

ECE 697SG/ECE597SG SMART GRIDS

INSTRUCTORS:

Lectures Professor Krishna Kishore Nudurupati, Marcus 8C, knudurupati@umass.edu

Office Hours: Mondays and Wednesdays 3:00 to 3:45 PM (or by e-mail) Marcus 8C

COURSE FORMAT

Lectures 4:00 to 5:15 PM Mondays and Wednesdays @Elab 305

DESCRIPTION

The course addresses developments in Evolving Developments in Grids to Smart Grids, including: Smart Grid Definition, Components, Communication protocols and Infrastructure, Distributed Automation, Smart Meters, Smart Devices, Distributed Energy Resources and integration challenges, Microgrids, Energy storage, Electric transportation, Data Analytics for grid Operations, Restructured Electric Supply.

PRE-REQUISITES

Knowledge of circuit analysis, basic calculus and differential equations, elementary matrix analysis and basic computer programming and desirable to have a knowledge of Power System Analysis.

TEXTBOOK

**Text Smart Grid Redefined Transformation of the Electric Utility
by Mani Vadari (Author) ARTECH HOUSE**

TENTATIVE LECTURE PLAN

Sl No.	Month	Dates	Topic	Book Chapter
1	Jan	22,27	Power System Fundamentals	1
2	Jan	29	Electric Utilities	1
	Feb	3		
3	Feb	5,10	Grid Modernization	2
4	Feb	12	Communications	2
5	Feb	18,19	Advanced Metering Infrastructure	2

6	Feb	24,26	T & D Automation	3
7	Mar	2,4	Energy Storage	4
8	Mar	9	Mid Exam	
9	Mar	11,23	DER + Renewable Integration	5
10	Mar	25,30	Microgrids	6
11	Apr	1,6	Data Analytics plus Advanced Decision Support Systems	7
12	Apr	9,13	Electric Transportation	8
13	Apr	16,22	Smart Homes and Buildings	9
14	Apr	27	Demand Response	9
15	Apr	29	Summary	