

ACADEMIC SENATE PROPOSAL TRACKING SHEET

(Document To Be Originated By Academic Senate Secretary On Canary Color Paper)

All proposals MUST have their originating college faculty body (Ex. Arts & Sciences, Education and Nursing, Technical Sciences) approval and must be signed by the submitter and the college dean before being submitted to the Academic Senate Secretary.

1. Submit all proposals (using the appropriate Academic Senate program/degree and/or course revision forms) to the Academic Senate Secretary.
2. The Academic Senate Secretary logs and numbers items and forwards them to the appropriate Academic Senate subcommittee(s): General Education (if applicable), or Curriculum.
3. The Academic Senate subcommittee(s) consider(s) the proposal. If approved, the proposal is forwarded to the next committee. If a committee disapproves the proposal, the originator may request that the item be forwarded to the next body for consideration. The committee will provide written rationale to the originator when a proposal is disapproved and the proposal is returned to the originator.
4. The Academic Senate considers the proposal and approves or disapproves. If approved, the proposal is forwarded to the Full Faculty for consideration. If the Academic Senate disapproves the proposal, the originator may request that the item be forwarded to the Full Faculty for consideration. The Academic Senate will provide written rationale to the originator when proposals are disapproved and the proposal is returned to the originator.
5. The Full Faculty considers Academic Senate approved proposals. If faculty approve, the proposal will then be forwarded to the Provost. The Provost approves or disapproves the proposal. If approved, the proposal is then forwarded to the Chancellor.
7. The Chancellor approves or disapproves the proposal.

Subcommittee and Academic Senate college representatives will notify their respective colleges of the progress of submitted proposals or the proposal may be tracked via the web page --

<http://www.msun.edu/admin/provost/asproposals.htm>

Documentation and forms for the curriculum process is also available on the web page:

<http://www.msun.edu/admin/provost/asforms.htm>

***** (If a proposal is disapproved at any level, it is returned through the Academic Senate secretary to the Dean of the submitting college who then notifies the originator.)

Proposal # <u>09-15</u>	Title: <u>Sustainable Energy Tech</u>
(proposal explanation, submitter and college dean signatures on attached program/degree or course revision form)	

This takes place after the proposal is approved by the Academic Senate. The Dean of the submitting college then notifies the originator.

	Date				
Received by ACAD Senate	<u>02-08-10</u>	Approved	_____	Disapproved	_____
Forwarded to Gen Ed Committee	_____	Signature	_____	Date	_____
Returned to ACAD Senate	_____	Approved	_____	Disapproved	_____
Forwarded to Curriculum Committee	<u>02-09-10</u>	Signature	<u>[Signature]</u>	Date	_____
Returned to ACAD Senate for Vote	<u>3-01-10</u>	Approved	<input checked="" type="checkbox"/>	Disapproved	_____
Sent to Provost's office for Full Faculty vote	_____	Signature	_____	Date	<u>3-2-10</u>
Voted on at Full Faculty meeting	<u>N/A</u>	Approved	_____	Disapproved	_____
Forwarded to Provost for Approval/Disapproval	<u>3-09-10</u>	Signature	_____	Date	_____
	<u>3-22-10</u>	Approved	<input checked="" type="checkbox"/>	Disapproved	<u>3/22/10</u>
Forwarded to Chancellor for Approval/Disapproval	<u>3-16-10</u>	Signature	<u>[Signature]</u>	Date	_____
	_____	Approved	_____	Disapproved	<u>3/16/10</u>
Copies sent to originating college and	_____	Signature	_____	Date	_____

COURSE REVISION FORM

NEW _____ DROPPED _____ MAJOR REVISION _____ FOR INFORMATION ONLY _____

College COTS Program Area Sustainable Energy Tech Date 1/13/10

Submitter Larry Strizich Dean  Date 3-2-10
Signature Signature (indicates "college" level approval)

Please provide a brief explanation & rationale for the proposed revision(s):

Please provide the following information:

College: *College of Technical Sciences*

Program Area: *Sustainable Energy Technology*

Date: 1/12/10

Course Prefix & No.: EET ²xxx

Course Title: Electronic Drive Systems

Credits: 3

Required by: Sustainable Energy Tech. CAS, AAS

Selective in:

Elective in:

General Education: No

Lecture:

Lecture/Lab: X

Gradable Lab:

Contact hours lecture: 2

Contact hours lab: 2

Current Catalog Description (include all prerequisites):

Proposed or New Catalog Description (include all prerequisites):

Description: This is an advanced course in electronic drive systems used in industrial applications. Electronic control of Direct-Current and Alternating Current motors, transmission and solid-state controllers, and electronic control of power generation equipment will be discussed.

Course Outcome Objectives:

- Identify and explain safety precautions and hazards associated with high energy electronic/electrical circuits.
- Demonstrate familiarity with the operation and application of phase controlled converters.
- Demonstrate familiarity with the operation and application of cycloconverters.
- Demonstrate familiarity with the operation and application of variable frequency motor speed controls.
- Demonstrate familiarity with the operation and application of voltage-fed converters.
- Demonstrate familiarity with the operation and application of current-fed converters.
- Demonstrate familiarity with the operation and application of induction motor drives.

Additional instructional resources needed (including library materials, special equipment, and facilities). Please note: approval does not indicate support for new faculty or additional resources.

Updated 09/29/05

COURSE REVISION FORM

NEW _____ DROPPED _____ MAJOR REVISION _____ FOR INFORMATION ONLY _____

College COTS Program Area Sustainable Energy Tech Date 1/13/10

Submitter Larry Strizich Dean  Date 3.2.10
Signature Signature (indicates "college" level approval)

Please provide a brief explanation & rationale for the proposed revision(s):

Please provide the following information:

College: *College of Technical Sciences*

Program Area: *Sustainable Energy Technology*

Date: 1/12/10

Course Prefix & No.: EET²xxx

Course Title: Electrical Power and Distribution

Credits: 3

Required by: Sustainable Energy Tech. CAS, AAS

Selective in:

Elective in:

General Education: No

Lecture:

Lecture/Lab: X

Gradable Lab:

Contact hours lecture: 2

Contact hours lab: 2

Current Catalog Description (include all prerequisites):

Proposed or New Catalog Description (include all prerequisites):

Description: This course covers an introduction to the generation of electrical power and moving that power through a local transmission system to a substation where a customer will purchase the generated power. Safely working with components of a high voltage transmission system will also be covered.

Competencies:

Course Outcome Objectives:

- Understand safe operating procedures for high voltage operations.
- Identify High Voltage (HV) and Padmount transformer characteristics.
- Understand basic principles of lightning arresting systems.
- Identify common fuses and breakers and understand their importance in an electrical power distribution system.
- Understand the purpose of power inverters and phasing.

Additional instructional resources needed (including library materials, special equipment, and facilities). Please note: approval does not indicate support for new faculty or additional resources.

COURSE REVISION FORM

NEW _____ DROPPED _____ MAJOR REVISION _____ FOR INFORMATION ONLY _____

College COTS Program Area Sustainable Energy Tech Date 1/13/10

Submitter Larry Strizich Dean *Gregory D. Kozlowski* Date 3-2-10
Signature Signature (indicates "college" level approval)

Please provide a brief explanation & rationale for the proposed revision(s):

Please provide the following information:

College: *College of Technical Sciences*

Program Area: *Sustainable Energy Technology*

Date: 1/12/10

Course Prefix & No.: EET *7xx*

Course Title: Electrical Power and Distribution II

Credits: 3

Required by: Sustainable Energy Tech. CAS, AAS

Selective in:

Elective in:

General Education: No

Lecture:

Lecture/Lab: X

Gradable Lab:

Contact hours lecture: 2

Contact hours lab: 2

Current Catalog Description (include all prerequisites):

Proposed or New Catalog Description (include all prerequisites):

Description: This course is a continuation of the Electrical Power and Distribution I course. It covers the generation of electrical power and moving that power through a local transmission system to a substation where a customer will purchase the generated power.

Course Outcome Objectives:

- Understand the purpose of power inverters and phasing. Recognize characteristics of common inverters.
- Understand characteristics of generators and issues in the regulation of power.
- Understand the concept of the "smart grid" and how it effects power distribution.

Additional instructional resources needed (including library materials, special equipment, and facilities). Please note: approval does not indicate support for new faculty or additional resources.

COURSE REVISION FORM

NEW _____ DROPPED _____ MAJOR REVISION _____ FOR INFORMATION ONLY _____

College COTS Program Area Sustainable Energy Tech Date 1/13/10

Submitter Larry Strizich Dean *Gregory D. Kaye* Date 3-3-10
Signature Signature (indicates "college" level approval)

Please provide a brief explanation & rationale for the proposed revision(s):

Please provide the following information:

College: *College of Technical Sciences*

Program Area: *Sustainable Energy Technology*

Date: 1/12/10

Course Prefix & No.: ELEC ²xxx

Course Title: Programmable Logic Controllers

Credits: 3

Required by: Sustainable Energy Tech. CAS, AAS

Selective in:

Elective in:

General Education: No

Lecture:

Lecture/Lab: X

Gradable Lab:

Contact hours lecture: 2

Contact hours lab: 2

Current Catalog Description (include all prerequisites):

Proposed or New Catalog Description (include all prerequisites):

Description: This course covers an introduction to a variety of programmable logic controllers (PLCs). The applications, operations, and programming of PLC's will be covered with an emphasis on programming. Computers and manual methods will be used to program PLCs.

Course Outcome Objectives:

- Know all the basic components that are common to all programmable controllers and their functions.
- Understand programming basics for Allen Bradley and other types of PLCs.
- Understand and implement input and output modules.
- Use the computer as a programmer and properly configure communications for "Upload" and "Download".
- Understand basic programming instructions and their application as they relate to industrial controls and the wind energy industry.

Additional instructional resources needed (including library materials, special equipment, and facilities). Please note: approval does not indicate support for new faculty or additional resources.

Updated 09/29/05

COURSE REVISION FORM

NEW _____ DROPPED _____ MAJOR REVISION _____ FOR INFORMATION ONLY _____

College COTS Program Area Sustainable Energy Tech Date 1/13/10

Submitter Larry Strizich Dean  Date 3-2-10
Signature (indicates "college" level approval)

Please provide a brief explanation & rationale for the proposed revision(s):

Please provide the following information:

College: *College of Technical Sciences*

Program Area: *Sustainable Energy Technology*

Date: 1/12/10

Course Prefix & No.: SET ~~xxx~~

Course Title: Fundamentals of Hydraulic/Pneumatic Systems

Credits: 3

Required by: Sustainable Energy Tech. CAS, AAS

Selective in:

Elective in:

General Education: No

Spring

Lecture: 3

Lecture/Lab:

Gradable Lab:

Contact hours lecture: 3

Contact hours lab:

Current Catalog Description (include all prerequisites):

Proposed or New Catalog Description (include all prerequisites):

Description: This course is an introduction to hydrostatic systems used to control blade pitch and other mechanical actions on commercial wind generation equipment. Hydraulics will include hydraulics mathematics and formulas used in industrial hydraulic equipment, symbols and schematics of hydraulic systems, measurement of quantities used in maintaining hydraulic systems, typical components used in hydraulic systems and maintenance which must be performed on a routine basis in a hydraulic system. Specific safety requirements for hydraulic equipment and installations will be emphasized.

Course Outcome Objectives:

- Recognize common schematic symbols and evaluate schematic diagrams
- Understand the basic principles of hydraulics including flow, pressure and force.
- Understand and be able to use formulas that provide the relationships among area, force, pressure, volume, stroke and bore.
- Recognize common hydraulic system components including valves, tubing, pipe, and hose and understand how they work. Components include valves, cylinders, hydraulic motors, regulators, filters, servo valves, pumps, accumulators, and intensifiers.

- Demonstrate the ability to take measurements of pressure, temperatures, and speed.
- Understand and demonstrate proper methods of ensuring the safe use of hydraulic fluid and connections, reservoirs, and heat exchangers.
- Understand the necessity for avoiding contamination in hydraulic systems.

Additional instructional resources needed (including library materials, special equipment, and facilities). Please note: approval does not indicate support for new faculty or additional resources.

Updated 09/29/05

COURSE REVISION FORM

NEW _____ DROPPED _____ MAJOR REVISION _____ FOR INFORMATION ONLY _____

College COTS Program Area Sustainable Energy Tech Date 1/13/10

Submitter Larry Strizich Dean [Signature] Date 3.2.10
Signature Signature (indicates "college" level approval)

Please provide a brief explanation & rationale for the proposed revision(s):

Please provide the following information:

College: *College of Technical Sciences*

Program Area: *Sustainable Energy Technology*

Date: 1/12/10

Course Prefix & No.: SET ¹xxx

~~SET 1xxx~~

Course Title: Workplace Communications

Credits: 3

Required by: Sustainable Energy Tech. CAS, AAS

Selective in:

Elective in:

General Education: No

Lecture: X

Lecture/Lab:

Gradable Lab:

Contact hours lecture: 3

Contact hours lab:

Current Catalog Description (include all prerequisites):

Proposed or New Catalog Description (include all prerequisites):

Description: This course introduces students to written and oral communication required in the workplace. Emphasis is placed on basic written formats commonly used in workplace environments such as workplace incident summaries, letters, memos, and brief reports. Students also gain experience in writing application letters, resumes, follow-up letters, as well as interviews.

Course Outcome Objectives:

- Write effective business correspondence.
- Use the processes of drafting and revision in written work.
- Complete workplace forms accurately and neatly.
- Prepare summaries of messages and events.
- Edit written material for clarity, coherence, consistency, accuracy, and the conventions of standard English.
- Identify and employ effective strategies involved in the job search process.
- Prepare a resume.
- Identify effective job interviewing techniques.

Additional instructional resources needed (including library materials, special equipment, and facilities). Please note: approval does not indicate support for new faculty or additional resources.

Updated 09/29/05

**Additional instructional resources needed (including library materials, special equipment, and facilities).
Please note: approval does not indicate support for new faculty or additional resources.**

Updated 09/29/05

Level II Proposal to _____

Description of Program

1. Pedagogical Objectives and Competencies

Theoretical Principals and Concepts

Practical Skills and Abilities

2. Requirements

Documented Need

Additional Courses

Adequacy of Current Courses

Accreditation Status

Assessment Plan

Additional Faculty Requirements

Impact on Facilities

Cost Analysis

Enrollment Impact

Relationship to Other Campus Programs

Relationship to Other Institutions

Description of Proposal Development Process

Supporting Documents

MONTANA BOARD OF REGENTS

LEVEL I REQUEST FORM

Item No.: 124-2801-R0904 Date of Meeting: September 23-24, 2004
Institution: Montana State University - Northern
Program Title: Diesel Technology B.S. - Field Maintenance 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. Departmental mergers and name changes;
- 5. Program revisions; and
- 6. Distance delivery of previously authorized degree programs.

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 of 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.: 124-2801-R0904

Institution: Montana State University - Northern

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:

Approval for Montana State University- Northern to offer an option in Field Maintenance for the Bachelor of Science degree in Diesel Technology.

This option provides students the opportunity to focus on courses in welding, metallurgy, fabrication and structure repair rather than the broadfield option in diesel technology that focuses on diesel engine maintenance. The option was recommended by MSU-Northern's industrial advisory boards to enhance career and placement opportunities for students in diesel technology. This integrated option in field maintenance draws heavily on courses currently being taught in the welding, automotive, civil engineering, and industrial technology programs.

MONTANA BOARD OF REGENTS

Level I Program Change Request

Institution: Montana State University - Northern
Program Title: Diesel Technology B.S. - Field Maintenance Option

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

For two years, the Diesel Technology Advisory Board and current employers of Northern's diesel graduates have requested that Northern add a field maintenance option to the Bachelors degree in Diesel Technology. This integrated option draws heavily on course work already being taught in the welding, automotive, civil engineering, and industrial technology programs.

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

The option in Field Maintenance will enhance the employability of graduates in a way that is cost free, in that it will not create new courses or modify the structure of any existing degree program at Montana State University – Northern.

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

This option addresses the needs expressed by the industry both nationally and within the State. The diesel program at MSU-Northern has a 100% placement rate, and currently does not produce enough graduates needed by the industry.

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

The median starting salary for diesel mechanics is \$40,000 per year. In addition, the U.S. Bureau of Labor predicts a 14% increase in new job opportunities for diesel mechanics by 2010. MSU-Northern continues to develop strong industry relationships (state, national and international) for its diesel program. This option is driven by the demands of these partners (especially Kiewit).

5. What is the program's planned capacity?

	NA	FTE students
• Break-even point?		
• Enrollments / year?		Approximately 5 new enrollments per year. The primary purpose of this option is to provide an alternative and a broader-based curriculum for students currently enrolled in the program
• Graduates / year?		33 (current average/year for the entire diesel program)
• MT jobs / year?		30 (does not reflect out-of-state placements)

6. Resource Allocation:

• Total program budget?	\$ 5,280 (operating – State allocated)*
• Faculty FTE?	03.5*
• Staff FTE?	.5*

**Figures designate the budget allocation and personnel assigned to the existing diesel program. No additional budget or personnel will be used to offer the field maintenance option*

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

8. How will the campus fund the program?

Course costs and other support are already part of current course and/or program offerings. The campus currently offers courses/programs in welding, automotive, civil engineering, and industrial technology. Therefore, no additional faculty, facilities, or equipment are requested as part of this proposal.

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

Not necessary.

February 9, 2010

TO: Curriculum Committee

From: Lourdes Fox

RE: Proposal #09-15

I am sending you this proposal for Sustainable Energy Tech. Please note that the papers do not have Greg Kegel's signature, but this proposal has been approved by the college. Feel free to call me at ext. 3736 if you have any questions or concerns. Thank you for your time. (see attached email)

Lourdes Fox
Administrative Assistant III
COTS

Lourdes N. Munoz-Fox

From: Larry Strizich
Sent: Saturday, February 06, 2010 5:08 PM
To: Lourdes N. Munoz-Fox
Subject: WInd Energy program

I don't remember if I told you that the wind tech degree had been approved by the College - where is the proposal now?

=====
Larry Strizich, PE
Professor of Computer and Electronics Engineering Technology Chair of the College of
Technical Sciences Montana State University - Northern PO Box 7751 Havre, MT 59501
=====

Lourdes N. Munoz-Fox

From: Larry Strizich
Sent: Tuesday, March 02, 2010 1:24 PM
To: Lourdes N. Munoz-Fox
Subject: SET program

Lourdes – we have the votes to pass the SET program. You can forward it.

Larry Strizich, PE
Professor of Computer and Electronics Engineering Technology
Chair of the college of Technical Sciences
Montana State University – Northern
strizich@msun.edu

Item No.: 124-2801-R0904

Institution: Montana State University - Northern

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:

Approval for Montana State University- Northern to offer an option in Field Maintenance for the Bachelor of Science degree in Diesel Technology.

This option provides students the opportunity to focus on courses in welding, metallurgy, fabrication and structure repair rather than the broadfield option in diesel technology that focuses on diesel engine maintenance. The option was recommended by MSU-Northern's industrial advisory boards to enhance career and placement opportunities for students in diesel technology. This integrated option in field maintenance draws heavily on courses currently being taught in the welding, automotive, civil engineering, and industrial technology programs.