

Center for Power Systems Studies -- Annual Meeting
COORDINATOR'S REPORT
October 18, 2005

To: Members of Center for Power Systems Studies
Associate Members of Power Systems Studies
All those in attendance at this meeting

The Center for Power Systems Studies is entering into its 38th year of operation. Below is a summary of some of the past years power-related activities and events, since the semiannual meeting.

I. Summer 2005: Faculty and Student Summer Projects/Research Update

Hietpas

- a. As Electrical Engineering Coordinator worked on orientation with students during June and part of July.
- b. Supervised one graduate student on the development of a 4-quadrant DC power electronic motor drive, implementing/integrating dSPACE hardware/software systems within the design of the feedback control compensation.
- c. Took 12 students on the power technology tour in mid August.
- d. Conducted a two-day workshop for CoEV (Watertown) on power electronics.

Ropp

- a. Made a reconnaissance trip to Wrangell-St. Elias NP in preparation for a student trip to install PV during May of 2006
- b. Worked on establishing a new WRAN site, on a West Central Electric Coop tower, which went into full operation on September 9. We anticipate adding at least three more WRAN sites by the end of this year, possibly including another East River tower.
- c. Lead project on the recent EPSCoR submission from SD was a PV project: "Third-Generation Photovoltaic Devices Based on Spectral Up- and Down Conversion". Development of that proposal went on during the summer, and the proposal was submitted in mid-September.
- d. Worked with Sandia Nat'l Labs on distributed generation topics, including development of computer models for inverters, and research in support of the development of standards IEEE-1547 and IEC-62116.

II. Fall 2005: Power-Faculty Course Update

Hietpas

1. EE221 (3 cr) *Circuits II*, 10 students
2. EE430 (3 cr) *Energy Conversion*, 27 students

Ropp

1. EE320 (3 cr) – *Electronics I*, 25 students
2. EE464 (2 cr) – *Senior Design I*, 16 students

III. Fall 2005: Scholarship Activity Update

Recipients for Fall 05

Seniors	Juniors	Sophomore	Freshmen
Jack Winter	Austin Hoekman*	Corey Kramer	Winne Michael
	Lowell Dolney	Pat Cisar	
		Trevor Howard	
		Molly Houck	

* Indicates recipient of the \$3000 Center for Power Systems Studies Award

Spring 06 applications are being submitted within the next six weeks.

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IV. Status of Power Students

a. Spring 2005 Power Graduate Update

Student	Place of Employment
Justin Dewald	Rockwell Collins
Jesse Walter	Cannon Technologies (Minneapolis)

Of 10 students that graduated in the spring, 1 declared power as their career path, which is 10% of the graduating seniors. From spring 2000 to present, 19 of 98 (approximately 19%) of SDSU EE graduates either obtain or pursue a career in power.

b. Returning Power Students -- Summer Intern Update (2005)

Student	Est. Grad. Date	Place of Employment
Daniel McMahon	F05	WAPA, Huron
Wes Wingen	S06	Energy Maintenance Service, Gary, SD
Jerad Johansen	S06	Alliant Techsystems, MN
Chris Iverson	S06	Daktronics
Josh Grabow	S06	Daktronics
Doug Larson	S06	Dr. Mike Ropp
Tanner Knecht	S06	MidAmerican Energy, Council Bluffs Energy Center
James Galipeau	F06-S07	Center for Advanced Applications on the Nano Scale, SDSU
Jack Winter	F06-S07	WAPA, Huron
Austin Hoekman	F06-S07	Sioux Valley Energy
Lowell Dolney	F06-S07	Daktronics
Pat Cisar	F06-S07	Journeymen Electrician, Sioux Falls
Cody Anderson	F06-S07	Brookings Municipal
Molly Houck	S07-F07	WAPA, Watertown
Trevor Howard	S07-F07	Central Power Electric Coop Minot ND
Derek Bryant	S07-F07	Daktronics
Michael Winne	S08-F08	Cruse Coin Amusements
Corey Kramer	S08-F08	Sioux Valley Hospital

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V. Review of CPSS Impact

The student interest in the power area remains at a healthy level, but the overall number of students in Electrical Engineering is not strong, but holding at about 20 graduating students a year. The primary activities which seem to have the greatest impact on attracting students to the power area are **CPSS scholarships** and **Internship opportunities**. Students further into program become more interested when they either attend the **Annual Banquet**, the **Biannual Regional Power Conference**, or the **Power Technology Tour**. Lastly, once a student is fairly certain they have made a choice towards a career in power, they are further attracted through a **CPSS-Sponsored Design Project** and **Power Systems Analysis (EE434)**.

VI. Positions in Power Industry

In the last two months the following companies have contacted us to post positions on our EE website and are actively seeking to fill full-time engineering positions within their company.

- i. Black Hills Power
- ii. Interstates Company
- iii. NorthWestern
- iv. Minnesota Power
- v. Heartland Consumers
- vi. Electrical Consultants
- vii. Cannon Technologies
- viii. Power Engineers

VII. Other scholarly/research activities related to power

a. Hietpas

1. Serves on the paper review committee for IEEE Rural Electric Power Conference.
2. Serves on the review committee of IEEE Transactions on Industrial Applications associated with the Rural Electric Power Conference.
3. Senior Design project involving a DC to AC inverter for a fuel cell converter.
4. Advising two graduate students on activity involving the development of power electronic drives and the development of dSPACE rapid-prototype system software.
5. Will assume responsibilities for the Wind Resource Assessment Network on Nov. 1, 2005.

b. Ropp

1. Actively working on the NSF-CAREER award for the next several years
2. Advising five power-related graduate student projects (renewable energy topics)
3. Will be presenting to the MiPSyCon on the subject of nuclear vs. renewable generation
4. Serves on the review board for IEEE-1547.

Respectfully submitted,

Steven M. Hietpas, Ph.D.
Coordinator, Center for Power Systems Studies