



IMPERIAL VALLEY COLLEGE

Class Syllabus

Spring 2014

Class title:	RNEW-152 Solar Heating
Instructor:	John Fahim
Phone & E-mail:	Cell: 909-717-3785 john.fahim@imperial.edu
Classroom	1307
Laboratory:	1307

This is a temporary Class Syllabus; the final Syllabus will be posted on the Blackboard by the end of first week of this course.

Class Schedule:

Saturday 08:25 AM – 01:45 PM, January 21 to May 16, 2014

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.

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. Understand and analyze various factors such as solar water and space heating system design, tank and pipe insulation, automatic controls, related water treatment, conservation, standby and distribution losses. (ILO2, ILO4, ILO5)
2. Demonstrate knowledge and critically evaluate and understand various solar collectors, by defining the operation and efficiency of each system. (ILO1, ILO2)
3. Analyze and identifying proper use of balance of system components and materials. (ILO1, ILO2, ILO5)

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 and apply OSHA safety and health standards, Identifying SH safety practices, standards, codes and certification.
2. Identify the laws of thermodynamics and its effects from the sun to understand heat.
3. Utilize solar ovens green house effect to trap heat and cook food.
4. Conducting a site analysis, including water and space heating load analysis.
5. Identifying systems for specific climates and applications.
6. Critically evaluate and understand various solar collectors for water and space heating.
7. Study water treatment basics, space heating, efficiency opportunities, and understand water saving equipment.
8. Critically evaluate and asses longevity of solar thermal equipment, space heating efficiency and water saving devices.
9. Identifying proper use of balance of system components and materials.
10. Understand proper orientation and installation guidelines for solar thermal equipment, space heating efficiency and water saving devices.
11. Identifying common SH systems maintenance and troubleshooting items.

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 and or tardiness.
2. Maximum absences limit is more than two classes' absences after the close of registration (Feb. 01, 2014).
3. A student may exclude (drop) him / herself from further attendance in a class during the semester when absences, after the close of registration (Feb. 01, 2014) and before (Apr. 12, 2014), 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 multiplied 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** (20 points) will be given on Mar. 15, 2014.
- **Final-Exam** (20 points) will be given on May. 10, 2014.
- 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
Papers, Worksheets,	40
Lab activity, hands-on and Fieldtrips.	20
Attendance percentage will be applied to the above points	Percentage of above Points
Mid-term	20
Final-exam	20
Total points	100

Course Grade:

The course grade is based on total points accumulated during the semester. There is a total of 100 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
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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. Please refer to IVC catalog for more information.
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:

Ramlow, B & Nusz, B. (2010). Solar Water Heating--Revised & Expanded Edition, (First/e). New Society Publishers. ISBN: 978-0-86571-668-1

Course Instructional Schedule and Learning Activities:

Date	Objectives
Week 1	<ul style="list-style-type: none">• Class Outline and Rules• Class Safety
Week 2	<ul style="list-style-type: none">• History• Economics of Solar Heating
Week 3	<ul style="list-style-type: none">• Types of Solar Collectors
Week 4	<ul style="list-style-type: none">• Types of Solar Collectors
Week 5	<ul style="list-style-type: none">• System Components
Week 6	<ul style="list-style-type: none">• Mid-Term Review
Week 7	<ul style="list-style-type: none">• Mid-Term
Week 8	<ul style="list-style-type: none">• Solar Water Heating System
Week 9	<ul style="list-style-type: none">• Solar Space Heating System
Week 10	<ul style="list-style-type: none">• Choosing the Right System
Week 11	<ul style="list-style-type: none">• System Installation
Week 12	<ul style="list-style-type: none">• System Operation & Maintenance
Week 13	<ul style="list-style-type: none">• Final Exam Review
Week 14	<ul style="list-style-type: none">• Final Exam

Fieldtrips are being scheduled and may cause changes to the above **Course Instructional Schedule**.

In Case of Emergency:

If you have a life-threatening illness or injury that requires an ambulance, **call 911 immediately**

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.