



# Engineering Trends

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**REPORT 0209B - MAY 2009**

## Analysis of Engineering Faculty Growth, Including Increasing Gender and Ethnicity Trends

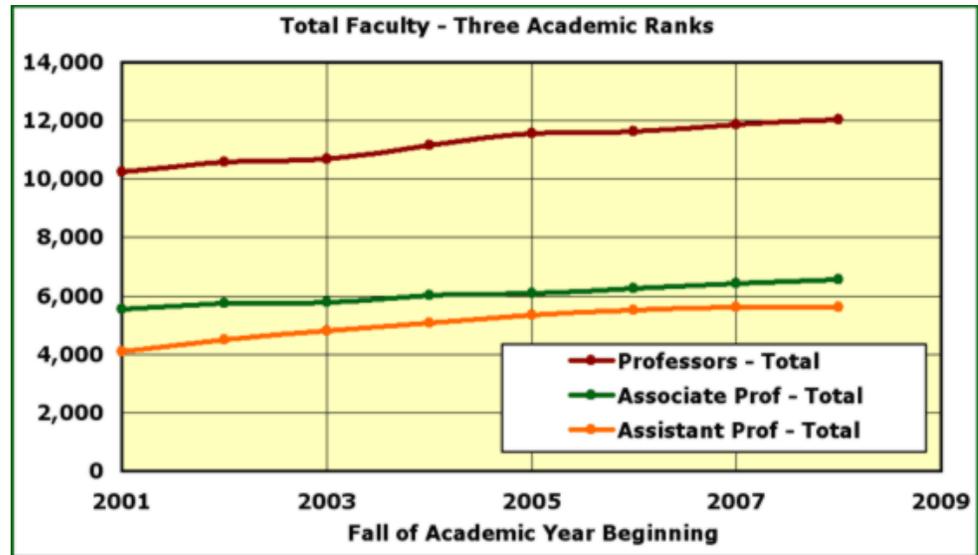
### Introduction

As shown in the graph below, the number of engineering faculty members (tenured and tenure-track) in US engineering colleges has continued to increase steadily through the fall of the academic year AY2008-09. Over the seven years shown, the increase has been 21.8%.

The magnitude of faculty growth is consistent with overall enrollment growth at the undergraduate and graduate levels. Over the period shown, fall enrollments (full-time) for bachelor's, master's and doctoral students increased 13.7%, 15.1% and 47.8%, respectively.

### Engineering Trends



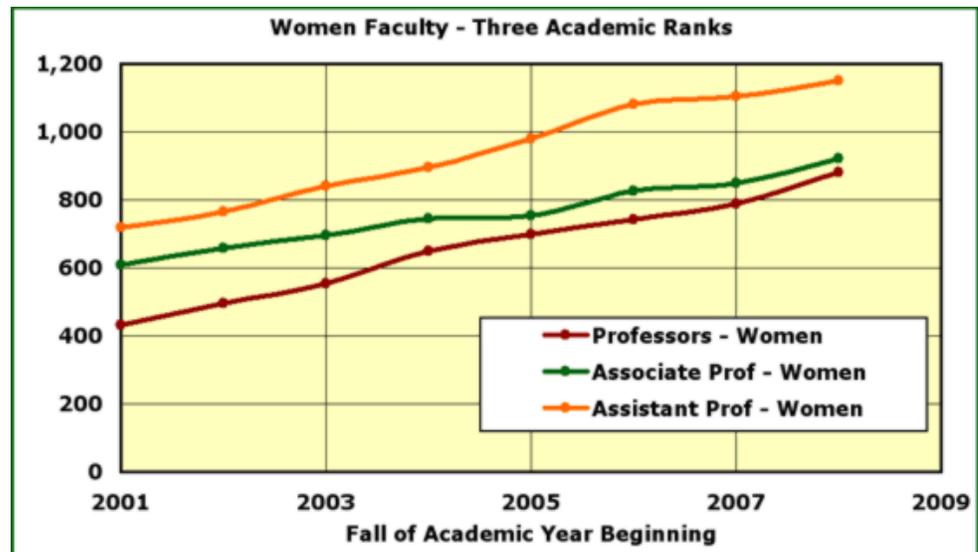


The graph above indicates growth in numbers of faculty at all academic ranks over the seven-year period. Full professors, associate professors and assistant professors grew 17.1%, 18.7% and 37.3%, respectively. The minimal growth of assistant professors in the last few years is noteworthy, but may be related to the very high growth rates in prior years.

### Women in the Three Academic Ranks

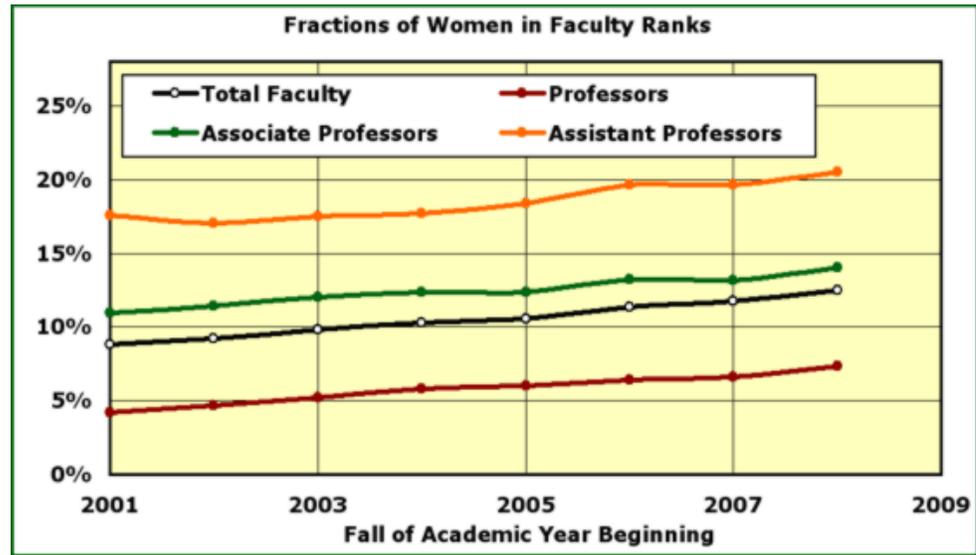
The graph below shows the substantial growth in the number of women in the three academic ranks during the seven-year period that was studied. The overall increases for full professors, associate professors and assistant professors were 104.4%, 51.8% and 60.1%, respectively. The "combined rank" increase for women was 72.4%. In contrast, the increases for men in the three ranks were 13.6%, 14.6% and 32.4%. The "combined rank" increase for men was 16.9% for the seven-year period. It is clear that women are joining the academic ranks and have been successful in rising to associate and full professor levels.

It is noteworthy that the numbers of women assistant professors is highest and that the numbers in the full professor rank are the lowest. This order is the reverse of that for total numbers of faculty in the three ranks (see graph above). A transition from this ranking should be anticipated in the future as more women are promoted to associate professors and full professors.



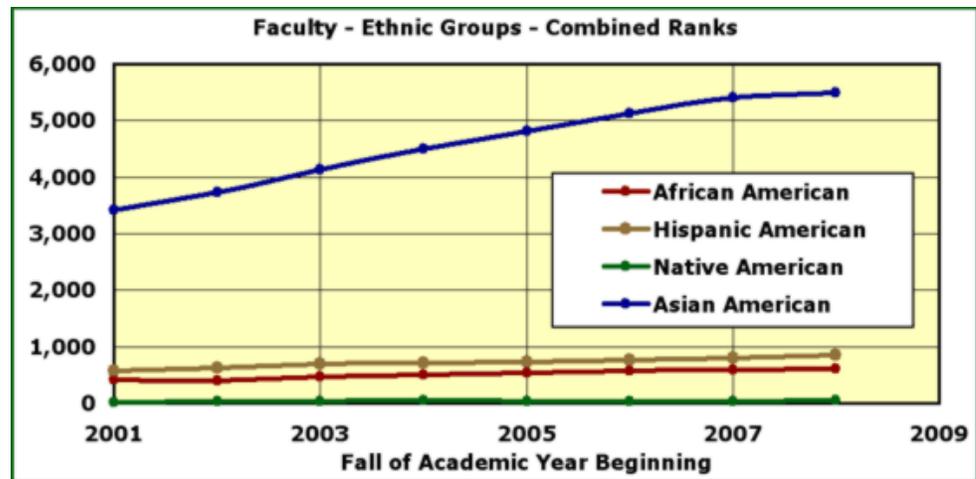
The graph below shows the increasing fractions of women in the three professorial ranks compared to the

overall faculty fraction. It is noteworthy that the fraction of women at the assistant professor level (20.5%) in fall 2008 is essentially the same as the fraction of women awarded engineering doctorates (21.1%) in AY2007-08. Efforts to increase either or both of these fractions further must consider that several major engineering disciplines are not favored by women studying engineering.

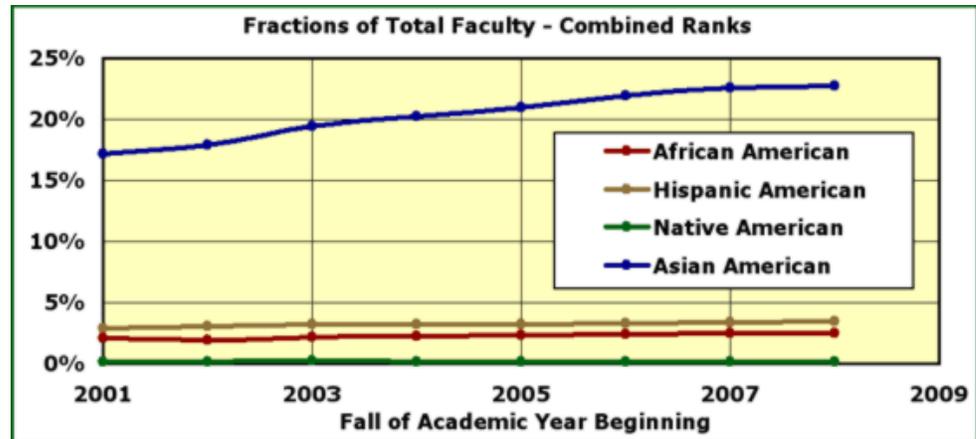


**Ethnic Group Statistics for "Combined Rank" Faculty**

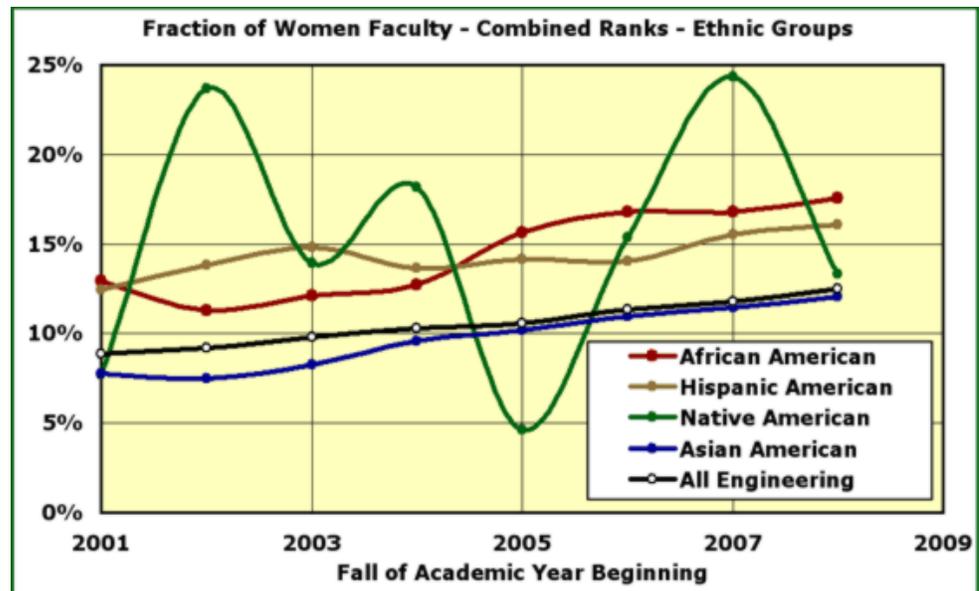
The graph below indicates the growth of African, Hispanic, Native and Asian American engineering faculty members for the seven-year period from fall 2001 through fall 2008. The increases for the period for African, Hispanic, Native and Asian Americans were 46.3%, 40.9%, 73.1% and 61.2%, respectively. (The increase for Native Americans was from 26 to 45 and year-to-year scatter in the data was large.)



The graph below shows the fractional growth of ethnic group faculty. The increase of total faculty of 21.8% over the seven years of the study resulted in fractional growth of African, Hispanic, Native and Asian Americans of only 20.0%, 20.3%, 46.1% and 32.3%, respectively. Thus, except possibly for Asian Americans, the fractions of academic positions held by persons from the ethnic groups studied should not be expected to increase very much in the near future.



Good news centers about the fraction of women within each gender group that have faculty positions. The graph below shows the comparison of the growth of women faculty in each of the four ethnic groups to the overall growth of women faculty.



The rates of growth for African, Hispanic and Asian Americans are not unlike that of overall engineering. For fall 2008, both African and Hispanic Americans have higher fractions than overall engineering and that of Asian Americans is essentially the same.

### Summary

This report considers the growth of engineering faculty (tenured and tenure-track) in the period from fall 2001 through fall 2008. The overall increase (combined ranks) was 21.8% and increases for full professors, associate professors and assistant professors were 17.1%, 18.7% and 37.3%, respectively.

Increases in the number of women during the seven-year period of the study were substantial at all three academic ranks. For all three academic ranks combined, the number of women increased 72.4%. The number of men, on the other hand, increased only 16.9%.

The numbers of African, Hispanic, Native and Asian Americans with faculty positions increased 46.3%, 46.1%, 73.1% and 61.2%, respectively, from fall 2001 through fall 2008. The fractions of women in these for groups in fall 2008 were 17.5%, 16.1%, 13.3% and 12.0%, respectively. The comparable fraction for engineering as a whole was 12.5%.

### Acknowledgments

The data used in this study originated from the annual surveys of the American Society for Engineering Education. Engineering Trends acknowledges the efforts of this organization in providing credible data and expresses its gratitude for their services to the engineering profession. Persons seeking further information about their surveys and the availability of survey data should visit the ASEE Web site ([www.asee.org](http://www.asee.org)).

#### **Footnote**

Engineering Trends data are compiled mainly from information submitted by universities to the annual surveys of EWC and ASEE. On the very rare occasions where errors in data appear, Engineering Trends corrects the error, if possible, or deletes the data if the error is large enough to alter significantly the trend of the university or the US total.

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