



# Wind Energy Class Offering at the Illinois Institute of Technology

**Dr. Zuyi Li**  
**Electrical and Computer Engineering Department**  
**Illinois Institute of Technology**

September 30, 2010

## Course Overview

- Course Name: Elements of Sustainable Energy
- Focus on the integration of wind energy into electric power systems
- Enrollment: 37
  - 28 on-site, 9 internet (Minnesota, Tennessee)
  - 33 master students, 4 PhD students
  - 30 full-time students, 7 part-time students

# Course Schedule

Week 1	August 24	Introduction to Sustainable Energy
Week 2	August 31	Renewable Energy Technologies
Week 3	September 7	Variability of Renewable Energy
Week 4	September 14	Operational Issues of Renewable Energy (1)
Week 5	September 21	Operational Issues of Renewable Energy (2)
Week 6	September 28	Operational Issues of Renewable Energy (3)
Week 7	October 5	Planning Issues of Renewable Energy (1)
Week 8	October 12	Planning Issues of Renewable Energy (2)
Week 9	October 19	Planning Issues of Renewable Energy (3)
Week 10	October 26	<b>Exam</b>
Week 11	November 2	Other Issues Related to Sustainable Energy (1)
Week 12	November 9	Other Issues Related to Sustainable Energy (2)
Week 13	November 16	Other Issues Related to Sustainable Energy (3) Presentation of Research Paper (1)
Week 14	November 23	Presentation of Research Paper (2)
Week 15	November 30	Presentation of Research Paper (3)
Week 16	Final Exam Week	Research Paper Due

# Course Outline

## ■ Introduction

- Sustainability
- Wind energy development
- IIT's activities related to sustainable energy

## ■ Renewable Energy Technology

- Wind power conversion
- Wind turbine technology

## ■ Variability of Renewable Energy

- Quantify wind power variability
- Wind power and net load
- Wind power forecasting

## ■ Operational Issues

- Regulation and reserve requirement change
- Impact on unit commitment and economic dispatch
- Interaction with electricity market

## ■ Planning Issues

- Capacity value of wind units
- Transmission planning

## ■ Other Issues

- Wind integration study
- Demand response