

Advanced Topics in Electrical Engineering: Smart Grid

Lecture Syllabus

Lecturer Information

Dr. David Wenzhong Gao, Professor of Electrical Engineering
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Course Contact and Administrative Professor

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Class Meeting Times: March 24 2022 till June 22, 2022

Every Thursday 5:10 PM – 6:40 PM Augsburg Time (9:10 AM-10:40 AM USA Mountain Time)

Class Meeting Zoom Link:

<https://udenver.zoom.us/j/9040102866>

Catalog Data: This course introduces the current and future sustainable electrical power systems. Fundamentals of renewable energy sources, microgrids, smart grids are discussed. Interfaces of the new sources to the utility grid are covered.

Contact Hours: 26

Levels: Undergraduate

Lecture Topics: (Subject to adjustment)

Topics	Date
Lecture 1: Introduction, Electric Power Grid, Conventional Generation	3/24/2022
Lecture 2: Solar Resource	3/31/2022
Lecture 3: Photovoltaic characteristics, modeling and PV Systems	4/7/2022
Lecture 4: Wind Power Systems I	4/14/2022
Lecture 5: Wind Power Systems II	4/21/2022
Lecture 6: Introduction to Microgrids	4/28/2022
Lecture 7: Microgrid control and Operation I	5/5/2022
Lecture 8: Microgrid control and Operation II	5/12/2022
Lecture 9: Power Converter for Microgrids	5/19/2022
Lecture 10: DER/Microgrid Interconnection	5/26/2022
Lecture 11: Microgrid design/Planning	6/2/2022
Lecture 12: Introduction to Smart Grids	6/9/2022
Lecture 13: Introduction to Electric Power Economics for Smart Grids	6/16/2022

*Note: All information given in this document may be subject to change.