TRIAL COURSE OR NEW COURSE PROPOSAL

SUBMITTED BY:
Department: CRCD Department of Science
Prepared by: Tom Marsik
tmarsik@alaska.edu

College/School: CRCD
Phone: 842-5109
Faculty Contact: same

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

1. ACTION DESIRED (check one):
   - [ ] Trial Course
   - [X] New Course

2. COURSE IDENTIFICATION:
   - Dept: ENVI
   - Course #: 121
   - No. of Credits: 1
   - Justify upper/lower division status & number of credits:

   This course is designed to serve as a course in the Environmental Studies (ENVI) Certificate program and the Occupational Endorsement in Sustainable Energy. ENVI 121 is an introductory level course with no prerequisites that concentrates on the basics of indoor air quality and its relationship to ventilation and energy use in Alaskan homes. Due to its introductory level, it is a 100-level course. Since it is a course that covers only basics, it can be delivered in 14 contact hours, which corresponds to one credit.

3. PROPOSED COURSE TITLE:
   Building Ventilation and Energy

4. CROSS LISTED?
   - [ ] NO
   - [ ] YES (Requires approval of both departments and deans involved. Add lines at end of form for such signatures.)

5. STACKED?
   - [ ] NO
   - [ ] YES

6. FREQUENCY OF OFFERING:
   - [ ] Every Spring
   - [ ] Every or Alternate: Fall, Spring, Summer - or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING (if approved):
   Spring 2014

8. COURSE FORMAT:
   NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.
   - COURSE FORMAT: (check one; lectures (1+0) format)
     - [X] 1
     - [ ] 2
     - [ ] 3
     - [ ] 4
     - [ ] 5
     - [ ] 6 weeks to full semester
     - Mode of delivery (specify lecture, field trips, labs, etc)
     - 3 days

9. CONTACT HOURS PER WEEK:
   - 14 LECTURE hours/week
   - 0 LAB hours/week
   - 0 PRACTICUM hours/week
   Note: # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See http://www.uaf.edu/uafgov/faculty/cd/credits.html for more information on number of credits.

   OTHER HOURS (specify type):
   - 14 hours of lectures
10. **COMPLETE CATALOG DESCRIPTION** including dept., number, title and credits (50 words or less, if possible):

ENVI 121 - Building Ventilation and Energy (1 cr) - Basics of indoor air quality and its relationship to ventilation and energy use in buildings. Main topics include types of indoor air pollutants; basic science related to moisture, condensation, and mold; and heat recovery ventilation. Course emphasizes practical ways of how homeowners can maintain healthy indoor air while keeping their energy bill low.

11. **COURSE CLASSIFICATIONS:** (undergraduate courses only. Use approved criteria found on Page 10 & 17 of the manual. If justification is needed, attach on separate sheet.)

   H = Humanities  
   N = Natural Science  
   S = Social Sciences  

   Will this course be used to fulfill a requirement for the baccalaureate core?  
   [ ] YES  
   [x] NO

   IF YES, check which core requirements it could be used to fulfill:
   [ ] O = Oral Intensive,  
   [ ] W = Writing Intensive,  
   [ ] Natural Science,  
   [ ] Format 6  
   [ ] Format 7  
   [ ] Format 8

12. **COURSE REPEATABILITY:**

   Is this course repeatable for credit?  
   [ ] YES  
   [x] NO

   Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

   How many times may the course be repeated for credit?  
   [ ] TIMES

   If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course?  
   [ ] CREDITS

13. **GRADING SYSTEM:**

   LETTER:  
   PASS/FAIL: [x]

14. **RESTRICTIONS ON ENROLLMENT (if any)**

   **PREREQUISITIES**
   None

   **RECOMMENDED**
   None

15. **SPECIAL RESTRICTIONS, CONDITIONS**

16. **PROPOSED COURSE FEES**

   Has a memo been submitted through your dean to the Provost & VCAS for fee approval?  
   Yes/No

   $0

17. **PREVIOUS HISTORY**

   Has the course been offered as special topics or trial course previously?  
   Yes

   If yes, give semester, year, course #, etc.:  

18. **ESTIMATED IMPACT**

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

   This is a one-credit course with no lab, thus it should have minimal influence on budget, facility, and space resources. Faculty has been hired to teach this course. This course is intended to be offered anywhere across Alaska as a face-to-face course. Courses taught in rural Alaska may require travel money, if no qualified instructor is present in that location. This money has been secured through a Title III grant from Department of Education for the Bristol Bay region for foreseeable future.

   Office and classroom space will be provided by existing University urban and rural campuses throughout Alaska. In villages without a University facility, training space can be found in the local
schools, native associations, and businesses. No new facilities or space will be required.

19. LIBRARY COLLECTIONS
Have you contacted the library collection development officer (ffklij@uaf.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No ☐ Yes ☒ September 13, 2013 - No resource impact.

20. 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)

Environmental Studies and Sustainable Energy:
This course will have a positive impact on the Environmental Studies and Sustainable Energy programs as it will broaden the courses and topics offered. This should attract more students into these programs and help prepare students for higher degree studies or entry-level employment in the environmental studies and sustainable energy fields. The impact was discussed in person with Dr. Todd Radenbaugh, the academic director of the Environmental Studies program, who is very supportive of this new course offering.

Construction Trades Technology:
This course will have a positive impact on the Construction Trades Technology program as it will broaden the options for elective courses in the Sustainable Energy track of the Construction Trades Technology Certificate. The impact was discussed by email with Michael Hirt, the Construction Trades Technology program head, who is supportive of this new course offering.

21. POSITIVE AND NEGATIVE IMPACTS
Please specify positive and negative impacts on other courses, programs and departments resulting from the proposed action.

This course will broaden the spectrum of UAF courses in the area of sustainable energy, which is a field of quickly growing importance. The course addresses energy efficiency - one of the main pillars of the sustainable energy field. Sustainable energy is a high demand field across Alaska with a lot of potential for growth.

This course will also benefit non-degree students interested in home improvements with respect to ventilation and energy.

No significant negative impacts are anticipated.

JUSTIFICATION FOR ACTION REQUESTED
The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course 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. Use as much space as needed to fully justify the proposed course.

Residents of rural Alaska are facing challenges with respect to the cost of energy as well as environmental and social sustainability of current practices. They are seeking education to both deal with their personal issues related to energy and follow careers in the energy and environmental fields. This course will help satisfy that demand.

This course will serve as a course in the Environmental Studies Certificate program and the Occupational Endorsement in Sustainable Energy, which will broaden and enhance the topics covered by these and other programs, which in turn will attract more students.

UAF Bristol Bay Campus has experienced faculty in the area of sustainable energy to deliver this course and help maintain the quality of UAF education.
<table>
<thead>
<tr>
<th>Signature, Chair, Program/Department of:</th>
<th>Date</th>
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<tbody>
<tr>
<td></td>
<td>9/13/2013</td>
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<tr>
<td>Environment Studies &amp; Sustainable Energy</td>
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<tr>
<th>Signature, Division Chair CRCD of:</th>
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<td>Department of Science</td>
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Signature of Provost (if applicable)
Offerings above the level of approved programs must be approved in advance by the Provost.

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

<table>
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<tr>
<th>Signature, Chair, UAF Faculty Senate Curriculum Review Committee</th>
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ADDITIONAL SIGNATURES: (If required)

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APPROVALS:

Signature, Chair, Program/Department of: ___________________________ Date

Signature, Division Chair CRCD of: ________________________________ Date

Signature, Chair, College/School Curriculum Council for: __________ Date

Signature, Dean, College/School of: ________________________________ Date

Signature of Provost (if applicable) Offerings above the level of approved programs must be approved in advance by the Provost.

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

Signature, Chair, UAF Faculty Senate Curriculum Review Committee ___________________________ Date

ADDITIONAL SIGNATURES: (If required)

Signature, Chair, Program/Department of: ___________________________ Date

Signature, Chair, College/School Curriculum Council for: __________ Date

Signature, Dean, College/School of: ________________________________ Date
ATTACH COMPLETE SYLLABUS (as part of this application).
Note: syllabus must follow the guidelines discussed in the Faculty Senate Guide
http://www.uaf.edu/uafgov/faculty/cd/syllabus.html.
The department and campus wide curriculum committees will review the syllabus to
ensure that each of the items listed below are included. If items are missing or
unclear, the proposed course change will be denied.

SYLLABUS CHECKLIST FOR ALL UAF COURSES
During the first week of class, instructors will distribute a course syllabus. Although
modifications may be made throughout the semester, this document will
contain the following information (as applicable to the discipline):

1. Course information:
   - Title, number, credits, prerequisites, location, meeting time
     (make sure that contact hours are in line with credits).

2. Instructor (and if applicable, Teaching Assistant) information:
   - Name, office location, office hours, telephone, email
     address.

3. Course readings/materials:
   - Course textbook title, author, edition/publisher.
   - Supplementary readings (indicate whether required or recommended) and
     any supplies required.

4. Course description:
   - Content of the course and how it fits into the broader curriculum;
   - Expected proficiencies required to undertake the course, if applicable.
   - Inclusion of catalog description is strongly recommended, and
   - Description in syllabus must be consistent with catalog course
description.

5. Course Goals (general) and Student Learning Outcomes (more specific)

6. Instructional methods:
   - Describe the teaching techniques (eg: lecture, case study, small group
     discussion, private instruction, studio instruction, values clarification,
     games, journal writing, use of Blackboard, audio/video conferencing, etc.).

7. Course calendar:
   - A schedule of class topics and assignments must be included. Be specific
     so that it is clear that the instructor has thought this through and will
     not be making it up on the fly (e.g. it is not adequate to say “lab”.
     Instead, give each lab a title that describes its content). You may call
     the outline Tentative or Work in Progress to allow for modifications during
     the semester.

8. Course policies:
   - Specify course rules, including your policies on attendance, tardiness,
     class participation, make-up exams, and plagiarism/academic integrity.

9. Evaluation:
   - Specify how students will be evaluated, what factors will be
     included, their relative value, and
     how they will be tabulated into grades (on a curve, absolute scores,
     etc.).

10. Support Services:
    - Describe the student support services such as tutoring (local and/or
        regional) appropriate for the course.

11. Disabilities Services:
    The Office of Disability Services implements the Americans with Disabilities
    Act (ADA), and insures that UAF students have equal access to the campus and
course materials.
    - State that you will work with the Office of Disabilities Services (203
      WHITT, 474-7043) to provide reasonable accommodation to students with
disabilities.”
# ENVI 121 – Building Ventilation and Energy

## Course Information

<table>
<thead>
<tr>
<th>Term:</th>
<th>Spring 2014</th>
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<td>Course Title:</td>
<td>Building Ventilation and Energy</td>
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<tr>
<td>Dept. &amp; Num:</td>
<td>ENVI 121</td>
</tr>
<tr>
<td>Credits:</td>
<td>1</td>
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<tr>
<td>Prerequisites:</td>
<td>None</td>
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<td>Dates:</td>
<td>TBD</td>
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<tr>
<td>Days and Times:</td>
<td>Fri 6pm-9pm, Sat 10am-6pm, Sun 10am-3pm</td>
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<tr>
<td>Location:</td>
<td>UAF BBC, Dillingham and Bristol Bay villages</td>
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## Instructor Information

- **Instructor:** Dr. Tom Marsik
- **Office Location:** UAF Bristol Bay Campus, Room 117
- **Position:** Assistant Professor
- **Phone:** 842-5109
- **Fax:** 842-5692
- **Email:** tmarsik@alaska.edu
- **Hours Available:** Available during the days the course is offered

## Required Text

- 1) Indoor Air Hazards, US Environmental Protection Agency, 2005

## Course Description

Basics of indoor air quality and its relationship to ventilation and energy use in buildings. Main topics include types of indoor air pollutants; basic science related to moisture, condensation, and mold; and heat recovery ventilation. Course emphasizes practical ways of how homeowners can maintain healthy indoor air while keeping their energy bill low.

## Course Goals

The general goals of this course are to provide education that will help students understand the relationship between energy and indoor air quality and make educated decisions regarding building ventilation and energy use.

## Student Learning Outcomes

Upon successful completion of this course, the student will be able to:

- Recognize basic science concepts as related to moisture and condensation.
- Identify types of ventilation systems.
- Discuss home energy improvement options with respect to energy and indoor air quality.
- Describe the procedure of balancing a heat recovery ventilator (HRV).
- Understand the procedure of measuring the efficiency of a heat recovery ventilator.

## Instructional Methods

- Lectures
- Project
- Discussions
- Homework
- Readings
- Handouts

## Course Calendar

**Friday**

- 6:00pm-7:00pm: Course introduction
- 7:00pm-8:00pm: Basic building science – air flow, moisture, condensation
- 8:00pm-9:00pm: Grandma’s house – exercise on basic building science

*Reading assignment: Read through the whole first booklet - Indoor Air Hazards*
Saturday
10:00am-12:00pm  Indoor air pollutants of concern
12:00pm-1:00pm  Lunch break
1:00pm-2:00pm  Ventilation requirements
2:00pm-3:00pm  Calculations related to heat loss via ventilation
3:00pm-4:00pm  Natural ventilation – pros and cons
4:00pm-5:00pm  Mechanical ventilation with no heat recovery – pros and cons
5:00pm-6:00pm  Heat recovery ventilation – pros and cons

Reading assignment: Read through the whole second booklet - Heat & Energy Recovery Ventilators

Sunday
10:00am-12:00pm  Class project – balancing an HRV and measuring its efficiency
12:00pm-1:00pm  Lunch Break
1:00pm-2:00pm  Review
2:00pm-3:00pm  Final exam

Course Policies:
1. UAF requires students to conduct themselves honestly and responsibly, and to respect the rights of others.
2. Attendance is mandatory.
3. Late assignments will not be accepted without prior approval of instructor.
4. The instructor reserves the right to amend this course outline as needed.

Evaluation:
Final grades are calculated from the points earned in the following areas:

Attendance and Participation
Students are expected to attend the entire 3-day classroom session and actively participate in group discussions. 10%

Class Project
In the class project, students will actively participate in balancing an HRV and measuring its efficiency. Under the observation of the instructor, they will demonstrate understanding of techniques used to balance an HRV and measure its efficiency. 30%

Homework
Each student will in his/her home: 1) Identify type of ventilation system, 2) Estimated ventilation rate and whether or not it is sufficient, 3) Calculate energy loss associated with the ventilation, 4) Suggest improvements
The homework will be assigned on Saturday afternoon and due on Sunday morning. 30%

Final Exam
An open book final exam will cover material from the whole course. 30%

Grading Policy:
This course will be graded pass/fail. In order to receive a passing grade, students must receive a 70% or higher grade.

Support and Disability Services:
University of Alaska Fairbanks
Bristol Bay Campus – Student Services
PO Box 1070
Dillingham, Alaska 99576
907-842-5109
800-478-5109
Fax: 907-842-5692

Students can also go to the UAF website http://www.uaf.edu or to the College of Rural and Community Development website http://www.uaf.edu/rural/ or to Bristol Bay Campus website http://www.uaf.edu/bbc/index.html.

UAF Disability Services for Distance Students
UAF has a Disability Services office that operates in conjunction with the College of Rural and Community Development (CRCD) campuses and UAF’s Center for Distance Education (CDE). Disability Services, a part of UAF’s Center for Health and Counseling, provides academic accommodations to enrolled students who are identified as being eligible for these services. If you believe you are eligible, please visit http://www.uaf.edu/chn/disability.html on the web or contact a student affairs staff person at your nearest local campus. You can also contact Disability Services on the Fairbanks Campus at (907) 474-7043, fydso@uaf.edu
ENVI 121 – Building Ventilation and Energy

Term: Spring 2014  
Course Title: Building Ventilation and Energy  
Dept. & Num: ENVI 121  
Credits: 1  
Prerequisites: None  
Dates: TBD  
Days and Times: Fri 6pm-9pm, Sat 10am-6pm, Sun 10am-3pm  
Location: UAF BBC, Dillingham and Bristol Bay villages

Instructor: Dr. Tom Marsik  
Office Location: UAF Bristol Bay Campus, Room 117  
Position: Assistant Professor  
Phone: 842-5109  
Fax: 842-5692  
Email: tmarshik@alaska.edu  
Hours Available: Available during the days the course is offered

Required Text: Material provided by instructor:  
1) Indoor Air Hazards, US Environmental Protection Agency, 2005  

Course Description:  
Basics of indoor air quality and its relationship to ventilation and energy use in buildings. Main topics include types of indoor air pollutants; basic science related to moisture, condensation, and mold; and heat recovery ventilation. Course emphasizes practical ways of how homeowners can maintain healthy indoor air while keeping their energy bill low.

Course Goals:  
The general goals of this course are to provide education that will help students understand the relationship between energy and indoor air quality and make educated decisions regarding building ventilation and energy use.

Student Learning Outcomes:  
Upon successful completion of this course, the student will be able to:  
- Recognize basic science concepts as related to moisture and condensation.  
- Identify types of ventilation systems.  
- Discuss home energy improvement options with respect to energy and indoor air quality.  
- Describe the procedure of balancing a heat recovery ventilator (HRV).  
- Understand the procedure of measuring the efficiency of a heat recovery ventilator.

Instructional Methods:  
- Lectures  
- Project  
- Discussions  
- Homework  
- Readings  
- Handouts

Course Calendar:

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