

Instructor: Xiaohua Li
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Lecture Time: Tu & Th 2:30 p.m.-4:20 p.m. room B190
Office Hours: MW: 3:00 p.m.-4:30 p.m. plus open office policy

Required Textbook: Principles of Sustainable Energy Systems
Frank Kreith and Susan Krumdieck,
ISBN#13:978-1-4665-5696-6, 2014, CRC Press (Taylor & Francis)

Course Description:

3 hours. This lecture & project based summer course will cover the following topics: introduction to sustainable energy, economics of energy generation and conservation Systems, wind energy, capturing solar energy through biomass, fundamentals of solar radiation, photovoltaics, and solar heating and cooling of buildings.

Pre-requisites: MEEN 3110 Thermodynamics II and MEEN 3210 Heat Transfer

Course Learning Outcomes (CLO):

Upon successful completion of this course, students will able to:

1. Understanding the definition, scope and limitation of energy, sustainability and their measures
2. Identify various energy resources: renewable and non-renewable
3. Conduct thermodynamic analysis and energy system analysis
4. Recognize the limits of fossil fuels and fossil energy
5. Estimate the advantage and disadvantage of biomass energy, geothermal energy and hydro power
6. Analyze the potential and obstacles for utilizing solar and wind energy
7. Recognize the potential and obstacles for ocean energy and nuclear energy
8. Identify energy conservation strategies
9. Perform building energy utilization analysis using software

ABET Student Learning Outcomes (SO)

- (a) Ability to apply knowledge of mathematics, science, and engineering
- (d) Ability to function on multi-disciplinary teams
- (e) Ability to identify, formulate, and solve engineering problems
- (f) Understanding of professional and ethical responsibility
- (g) Ability to communicate effectively
- (h) Broad education necessary to understand the impact of engineering solutions in a global and societal context
- (i) Recognition of the need for, and an ability to engage in, lifelong learning
- (j) Knowledge of contemporary issues
- (k) Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

CLO	ABET Student Outcomes (SO)										
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
1	X				X			X		X	
2	X				X			X		X	
3	X				X						
4	X				X			X		X	
5	X				X			X		X	
6	X				X			X		X	
7	X				X			X		X	
8	X				X			X		X	
9	X				X						

Grades: Homework (5)	20%	≥ 90%	A
Quizzes (highest 3/5)	20%	80-89.9%	B
Exam 1	20%	70-79.9%	C
Exam 2	20%	60-69.9%	D
Project & Presentation	20%	< 60%	F
<u>Attendance (5/6)</u>	<u>5%</u>		
Total	105%		

Homework Policy:

1. **“Homework Day”:** **Thursday**. the day new homework will be assigned (HW assignment will be posted in Blackboard) and homework assigned in previous week will be collected;
2. Homework should be turned in on the due day before the lecture starts. **NO late homework will be collected**
3. Definition of **“late”**: when class is over and instructor steps outside the classroom, homework turned in thereafter will be considered as **“late”** and will not be collected
4. Solutions to Homework will be posted in Blackboard after 4:30 pm Thursday
5. Having no textbook is not a valid excuse for not doing homework. It is the student’s responsibility to acquire textbook for his/her study
6. Homework can be turned in earlier than the due day
7. Homework dropped in the instructor’s departmental mailbox will NOT be collected
8. Homework slid through the door into the instructor’s office will NOT be collected
9. Homework dropped into the “homework dropbox” in front of the department door will NOT be collected
10. Homework turned in other than the due day or outside classroom must be turned in to instructor either IN PERSON or through EMAIL.
11. If homework is turned in through email, it should be scanned (or pictured by a smart phone) and emailed to instructor before the class ends (4:20 p.m.)
12. Homework should be stapled, instructor or TA will not be responsible for lost loose homework
13. **Exceptions** (late homework will be collected): medical emergency (student and important ones), transportation/traffic emergency; religious holidays/duty, jury duty and military duty. **Documentary evidences** must be submitted.

Exams and Quizzes:

- (1) Quizzes are open book and open notes
- (2) Exams are open book and open notes.
- (3) **There will be NO make-up quiz, Exceptions:** medical emergence (student and important ones), transportation/traffic emergency; religious holidays/duty, jury duty and military duty. **Documentary evidences** must be submitted.
- (4) **There will be NO make-up exam. Exceptions:** medical emergence (student and important ones), transportation/traffic emergency; religious holidays/duty, jury duty and military duty. **Documentary evidences** must be submitted.

Disability Accommodations: If you need academic accommodations for disability you must have document which verifies the disability and makes you eligible for accommodations, then you can schedule an appointment with the instructor to make appropriate arrangements.

Academic Dishonesty:

There is a zero tolerance policy. Cheating of whatsoever will result in an automatic 'F' in this course and the matter will be turned over to the appropriate student disciplinary committee.

IMPORTANT EXAM DATES

Exam #1: June 30th, 2016, Thursday, 2:30 p.m.-4:20 p.m. room B190

Exam #2 July 26th, 2016, Tuesday, 2:30 p.m.-4:20 p.m. room B190

UNT Official Academic Calendar: Summer 2016 - 10W Term

Date	Event
June 6, 2016	First Class Day
July 4, 2016	Independence Day (no classes: university closed)
August 11, 2016	Last Class Day
August 12, 2016	Finals

Summer Final Exam Schedule

Summer 2016 Final Exams

<i>This session...</i>	<i>Has final exams on this date...</i>
3W1	June 2, 2016
8W1	July 8, 2016
SUM	August 12, 2016
5W1	July 8, 2016
10W	August 12, 2016
8W2	July 29, 2016
5W2	August 12, 2016

Exams will meet at the same time and location assigned to the class unless other arrangements have been made.

MEEN 4110.001 Alternative Energy Sources
Schedule Overview (subject to change)

Week	Lecture Dates	Lecture Topics
#1	Jun. 7 Jun. 9	Overview of syllabus; Introduction to Sustainable Energy Economics of Energy Generation and Conservation Systems
#2	Jun. 14 Jun. 16	Economics of Energy Generation and Conservation Systems (cont.) Fundamentals of Solar Radiation; (Quiz 1: Economics of Energy)
#3	Jun. 21 Jun. 23	Fundamentals of Solar Radiation (cont.) Photovoltaic (Quiz 2: Fundamental of Radiation)
#4	Jun. 28 Jun. 30	Photovoltaic (cont.) Exam #1
#5	Jul. 5 Jul. 7	Solar Heating and Cooling of Buildings Solar Heating and Cooling of Buildings (cont.)
#6	Jul. 12 Jul. 14	Solar Heating and Cooling of Buildings (cont.) Wind Energy (Quiz 3: Solar Heating and Cooling of buildings)
#7	Jul. 19 Jul. 21	Wind Energy (cont.) Wind Energy (cont.)
#8	Jul. 26 Jul. 28	Exam #2: Capturing Solar Energy through Biomass
#9	Aug. 2 Aug. 4	Capturing Solar Energy through Biomass (cont.) Energy Storage (Quiz 4: Biomass)
#10	Aug. 9	Student Final project presentations
	Aug. 11	Student Final project presentations
	Aug. 12	Student Final project presentations; Final Project report due on 11:59 pm Aug 12th 2015, Friday

Document History:

Dr. Xiaohua Li, last updated on 6/5/2016