

Center for Power Systems Studies -- Annual Meeting
COORDINATOR'S REPORT
September 17, 2003

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

The Center for Power System Studies is entering into its 36th year of operation. Below is a summary of some of the past years power-related activities and events, since the semiannual meeting.

I. Faculty and Student Summer Projects/Research Update

- a. The Spring Power Technology Tour was moved from May to August this summer. The course is limited to 10 students and we had 3 on the waiting list. After 1655 miles and 12 tour sights, the students were ready to get back to Brookings and prepare themselves for school. On a scale of 10, students rated the tour at an average of 8.2 (in years past the average has always been between 7.9 up to 9.0), which indicates that it was successful. The average stipend provided to students through the CPSS was \$260.
- b. Justin Morrill, who was instrumental in the design and construction of the Energy Lab during the summer of 2002, worked for the department again this last summer. He did spend some time performing fine-tune calibration on all six Automated Load Banks and the Power Workstation Benches.
- c. Under Steve Hietpas supervision, three graduate students worked on power electronic motor drives this summer. On August 22, through help from the CPSS funds, these graduates students spent a day at the Electric Drives Laboratory at the University of Minnesota working with graduate students of Dr. Ned Mohan, in learning finer points of dSPACE Software. This software is design to help in the rapid prototyping of power electronics, motor drives, and other control systems. CPSS funds supplemented these student's income for the summer.
- d. Mike Ropp worked on power electronics designs for Daktronics. Mike also tended to the development of the WRAN sites.
- e. Steve Hietpas worked for the electrical engineering department on the ABET Self-Study Report and also with student orientation during the summer months. In July, worked on the design and testing of a motor drive and data acquisition system for the Dennis Helder's Ethanol project. In June, as an invited speaker, presented at an NSF Workshop for Faculty in the Area of Power Electronic and Electric Drives (Minneapolis, MN).

II. Power-Faculty Course Update

a. Steve Hietpas

Summer

1. EE492 (1 cr) *North Central States Power Technology Tour*, 10 students

Fall

1. EE221 (3 cr) *Circuits II*, 15 students
2. EE420 (3 cr) *Advanced Electronics III*, 12 students
3. EE430 (3 cr) *Energy Conversion*, 24 students
4. EE492 (1 cr) *Ethanol Project*, 1 student
5. EE692 (3 cr) *Special Topics in Motor Drives*, 1 graduate student

b. Michael Ropp

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Fall

1. EE492/592 (3 cr) – *Renewable Energy and Photovoltaics*, 24 undergraduate and 10 graduate students
2. EE320 (3 cr) – *Electronics I*, 15 students
3. EE464 (1 cr) – *Senior Design I*, 27 students

III. Scholarship Activity Update

Scholarship offerings are provided at the:

- Freshmen level (less than approximately 50 credits completed)
- Sophomore level (less than approximately 80 credits completed)
- Junior level (less than approximately 110 credits completed)

a. Recipients for Fall 03

Seniors	Juniors	Sophomore	Freshmen
Jonathan Kennedy	Daniel McMahan	Wes Wingen	Corey Kramer
Mike McBride	Adam Fenski		
Nate Jones	Jesse Walter		
Paul Woodruff	Justin Dewald		
Justin Brech			

Spring 03 applications are being submitted within the next few months.

IV. Status of Power Students

a. Spring 2003 Power Graduate Update

Student	Place of Employment
Adam Graff	Cannon Technologies (Sioux City)
John Weber	Missouri River Energy Services
Jeffrey Renken	TSP (formerly Spitznagel), Sioux Falls
Jesse Moser	Returned to graduate school (SDSU)
Sudeep Pyakuryal	ECI, Billings, MT

Of 11 students graduating in the spring, 4 have declared power as their career path, which is 36% of the graduating seniors. From spring 2000 to present, 18 of 88, or 20.4% of SDSU EE graduates have either obtained or are pursuing a career in power.

b. Returning Power Students -- Summer Intern Update

Student	Place of Employment
Nate Jones	Brookings Municipal Utilities
Jon Kennedy	MTR. Brookings
Kevin Doe	Bonestroo and Associates, St. Paul
Justin Dewald	Fischer Electric
Adam Fenski	Summer Student, Ethanol Project (under Helder/Hietpas)
Wes Wingen	Energy Maintenance Service, Gary, SD
Jack Winter	Unknown
Mike McBride	Summer Student, Daktronics
Paul Woodruff	Rochester Public Utilities
Daniel McMahan	Unknown
Jesse Walter	Unknown
Robert Soper	Unknown
Michael Runck	Unknown

V. Review of CPSS Impact

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- a. The student interest in the power area remains at a healthy level. Certainly this is a result of the various activities afforded through the support of CPSS members. Those activities which likely have the greatest impact on attracting students to the power area are:
 - i. CPSS scholarships
 - ii. Internship opportunities
 - iii. Design projects relating to electric power area and power electronics
 - iv. Special Speakers (Annual Banquet), Field Trips and the Power Technology Tour.
 - v. The Minnesota Power Systems Conference and Regional Power Conferences.
- b. It is important that the CPSS members develop a strong internship program to provide internships to the power students. Over the last few years, a sampling of companies that have most recently provided internships are:

Brookings Municipal, Nebraska Public Power District, WAPA, MidAmerican Energy, Missouri River Energy Services, Interstates Electric, DGR

Going back further into the records, a majority of the CPSS membership has been able to offer an internship position. Would like to work more closely with each company and their personnel (HDR) in January/February.

VI. Other scholarly/research activities related to power

a. Steve Hietpas

1. Serve on the paper review committee for IEEE Rural Electric Power Conference.
2. Serve on the review committee of IEEE Transactions on Industrial Applications associated with the Rural Electric Power Conference.
3. Becoming more involved with NSF Sponsored Workshop for Faculty on "Teaching Power Electronics and Electronic Drives"
4. Continuing the Senior Design project involving a bidirectional AC<->DC power converter.
5. Advising between four and five graduate students on activity involving the development of power electronic drives and the development of dSPACE rapid-prototype system software.

b. Michael Ropp

1. Gearing up for work on the NSF-CAREER award for the next five years
2. Initiated a new photovoltaics project in Yellowstone park, to be installed in summer 2004, and acquired the PV array for the project (paid for by an UNPEPP grant). The PV array is 7.6 kW, and the modules are in the Park at present.
3. Continue four power-related graduate student projects (renewable energy topics).
4. Continue to operate the Wind Resource Assessment Network.

Respectfully submitted,

Steven M. Hietpas, Ph.D.

Coordinator, Center for Power System Studies