

**IMPERIAL VALLEY COLLEGE
COURSE SYLLABUS
SPRING 2014**

PROFESSOR JESUS F. HERNANDEZ

Division:	Industrial Technology Division
Course Title:	SOLAR ELECTRICAL SYSTEMS PV2
Course Number:	RNEW 151
Class Code:	20792
Class Date & Time	M: 6:30 - 8:20 PM – W: 6:30 - 9:50 PM
Location:	M: 1300-1307 W: 1100-1101
Prerequisite:	RNEW 150 with a grade of “C” or better
Recommended Preparation:	EWIR 110

Course Description:

This course focuses on the National Electrical Code (NEC). It includes: grid and stand-alone calculation, grounding considerations, wiring sizing and residential system design elements with an emphasis on inter-row shading, controllers, batteries and inverters selection.

SLOs – Student Learning Objectives

1. Identify types of solar energy, its effects, and understand electrical power generation from solar energy, (IL02, IL03)
2. Explain the photovoltaic principles of photovoltaic arrays. (IL01, IL02)
3. Understand photovoltaic system overcurrent protection, disconnects, and grounding utilizing National Electric Code (IL02, IL03)

Course Objective:

Unit 5.

Grid-direct System Sizing. (Ch-11, Ch-12, Ch-13)

Unit 6.

Grounding, Wiring, and Overcurrent Protection. (Ch-14, Ch-15, Ch-16, Ch-17)

Unit 7.

Safety Installation, Commissioning, Grid-Direct System. (Ch-18, Ch-19)

Unit 8.

Battery-Based Systems. (Ch-20, Ch-21)

Core Content

Unit 5	30%
Unit 6	30%
Unit 7	20%
Unit 8	20%
Total	100%

Required Material:

- **SOLAR ELECTRIC HANDBOOK.** Photovoltaic Fundamentals and Applications. Second Edition. Solar Energy International. Renewable Energy Education for a Sustainable Future. ISBN-13: 978-1-256-91816-5; ISBN-10: 1-256-91816-4.
- **Red pen, green pen, black pen and calculator.**

Recommended References:

- **GUIDE TO THE NATIONAL ELECTRICAL CODE 2008.** Thomas L. Harman.

Instructor's Information:

Email: ucaco@hotmail.com

Attendance Policy:

Class attendance and tardy policy follows the regulations in the IVC catalog. Students whose continuous unexcused absences exceed 8 hours per week may be considered inactive and may be dropped unless a written petition to justify absences is approved. It is your responsibility to drop before any deadline. Three tardies shall constitute one absence. Students who fail to return from breaks shall be marked absent for that session

Classroom Rules:

- No food is allowed in class, bottled water is ok during lectures, but not during lab.
- Cell phones must be turned off during class, unless there is an emergency.

Exams and Grading Procedures:

1. Homework Assignments	10%
2. Quizzes	10%
3. Attendance and Participation (Lab)	10%
4. Midterm Exam	20%
5. Final Exam	20%
6. Final Group Project	30%

- Homework assignments: To receive possible full credit, homework must be turned in on time at the beginning of class. Five points will be deducted if turned in late.
- Quizzes might be given at the end of each chapter covered.
- Final exam is not cumulative. Make up exam will be given ONLY with prior approval of the instructor. Exams will include material from the readings and from the lecture.
- Group Project: Solar mounted project.

Grading Scale:

A:	Above 90%
B:	80-89%
C:	70-79%
D:	60-69%
F:	below 60%