Lab:	X
Contract hrs. lecture:	1
Contact hrs. lab:	4

Current Course Description (include prerequisites):

A continuation of METL 140, additional training in welding horizontal, vertical, and overhead positions of mild steel. Emphasis is placed on alloys and special applications. Prerequisite: METL 140 or consent of instructor

Proposed Course Description (include prerequisites):

This course is a continuation of METL 140 and provides additional training in welding horizontal, vertical, and overhead positions of mild steel. Procedures for welding alloyed steels are also covered. Prerequisite: METL 140 or consent of instructor

Course Objectives:

Acquire skill in welding all positions
Understanding of welding techniques and procedures
Understanding welding symbols
Understand basic metallurgy

New and/or Additional Equipment Required:

New and/or Additional Library Resources Required:

Special Facility Needs Required: (laboratory space, specialized labs, rooms to facilitate large groups, computer labs):

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Course Revision Form

NEW____DROPPED____MAJOR REVISION____INFORMATION ONLY__X___

Department:	College of Technical Sciences: Industrial & Engineering Technology
Program Area:	Industrial Technology
Date:	February 2001
Course pref and no.:	METL 154
Course title:	Gas Arc Welding Processing
Credits:	3 (sem)
Required by:	Automotive Technology Associate, Automotive Body (S) Automotive Body Certificate Railroad Maintenancê & Operations A.S. Welding Certificate
General Education:	D
Lecture:	
Lecture/Lab:	X
Contact Hrs. Lecture:	1 hr/wk
Contact Hrs. Lab:	4 hrs/wk

Current Course Description (include prerequisites):

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 gas metal arc welding, gas tungsten arc welding and flux cored arc welding. Prerequisite: METL 140 or consent of instructor.

Proposed Course Description (include prerequisites):

This introductory course covers the setup and operations of equipment, control of welding variables, types of power sources, characteristics of operation, shielding gases, filler materials, quality assurance, and weld defects in gas metal arc welding, gas tungsten arc welding and flux cored arc welding. Prerequisite: METL 140 or consent of instructor.

Course Objectives:

The purpose of this course is to train the student in the operation of Gas Metal Arc, Flux Cored Arc, and Gas Tungsten Arc Welding processes. The student will also learn basic theory of each process.

To pass this course the student shall observe safety practices, pass written exams and satisfactorily weld assigned coupons.

New and/or Additional Equipment Required:

New and/or Additional Library Resources Required:

Special Facility Needs Required: (laboratory space, specialized labs, rooms to facilitate large groups, computer labs):

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COURSE FORM

Department:	College of Technical Science: Industrial & Engineering Technology
Program Area:	Metals
Date:	February 1998
Course pref and no.:	METL 185
Course title:	Metal Fabrication
Credits:	3 (sem)
Required by:	Metals Technology, Associate Welding Certificate Applied Technology (5-12) Education Engineering Technology: Manufacturing Technology Minor (Metals)
Lecture:	
Lecture/lab:	X
Contact Hrs. Lecture:	1 hrs/wk
Contact Hrs. Lab:	4 hrs/wk

Catalog Course Description (include prerequisites):

A study of equipment, metals, and procedures used to design, fabricate, and finish welded projects. Students combine skills of drafting, welding, and problem solving in developing functional projects. Prerequisite: METL 140 or consent of instructor.

Course Objectives:

Concepts and skills which the student will be expected to understand or perform are:

1. Proper design for strength, utility, and cost control in metal fabrication.
2. Layout practice in metals.
3. Correct welding procedure to control distortion and provide adequate fabrication skills.
4. Blueprint reading, calculating bills of material, and cost of materials.
5. Selection of best welding process for a given job.
6. Mass production
7. Computation of structural loads and trailer axle placement.

New and/or Additional Equipment Required:

New and/or Additional Library Resources Required:

Special Facility Needs Required: (laboratory space, specialized labs, rooms to facilitate large groups, computer labs):

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Course Revision Form

NEW____DROPPED____MAJOR REVISION____INFORMATION ONLY__X___

Department:	College of Technical Sciences: Industrial & Engineering Technology
Program Area:	Industrial Technology
Date:	February, 2001
Course pref and no.:	METL 215
Course title:	Metallurgy and Manufacturing Materials
Credits:	3 (sem)
Required by:	Railroad Operations & Maintenance A.S. Engineering Technology: Civil Engineering Technology B.S.
General Education:	D
Lecture:	
Lab:	X
Contact Hrs. Lecture:	2 hrs./wk
Contact Hrs. Lab:	2 hrs./wk

Current Catalog Course Description (include prerequisites):

A study of metals, their composition, structure and properties, and their behavior when exposed to different conditions. This course also deals with failure analysis, destructive and non-destructive testing methods. Ceramics, plastics, adhesives, composites, and wood will be discussed.

Proposed Catalog Course Description (include prerequisites):

This course concerns a study of metals that includes their composition, structure, physical properties, and their behavior when exposed to different conditions. This course also deals with failure analysis, destructive and non-destructive testing welding methods.

Course Objectives:

To gain knowledge and skill in:

- Metal Identification
- heat treatment
- failure analysis
- etching
- preheat heating
- iron carbide system
- hardness testing

New and/or Additional Equipment Required:

New and/or Additional Library Resources Required:

Special Facility Needs Required: (laboratory space, specialized labs, rooms to facilitate large groups, computer labs):

shop

Course Revision Form

NEW____DROPPED____MAJOR REVISION____INFORMATION ONLY__X___

Department:	College of Technical Sciences: Industrial & Engineering Technology
Program Area:	Industrial Technology
Date:	February, 2001
Course pref and no.:	METL 260
Course title:	Repair and Maintenance Welding
Credits:	3 (sem)
Required by:	Agriculture Mechanics Technology, Associate Diesel Technology, BS, No Minor Required Welding Certificate Railroad Maintenance & Operations A.S.
General Education:	D
Lecture:	
Lecture/Lab:	X
Contact Hrs. Lecture:	1 hr/wk
Contact Hrs. Lab:	4 hrs/wk

Current Catalog Course Description (include prerequisites):
Theory and practice in repair and maintenance of commonly used metals using oxygen fuel, 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

Proposed Catalog Course Description (include prerequisites):
This course provides theory and practice in the repair and maintenance of commonly used metals using oxygen fuel, shielded metal arc (SMAW), gas metal arc welding (GMAW), and gas tungsten arc (GTAW) welding processes. Laboratory work will include both ses and "live" repair s.
Prerequisites: METL 140 or consent of instructor

Course Objectives:

The student will be expected to understand or perform:

Metal Identification	Welding process selection
Joint design	Metal preparation
Electrode selection	Pre- and post-heat treatments
Cast iron repair	Non-ferrous metal repair
Distortion control	

New and/or Additional Equipment Required:
New and/or Additional Library Resources Required:
Special Facility Needs Required: (laboratory space, specialized labs, rooms to facilitate large groups, computer labs):
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Course Revision Form

NEW____DROPPED____MAJOR REVISION___INFORMATION ONLY___X__

Department: College of Technical Sciences: Industrial & Engineering Technology
Program Area: Industrial Technology
Date: February, 2001

Course pref and no.: METL 285
Course title: Welding Certification Procedures I
Credits: 3 (sem)

Required by: Welding Certificate
Applied Technology Education (5-12)
General Education: D
Lecture:
Lecture/Lab: X
Contact Hrs. Lecture: 1 hr/wk
Contact Hrs. Lab: 4 hrs/wk

Current Catalog Course Description (include prerequisites):

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

Proposed catalog Course Description (include prerequisites):

This course includes identification of appropriate procedures and the development of manual skills necessary to perform welds acceptable under a structural welding code. Prerequisites: METL 150 or METL 154 or consent of instructor.

Course Objectives:

1. Identification of the limitations of all essential variables in a performance certification.
2. Selection and production of appropriate joint designs, coupon preparation, inspection parameters, and identification of the extent of student performance qualifications.
3. The student will be able to relate the appropriate certification to their career goals.
4. The student will understand the parameters of test longevity.
5. The student will understnd and perform under retest conditions.
6. The student will successfully complete selected weld performance certifications.

New and/or Additional Equipment Required:
New and/or Additional Library Resources Required:
Special Facility Needs Required: (laboratory space, specialized labs, rooms to facilitate large groups, computer labs):

weld lab

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Course Revision Form

NEW____DROPPED____MAJOR REVISION____INFORMATION ONLY___X__

Department: College of Technical Sciences: Industrial & Engineering Technology
Program Area: Industrial Technology
Date: February, 2001

Course pref and no.: METL 356
Course title: Welding Certification Procedures II
Credits: 3 (sem)

Required by:
Lecture:
Lecture/Lab: X
Contact Hrs. Lecture:
Contact Hrs. Lab: arr 6 hrs/wk

Current Catalog Course Description (include prerequisites):

Laboratory applications to be taken following METL 285. Prerequisite: METL 285.

Course Objectives:

The purpose of this course is to provide additional techniques and skills necessary to successfully undertake various performance certifications. Students will select codes, identify essential variables, and develop welding procedure for welder performance certifications appropriate to their career goals.

Objectives:

1. Selection and production of appropriate joint designs
2. Coupon preparation of various certification procedures
3. Identification of inspection parameters
4. Advancement in the extent of student performance qualification

New and/or Additional Equipment Required:

New and/or Additional Library Resources Required:

Special Facility Needs Required: (laboratory space, specialized labs, rooms to facilitate large groups, computer labs):

weld laboratory

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Course Revision Form

NEW_____DROPPED_____MAJOR REVISION_____INFORMATION ONLY__X___

Department: College of Technical Sciences: Industrial & Engineering Technology
Program Area: Industrial Technology
Date: February, 2001

Course pref and no.: METL 357
Course title: Welding Certification Procedures III
Credits: 3 (sem)

Required by:
General Education: D
Lecture:
Lecture/Lab: X
Contact Hrs. Lecture:
Contact Hrs. Lab: arr 6 hrs/wk

Catalog Course Description (include prerequisites):
Laboratory applications to be taken following METL 356. Prerequisite: METL 356.

Course Objectives:
This course is a continuation of METL 356. The purpose of this course is to provide additional opportunities for students to successfully select and perform various performance certifications.

Objectives:
1. Selection and production of appropriate joint designs
2. Coupon preparation of various certification procedures
3. Identification of inspection parameters
4. Advancement in the extent of student performance qualification

New and/or Additional Equipment Required:

New and/or Additional Library Resources Required:

Special Facility Needs Required: (laboratory space, specialized labs, rooms to facilitate large groups, computer labs):
welding science laboratory

TO: Virgil Hawkinson
Darryll Thackeray

FROM: Roger Barber

RE: The Proposed Minor in Industrial Technology, Welding Emphasis

DATE: May 9, 2001

I wanted you to know that I have disapproved the proposed minor in industrial technology with a welding emphasis. I made that decision for the following reasons:

--the industrial technology program itself is still in its infancy. In fact, because of the delay in receiving approval from the Board of Regents and the difficult financial decisions facing the institution, a faculty member has not been hired to nurture and promote the program. Adding minors to the program, especially in its early years, is neither smart nor good planning.

--the proposed minor is in a degree program that was essentially eliminated during last year's program review process. While MSU-Northern can still offer the coursework necessary for a certificate program in welding, it would be a very bad decision (in my opinion) to commit to a minor. The decision to offer a minor is made even worse, again in my opinion, because it would have to be approved by the Board of Regents, and that Board would naturally be suspicious of a program that is being resurrected in any form so soon after its elimination.

I know you proposed the minor, in good faith. I hope you understand my reasons for disapproving it.

Cc: Alex Capdeville