



UNIVERSITY OF WASHINGTON

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April 23, 2002

To: Lee Huntsman  
Provost

From: Marsha Landolt   
Dean and Vice President

Re: Department of Aeronautics and Astronautics Program Review

*Summary and recommended action*

At its meetings of December 7, 2001 and January 24, 2002, the Graduate School Council met with members of the Department of Aeronautics and Astronautics review team, the Chair of the Department, and the Associate Dean of the College of Engineering. The Council commended the effectiveness of the Chair in shepherding the Department through a challenging time of transition. Members noted that the program has hired dynamic new faculty who promise to rejuvenate a wider arena of externally funded research activity. The Council recommended continuation of all degree programs in the Department, with its next review in ten years (2011).

I concur with the Council's recommendations and comments. The self-study, report of the review committee, and departmental response are attached.

*Background*

The Department of Aeronautics and Astronautics is one of the United States' original aerospace engineering departments. The program's first baccalaureate degree was granted in 1930, and in the ensuing 30 years it developed its Master of Science, Master of Engineering and Ph.D. programs. The Department currently enrolls 72 graduate students, including 55 full-time residential students and 17 part-time students working full-time in industry. There are typically 100 junior and senior undergraduate students enrolled in the program; 45-50 baccalaureate degrees are awarded annually. Approximately 20 faculty members are associated full-time with the Department.

At the time of the last review (1991), the Department lacked clear direction and productivity. The principle concerns listed by the 1991 review committee concerned the need for vigorous leadership, a strategic plan, and enhanced research productivity. The committee found a

complacent faculty, criticized by some graduate students as not providing the research environment needed for success. Research productivity was viewed as imbalanced, with the majority of funded work residing in the Plasma Physics facility.

The 2001 review team and the Graduate School Council concurred that the current chair, Adam Bruckner (appointed in 1998), is proving to be the vigorous leader envisioned by the 1991 review committee. A strategic plan has been adopted that identifies three research areas: Aircraft Systems, Space Systems, and Energy Systems. The Department has begun to bring in new faculty with an eye to fulfilling its strategic plan. Research funding is anticipated to double within the next 5-7 years, with major contributions expected from these new hires. As a result of these and other developments, the Department is now seen to be on a positive trajectory.

This positive direction does not guarantee future success. The review team and Graduate School Council recognized the following areas in which the Department needs to work diligently in the coming years.

1. The review team identified several opportunities for the Department to reconsider the way it spends faculty effort and other resources.
2. The research areas identified in the 2000 strategic plan were seen as an intention rather than reality. The review team noted that the intent will require a restructuring from the Department's traditional areas of strength: Controls; Aircraft and Space Systems; Fluids/ Propulsion; Fusion/Plasma Science; Solid Mechanics and Structures/Aeroelasticity. Rather than interpreting this as a criticism, it can be viewed as a bold decision to reorient the Department.
3. The review committee recommended that the Department focus on a few areas of research excellence and questioned the fit between the number of faculty and a broad research agenda. Members suggested that the Department not allow the strength of the Redmond-based Plasma Physics Laboratory to diminish; however they recommended that its role in the University be examined carefully. The review committee stressed that this examination should begin soon given the impending retirement of Alan Hoffman, the director of the Lab, who has been a key person in its development.
4. The review team suggested that the Department shift the focus of graduate education from the MSAA to the PhD, realizing that this would require faculty to obtain grants that would support student stipends. They also suggested revoking the requirement of the MSAA for PhD eligibility. From the Departmental response, it appears that the popularity of the PhD within industry is increasing. This may facilitate the proposed conversion.
5. The review team recommended that the Department, College of Engineering and University jointly seek to provide competitive startup packages for new faculty. Members suggested that the Boeing endowment be used as part of startup packages for faculty candidates.

The Department has responded very positively to the committee's recommendations and, as witnessed by its recent hires, has already acted to improve its situation. In other areas as well, the Department has already addressed, or is beginning discussion of, the committee's concerns. Adam Bruckner has done much to guide the Department to its present state. Should he choose not to serve as Chair when his current term expires, the Graduate School Council emphatically recommended that a new Chair be recruited from outside the University. The Council would, however, prefer to see Professor Bruckner remain as Chair. Since much depends on successful hiring and then retaining new junior faculty, the College and University were encouraged to aid these efforts.

Enclosures

c: Richard McCormick, President  
Denise Denton, Dean, College of Engineering  
Debra Friedman, Associate Provost for Academic Planning  
John Slattery, Associate Dean for Academic Programs  
Adam Bruckner, Chair, Department of Aeronautics and Astronautics  
Members of the Review Committee:  
Mark N. McDermott, Department of Physics (Chair); William R.D. Wilson,  
Department of Mechanical Engineering; Mark J. Damborg, Department of  
Electrical Engineering; Garry L. Brown, Department of mechanical and  
Aerospace Engineering, Princeton University; Helen L. Reed, Department of  
Mechanical and Aerospace Engineering, Arizona State University  
Graduate School Council  
Augustine McCaffery, Assistant to the Dean  
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