ONR/NSF-sponsored Workshop:

Electric Energy Systems Curriculum for Sustainability

Napa, California
February 7-10, 2013
Project Mission:

• Develop a Complete Curriculum in Electric Energy Education

• Enable *all* universities to
  - Provide a first-rate education *and*
  - Graduate students in large numbers
Undergraduate Curriculum -

Only 3 Senior Electives

Complementary Courses:
- Analog/Digital Control
- DSPs, FPGAs
- Communication
- Programming Languages
- Policy Issues

Students are Broadly Trained.
Courses Developed

- Fundamentals-based
- Integrated
- Using commonality
  - in-depth coverage
  - more topics
- State-of-the-art labs
Welcome
Welcome to CUSP™, the Consortium of Universities for Sustainable Power. This consortium will include universities that have come together to utilize, collectively evolve and promote the curriculum developed at the University of Minnesota – Twin Cities with the help of funding from various organizations including NSF, ONR (Office of Naval Research), NASA and EPRI.

Available Courses

Join Now!!
Become a member and get access to all the resources. Joining is easy - fill an online request here.

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Each course consists of the following:

1. List of Course Learning Objectives
2. Textbook
3. Video clips for each lecture:
   - approximately 30 such video clips
   - average of 15-minutes long
   a. Captions
   b. PowerPoint Slides
   c. Concept Quizzes
4. In-class discussion problems
5. Hardware Lab + Manual
7. Online Homework Problems using Moodle
8. A Discussion Forum

You are free to use as much of it, or as little of it, and use it in a way that you want it – not necessarily how we use it.
Uniqueness of Our Approach

• Force Multiplier:
  – Aimed at faculty to provide all the resources that are needed
  – Teaching the Teachers!

• Archiving Institutional Knowledge:
  – Reaching out to best experts in the world

• Evolving these Courses to keep them Current:
  – Consortium of 165 Universities
Undergraduate Courses on CUSP™
(www.cusp.umn.edu)

1. Power Electronics and Lab
2. Power Systems and Lab
3. Electric Machines and Drives; Lab
Graduate Courses under Development

1. Graduate Course on Power Electronics (collaborative effort)
2. Graduate Course on Power Systems (collaborative effort)
3. HVDC Transmission Systems (Ani Gole)
4. Electric Machines and Drives: Modeling and Control (Ned Mohan)
5. Power Generation, Operation and Control (Bruce Wollenberg)
6. Designing Electric Machines (Jim Hendershot)
7. Power System Protection (Pratap Mysore)
8. Wind Energy Essentials (collaborative effort)
9. Electricity Markets (Ross Baldick)
10. ?
11. ??
12. ???