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PROGRAM/DEGREE REQUIREMENT CHANGE (MAJOR/MINOR)

SUBMITTED BY:

Department	BBC and IAC	College/School	CRCD
Prepared by	Tom Marsik	Phone	842-5109
Email Contact	tmarsik@alaska.edu	Faculty Contact	Tom Marsik

See <http://www.uaf.edu/uafgov/faculty/cd> for a complete description of the rules governing curriculum & course changes.

PROGRAM IDENTIFICATION:

DEGREE PROGRAM	Sustainable Energy
Degree Level: (i.e., Certificate, A.A., A.A.S., B.A., B.S., M.A., M.S., Ph.D.)	Occupational Endorsement

A. CHANGE IN DEGREE REQUIREMENTS: (Brief statement of program/degree changes and objectives)

The Occupational Endorsement in Sustainable Energy has been successfully serving the Bristol Bay student population interested in the general science aspects of sustainable energy. However, improvements could be made to the endorsement to better serve students from other regions and/or students interested in a specialized focus (e.g. wind, solar, etc.). This is due to the fact that some face-to-face components of the program are currently offered only at the Bristol Bay Campus (BBC) and also due to the fact that different regions have different climate aspects and different renewable resources and the components emphasized for the Bristol Bay region (such as wind) might not be necessarily applicable to other regions.

One solution would be to create many occupational endorsements (in addition to the existing Occupational Endorsement in Sustainable Energy) specializing in specific areas (wind, biomass, energy efficient construction, etc.), but this might pose administrative challenges due to a large amount of programs with relatively low enrollments. Therefore, CRCD campuses have agreed to collaborate on revising the existing Occupational Endorsement in Sustainable Energy to make it flexible enough so that it is applicable to various regions and various student interests, but still rigid enough so that it can exist under the umbrella of one occupational endorsement. This collaboration is led by the Bristol Bay Campus and Interior Aleutians Campus (see the attached Letter of Cooperation signed by both campuses).

The proposed changes to the existing program are as follows:

- CTT 106 (Construction Mathematics) and TTCH 131(Mathematics for the Trades) are added as options to satisfy the math foundation requirement of the program (it currently only allows DEVM 105 - Intermediate Algebra).
- The list of the required courses is reduced to 6 credits covering the basic background material applicable to all areas of sustainable energy.
- A list of elective courses is added, which is used to customize the program to the specific regions and specific student interests.

The objectives of the revised program are as follows:

- To increase the number of Alaskans with vocational and educational background in sustainable energy.
- To expose the students to a broad-based curriculum focused on the two pillars of sustainable energy (energy efficiency and renewable energy) and to allow them to specialize via electives in their specific areas of interest (depending on the regional resources, climate, etc.).
- To develop basic academic skills and gain essential knowledge in sustainable energy necessary to understand and manage specific community-based energy issues.
- To provide students with the tools necessary for successful employment.
- To prepare students to advance into a science or engineering-related Certificate, Associate or Baccalaureate program or other undergraduate course work in science or engineering.

B. CURRENT REQUIREMENTS AS IT APPEARS IN THE CATALOG:

SUSTAINABLE ENERGY

College of Rural and Community Development
Bristol Bay Campus
907-842-5109
www.ctc.uaf.edu

Occupational Endorsement

Minimum Requirements for Occupational Endorsement: 13 credits

Providing education and training in energy efficiency and renewable energy, the sustainable energy occupational endorsement addresses many of the energy issues that influence Alaska communities and provides the basic academic preparation for entry-level sustainable energy careers. It also serves as a stepping-stone into science- and engineering-related certificate, associate or baccalaureate programs. Admission is open to students with a high school diploma or GED.

Occupational Endorsement Program

1. Complete the general university requirements (page 87).
 2. Complete the occupational endorsement requirements (page 87).
 3. Complete the following:*
- | | |
|--|---|
| CTT F100—Construction Technology Core..... | 3 |
| DEVM F105—Intermediate Algebra..... | 3 |
| ENVI F101—Introduction to Environmental Studies..... | 3 |
| ENVI F120—Home Energy Basics..... | 1 |
| ENVI F220—Introduction to Sustainable Energy..... | 3 |
4. Minimum credits required.....13
- * Students must earn a C grade (2.0) or better in each course.

**C. PROPOSED REQUIREMENTS AS IT WILL APPEAR IN THE CATALOG WITH THESE CHANGES:
(Underline new wording ~~strike through old wording~~ and use complete catalog format)**

SUSTAINABLE ENERGY

College of Rural and Community Development
~~Bristol Bay Campus~~
Primary point of contact with the program head: 907-842-5109 or 800-478-5109
www.ctc.uaf.edu www.uaf.edu/rural/

Occupational Endorsement

Minimum Requirements for Occupational Endorsement: ~~13~~ 12 credits

Providing education and training in energy efficiency and renewable energy, the sustainable energy occupational endorsement addresses many of the energy issues that influence Alaska communities and provides the basic academic preparation for entry-level sustainable energy careers. It also serves as a stepping-stone into science- and engineering-related certificate, associate or baccalaureate programs. Admission is open to students with a high school diploma or GED.

The program is structured as 6 credits of foundation knowledge and a minimum of 6 credits of electives that allow students (in consultation with their advisor) to specialize in specific areas of sustainable energy. Some examples of how the electives can be formed into specific areas of study are as follows:

Energy science: ENVI F101—Introduction to Environmental Science (3); PHYS F102X—Energy and Society (4)

Photovoltaic: CTT F100—Construction Technology Core (3); CTT F160—Photovoltaic Systems – Part I (5); CTT F161—Photovoltaic Systems – Part II (5)

Biomass: CTT F100—Construction Technology Core (3); ENVI F120—Home Energy Basics (1); CTT F250—Current Topics in Construction Trades: Biomass (2)

Wind: CTT F100—Construction Technology Core (3); ENVI F120—Home Energy Basics (1); CTT F250—Current Topics in Construction Trades: Turbine (2)
Energy efficient construction: CTT F100—Construction Technology Core (3); CT S201—Cold Climate Construction (3)
Other areas of study related to sustainable energy.

Occupational Endorsement Program

1. Complete the general university requirements (page 87).
 2. Complete the occupational endorsement requirements (page 87).
 3. Complete the following requirements:*
- | | |
|--|---|
| CTT F100—Construction Technology Core..... | 3 |
| DEVM F105—Intermediate Algebra (3)
or CTT F106—Construction Mathematics (3)
or TTCH F131—Mathematics for the Trades (3)..... | 3 |
| ENVI F101—Introduction to Environmental Studies..... | 3 |
| ENVI F120—Home Energy Basics..... | 1 |
| ENVI F220—Introduction to Sustainable Energy..... | 3 |

4. Complete at least 6 credits from the following electives:*
- | | |
|--|---|
| CT S201—Cold Climate Construction (3)** | |
| CTT F100—Construction Technology Core (3) | |
| CTT F160—Photovoltaic Systems – Part I (5) | |
| CTT F161—Photovoltaic Systems – Part II (5) | |
| CTT F250—Current Topics in Construction Trades (1-3) | |
| ENVI F101—Introduction to Environmental Science (3) | |
| ENVI F120—Home Energy Basics (1) | |
| PHYS F102X—Energy and Society (4) | |
| or other advisor approved electives..... | 6 |

5 4. Minimum credits required.....13 12

* Students must earn a C grade (2.0) or better in each course.

** CT S201 is offered by University of Alaska Southeast

D. ESTIMATED IMPACT

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

The proposed changes to make the program more relevant to other geographic areas and student populations are expected to attract more students. If eight part-time students (6 cr/semester) are enrolled in the program, the program will generate \$16,128 per year in tuition.

The primary teaching faculty are already employees of the University.

The impact on existing UAF and CRCO technology resources and facilities is limited to existing resources and no new facilities or space will be required.

The list of electives includes CT S201 (Cold Climate Construction), which is a course available by distance from UAS. It is a very relevant course for sustainable energy. Because UAF does not have an equivalent course, an articulation agreement and credit transfer wasn't an option for UAF students to take the course and have it counted towards the occupational endorsement. My communications with the UAF Provost Office (with Jennifer Hoppough) confirmed that including the CT S201 in the electives is a possible mechanism for allowing UAF students to take a UAS class and have it counted as useful credits towards the UAF occupational endorsement. Besides the class content itself, another advantage for UAF students taking the CT S201 is that Marquam George (UAS faculty teaching the class) is a nationally recognized cold climate construction expert. The capacity of CT S201 allows for additional students and UAS is very supportive of this collaboration (see the attached Letter of Intent for Academic Cooperation on Sustainable Energy Education signed by both UAF and UAS).

E. IMPACTS ON PROGRAMS/DEPTS:

*What programs/departments will be affected by this proposed action?
Include information on the Programs/Departments contacted (e.g., email, memo)*

All CRCD campuses will be affected to some extent because by revising this occupational endorsement it will become more available to them. Therefore, enrollment may increase in classes related to this occupational endorsement. Revising this occupational endorsement was discussed at a CRCD-wide meeting on 5/9/2012, which was organized by the Construction Trades Technology program. The campuses present were: Bristol Bay, Chukchi, Interior Aleutians, Northwest, and Kuskokwim. The course requirements (as shown in section C above) were shared with the meeting participants. No objections were received and there was a general support of this program. The main support is coming from the Bristol Bay Campus and Interior Aleutians Campus.

This revised Occupational Endorsement in Sustainable Energy was also discussed at a UA-wide meeting on energy and green jobs organized by UA Statewide Workforce Programs in Anchorage on 4/18/2012. There was a general support of this program. The meeting also strengthened the collaboration with UAS as related to this occupational endorsement (see section D above for details).

Revising this occupational endorsement has an impact on fulfilling the prerequisites of ENVI 220-Intro to Sustainable Energy. The current prerequisites are "DEVM 105; ENVI 101; ENVI 120; or permission of instructor". But ENVI 101 (Introduction to Environmental Science) and ENVI 120 (Home Energy Basics) are not required courses of the proposed endorsement because they were moved into the elective courses. Therefore, it should be explained here that the prerequisites for ENVI 220 are currently being changed (Format 2A being submitted) to the following: "DEVM 105 or CTT 106 or TTCH 131 or permission of instructor; Recommended: ENVI 101; ENVI 120". Experience teaching ENVI 220 has shown that even without taking ENVI 101 and ENVI 120, students typically have a sufficient background in environmental science and home energy for the purposes of the ENVI 220 course. In the meantime (before the changes in prerequisites for ENVI 220 are approved), the "or permission of instructor" component of the current prerequisites can be used to allow students to take ENVI 220 without having to take ENVI 101 and ENVI 120.

F. IF MAJOR CHANGE - ASSESSMENT OF THE PROGRAM:

Description of the student learning outcomes assessment process.)

See attached document for the student learning outcomes assessment.

JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize program/degree change applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. If you drop a course, is it because the material is covered elsewhere? Use as much space as needed to fully justify the proposed change and explain what has been done to ensure that the quality of the program is not compromised as a result.

As explained in detail in part A, the purpose of the proposed program change is to make the Occupational Endorsement in Sustainable Energy more flexible and thus more applicable to different regions and different student interests. The revised structure has 6 credits of required courses that are fully distance delivered as well as a minimum of 6 credits of elective courses that students choose based on their interest and regional location. Even if there are no face-to-face courses available in their location, they can still complete the occupational endorsement by selecting distance-delivered courses.

APPROVALS:

<i>Thomas Ansel</i>	Date	8/9/2012
Signature, Chair, Program/Department of:	Sustainable Energy OE	

<i>see attachment</i>	Date	
Signature, Chair, College/School Curriculum Council for:		

<i>see attachment</i>	Date	
Signature, Dean, College/School of:		

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

	Date	
Signature, Chair, UAF Faculty Senate Curriculum Review Committee		

Format 5 Sustainable Energy OE

APPROVALS:

Signature, Chair, Program/Department of:	Date
see attachment	

<i>Dunde R. Cude</i>	Date
Signature, Chair, College/School Curriculum Council for:	10/29/12
	CRCD

<i>Pete Perry</i>	Date
Signature, Dean, College/School of:	11/3/12
	CRCD

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

Signature, Chair, UAF Faculty Senate Curriculum Review Committee	Date
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Occupational Endorsement in Sustainable Energy Student Outcomes Assessment Plan

Expanded Statement of Institutional Purpose	Intended Objectives/Outcomes	Assessment Criteria and Procedures	Implementation (what, when, who)
<p>MISSION STATEMENT: To provide students, including Alaska Native and rural students, with quality academic instruction and training responsive to community and industry needs. This program will help empower graduates and their communities to adapt to the existing energy crisis while protecting and enriching local culture.</p> <p>GOAL STATEMENT: Occupational Endorsement in Sustainable Energy holders will have the necessary interdisciplinary skills needed for entry-level involvement in the sustainable energy fields.</p>	<ol style="list-style-type: none"> 1. Students completing the Occupational Endorsement in Sustainable Energy will be prepared academically and vocationally for entry-level employment in the field of sustainable energy. 2. Students completing the Occupational Endorsement in Sustainable Energy will be prepared to advance into a science, technology or engineering- related Certificate, Associate or Baccalaureate program or other undergraduate course work. 	<ol style="list-style-type: none"> 1a. Individual Student Learning Outcomes Assessment Rubric 1b. Employer perception 2a. Individual Student Learning Outcomes Assessment Rubric 	<ol style="list-style-type: none"> 1a. Completed by Program Coordinator 1b. Survey delivered by student employers. 2a. Completed by Program Coordinator

Occupational Endorsement in Sustainable Energy Individual Student Learning Outcomes Assessment Rubric

Outcomes	Expectations	Rating
<p style="text-align: center;">Academic Performance</p> <ul style="list-style-type: none"> Accumulated student GPA in required courses 	<p>A Grade Point Average of 'C' (2.0) or above in Occupational Endorsement in Sustainable Energy courses (Rating scale: C=1, B=2, A=3)</p>	
<p style="text-align: center;">Directed Individual Project</p> <ul style="list-style-type: none"> Learn the basic scientific methods and research skills necessary to collect, analyze, interpret, and document sustainable energy data. 	<p>Satisfactorily completed a research project (as a part of ENVI 220) involving literature search, data collection, analysis and reporting.</p>	
<p style="text-align: center;">Involvement in the Sustainable Energy Field</p> <ul style="list-style-type: none"> Participation beyond academic course work 	<p>Actively debates energy-related topics during class and other educational events. Presents oral or poster presentations at academic conferences or meetings. Participates in sustainable energy internships. Is involved in community projects related to sustainable energy.</p>	
<p style="text-align: center;">General Conceptual Understanding of Sustainable Energy</p> <ul style="list-style-type: none"> Dedicated to being a "lifelong student" Professional and ethical behavior Flexible in their thinking and exhibits creative ideas 	<p>Reads sustainable energy literature. Attends energy conferences. Joins professional associations.</p>	
<p style="text-align: center;">Preparedness for a Job or Further Education</p> <ul style="list-style-type: none"> The student acquired the necessary knowledge and skills for an entry-level sustainable energy career or for further energy-related education beyond the occupational endorsement. 	<p>The student has received an energy-related job or has been admitted to a Certificate, Associate or Baccalaureate program or other undergraduate course work related to sustainable energy.</p>	
<p>Score (Total =15, score greater than 10.5 or 70% suggests learning objectives for student were met)</p>		

Rating Scale:

- 0 = student does not exhibit this characteristic
- 1 = student rarely exhibits this characteristic
- 2 = student occasionally exhibits this characteristic
- 3 = student typically exhibits this characteristic



College of Rural and Community Development
400 Brooks Building - P.O. Box 756500
Phone: (907) 474-7143-- Fax (907) 474-5824

Letter of Cooperation

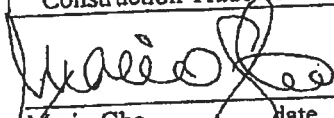
University of Alaska Fairbanks Interior-Aleutians Campus (I-AC)
Construction Trades Technology Program

University of Alaska Fairbanks Bristol Bay Campus (BBC)
Sustainable Energy Program

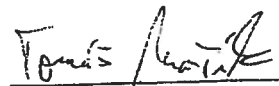
The listed above College of Rural and Community Development (CRCD) campuses and programs share a common goal of increasing the number and quality of Alaskans seeking employment in the field of sustainable energy through the Sustainable Energy Occupational Endorsement (SEOE). This goal is critical to the future success of students residing in Alaska who wish to implement systems that reduce dependence on fossil fuels and promote a greener lifestyle. The statewide energy policy (established in HB 306 House Omnibus Energy Bill) sets goals for Alaska to reduce energy use in the state by 15% by 2020 and to have 50% of its electricity from renewable sources by 2025. For this to be viable, communities throughout Alaska must have trained individuals in sustainable energy to meet the increased demand for energy efficiency and renewable energy systems. The SEOE supports both the scientific as well as vocational tracks of study within the same discipline.

The listed above campuses and programs are uniquely positioned to work toward this common goal since each entity reaches, mentors and supports students at different locations within the state and caters to the diverse environmental conditions that require different energy systems and technologies. The signatures below indicate the cooperation on revising the existing SEOE to reflect the needs of the student populations of I-AC, BBC, and other CRCD campuses.


Course Subject	Educational Oversight Entity
Sustainable Energy	Bristol Bay Campus
Construction Trades Technology	Interior-Aleutians Campus


Mario Gho
Program Head
Construction Trades Technology


13 Apr 2012
date


Tom Marsik
Program Head
Sustainable Energy

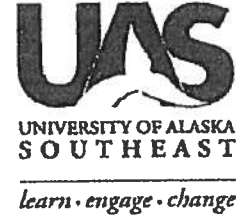
4/17/2012
date


Teisha Simmons
Director
Interior-Aleutians Campus

_____ date


Deborah McLean
Director
Bristol Bay Campus

4-30-12
date



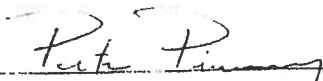
**Letter of Intent for Academic Cooperation on Sustainable Energy Education
between
University of Alaska Fairbanks (UAF) College of Rural and Community Development
and
University of Alaska Southeast (UAS) Technical Education Center**

The purpose of this letter is to document the intent of academic cooperation and mutual support between University of Alaska Fairbanks (UAF) and University of Alaska Southeast (UAS). Both MAUs share the common goal of increasing the number and qualifications of Alaskans seeking employment in the field of sustainable energy. Thanks to the technological advances in the distance delivery of courses, the possibilities for cooperation are rising.

Some examples of future academic cooperation could include the following:

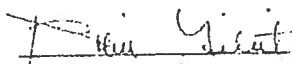
- The use of the UAS course CT 201: Cold Climate Construction by UAF as an elective in the Occupational Endorsement in Sustainable Energy.
- The use of the UAF course ENVI 220: Intro to Sustainable Energy by UAS students.

Recently, there has been collaboration between these MAUs as well as discussions focused on future partnerships and there is a mutual desire to continue our working relationship and strengthen our level of cooperation. This agreement expresses intent to explore and develop opportunities for further collaboration. Any commitment of funding by either MAU in support of shared projects will be dependent upon available resources and the subject of a separate agreement.



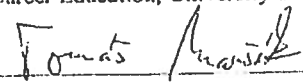
Pete Pinney, Associate Vice Chancellor
Rural, Community and Native Education/Associate Dean
College of Rural and Community Development, University of Alaska Fairbanks

7/31/12
Date



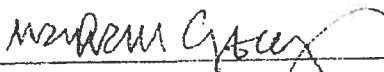
Robin Gilerist, Associate Dean of Career Education for Juneau Programs
Career Education, University of Alaska Southeast Juneau Campus

7-18-12
Date



Tom Marsik, Assistant Professor of Sustainable Energy / Program Head
University of Alaska Fairbanks Bristol Bay Campus

7/18/2012
Date



Marquam George, Associate Professor of Construction Technology / Program Head
Career Education: Construction, University of Alaska Southeast Juneau Campus

18 JULY 12
Date