# Imperial Community College District Imperial Valley College RNEW 118 Course Syllabus

#### Jose (Joe) Roman, Instructor

Course Title:	Alternative Energies	
Course Number:	RNEW 118	
Credit Units:	4	
Class Time And Location:	M/W 8:00 - 9:25 a.m. (Lec.) M/W 9:45 - 11:05 a.m. (Lab)	Bldg 3100, Room 3119 Bldg 3100, Room 3119
Prerequisites:	Recommended preparation (Note: <u>but not required</u> ) – ELTR 120- Electronic Devices or ELTR 140-Electronic Circuit & Semiconductor.	

### Course Description:

A. This course provides the student with instruction, which meets NSF Renewable Energy Program and NABCEP guidelines, and as part of the Solar PV & Thermal Technician Certification, qualifies the student to take the NABCEP Solar Entry Level PV and SH Exams, instruction is in basic principles of electrical Alternative Energy Systems. Instruction will include an introduction to energy usage, Ocean and Hydropower, Solar Energy, Wind Energy, bio-energy, combustion turbines, Hydrogen economy and Fuel Cells, Combined Heat and Power systems, Geothermal, Nuclear, Smart Grid, Energy and data acquisition systems based on LabVIEW software. Energy efficiency and sustainability principles of these systems will be the focus of instruction.

## **Course Objectives:**

- A. Demonstrate and practice OSHA safety & Lab procedures.
- B. Explain Introduction of Alternative Energy.
- C. Explain Introduction of Biomass and Biofuel and describe the operation of Biomass and Biofuel.
- D. Describe the operation of Ocean power systems and Hydro power plants.
- E. Explain Introduction of Nuclear power and Geothermal systems.
- F. Describe the fundamentals of Nuclear power and Geothermal systems.
- G. Describe the fundamental of Solar power energy system that include Photovoltaic system and Solar Thermal.
- H. Describe the fundamentals of Wind power energy systems that include Wind Turbine.
- I. Define and explain what is Smart grid, the use of energy and data acquisition based on LabView software.

J. Identify and describe Fuel cells, Hydrogen, Combined Heat and Power system.

Core Content:

A. OSHA safety.	10%
B. Alternative Energy Overview	10%
C. Laboratory, Presentation, and Testing of Alternative Energy	10%
D. Biomass and Biofuel Overview	10%
E. Specification of Geothermal plants, Fuel cells, Ocean power systems	10%
F. Nuclear Power Overview	10%
G. Specification of Hydro power plants and Nuclear power plants	10%
H. Solar Overview	
I. Planning and designing Solar and Wind Power Laboratory and Presentation	10%
J. Wind Power Overview	10%
Total	100%

Required Material:

A.	RNEW 118 Textbook:
	NCCER. Alternative Energy. Pearson Publishers.

Recommended references and materials:

A. Pens, pencils, highlighters, post-it notes, supplies as necessary.

Instructor Information:

A. Email:	jose.roman@imperial.edu.
B. Phone:	(760) 355-6361 (Frances Arce)
C. Office Hours:	By appointment or New Office- <b>TBD</b>

Attendance Policy:

Class attendance policy follows the regulations in the IVC catalog. Students who receive three absences will be dropped from the course unless prior arrangement has been made with the instructor. Three tardies shall constitute one absence. Students who fail to return from breaks shall be marked absent for that session. \*<u>Participation-</u>This course will only have two days per week of classroom and lab. Therefore, class participation and lab will be part of your grade for this semester.

Disabled Student Programs and Services (DSPS):

IVC catalog policy follows the regulation of Section 504 of the Rehabilitation Act and the (ADA) Americans with Disabilities Act. Services are provided to students with reasonable accommodations to students with mobility, hearing, speech, and orthopedic impairments, learning disabilities, psychological disabilities, and other health impairments. Services are provided on an individual basis and may include reader services, note taking, tutoring, counseling, sign language interpreting, priority registration, learning disabilities assessment, and adapted computer instruction.

### Classroom and Laboratory Rules:

No food is allowed in the classroom. Bottled water is authorized during lectures. Food and drinks may be consumed outside the classroom before class and at breaks only. Cell phones must be placed in "manner mode" or turned off.

Grading criteria and procedure:

Total Points	1200
<b>Participation</b>	<u>*150 points</u>
Lab activities	250 points
Assignments	250 points
Exams	550 points

Homework will be turned in (same day test date &/or Lab projects due) at the beginning of class to ensure maximum credit. Late work will be accepted with a "one-letter grade deduction" for each classroom day that it is late.

Quizzes will be given at the end of each section or chapter covered. The student will be responsible for information contained in all lectures, handouts, textbook assignments, and all lab presentations.

Midterm and final exams will be given at the pre-arranged times as discussed by your instructor. Make up exams will be given only with prior approval of the instructor.

Grading Scale:

Advanced	1200-1080	=	Α
Proficient	1079-960	=	В
Basic	959-840	=	С
Below Basic	839-720	=	D
Far Below Basic	719	=	F

Dear Student,

This is my Seventh year as an Instructor at Imperial Valley College & I will teach (Temporarily) Full-time for the Fall 16' & Spring 17' semester. This will be my first time teaching Renewable Energy course at IVC & I'm looking forward teaching Renewable Energy course with you! I'm Alumni at IVC & I hold a Bachelor's Degree in Landscape Architecture & Construction from the California State Polytechnic, Pomona, University and I have been teaching since 1995. I recently retired from teaching in Correction for 18 state service years. I taught Photovoltaic Solar Entry-level & Thermal Solar at Correction for 5 years. I am certified with NCCER & NABCEP. I am also certified Electrician & hold a Professional Clear Single Subject Teaching credential for 18 years. I have been in the Electrical trade since 1988 & I was teaching last year part-time at Arizona Western College at Yuma, Arizona.

My wife (of 24 years) and I are parents of two grown children. 1 preteen younger son. For pleasure, I enjoy, exercise, bicycling, electrical work and reading.

This Introduction course will give you a wide career field spectrum of the Renewable Energy course that you'll have an idea what career will attract your interest. I will work very hard to make your learning experience a success. I expect all of the students who take my courses to also work very hard. Together, we will accomplish the goals before us which is PASS THIS CLASS!

It is your responsibility to learn the material. It is my responsibility to make the learning process as productive and interesting as possible. If you miss a class, check with other class members to determine what work you must do. Tests are like job interviews, scheduled in advance; treat them as such. Do not miss a test! If you must miss a test, be sure that I know about your need <u>as soon as practical</u>.

Being a student is not easy! It is hard work, especially with families and jobs. Plan time to be in class, as well as time to work on the out of class assignments. If I can be of assistance, please contact me.

My IVC e-mail address is: jose.roman@imperial.edu. I check my e-mail continually during the day. Call Frances & leave message if you have computer problems at (760) 355-6361.

Have a successful class.

Joe Roman