

ITEM 108-2803-R0900 ATTACHMENT

Introduction

The submission materials were prepared by Darryll Thackeray, chair/dean of the College of Technical Sciences at Montana State University-Northern.

OVERVIEW

This proposal is a request by Montana State University-Northern to award a Bachelor of Science Degree in Industrial Technology with Teaching and Non-Teaching degree options to any student who completes the four-year curriculum at MSU-Northern.

DEGREE DESCRIPTION

The Industrial Technology education degree will use the strong points of the Tech Ed degree and the Industrial Arts degree. The degree will incorporate the four areas of the Tech Ed degree and reinforce those areas with coursework already offered at MSU-Northern. The four areas of the Tech Ed degree are Energy Power and Transportation, Production Tech, Communications Tech and Construction Tech. These will be reinforced with coursework of a hands-on, in depth technical nature such as automotive and diesel courses for Energy Power and Transportation, metals and manufacturing courses for Production Tech and introductory woodworking and CET courses in construction for Construction Tech.

Coursework has been kept to a minimum to allow students to go more in depth in areas of their choosing. By the use of suggested courses, students can concentrate in areas such as drafting or automotive or welding. All of this coursework would serve to make the student a more employable teacher.

Proposal Content

EXPECTED PROGRAM CONTRIBUTIONS

Centrality to Role and Scope of the Institution

Montana State University-Northern is a technology focused university that provides high quality programs and in depth programs in applied and engineering technologies, professional teacher education, business, nursing, and the liberal arts leading to certificate, associate, baccalaureate, and masters' degrees. The Industrial Technology and teaching degree will be jointly honored in the College of Education and the College of Technical Sciences. The College of Technical Sciences houses all of the subject matter coursework needed for both degrees and the College of Education offers all of the teacher education requirements.

Need for the Program

The need is for Tech Ed teachers to have practical coursework, hands-on coursework and coursework that reinforces what they teach. Teachers in Tech Ed need an opportunity to increase their abilities to teach different courses or their abilities to tailor their education needs to fit the school they are working for. For example, a teacher with no background in automotive would be able to take coursework in automotive and become endorsed in automotive for teaching. The same could be said for welding, diesel, drafting, electronics, computers, and autobody. No other school has these offerings for teacher education.

There is a shortage of Tech Ed teachers and there is a need for practical coursework and teaching abilities for Tech Ed graduates.

Relationship to Other Programs on Campus

At present, MSU-Northern has faculty that could teach for the new Industrial Technology degree. The beginning coursework for most of the majors offered at MSU-Northern could be used as coursework to reinforce the four areas of concentration for the Industrial Technology degree. Energy Power and Transportation could use course offerings from the automotive, diesel and auto body programs. All of this coursework, lab space and equipment is at Northern now and would not have to be expanded or upgraded to accommodate the new degree. Production Technology has coursework available, such as metals, machining, welding and some manufacturing coursework that is used for drafting. The metals program, welding lab and machining lab are currently on campus and are used for the welding degree. No additional equipment or space would be needed. The coursework now offered would be used with the four introductory courses. Construction Technology would use existing coursework in CET. The Industrial Arts wood shop and space is still available. The equipment and space for the Industrial Arts program that was closed in 1990 has not been moved. The wood shop would be used for the introductory classes and construction class for CET. Industrial Technology could share the existing wood shop and equipment with the CET program. Space that was used for sheet metal and plastics could be still used for this in a limited form. The space in this area could also be used for the introductory classes in Energy Power and Transportation, Production Technology, Communication Technology and Construction Technology. These will be the four new classes for the degree in Industrial Technology.

Teachers, coursework, lab space and equipment that exist for other technical programs would be used with the Industrial Technology degree. MSU-Northern is the campus that has a complete offering of technical courses that can be used with the Industrial Technology degree. Examples of the technical courses already being offered are: Automotive, Diesel, Auto Body, Ag Mechanics, Agriculture, Drafting, Metals, CIS, Electronics and Civil Engineering.

Facilities, Equipment, Etc.

Facilities and equipment will not have to be expanded or acquired. Laboratory space and equipment for existing programs in automotive, diesel, drafting, civil engineering, electronics, computer information systems, metals and wood shop from the industrial arts program are available to the industrial technology degree. The equipment and lab space are currently being used for existing majors. Programs in automotive, diesel, auto body, drafting, CET, electronics, and welding meet current standards for certification and accreditation. Certification and accreditation requires space, equipment and safety standards. Certified and accredited programs have met these requirements. Current library holding and computer services are adequate for the Industrial Technology degree. No significant resource acquisitions are projected.

Faculty

Current faculty members serving in their regular capacities will teach the coursework required for the Industrial Technology degree. Four introductory classes will be added for the Industrial Technology program. These courses will be taught by adjunct for the first two years. One additional faculty member will be required as enrollment increases. The faculty member would be required to teach in a related area, such as drafting, civil engineering or electronics. Teaching four classes and advising will require only a half time faculty. The other half position would be used in areas that are short of faculty.

Program Description

A complete description of the proposed Industrial Technology program is attached to this document as Exhibit A.

This proposal will allow MSU-Northern to offer a degree in Industrial Technology to fill the gap between the degrees of Industrial Arts and the Technical Education Degrees that are currently being offered. The degree to be offered at MSU-Northern will serve the needs of introductory type classes of the Tech Ed degree and hands on classes of the Industrial Arts degree. Coursework already available at MSU-Northern will reinforce the course offerings in the four areas of Tech Ed as follows:

1. Energy Power and Transportation
2. Production Tech
3. Communication Tech
4. Construction Tech

The technical content and the hands on experience offered in coursework at MSU-Northern will cause the student to meet the needs of both degrees. The Tech Ed degree has very little hands on and Industrial Arts has no exploratory classes. The program to be offered at MSU-Northern would have the ability to reinforce the Tech Ed offering with courses in drafting, welding, automotive, diesel, electronics, computers, autobody and agriculture. No other school in Montana has such a complete and in depth course offering in these areas that MSU-Northern has.

The new degree has been approved by the internal faculty curriculum review process at MSU-Northern. In addition, the provost and chancellor have approved the new degree. Those approvals are attached as Exhibit B.

Goals and Objectives

The primary objectives of this proposal are as follows:

1. The Industrial Technology degree at MSU-Northern will serve the needs of the introductory type classes of the Tech Ed degree:
 - a. Energy Power and Transportation
 - b. Production Technology
 - c. Communication Technology
 - d. Construction Technology
2. The Industrial Technology degree at MSU-Northern will serve the needs of the Industrial Arts degree by offering hands on and support coursework for the introductory areas of the Tech Ed degree.
3. The Industrial Technology degree at MSU-Northern will provide the state of Montana with viable Industrial Technology teachers who have the qualities of the Tech Ed degree and the Industrial Arts degree.

Increased Cost

The Industrial Technology program will need the development of four new classes as introduction for the four areas to be addressed by the Industrial Technology degree.

1. Energy and Power
2. Production Technology
3. Communication Technology
4. Construction Technology

The new courses would be used as the beginning course to be followed by coursework that exists on campus now. Each area would take existing coursework and use it to reinforce the four areas to be addressed by the degree. The lab space is currently being used by majors already offered. Students in the Industrial Technology degree will merely be added to the course. There are a total of at least 30 classes that are now offered, that the Industrial Technology students would have available to them.

Start up cost will be the development and teaching of four classes a year for a total of 12 credits. When the degree develops enrollment, a teacher would be hired full time with teaching responsibilities in one or more of the programs that are currently short of faculty for the credits offered. The previous narrative, under the heading of Faculty, described this personnel expense.



Exhibit A

INDUSTRIAL TECHNOLOGY BACHELOR OF SCIENCE DEGREE WITH EDUCATION OPTION

NOTE: The non-teaching degree must include a minor

FRESHMAN YEAR

Courses to be taken Fall Semester

Core Courses

CIS 110	Introduction to Computers	3
DRFT 131	Graphics I	4
ENGL 111	Written Communication I	3
IT 1XX	Production Technology*	3
IT 1XX	Communication Technology*	3

Non-teaching Option	16
Teaching Option	16

Courses to be taken Spring Semester

Core Courses

CET 209	Introduction to Woodworking	3
ENGL 112	Written Communication II	3
IT 1XX	Construction Technology*	3
MATH 110	Math for Liberal Arts	4
	OR	
MATH 112	College Algebra	3
METL 155	Machining Processes	3

Teaching Option

EDPY 112	Intro to Brain Compat. Learning	3
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Non-Teaching Option

TECH 100	Industrial Safety/Waste Mgmt	2
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Non-teaching Option	17
Teaching Option	18

SOPHOMORE YEAR

Courses to be taken Fall Semester

Core Courses

CET 173	Arch. Cnst. & Materials	3
IT 2XX	Energy/Power Technology*	3
METL 140	Intro. To Welding & Cutting	3
SPCH 141	Introduction to Speech	3

Teaching Option

PSYC 205	Human Growth	3
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Non-Teaching Option

Minor	3
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Non-teaching Option	15
Teaching Option	15

Courses to be taken Spring Semester

Core Courses

AUTO 128	Engines	4
CET 213	Carpentry	3
DRFT 156	Introduction to CAD	3
EET 110	Electronics Survey I	3

Teaching Option

HPE 235	Prin. Of Health Ed/Sub Abuse	3
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Non-Teaching Option

Minor	3
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Non-teaching Option	16
Teaching Option	16

JUNIOR YEAR

Courses to be taken Fall Semester

Core Courses

Suggested Tech course	3
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Courses to be taken Spring Semester

Core Courses

Gen Ed (A or B)	6
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CIS 360	Bus. Telecom/Networking Lab Science (Area C)	3 3		3XX Gen Ed (A or B)	3
Teaching Option					
EDPY 215	Designing a Learning Envir.	3	EDUC 455	General Teaching Methods	3
VOED 350	Prin. Of Applied Technology	3	VOED 360	Analysis/Prep of Inst Materials	3
	Suggested Tech Course	3	Non-Teaching Option		
			EET 450	Minor Advanced Digital Systems	3 3
Non-Teaching Option					
EET 305	Minor Digital Systems	3 3			
Non-teaching Option		15	Non-teaching Option		15
Teaching Option		18	Teaching Option		15

SENIOR YEAR

Courses to be taken Fall Semester**Courses to be taken Spring Semester****Core courses**

Elective (300-400 level)	3
Gen Ed (300-400) (Area A or B)	3

Teaching Option

EDUC 376 Assessment	3
EDUC 380 Classroom Envir. & Mgmt	3
VOED 370 Organizing & Tchng App Tech	3

Non-Teaching Option

BUS 300 Mgmt. In Organizations	3
MFGT 427 Quality Assurance	3
Minor (Upper Division)	3

Non-teaching Option

Teaching Option 15

Core Courses**Teaching Option**

EDUC 405 Current Issues in Education	3
EDUC 450 Sec. Ed Practicum & Seminar	12

Non-Teaching Option

Minor (Upper Division) **11**

Non-teaching Option

Teaching Option 15

Non-teaching Option total credits 120

Teaching Option total credits 128

Suggested Industrial Tech Ed Courses:

EET 205	Communications Fundamentals	4
DIES 204	Intro to Hydraulics/Pneumatics	2
DIES 214	Intro to Hydraulics/Pneumatics Lab	2
AUTO 151	Diagnosis and Tune Up	3
AUTO 152	Diagnosis and Tune Up Lab	3
MFGT 341	CAD/CAM Applications	3
MFGT 342	CAD/CAM II	3
GDSN 220	Illustration I	3
CET 220	Cnst. Mgmt & Bid Estimation	3
METL 265	Intro to CNC/CAM	3

* Denotes new courses for the proposed degree.

Exhibit B

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: Industrial Technology B.S. Degree w/ Education Option
SUBCOMMITTEE: Ed / Comm PROPOSAL #: 99-43
Spec-Ed
PROPOSAL:

Action Signatures:

Daryl tracking
Submitter _____ Date _____

Kaude
Committee Chair _____

SCOTT MACKENZIE
Committee Chair _____

J. Smith
Faculty Senate President _____

Ryan A. Carlin
Provost/Senior Vice Chancellor for Academic Affairs _____

Daryl tracking
College Chair/Dean _____ Date _____

Approve Disapprove _____ Date 4/18/00

Approve Disapprove _____ Date 4/18/00

Approve Disapprove _____ Date 4/24/00

Approve Disapprove _____ Date 5/25/00

Revised: 11/15/99

M Rao

Approved

5/26/00

