HOLYOKE COMMUNITY COLLEGE
Format for NEW Course Proposals

In preparing a new course proposal, please fill out this form completely, including all categories.

Date: 3/23/2010

Course No. (coordinated with Registrar) SUS 105

Course Title Introduction to Wind Energy

Transfer Compact Code, if any (A, B, C, D) D

No. of Credits: 4 Contact Hours: Lecture Hours: 3 Lab Hours: 3

Clinical Hours: Other Hours: Studio Hours

Course Description as it would appear in catalog:

This course provides a comprehensive training in the application of wind power technology. Students will gain an understanding of wind power as a sustainable form of energy and learn the fundamental science behind harnessing wind and converting it to electrical energy. We will look at the process for siting, developing, constructing, operating and maintaining wind energy projects of different scales, from residential and small commercial to municipal and utility scale.
Prerequisites: SUS 102: Introduction to Sustainable Energy Resources, Sus 103: Energy Efficiency and Conservation

Prerequisites: SUS 102 & SUS 103

STATEMENT OF PURPOSE, including, if possible, the place and function of the course in the total college curriculum and/or specific areas of study, the relation, if any, to other courses in the same or closely allied fields or disciplines, suggested students for whom the course might be particularly useful, and any other information that might be helpful to those reviewing the proposal and to future instructors of this course.

This course will be a suggested elective for students in one of the three Sustainability Studies Options. It will also be a required course for the newly developed Solar Energy Certificate Program. The course should appeal to students interested in sustainability studies, and business and engineering fields, as well as students in the market for "green jobs".

Objectives for the course: May include student-learning outcomes here.

Upon successful completion of this course students should be able to:
1. outline the primary historical development of wind power;
2. describe in detail how wind turbines produce usable electricity from the wind;
3. describe the primary benefits and limitations of wind power;
4. calculate the economic return on investment for a small wind turbine;
5. describe the process for determining the physical and economic feasibility of wind energy for different sites and applications;
6. describe the different types of wind turbines and towers available;
7. list the steps involved in the construction of small, medium and large wind turbines;
8. debate the pros and cons of large scale wind energy development on land and off-shore;
9. participate in the construction of a wind turbine.

Special problems likely to be encountered in teaching this course.

Specialized equipment may be necessary to conduct all labs for this course. The needed equipment should be available through our partnership with the Mass Green Institute.

Typical methods of testing and evaluation of students in such a course.

Lecture, discussion, research papers, quizzes, exams, individual and small group projects.

AUTHOR AND TITLE OF TEXTBOOKS and other instructional materials, including library acquisitions suggested for this course.

1. Wind Energy Basics, by Paul Gipe. Green Press, 2009.
2. Wind Energy Explained: Theory, Design and Application, by James Manwwell, Jon McGowan and Anthony Rogers. John Wiley Publishers, 2010.

Basic outline of course content, indicating major and minor emphases.

Major	Minor
Lecture Topics 1. History of wind energy and state of the industry 2. Variety of turbines available 3. Aerodynamic principles 4. How wind turbines generate electricity 5. Site assessment of small turbines 6. Construction, operations and maintenance 7. Estimating performance & calculating economic 8. Benefits, impacts and limitations of community wind systems 9. Challenges of medium scale wind systems 10. Economics of community systems 11. Case studies 12. Benefits, impacts and limitations of utility scale wind systems 13.Site selection and development process 14. Public perceptions, politics and policies 15. The offshore debate Laboratory topics 1. Physics of wind 2. Siting turbines of all sizes 3. Various types of turbines 4.Construction of turbines 5.Operations of turbines 6. Maintenance of turbines	All topics have equal emphasis.

Name of author or co-authors of the proposal.

Kate Maiolatesi

Describe additional resources required:

Faculty and other personnel (full-time/part-time):	Adjunct faculty needed.
Facilities (dedicated and/or shared:	classroom and lab space required
Equipment (non-computer):	All specialized equipment will be provided by the Mass Green Institute, a collaboration between Massachusetts Community Colleges.
Other resources required:	none
Computer hardware, software, support including AV and Multimedia	none

Date:

CIO Signature

I have reviewed the course proposal and have requested transfer eligibility from area colleges.

Date:

Director of Transfer Affairs:

Date:

Registrar

Semester and year New Course will be implemented:

Signature of Dean of Originating Division - signifying approval by the Division.

Vote: Date: Signature Field

Signature of Dean(s) of Other Divisions, whose students would be directly affected by the proposal, signifying the concurrence of their division, (Indicate n/a if this does not apply.)

Vote: Date: Signature Field

Signature of Curriculum Committee Chair - signifying approval of the Committee.

Vote: Date: Signature Field

Signature of Senate President - signifying approval of the Senate.

Vote: Date: Signature Field