

## EECE 512x Microgrid and Distributed Energy Integration Spring 2015

<b>Location Time</b>	<ul style="list-style-type: none"> <li>• MWF, 9:40-10:40, Science 2 243</li> </ul>
<b>Instructor:</b>	<p>Zi-Ang Zhang, Assistant Professor  Office: 2317 Eng. And Sci. Building.  Email: <a href="mailto:ziang.zhang@binghamton.edu">ziang.zhang@binghamton.edu</a>  Office Hours: After class, M 2-3PM, or by appointment</p>
<b>Recommended Textbooks and Course Website:</b>	<ul style="list-style-type: none"> <li>• Renewable and Efficient Electric Power Systems   Edition: 2 <ul style="list-style-type: none"> <li>○ Author: Gilbert M. Masters</li> <li>○ ISBN: 9781118140628</li> <li>○ Publication Date: 07/01/2013</li> <li>○ Publisher: Wiley, John &amp; Sons, Incorporated</li> </ul> </li> <li>• Design of Smart Power Grid Renewable Energy Systems   Edition: 1 <ul style="list-style-type: none"> <li>○ Author: Ali Keyhani</li> <li>○ ISBN: 9780470627617</li> <li>○ Publication Date: 08/02/2011</li> <li>○ Publisher: Wiley, John &amp; Sons, Incorporated</li> </ul> </li> <li>• Class website will be on Blackboard which is where announcements, course materials, etc, will be posted.</li> </ul>
<b>Prerequisite:</b>	Power system, control system, Matlab&Simulink
<b>Objective:</b>	Primary focus: Understand working principles and modeling of renewable energy resources; grid-tie battery system and battery state of charge estimation; introduction to the concepts of smart grid, microgrid, as well as demand side management; analysis of integrated renewable energy systems.
<b>Grading:</b>	<ul style="list-style-type: none"> <li>• Homework: 10%</li> <li>• Wiki project 15%</li> <li>• Class project <ul style="list-style-type: none"> <li>○ Report 15% (group members get same grade)</li> <li>○ Presentation: 15% (group members get same grade)</li> <li>○ Teammate evaluation: 5%</li> </ul> </li> <li>• Exam: #1: 20%, Exam: #2: 20%. (closed book)</li> </ul>

### Academic Integrity Policy

Violations of academic integrity will not be tolerated. They will be dealt with as described in the Watson School Academic Integrity Policy, at

<http://www.binghamton.edu/watson/about/fast-facts/academic-honesty.html>

Note: the price you paid for cheating is extremely high.

Originality of your report will be checked by [Turnitin](#).

### **Tentative Schedule**

Week	Topic	Wiki Project	Class Project
1	Introduction	Announce topics	
2 (Feb)	Review of power system	Select topic	Announce topics
3	Solar power		
4	Solar power, wind power		Team sign-up
5	Wind power	Submit page	
6 (Mar)	Energy storage	Peer-review sign-up	Presentation 1
7	Energy storage, Exam 1		
8	Energy market	Submit review	Presentation 1
9	Energy market		Presentation 1
10 (Apr)	Demand response	Submit revised page	Half report due
11	Spring break		Presentation 2
12	Optimal power flow		Presentation 2
13	Grid-tie converter		Presentation 2
14(May)	FACTS/HVDC		
15	Power system stability		Final report
16	Exam 2		