Basic Course Information

Semester	**Spring 2019**	Instructor's Name	
Course Title & #	**Solar Electrical Systems PV2- RNEW 151**	Jose (Joe) Roman	
CRN #	**20872**	Webpage (optional)	**jose.roman@imperial.edu**
Room	**3119**	Office (PT Faculty:809)	3121
Class Dates	**15 Feb-19- 7 June-19**	Office Hours (n/a for PT Faculty)	**TBA- It will be posted at my office's window**
Class Days	**Friday Only**	Office Phone # (PT may use dept. number)	**(760) 355-5719**
Class Times Units	**8:00 – 10:05am** **10:15am -1:25pm** **3**	Who students should contact if emergency or other absence	Dept Secretary Tisha Nelson is an option **(760) 355-6161**

Course Description

This course is an introductory study in solar thermal concepts that meets NABCEP guidelines, and qualifies the student to take the NABCEP Solar Heating (SH) Entry Level Test. Identifying SH safety practices, standards, codes and certification. Instruction will be based on solar thermal collector for water, space heating, installation and operation, water treatment, saving devices and equipment. Conducting a site analysis, water and space heating systems design, identifying systems components, materials, balance, installation, maintenance and troubleshooting. Learning opportunities will be enhanced through a combination of lecture and laboratory activities. (Nontransferable AA/AS degree only)

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skill, knowledge and or attitudes as demonstrated by being able to:

1. Understand & Analyze various factors as solar water & space heating system design, tank & pipe insulation, automatic controls, related water treatment, conservation, standby & distribution losses (IL01, IL04,IL05)
2. Demonstrate knowledge & Critically evaluate & understand various solar collectors, by defining the operation & efficiency of each system (IL01, IL02,)
3. Analyze & Identifying proper use of balance of system components & materials. (IL01, IL02,IL05)

Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Demonstrate and practice OSHA safety & Lab procedures.
2. Explain History of Solar Heating.
3. Explain Introduction of Solar Heating.
4. Describe Solar Principals and Knowledge.
5. Describe, explain and identify the difference Collectors, Systems and Application.
6. Identify and describe how to prepare for Project, and how to Evaluate the Site.
7. Describe the fundamental of Solar Heating Plan System Installation.
8. Identify and describe Install System.
9. Define and explain what Commission the Solar Heating System.
10. Identify and describe Service and Maintain the Solar Heating

Textbooks & Other Resources or Links

RNEW 152 Textbook: **None-Download Handouts through Canvas**
NABCEP-Solar Heating Installer Resource Guide, **Florida**
Solar Energy Center-Solar Water and Pool Heating Manual
Other Handouts will be distributed by Instructor.

Course Requirements and Instructional Methods

Below is the Instructional Scale:

Breakdown (1200 points)
Exams: 550
Assignments: 250
Lab activities: 250
***Participation**: **200**
1200

Teaching Methods: Discussion of assignments and instructional methods will be a combination of all methods of instruction, which can be classified as telling, lecturing, or discussing; showing or demonstrating.
***Participation- This course will meet one days per week of classroom and lab. Therefore, class participation and lab will be part of your grade for this semester.**
Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

Course Grading Based on Course Objectives

The course grade is based on total points accumulated during the semester. There is a maximum of 1200 points. Very limited extra credit points may be available, either through some class participation activity, group work or perfect attendance. Failing to turn in regular assignments will stop you from being able to earn extra credit points and late assignments will have points subtracted.
Final Grades are calculated as follows:

Grade	Points
A	**1200-1080**
B	**1079-960**
C	**959-840**
D	**839-720**
F	Below **719**

Grading Rubrics: In addition to the percentages and points listed above the following grading rubric (standards expected) will be used when grading student assignments. The description that best fits your work will be the **assigned grade.**

Grade	Rubric or Standard Expected
A	Focused and clearly organized. Contains advanced critical thinking and analysis. Convincing evidence is provided to support conclusions. Clearly meets or exceeds assignment requirements.
B	Generally focused with some development of ideas, but may be simplistic or repetitive. Evidence is provided to support conclusions. Occasional grammatical errors. Meets assignment requirements, but does not exceed.
C	Unfocused, underdeveloped, or rambling, but has some coherence. Minimal evidence is provided to support conclusions. Several grammatical errors. Meets
D	Unfocused, underdeveloped, and/or rambling. Limited evidence is used to support conclusions. Serious grammatical errors that impede overall understanding. Does not

address the assignment requirements

F Unfocused, underdeveloped, and/or rambling. Incomplete or too brief. No evidence is used to support conclusions. Serious grammatical errors that block overall understanding. Does not meet assignment requirements. Minimal to no student effort.

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class unless otherwise directed by the Instructor. **Consider:** specifics for your class/program
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalog.
- Children in the classroom: Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

Academic Honesty

- Plagiarism is to take and present as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to correctly 'cite a source', you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment or using or attempting to use materials, or assisting others in using materials, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question.

  Anyone caught cheating or will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment ;(c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment, (e) use of a commercial term paper service

Additional Help – Discretionary Section and Language

- Canvas support center: **TBA-New For IVC**
- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Learning Services (library). Please speak to the instructor about labs unique to your specific program
- Library Services: There is more to our library than just books. You have access to tutors in the learning center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. If you feel you need to be evaluated for educational accommodations, the DSP&S office is located in Building 2100, telephone 760-355-6313.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see http://www.imperial.edu/students/student-health-center/. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762

Information Literacy

Imperial Valley College is dedicated to help students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/

Anticipated Class Schedule / Calendar

The instructor will provide a tentative, provisional overview of the reading, assignments, tests, or other activity for the duration of the course. The faculty may find a table format useful for this purpose.

Date or Week	Activity, Assignment,Topic / Lab Activity	Dates: Due/Tests
Week 1 February **15**	**CAMPUS CLOSED-LINCOLN'S BDAY OBSERVED-REFER TO IVC ACADEMIC CALENDER 2018/2019**	
Week 2 Feb. 22	Syllabus & Introduction Download Canvas & Project #1 Assign & Assignment	TBA
Week 3 March 01	Basic Solar Principles & History; Video	**TEST & Assign Due**; PROJECT #1- Single/Group
Week 4 March 08	Solar Heating Collectors	**TEST & Assign Due**
Week 5 March 15	Solar Water Heating Systems	**TEST & Assign Due**
Week 6 March 22	Solar Pool Heating Systems & Review Midterm Exam	**TEST & Assign Due**

Date or Week	Activity, Assignment,Topic / Lab Activity	Dates: Due/Tests
Week 7 March 29	**MIDTERM**	Lab-SWEAT FITTING/Brazing
Week 8 April 05	**Building a Solar Swimming Pool Project**	Lab-Continue-SWEAT FITTING/Brazing
Week 9 April 12	Continue w/ Building a Solar Swimming Pool Project	TBA
Week 10 April 16-18	**Project due: Building a Solar Swimming Pool** **Building a Solar Collector Project**	TBA
Week 11 **April 22-27**	******SPRING BREAK****** **CLASS CLOSED**	
Week 12 May 03	Continue w/Building a Solar Collector Project	TBA
Week 13 May 10	Continue w/Building a Solar Collector Project	TBA
Week 14 May 17	**Wrap-up Solar Project Due: Building a Solar Collector**	TBA
Week 15 May 24	Turn-in all assignments & Make-up test	**Final Project Due**
Week 16 May 31	**Review Final**	**Assignment Due**
Week 17 June 7	**Final Test**	

*****Tentative, subject to change without prior notice*****