MEEN 689 (Stacked with MEEN 439)
Solar Energy Engineering
Spring 2017
CLASS INFORMATION
rev. 11/8/2016

HONOR CODE: ***Aggie Honor Code:*** ***"An Aggie does not lie, cheat, or steal, or tolerate those who do."***
Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M University community from the requirements or the processes of the Honor System. For additional information please visit: aggiehonor.tamu.edu/

On all course work, assignments, and examinations at Texas A&M University, the following Honor Pledge is implied regardless if it is preprinted and signed by the student:
"On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work."

INSTRUCTOR:
Dr. Ying Li
EMAIL: yingli@tamu.edu
PHONE NUMBER: 979-862-4465
OFFICE NUMBER: MEOB 322
Office Hours: TBD

TA:
TA's NAME: TBD
TA's EMAIL: TBD
Office Hours: TBD

TEXTBOOK: (Optional) ***Solar Energy Engineering Processes and Systems,*** 2nd Edition, by Soteris A. Kalogirou, Academic Press.

COURSE CONT'T: Introduction to solar energy; solar angles and radiation; solar photovoltaics; solar cell manufacturing; solar thermal systems; solar water heating and space heating; concentrated solar power; solar energy storage; economic analysis.

OBJECTIVE:
1) Build familiarity with the basic concepts in solar energy engineering;
2) Learn principles of various solar energy technologies;
3) Estimate energy needs for solar energy applications and choose the appropriate engineering system and technology;
4) Develop knowledge of engineering analysis for solar thermal and PV systems;
5) Gain insights in issues surrounding solar energy development and use.

GRADING:

MEEN 439		**MEEN 689**	
Homework	15%	Homework*	15%
Quiz	20%	Quiz*	20%
Lab Report	30%	Lab Report	30%
Team Project	35%	Team Project	35%

*Additional or higher difficulty level problems will be given to graduate students

LETTER ASSIGNMENT SCHEME:
$90 \leq A \leq 100$; $80 \leq B < 90$; $70 \leq C < 80$; $60 \leq D < 70$; $F < 60$
Lower bounds may or may not be adjusted to students' advantages.

GRADES CANNOT BE DISCUSSED OVER THE PHONE OR THROUGH AN EMAIL ACCOUNT OTHER THAN YOUR UNIVERSITY ACCOUNT.

TEAM WORK: Homework assignments, lab reports, and team project are expected to be completed through team efforts. Each team should consist of no more than four persons. Undergraduate and graduate students are not allowed in the same team. Each team should identify a name and a team leader. At the end of the semester, there will be a peer evaluation within the team which will also affect the grade earned by each person. Detailed guidelines will be given later in the semester.

HOMEWORK: Three homework problem sets will be assigned during the semester. Students are encouraged to discuss with team members on the homework and only one copy from each team needs to be turned in. Discussion between the teams is, however, prohibited. Homework must be completed in an organized and neat manner. For each problem, list the information given in the problem statement, the assumptions you made, and the unknowns. The solution of the problem should be presented in a logical format. A schematic diagram of the problem should be included. All homework solutions should be legible, and any multiple page assignments should be stapled by the student. Homework must be handed in at the beginning of the class on the due date. LATE HOMEWORK WILL NOT BE ACCEPTED AND WILL BE GIVEN A ZERO GRADE EXCEPT FOR UNIVERSITY APPROVED EXCUSES (see Absence/Waiver Policy).

QUIZ: There will be six open-book quizzes during regular class time. Students are expected to work on the quizzes independently. Students can have one lowest-score quiz dropped.

LAB REPORTS: There will be three hands-on labs. Lab reports are required for each lab. Labs are conducted by team efforts but each individual will conduct his/her own experiments. The report will discuss and summarize the individual and collective findings. Guidelines for labs will be provided later.

PROJECT: There is one project required for each team. The goal of the project is to apply certain solar energy technology to solve practical engineering problems. The assignments of the project include a written proposal, a written final project, and an in-class power-point presentation. Peer evaluations within the team will be conducted, which may affect the project grade for each individual. Detailed guidelines for the project will be given later in the semester.

EXAMINATIONS: There is no exam for this course.

ABSENCES/WAIVERS Work missed due to absences will only be excused for University-approved activities in accordance with TEXAS A&M UNIVERSITY STUDENT RULES (see http://student-rules.tamu.edu/rule07). Please note that job/internship interviews and other discretionary personal travel do not qualify for the excused absence policy. For anticipated excused absences, the student must contact the instructor prior to the absence. In cases where advance notification is not feasible (e.g. accident, or emergency) the student must provide notification by the end of the second working day after the absence. This notification should include an explanation of why notice could not be sent prior to the class. When an Assignment Waiver is issued for a missed homework assignment or quiz, the waiver removes the missed homework or quiz when computing the student's total homework or quiz score. The instructor may give a make-up exam that is different from but at a similar level to the missed exam. The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence. In order to receive a waiver for missed work whether by prior arrangement or unplanned, a student must provide a completed Assignment Waiver request to the instructor. This form is available on the class website. MISSED ASSIGNMENTS WILL NOT BE EXCUSED WITHOUT SUBMITTING A HARDCOPY OF THE SIGNED ASSIGNMENT WAIVER FORM TO THE COURSE INSTRUCTOR.

LATE ASSIGN'TS: Unexcused late assignments will not be accepted.

E-CAMPUS: This course will make use of the eCampus website, ecampus.tamu.edu. All course handouts, homework assignments and solutions, sample exams, project guidelines, grades, auxiliary lectures, and a question forum are available on eCampus. Although you will be able to see your individual scores, you cannot see other students' scores and vice versa.

ADA: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services (disability.tamu.edu) in Room B118 of Cain Hall or call 845-1637.

SEMESTER SCHEDULE MEEN 439/689
SOLAR ENERGY ENGINEERING
Spring 2017

NOTE: Actual Lectures may (and likely will) depart from this schedule. Assignments/exams will be consistent with the actual lecture material.

Week	Topic	Text Coverage	Assignments due
1	Syllabus; Introduction to Solar Energy	Chapter 1; Handouts	
2	Basic principles and terminology; Solar angles	Chapters 1-2; Handouts	
3	Solar Radiation	Chapter 2	
4	**LAB: Measurement of Solar Spectrum**		HW 1 due
5	Solar Photovoltaic	Chapter 9; Handouts	Lab 1 due
6	Solar Photovoltaic	Chapter 9; Handouts	Project Proposal due
7	**LAB: Characterization of Solar Cell Performance**		HW 2 due
8	Solar Collectors and Thermal Analysis	Chapters 3-4	Lab 2 due
9	Solar Water Heating and Space Heating	Chapter 5-6	
10	**LAB: Hydrogen Production from Solar Water Splitting**		HW 3 due
11	Concentrated Solar Power; Energy Storage Systems	Chapter 10; Handouts	Lab 3 due
12	Other Solar Energy Technologies; Economic Analysis	Handouts	
13	Team Project Presentation		
14	Team Project Presentation		Final Project Report due