IMPERIAL VALLEY COLLEGE
Class Syllabus
Fall 2012

Class title:	**EWIR-160 Alternative Energies**
Instructor:	**John Fahim**
Phone & E-mail:	**Cell: 909-717-3785** **john.fahim@imperial.edu**
Classroom	**1402**
Laboratory:	**1402**

Class Schedule:
Wednesday 09:10PM – 01:10PM August 22 to December 05, 2012

Course Description:
This course provides the student with instruction in basic principles of electrical Alternative Energy Systems. Instruction will include an introduction to energy usage, Hydropower, Solar Energy, Wind Energy, and sustainable systems. The interpretation of related electrical/electronic blueprints, diagrams, and schematics used in alternative energy systems installations. Energy efficiency principles of these systems will be the focus of instruction.

Student Learning Outcomes (SLO)
Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Describe the operation of Hydropower plants. (ILO1, ILO2)
2. Explain the different types of combustion turbines. (ILO1, ILO2)
3. Describe the fundamental blocks of Solar Energy systems and their architecture. (ILO1, ILO2)
4. Describe the fundamentals of Geothermal, Ocean and Nuclear Energy systems. (ILO1, ILO2)

Institutional Student Learning Outcomes (ISLO)
Student learning outcomes are written statements that represent faculty and departmental learning goals for students. After successful completion of the program or degree at Imperial Valley College, students are expected to have measurable improvement in the following areas:

- ISLO 1: Communication Skills
- ISLO 2: Critical Thinking Skills
- ISLO 3: Personal Responsibility
- ISLO 4: Information Literacy
- ISLO 5: Global Awareness

Lecture & Laboratory Course Goals And Objectives:
Upon successful completion of this course, the student will be able to:

1. Explain Energy usage in the United States.
2. Define and describe the principles related to Turbo Machinery.

3. Describe the operation of Hydropower plants.
4. Define and describe the general principles related to wind energy.
5. Explain the different types of combustion turbines.
6. Describe the fundamental blocks of Solar Energy systems and their architecture.
7. Identify the basic Active Solar Thermal systems and their applications.
8. Describe and analyze the different photovoltaic systems.
9. Describe the operation of Fuel Cells, advantages and disadvantages.
10. Identify and analyze Combined Heat and Power systems.
11. Describe the fundamentals of Geothermal, Ocean and Nuclear Energy systems.

Attendance and Grading Criteria:

1. Attendance: Regular attendance in all classes is expected of all students enrolled. All students must have an acceptable explanation for every day of absence.
2. Maximum absences limit is more than two classes absences after the close of registration (Sep. 02, 2012).
3. A student may exclud (drop) him / herself from further attendance in a class during the semester when absences, after the close of registration (Sep. 02, 2012) and before (Nov. 10, 2012), have exceeded the above maximum absences limit.
4. Tardiness: Non-acceptable three times tardiness equals to one absence.
5. Student Conduct: Upon entry into IVC constitutes the student's acceptance of the standards of student conduct and the regulations publish by the college.
6. Each student is responsible for making up schoolwork missed because of absences. Students may receive the full grade for made-up schoolwork only for valid acceptable absence reason. For no show no call absence, students may receive class schoolwork points multipliude by attendance percentage.
7. Grading system:
    - A=90%-100% of points= Excellent
    - B=80%-89% of points= Good
    - C=70%-79% of points= Satisfactory
    - D= 60%-69% of points= Pass, less than satisfactory
    - F= Less than 60% of points= Failing

6. Exams:
    - **Mid-Term** (60 points) will be given in the 2nd week of Oct. 2012. It will be a multiple choice test.
    - **Final-Exam** (60 points) will be given on Dec. 06, 2012. It will be a multiple choice test.
    - There are no make-up exams unless you have a valid acceptable reason and make arrangements with the instructor before the exam.
    - **Final grades can be raised or lowered based on your attendance, preparation and participation in class. It benefits you to be engaged and participative.**

Grades:

	Points
Book worksheets, quizzes.	140
Lab activity, hands-on worksheets.	240

Attendance percentage will be applied to the above points	Percentage of above Points
Mid-term	60
Final-exam	60
Total points	500

Course Grade:
The course grade is based on total points accumulated during the semester. There is a total of 500 points available. Grades are determined by dividing the total points you earn by the total points available to get your percentage. (Total points may vary if we change the assignments in a particular week).

Grading of Hands-on Assignments:
The most common problem students experience is not being detailed enough in their answers and not spending the right amount of time in the lab procedures. Always be as specific as you can and use examples from your readings. Make sure to answer all parts of the questions. Points will be deducted for inadequate responses. Feedback will be given after each assignment and, hopefully, you will improve as you proceed with the course. The following grading rubric is used when grading assignments.

	Grading Rubric for Hands-on Assignment	Points
A	Focused and clearly organized. Contains critical thinking and content analysis. Convincing evidence is provided to support conclusions. Ideas are clearly communicated. Clearly meets or exceeds assignments requirements.	18-20
B	Generally focused and contain some development of ideas, may be simplistic or repetitive. Evidence is provided which supports conclusions. Meet assignments requirements.	16-17
C	May be somewhat unfocused, underdeveloped, or rumbling. But does have some coherence. Some evidence is provided which support conclusions. Meets minimum assignment requirements.	14-15
D	Unfocused, underdeveloped. Minimal evidence is used to support conclusion. Does not respond appropriately to the assignment.	12-13
C	Minimal effort by the student. Unfocused, underdeveloped. Evidence is not used to support conclusion. Block overall understanding. Does not meet assignment requirements.	0-11

Method of Instruction:
Methods of instructions may include, but are not limited to, the following: lectures, textbook worksheets, hands-on worksheets, internet readings, large and small group discussions, audiovisual aids, and demonstrations.

Student Responsibility:
1. Participate in class turn in all your completed assignments to the instructor. Must follow safety rules at all times in the lab area.
2. Scantron answer sheets and #2 pencils on test days.

3. If you are having trouble with the course and/or personal problems, communicate with the instructor, as soon as possible to get the help needed.
4. If you have any form of disability, please inform the instructor so that you can get the assistance you may need. Please contact DSPS office as soon as possible: 355-6312, 2100 Bldg. We have made every effort to ensure that this course is accessible to all students, including students with disabilities. If you encounter any problem during this course, please contact me immediately.
5. Please, no food, smoking, or visitors during class.
6. Anyone using a cell phone/pager or other communication device, or carrying a device that makes noise, during class will be asked to leave and will receive only partial points.
7. Students have the right to experience a positive learning environment; students who disrupt that environment can be asked to leave the class. Please refer to IVC catalog for more information. Swearing, put downs and discriminatory statements will not be tolerated. If someone says anything to you that may make you feel uncomfortable or that you feel is inappropriate contact your instructor immediately.

Lab Rules and Regulations:
Every student must follow safety standards according to the OSHA safety procedures ***at all times during lab practice.***

Nondiscrimination & Sexual Harassment Policy:
IVC does not discriminate in the admission nor in the offering of programs and activities because of ethnic group identification, national origin, religion, sex, age, race, color, medical conditions, Vietnam era status, ancestry, sexual orientation, marital status, or physical or mental disability or because he or she is perceived to have one or more of those characteristics. (Refer to IVC catalog).

Textbooks:
Renewable Energy in Power Systems, Leon Freris, A John Wiley & Sons, Ltd, Publication
ISBN 978-0-470-01749-4

Course Instructional Schedule and Learning Activities:

Date	Objectives
August 22	• Class Outline and Rules • Global Energy introduction
August 29	• Subject 1 A. Energy usage in the U.S.
September 05	• Subject Subject 1 B. Fundamentals of Turbo Machinery & Combustion Turbines
September 12	• Subject 2 Hydropower • Subject 3 Wind Energy
September 19	• Subject 4 Distributed Generation • Subject 5 A. Solar Energy Fundamentals
September 26	• Subject 5 A. Solar Energy Fundamentals • Subject 5 B. Active Solar Thermal Applications
October 03	• Subjects 6 Smart Grid • Class work review
October 10	• Review CH 1 to 6 • Mid-Term

October 17	• Subject 7 Photovoltaic Systems
October 24	• Subject 7 review
October 31	• Subject 8 Fuel Cells & Energy Storage
November 07	• Subject 8 review
November 14	• Subject 9 Combined Heat and Power Systems
November 21	• Subject 9 review • Subject 10 Geothermal, Ocean, and Nuclear Energy
November 28	• Subject 10 review • Subject 7 to 10 review
December 05	• Final Exam

In Case of Emergency:
If you have a life-threatening illness or injury that requires an ambulance, **call 911immediately**
Emergency costs are not covered by Student Health Services.
The Student Health Fee allows the students to receive health services on campus and at various health centers in the community. For more information refer to catalog.