

Diversity Program, College of Engineering (2006 – 2008)

Initial Charge by Dean Richard Benson (Fall 2006)

- Recruit new members of the committee
- Set goals for the coming year
- Prepare a brief annual report
- Committee's work should complement the efforts of CEED

Committee Members

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| •Alex Aning (Chair) | Associate Professor, MSE |
| •Maura Borrego | Assistant Professor, ENGE |
| •Virgilio Centeno | Assistant Professor, ECE |
| •Rafael Davalos | Assistant Professor, SBES |
| •Dan Inman | Professor, ME |
| •Saad Ragab | Professor, MSE |
| •Elisa Sotelino | Professor, CE |
| •Woodrow Winchester III | Assistant Professor, ISE |

Key Accomplishments

1. **Assessment:** A central feature to increasing diversity at all levels within the College of Engineering is a coordinated assessment program to track progress and compare across initiatives. While a number of successful programs are run by CEED, assessment efforts and coordination are limited. There is a need to develop a centralized assessment database and system to assess the already existing programs run by CEED, recruitment/retention activities by student organizations, and new programs being recommended by the Diversity Committee.

A graduate assistant, tasked with collecting and organizing retention data, began working with committee member Maura Borrego in fall of 2007. Retention and graduation rates at the undergraduate and graduate levels are broken down by gender, major, ethnicity, and residency status. For CEED programs, GPA and retention data are compared between program participants and a control group. To begin to explore underlying reasons for various trends, the Student Adaptation to College Questionnaire (SACQ) was administered to freshman students in Step-bridge, Hypatia and Galileo programs as well as the control group. Differences between the groups were further explored through focus groups. When second-year retention data are available for this cohort, their specific survey responses can be related to participation in CEED programs and retention status. Data collection and analysis procedures will continue to be refined in 2008-09.

2. **Recruitment at Professional and Technical Conferences:** Professional and technical organizations such as Society of Hispanic Professional Engineers (SHPE), National Society of Black Engineers (NSBE), and Society of Women Engineers (SWE) do have annual conferences which are attended by working professionals, graduate and undergraduate students, and usually high school students from around the vicinity of the conference. For the last two years we have sent Virginia Tech faculty and/or graduate students to these conferences (in Denver, Pittsburgh, Philadelphia, Baltimore, and Orlando) to recruit undergraduate and graduate students. Many of these students have communicated with the various engineering departments, and have applied. However, the actual number of enrollees in the various programs as a result of this activity is not known at this time.



PCI Seniors and NSBE members, September 2008

3. **Grants Program:** The College of Engineering provided funds to set up a grant system to fund programs and/or activities by faculty or student organizations that impact the recruitment and retention of minorities, or enhance diversity in the college. There are two parts to the program:
- a. **Activities by Departments/Organizations:** Provides funds to partially support existing activities by departments or student organizations. We are currently funding the project: *"EXPLORE the possibilities...DISCOVER the unknown...INVENT your future...with Virginia Tech's PCI."* The Pre-college Initiative (PCI) brings diverse students from Roanoke City Schools and Martinsville/Henry County Schools to the Virginia Tech campus four weekends during the academic year to experience campus life and also participate in hands-on engineering and science-related activities. The goal is encourage the students to pursue careers in science and engineering, and perhaps consider to enroll at Virginia Tech. The grant will make it possible for the program to increase the number of student participants.
 - b. **The COE Diversity Summer Research Program (DSRP):** DSRP was implemented in the summer of 2008. This program allows a student to work in a professor's laboratory in the summer. Faculty advisors provided 25% of the students' stipends as cost shared. A diverse group of seven students (selected from 14 candidates) from five departments (CHE, ECE, ESM, ME and MSE) participated. The group included five females, two African Americans, and two Hispanic Americans. They were advised by Alex Aning, Rafael Davalos, Joseph Freeman, Clay Gabler, Abby Morgan, Ishwar Puri, and Christopher Rylander. At the conclusion of the summer, DSRP teamed up with McNair/MAOP programs for a research symposium which included poster and oral presentations by student participants.

Titles of projects:

- Reducing Sugars as Alternative Cross-linking Agents
[Adwoa Baah-Dwomoh](#) and Abby W. Morgan
 - Electrochemical Methods for the Detection of the Polyion Heparin
[John Caldwell](#) and Rafael Davalos
 - Transdermal Alcohol Concentration and its Correlation to Blood Alcohol Concentration
[Stephanie M. Comas](#) and H. Clay Gabler
 - Mathematical Model of the Affects of Angiogenesis on Tumor Growth
[Michele Cooper](#) and Ishwar Puri
 - Formation of Amorphous Ti-Ni Alloy Film on a Ti Plate
[Andrea Rojas](#) and Alex Aning
 - Comparison of Collagen Fiber and Collagen Film Cross-linking and its Effect on Tensile Strength
[Alana Sampson](#) and Joseph Freeman
 - Subcutaneous Light and Fluid Injection through Micro- and Nano-scale Light Guiding Needles
[Scott Willis](#) and Chris Rylander
- Other Projects:**
- Tech Day: This is a special day set aside to showcase engineering at Virginia Tech to the local high school students in DC/Northern Virginia or Tidewater area. This is an idea that is being developed. It will be held in the summer of 2009. This period will allow for high participation among public school students, since they will be on summer vacation.