

# COLLEGEWIDE COURSE OUTLINE OF RECORD

## EECT 175, INTRODUCTION TO SUSTAINABLE ELECTRICAL ENERGY

COURSE TITLE: Introduction to Sustainable Electrical Energy

COURSE NUMBER: EECT 175

PREREQUISITES: EECT 101, Introduction to Electronics and Projects or Equivalent

SCHOOL: Technology

PROGRAM: Electronics and Computer Technology

CREDIT HOURS: 3

CONTACT HOURS: Lecture: 2      Lab: 2

DATE OF LAST REVISION: Summer, 2011

EFFECTIVE DATE OF THIS REVISION: Fall, 2011

**CATALOG DESCRIPTION:** This course is a comprehensive introduction to Sustainable Electrical energy sources and their control systems. Topics include photovoltaic, solar thermal systems, green buildings, hydrogen fuel-cells, wind power, nuclear energy and hydroelectric. This course will compare and contrast existing and potential alternative energy sources, storage techniques and the systems to control them using new and traditional energy generation methods and by reviewing typical energy consumption patterns. Key concepts, terminology, definitions, and nomenclature common to all energy systems are introduced. Students may take the course as an elective in electronics technology, design technology, industrial technology, mechanical engineering technology, and other related technologies.

**MAJOR COURSE LEARNING OBJECTIVES:** Upon successful completion of this course the student will be expected to:

1. Describe and measure the basics of electrical energy and power: voltage, ampere, watts and kWh.
2. Describe the relationship of electrical energy to modern society.
3. Describe and apply the applications of photovoltaic energy systems.
4. Describe the applications of wind energy system.
5. Describe the applications of hydrogen fuel cell systems.
6. Develop an appreciation of how renewable energy technology works and how it is currently being used in U.S. and around the world by writing a paper.
7. Describe and apply energy harvesting.
8. Make measurements to set up a PhotoVoltaic System.
9. Describe the operation of PV panels.
10. Describe the operation of a wind generator and make measurements.
11. Describe the safe operation of a hydrogen fuel cell.

**COURSE CONTENT:** Topical areas of study include –

- Photovoltaic energy systems
- Wind energy system
- Active and passive human power

- Hydrogen fuel cell systems
- Role of energy, energy sources, and energy usage patterns in society
- Develop skills to handle hybrid renewable energy technologies
- Locate and identify potential ambient alternative energy sources

#### HOW TO ACCESS THE IVY TECH COMMUNITY COLLEGE LIBRARY:

The Ivy Tech Library is available to students' on- and off-campus, offering full text journals and books and other resources essential for course assignments. Go to <http://www.ivytech.edu/library/> and choose the link for your campus.

#### ACADEMIC HONESTY STATEMENT:

The College is committed to academic integrity in all its practices. The faculty value intellectual integrity and a high standard of academic conduct. Activities that violate academic integrity undermine the quality and diminish the value of educational achievement.

Cheating on papers, tests or other academic works is a violation of College rules. No student shall engage in behavior that, in the judgment of the instructor of the class, may be construed as cheating. This may include, but is not limited to, plagiarism or other forms of academic dishonesty such as the acquisition without permission of tests or other academic materials and/or distribution of these materials and other academic work. This includes students who aid and abet as well as those who attempt such behavior.

#### COPYRIGHT STATEMENT:

Students shall adhere to the laws governing the use of copyrighted materials. They must insure that their activities comply with fair use and in no way infringe on the copyright or other proprietary rights of others and that the materials used and developed at Ivy Tech Community College contain nothing unlawful, unethical, or libelous and do not constitute any violation of any right of privacy.

#### ADA STATEMENT:

Ivy Tech Community College seeks to provide reasonable accommodations for qualified individuals with documented disabilities. If you need an accommodation because of a documented disability, please contact the Office of Disability Support Services.

If you will require assistance during an emergency evacuation, notify your instructor immediately. Look for evacuation procedures posted in your classroom.

## **SYLLABUS FOR EECT 175, INTRODUCTION TO SUSTAINABLE ELECTRICAL ENERGY**

The instructor will provide students with a course syllabus on the first scheduled class meeting. The syllabus should communicate clear and concise information to help the student understand the scope of the course and expectation for successful completion. The following information will appear on the syllabus and be identical to information on the Course Outline of Record (COR):

### Required Syllabus Information from (COR)

- Course title
- Course prefix and number
- Prerequisite(s)
- Corequisite(s)
- Program
- Division
- Credit hours
- Contact hours
- Catalog description
- Major course learning objectives
- Course content
- Academic honesty statement
- ADA statement

### Additional Required Syllabus Information

The syllabus must also contain the following additional information. The instructor may determine the content of this information.

- Instructor
- Course section number
- Additional course learning objectives (if required)
- Required text, or other instructional materials
- Required consumable materials and equipment supplied by student
- Instructor phone number
- Instructor e-mail address
- Instructor office location and hours
- Method(s) of instructional delivery
- Method(s) of evaluation
- Grading scale
- Make-up policy
- Attendance policy
- Activities schedule, including calendar of topics, assignment, test, etc.
- Last date to drop course without grade

- The name and location of the Disabilities Support Services Coordinator
- Right of revision statement

### Optional Syllabus Information

Faculty are encouraged to provide additional information that will help the student understand in more detail how the class will be conducted.

- Extra credit work, if applicable
- Class/lab relationship
- References or reading that are optional but recommended
- Format for papers, projects, or other assignments
- Computer room/lab rules if applicable
- Withdrawal process and responsibility
- Other