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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 Aeronautics and Astronautics (2011-2012)

This memo outlines the recommendations from the review of the Department of Aeronautics and Astronautics. 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 (October 13, 2011)
- Aeronautics & Astronautics self-study (November 23, 2011)
- Graduate & Professional Student Senate Survey Report (January 26, 2012)
- Site visit (January 30-31, 2012)
- Review committee report (April 12, 2012)
- Aeronautics & Astronautics response to the review committee report (May 22, 2012)
- Graduate School Council consideration of review (November 1, 2012)

The review committee consisted of:

Per G. Reinhall, Professor and Chair, UW Mechanical Engineering (Committee Chair)
Robert Holzworth, Professor, UW Earth & Space Sciences
Mark I. Goldhammer, Chief Aerodynamicist, Boeing Commercial Airplanes
John Sullivan, Professor, School of Aeronautics and Astronautics, Purdue University

The department offers the Bachelor of Science in Aeronautical & Astronautical Engineering, Master of Science in Aeronautics & Astronautics (M.S.A.A.), Master of Aerospace Engineering, and Doctor of Philosophy (Ph.D.).

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

- *Undergraduate Program.* The review committee expressed high praise for the undergraduate program. Students have access to excellent world-class, hands-on laboratories, including the Kirsten Wind Tunnel and the Lamborghini Advanced Composites Structures Laboratory. Students in the senior capstone design courses learn project management and organizational skills in addition to technical skills. The students voiced a high degree of satisfaction with the program;
- *Certificate Program in Aircraft Composite Structural Analysis and Design.* Approximately 275 Boeing engineers have completed this program. The program is limited to Boeing employees because the course materials are proprietary to Boeing;
- *Plasma Physics Group.* Faculty in this group are all internationally recognized experts, with excellent records in external funding and scholarly publications;
- *Junior Faculty.* The review committee was impressed by the enthusiasm and technical caliber of the Assistant and Associate Professors. These faculty are rejuvenating the controls area and forming strong interdisciplinary ties to other departments in the College of Engineering;
- *Online Master's Program.* The department's online master's program is doing well, and its delivery format is being updated to make use of more contemporary educational delivery methods.

Challenges & Risks

- *Partnering with Local Industry.* The most overwhelming concern of the review committee was for the department to improve its partnering with local industry, particularly to make better use of the concentration of aircraft and aerospace companies that exist in the Pacific Northwest. Specific issues include better utilization of an industrial advisory board, leveraging connections to Boeing and the local civilian space companies, filling the Boeing Endowed Professorship, and making effective use of local industrial experts as affiliate faculty.
- *Growing the Faculty.* The department faces a large number of potential retirements over the next decade. This may adversely impact a faculty group that is fractionated across the major areas of aeronautics, astronautics, and plasma physics. The department will be challenged to grow and integrate existing faculty, foster increased interdisciplinary collaboration, and give close attention to a strategic plan for faculty hiring.
- *Increasing Departmental Communication.* Improved engagement with students and staff would give these groups more voice in departmental direction, and improved communication would also enhance the opportunities for collaboration across groups.

Areas of Concurrence

The department response was in concurrence with the major review committee recommendations. The department and the review committee both agreed that the most pressing issue was the development of improved industrial relations which would make better use of the local strengths in these areas.

Graduate School Council Recommendations

The Graduate School Council commends the Department of Aeronautics and Astronautics for its strong educational and research programs. It endorses the review committee recommendations and the department's active response to the recommendations. The Council encourages the department to give special attention to the following:

- More aggressively and explicitly engage local industry;
- Increase cohesiveness and collaboration, both within and outside of the department, with the goal of fostering larger scale research projects across groups, maintaining the department's technical edge, and keeping its educational program vibrant.

The Council recommends continuing status for all the Department of Aeronautics and Astronautics 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
John Sahr, Associate Dean, Undergraduate Academic Affairs
James C. Hermanson, Chair, Aeronautics and Astronautics
Members of the Aeronautics and Astronautics Review Committee
Members of the Graduate School Council
David Canfield-Budde, Academic Program Specialist, The Graduate School
GPSS President