

EECE 512x Microgrid and Distributed Energy Integration

Fall 2016

Location Time	<ul style="list-style-type: none"> • MWF, 9:40-10:40AM, Student Wing 107
Instructor:	<p>Zi-Ang Zhang, Assistant Professor Office: 2317 Eng. And Sci. Building. Email: ziang.zhang@binghamton.edu Office Hours: TBD</p>
Recommended Textbooks and Course Website:	<ul style="list-style-type: none"> • Design of Smart Power Grid Renewable Energy Systems Edition: 1 <ul style="list-style-type: none"> ○ Author: Ali Keyhani ○ ISBN: 9780470627617 ○ Publication Date: 08/02/2011 ○ Publisher: Wiley, John & Sons, Incorporated • Renewable and Efficient Electric Power Systems Edition: 2 <ul style="list-style-type: none"> ○ Author: Gilbert M. Masters ○ ISBN: 9781118140628 ○ Publication Date: 07/01/2013 ○ Publisher: Wiley, John & Sons, Incorporated • Class website will be on Blackboard which is where announcements, course materials, etc, will be posted.
Prerequisite:	<p>Fundamental knowledge of power systems Comfortable with Matlab & Simulink</p>
Objective:	<p>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 grids, microgrid, as well as demand side management; analysis of integrated renewable energy systems.</p>
Grading:	<ul style="list-style-type: none"> • Homework: 10% • Writing Project: Living Building Analysis 15% • Programming Project: Microgrid Modeling in Matlab/Simulink 35% <ul style="list-style-type: none"> ○ Report 15% (group members get the same grade) ○ Presentation: 15% (group members get the same grade) ○ Teammate evaluation: 5% • Exam: #1: 20%, Exam: #2: 20%. (closed book)

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.

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

Tentative Schedule

The week of	Lecture topics	Writing Project	Programming Project
8/22 (1 class)	Introduction		
8/29	Review of power system and Matlab/Simulink	Announce the topic	
9/5	Solar power		
9/12	Solar and Wind power		
9/19	Wind power	Submit draft	
9/26	Demand response	Peer-review sign-up	Announce topics
10/3	Exam 1		
10/10	Grid-tie converter	Submit review	Group sign-up
10/17	Microgrid		
10/24	Microgrid	Submit revised writing	
10/31			Presentation 1
11/7	HVDC/FACTS		
11/14	Energy market		Half Report Due
11/21	Power system stability		
11/28	Exam 2		
12/5 (3 classes)			Presentation 2
12/12			Report Due