

## **AC 2007-1676: A SUCCESSFUL PROCESS FOR INCREASING THE DIVERSITY OF THE FACULTY IN ENGINEERING**

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Dr. Klod Kokini is a Professor of Mechanical Engineering at Purdue University and Associate Dean for Academic Affairs in the College of Engineering. He received his B.S.M.E. from Bogazici University in Istanbul, Turkey (1976); his M.S.M.E. (1978) and Ph.D. degrees (1982) from Syracuse University in Syracuse, New York. He has a courtesy faculty appointment in Materials Engineering (1996) and in Biomedical Engineering (2000). He served as Assistant Dean of Engineering from 2001 until 2004. As Associate Dean for Academic Affairs, since 2004, his responsibilities include most faculty affairs, including recruitment, hiring and retention, promotion and tenure, awards, climate and diversity, and dual career issues.

Professor Kokini's research activities include the study of thermal fracture mechanisms and design of high-temperature advanced materials such as monolithic, precracked and functionally graded ceramic thermal barrier coatings. He also works on interdisciplinary research related to the biomechanical behavior of soft tissue implant materials and the biomicromechanics of ECM-cell interactions under the application of mechanical loads.

He served on the Editorial Board of the Journal of Thermal Stresses (1995-1998). He was the Vice-Chair, then the Chair of the Ceramics Committee of the American Society of Mechanical Engineers (ASME) (1993-1997) and was elected an ASME Fellow in 2002. He served on the Board of Diversity and Outreach of ASME, (2002-2005), and currently represents the Center for Diversity and Leadership on the Nominating Committee of ASME. He is also a member of the International Advisory Committee of the Functionally Graded Materials Forum in Sendai, Japan (1989- ). He was the recipient of the Dreamer Award, Purdue University's highest award which recognizes contributions to diversity activities and named in honor of Martin Luther King, Jr. (2005).

# **A Successful Process for Increasing the Diversity of the Faculty in Engineering**

## Introduction

In its pursuit of preeminence and maximum impact, the College of Engineering (CoE) at Purdue University developed a strategic plan in 2002, which, in parallel to that of the university, called for increasing significantly its faculty over the next several years. According to this plan, the engineering faculty have grown from 289 in the fall of 2001, to 339 in the fall of 2006.

The strategic plan of the college called for hiring faculty of exceptional quality, who are multidisciplinary and bring diversity, while building on the strengths of the disciplines. In addition, since 1998, the CoE has been working on improving the climate as it relates to diversity goals by making available to the faculty and staff, diversity forums which provide a better understanding of the different ethnic and gender backgrounds. These forums were found to have a significant positive effect on the attendees' attitudes, involvement and understanding<sup>1</sup> in relation to diversity.

## Signature Areas

Another important goal of the CoE has been to attract faculty who are interdisciplinary. Almost four years ago, the faculty in the CoE created *Signature Areas* in an effort to connect existing strengths to future directions that address state, national and global needs. These signature areas were designed to serve as the connection points between existing disciplines and as the basis for recruiting faculty who would bridge the schools and help define unique multidisciplinary research and educational directions. The nine interdisciplinary signature areas selected were: Advanced Materials and Manufacturing; Energy; Global Sustainable Industrial Systems; Healthcare Engineering; Information, Communications, and Perception Technologies; Intelligent Infrastructure Systems; Nanotechnologies and Nanophotonics; System of Systems; and Tissue and Cellular Engineering.

## Search Process and the Strategic Oversight Committee

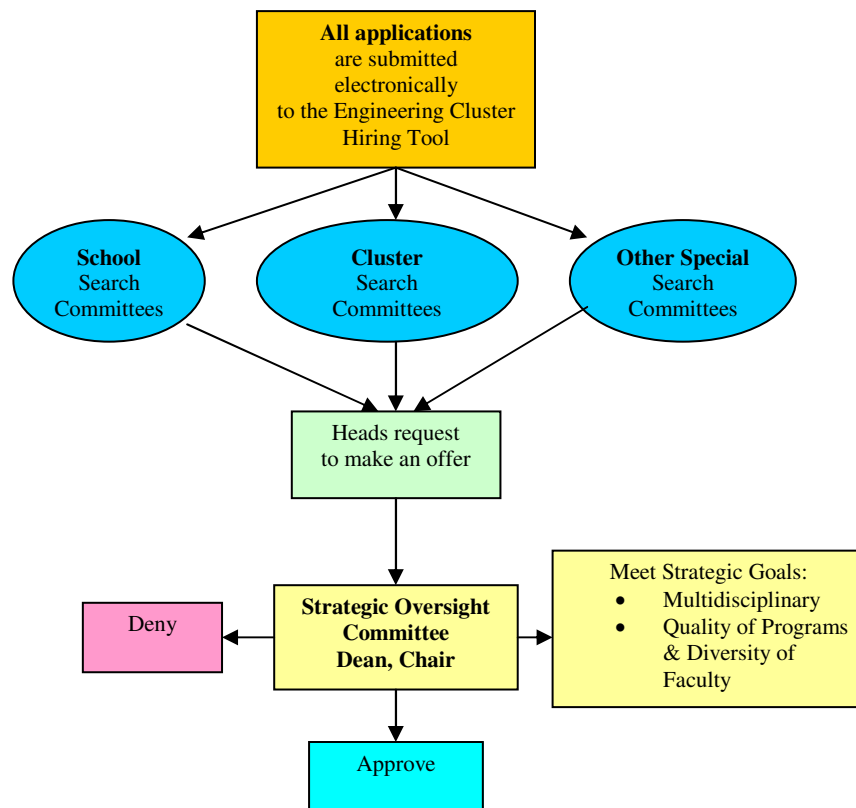
Accordingly, nine interdisciplinary cluster search committees were formed. These included faculty in engineering as well as from outside engineering. An electronic "hiring tool" was developed to accommodate the large number of applications, as well as the interaction of the committee members. At the same time, the tool was designed to insure confidentiality. Once a committee made a determination that a particular candidate was to be invited for an interview, they would work with the Head of the potential home department to organize the interview. A typical interview consisted of meetings not just with the faculty from the home department, but with other faculty

who had interests in the particular topic within the signature area. Ultimately, all faculty were hired into disciplinary home departments with an expectation that they would collaborate across academic disciplines. The faculty of the college have been active in attracting outstanding new colleagues in the nine interdisciplinary signature areas through this strategic cluster hiring process.

According to this process, all existing search committees, including the nine signature area cluster committees, the individual school committees, and any special search committees participated in the faculty hiring as long as they met the objectives described previously, i.e.(see [Figure 1](#)):

- improve the quality of our programs and diversify the faculty according to the objectives of the strategic plan
- strengthen the college in the signature areas and create a truly multidisciplinary environment

**Figure 1. Faculty Hiring Process**



In Figure 1, it is clear that the Strategic Oversight Committee (SOC) plays the important role of continuously improving and providing support to the hiring process, while achieving the strategic goals of the college. The SOC is chaired by the Dean and its membership includes two associate deans, three department heads and three senior faculty in the college. The charge of the committee is to review requests to make an offer to a faculty candidate and decide whether the candidate has qualifications which align with the strategic goals of the college as described previously. The committee responds to most of the requests within 24 hours, usually not requiring more than 48 hours. Once approved by the SOC, the head of the department that made the request continues with the regular process of preparing an offer to the faculty candidate.

Since its inception in December 2004, the SOC received 83 requests to make an offer. Of these requests, 31.3% were female and 16.9% were underrepresented minorities. Nine of these requests were turned down or are currently pending. As a result, 74 offers were issued to prospective faculty. 46 of these offers were accepted. Of the 46 accepted offers, 26.1% were female and 21.7% were underrepresented minorities. In both cases, the percentage of women and underrepresented minorities were significantly larger than the current representation of women and minorities on the faculty. Thus, having diversity as a strategic goal in faculty hiring, and implementing a process such as the SOC, has helped make progress towards the goals of the college.

In addition, it can be noted that the acceptance rate of offers has been about 62.2%. Interestingly, it can also be noted that the percentage of minorities who accepted offers (21.7%) is larger than the percentage that were offered positions (16.9%). Thus, the acceptance rate for minorities has been larger than that for women. In general, the relatively high acceptance rates are encouraging, since they imply that the location of the university (small Midwestern town) has not been a deterrent in attracting women and underrepresented minority faculty.

In general, all faculty candidates approved by the committee have been of outstanding quality. In addition, this process has impacted the overall diversity of the faculty in the CoE, both in terms of women and underrepresented minorities. In the fall of 2006, the engineering faculty included 43 women (12.7%) and 20 (5.9%) faculty from underrepresented groups. These compare to 27 (10.1%) women faculty in 2001 and 8 (3%) underrepresented faculty in the same year. It is clear that the engineering faculty have worked hard to proactively attract excellent and diverse colleagues.

## Conclusion

The Strategic Oversight Committee which was formed in the College of Engineering to ensure that faculty hiring occurs in accordance with the strategic goals of the college. The faculty hired have been of outstanding quality, with interdisciplinary interests and have contributed to improve the diversity of the college. The challenge to mentor these faculty and to ensure they all experience a successful academic career remains ahead.

## Acknowledgments

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## Bibliography

<sup>1</sup>Driscoll, D.M., Kokini, K., Katehi, L.P.B., Wright, J.R. & Percifield, C.P. (2003). A new paradigm for diversity in engineering, *Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition, Session 2370*