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November 16, 2012

To: Matt O'Donnell, Dean, College of Engineering

From: Gary Farris, Interim Dean

Rebecca Aanerud, Associate Dean for Academic Affairs

RE: Review of the Department of Electrical Engineering (2011-2012)

This memo outlines the recommendations from the review of the Department of Electrical Engineering. Detailed comments on the program can be found in the documents that were part of the following formal review proceedings:

- Charge meeting between review committee, department, and administrators (November 3, 2011)
- Electrical Engineering self-study (February 3, 2012)
- Site visit (May 21-22, 2012)
- Graduate & Professional Student Senate Report (May 25, 2012)
- Review committee report (June 9, 2012)
- Electrical Engineering response to the review committee report (October 1, 2012)
- Graduate School Council consideration of review (November 1, 2012)

The review committee consisted of:

Francois Baneyx, Professor, UW Chemical Engineering (Committee Chair)
Dan Weld, Professor, UW Computer Science & Engineering
Gary S. May, Dean, College of Engineering and Professor, School of Electrical and
Computer Engineering, Georgia Institute of Technology
Bill Samaras, Principal Engineer, Datacenter and Connected Systems Group, Intel
Corporation

The department offers the Bachelor of Science in Electrical Engineering, Master of Science in Electrical Engineering, and the Doctor of Philosophy degrees.

A subcommittee of the Graduate School Council presented findings and recommendations to the full Council at its meeting on November 1, 2012. After discussion, Council recommended continuing status for the department's degree programs, with the next review to be scheduled for the 2021-2022 academic year. Specific comments and recommendations regarding the department and its degree programs include the following:

Program Strengths

- Leadership of the current chair, whose actions since assuming the position in September, 2011, have proven effective and were listed first among the strengths of the department by the review committee;
- Undergraduate program that demonstrates a strong competitive admissions record, a well-design track system serving breadth and depth in the curriculum, strengths in undergraduate research and industrial co-op, and good gender diversity;
- Professional master's program that has had strong enrollment since its inception in 2008 and is well-designed and administered, serving the professional community and providing revenue to the department;
- World-class research in the department, with junior faculty among those receiving awards;
- A sustainable energy research focus that is well-conceived and successful;
- Department staff with a collegial workplace atmosphere.

Challenges & Risks

- Two of three primary research areas are not as clearly conceived or established as the sustainable energy area noted under strengths;
- Administrative decision-making regarding a wide array of matters lacks transparency, and assistant professors and graduate students are negatively impacted by a lack of clear communication about budget, space, and other resource allocations;
- Culture of segregated silos that impedes collegiality and inclusion in governance;
- Departmental facilities in the Electrical Engineering Building impede efforts to foster greater interaction and collegiality (with a building described as sterile, disorienting, and lacking in the incidental spaces that foster community interaction);
- Specific challenges within the undergraduate program: career development and job placement, curricular gaps caused by faculty leaves or attrition, a need for curricular updating to address emerging areas within electrical engineering, and TA effectiveness;
- Processes governing the graduate program cause anxiety and confusion among the students—from admissions to advisor assignments, assistantship assignments, and research opportunities, students feel ill-informed and frustrated;
- Lacking diversity in terms of under-represented minorities among students, faculty, and staff;
- Undergraduates are not tracked after graduation, posing problems for assessment of program effectiveness as well as development.

Areas of Concurrence

The department fully embraced the observations and recommendations of the review committee. In many instances, the department's response to the committee report articulates that substantive

steps have already been taken towards the recommendations, and in some cases the department has gone beyond the recommendations of the committee.

- The department is already at work investigating an integrated BS-MS and will address some committee concerns within that effort, especially the planning of a new curriculum;
- The department is part way through the process of redefining its strategic research areas in line with the committee recommendations;
- Policies regarding faculty leave and the curricular priorities within hiring practices are being updated;
- Exit interviews, job fairs, and social networking have been implemented for graduating seniors;
- The annual faculty retreat faculty focused on departmental culture and effective communication, and a new format of faculty meetings has been implemented;
- The department has enlisted the aid of the college in hiring a professional consultant to assist with facility issues;
- A professional advisory board has been established to help with curriculum and development;
- Steps are being taken to improve diversity, which is recognized as a long-standing challenge in the field.

Areas of Disagreement

There are no notable areas of disagreement between the review committee report and department response.

Graduate School Council Recommendations

The Council endorses the review committee's findings and recommendations, and it wishes to express support for the department's current and anticipated efforts to address the challenges and risks articulated as part of the review. In addition, the Council encourages the department to give special attention to the following:

- *Student recruitment and funding*: continue efforts to improve graduate student recruitment, including the recent commitment to multi-year funding for incoming students;
- *TA training*: assure appropriate training for graduate student employees, especially those who will interact with students in the classroom;
- *Collaboration with CSE*: continue to pursue effective engagement with colleagues in Computer Science & Engineering;
- *Curricular updating*: assure an ongoing process for updating the curriculum to include emerging areas in the field;
- *Interim report*: an interim internal review by the College of Engineering should occur as recommended by the review committee and agreed to by the department. Justification for this recommendation was the rapid changes taking place in the discipline. Interim assessment and review by the college may include an annual report to the Dean by the newly constituted Advisory Board.

The Council recommends continuing status for all the Department of Electrical Engineering degree programs, with review in 10 years (2021-2022).

We concur with the Council's comments and recommendations.

cc: Ana Mari Cauce, Provost
Douglas J. Wadden, Executive Vice Provost
Debbie Wiegand, Assistant Dean, Undergraduate Academic Affairs
Vikram Jandhyala, Chair, Electrical Engineering
Members of the Electrical Engineering Review Committee
Members of the Graduate School Council
David Canfield-Budde, Academic Program Specialist, The Graduate School
GPSS President