

<http://www.ece.utk.edu/~tolbert/teaching/ece525/index.htm>

Instructor: Dr. Leon M. Tolbert
Office: Ferris 311
Phone: 974-2881
E-mail: tolbert@utk.edu

Office Hours: M W F, 10 – 11:30 a.m. and by appointment

Class: M W F, 1:25 – 2:15 p.m., 502 Ferris Hall

Final Exam: Wednesday, May 2, 2007, 2:45 – 4:45 p.m.

Required Textbook: Felix A. Farret, M. Godoy Simoes, *Integration of Alternative Sources of Energy*, Wiley-IEEE Press, 2006, ISBN 978-0-471-71232-9.

Optional Textbooks: A. M. Borberly, J. F. Kreider, *Distributed Generation: The Power Paradigm for the New Millennium*, CRC Press, 2001. ISBN 0-8493-0074-6.
Roger Messenger, Jerry Ventre, *Photovoltaic Systems Engineering*, CRC Press, 2000. ISBN 0-8493-2017-8.
Gregor Hoogers, *Fuel Cell Technology Handbook*, CRC Press, 2003. ISBN 0-8493-0877-1.
Mukund R. Patel, *Wind and Solar Power Systems*, CRC Press, 1999. ISBN 0-8493-1605-7.
J. F. Manwell, J. G. McGowan, A. L. Rogers, *Wind Energy Explained*, Wiley, 2002, ISBN 0-471-49972-2.

<i>Grading:</i>	Homework	20%	<i>Course Grades:</i> 90 – 100: A 80 – 89: B 70 – 79: C 65 – 69: D 0 – 64: F
	Paper	20%	
	Midterm	30 %	
	Final Exam	30 %	

Homework:

1. Each assignment is due at the beginning of the class on its due date.
2. No late homework will be accepted under any circumstance. Do not ask for exceptions.
3. Getting help (from other students) or collaborating on homework is encouraged.
4. Use front side of 8 ½” x 11” engineering paper (green ruled paper) only. Staple if there is more than one sheet. Do not fold.
5. Show your work, not just the answer.

Attendance:

1. Attendance is required. Class attendance will be kept.
2. Those with perfect attendance (not missing any classes) will have 2 points added to their final grade for the semester.
3. Being late to class three times will count as 1 absence, and the student will receive no perfect attendance points.
4. Each student is responsible at all times to keep abreast of course procedural announcements, obtain handouts, etc. Students must ask the instructor for graded homework and tests that were previously handed out in classes for which they were absent.

Tests: 1. One closed book, closed notes midterm is scheduled. The **tentative** date is:

Monday, Feb. 26

2. Partial credit will be given solely at the discretion of the instructor.
3. Test grades will only be adjusted if obvious mistakes (totaling of problem scoring) had been made.
4. Make-up for missed tests only given if arranged **in advance**.

Other

Information:

1. Information given in this document is subject to change without prior notice.
2. If you are late or must leave class early, please minimize the disturbance. Class time may be rescheduled during the semester – it is the student’s responsibility to keep up with class meeting times.

Course Description: Energy outlook, interconnection issues of distributed energy resources, efficiency of power production, electric energy conversion and storage. Photovoltaics, fuel cells, wind turbines, microturbines.

Prerequisites: Graduate standing and instructor’s consent.

Course Objectives: Learn the economic, engineering, and societal issues associated with installing, interconnecting, and controlling a diverse array of energy resources.

Topics Covered:

Distributed generation
Interconnection issues
Economic and financial aspects
Photovoltaics
Solar energy
Physics of PV cells
Mechanical and cost considerations
Fuel cells
Types
Operating principles
Wind turbines
Speed and power relations
Microturbines
Electric energy conversion and storage