INTRODUCTION

With the political questioning and evaluation of affirmative action, programs funded by state and federal dollars are under constant scrutiny. Programs supporting underrepresented minorities are, unfortunately, frequent targets for cutbacks. In the eyes of some universities which sponsor pre-college, undergraduate, and/or graduate programs for underrepresented minorities, it is only a matter of time before court decisions in California and Texas greatly impact recruitment and retention activities. As a consequence, a pipeline of talented individuals with dreams that contribute to the global competitiveness of today’s society will be lost. To ensure the continuance of programs that enhance the growth of the pipeline, it is necessary to rise above the pressure of cutbacks by maintaining a proactive approach. The Minority Engineering Program (MEP) at Penn State has this goal.

THE PENN STATE EXPERIENCE

Forces that adversely affect badly needed programs are both internal and external to the Penn State University setting. Neither can be described as the lesser of two evils, as both internal and external forces have the potential to mitigate the success of the Minority Engineering Program.

Currently the Minority Engineering Program (MEP) at Penn State operates within three stages that prove to be effective in responding to these challenges:

I. The Informative Stage
II. The Outreach Stage
III. The Collaboration Stage

The Informative Stage begins with heightening the awareness of the goals reflected in the College of Engineering Strategic Plan\(^1\) to faculty, staff and students. The College of Engineering’s Strategic Plan, which includes diversity initiatives, is submitted every five years. Also, a progress report is submitted on an annual basis.

In the College of Engineering Strategic Plan five strategic initiatives are identified that will develop a faculty, staff and student body of increasing capability and will strengthen the education and research programs:

1. Attract and develop an outstanding and diverse faculty, student body and staff.
2. Reconfigure the undergraduate curriculum to focus on engineering fundamentals and incorporate design, communications, computation and the contextual understanding of engineering.

3. Strengthen the graduate program by intra- and inter-disciplinary cooperation.

4. Develop research thrusts in areas of critical national and state needs through partnerships in a time of federal funding constraints.

5. Implement administrative and organizational actions to support strategic goals and increase effectiveness.

The College of Engineering’s continued progress requires sound decisions based on the understanding of external forces that will shape the engineering profession in the future. Corporate repositioning, shifts in demographics of future students, rapid advances in technology, and changing trends in federal and state funding are among these external forces.

With respect to the College’s Diversity Plan, the goal is to be among the top 10 engineering programs at major research universities. This goal requires that Penn State be effectively among the top three of the Big 10 universities in recruiting and retaining, through graduation, women and underrepresented minority undergraduate and graduate students. The College also acknowledges that it is necessary to recruit and develop women and underrepresented minority faculty and staff to achieve senior positions within the College.

The College Diversity Plan provides the framework to create a climate that attracts and supports a diverse group of students, faculty, and staff and that promotes effective learning, research, and service. This plan reflects the changing demographics in the country and seeks to address the historical lack of participation of women and underrepresented minorities in the engineering profession. The plan builds on the opportunity engineering provides students to prepare for significant positions in society. This College-wide plan, coupled with the plans of each department, establishes a process to identify best practices and, in turn, improve the College climate and the recruitment and retention of underrepresented minorities.

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<tr>
<th>Underrepresented Minorities at University Park Campus</th>
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<tr>
<td><strong>Faculty</strong></td>
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**Figure 1.0 Diversity in the College of Engineering**

From 1986 to 1996 enrollment for undergraduate minorities at all locations has increased by 54.4% and graduate enrollment by 19.7%. In comparing 1990-91 data to 1995-96 data reflected in Figure...
1.0, Bachelor of Science degrees awarded to underrepresented minorities have increased from 1.6% to 3.7% while graduate degrees increased from 2.6% to 3.3%.

The statistics cited are used to benchmark against the long term goals of the College of Engineering at Penn State. To facilitate this process the masses (faculty, students and staff) must be made aware of the facts in order for the College to make significant strides toward achieving its goals.

**The Outreach Stage** involves “stepping outside the box” to include the perspective of potential stakeholders that ultimately strengthen the process. Many are quick to say, “that’s the way we’ve been doing things for years.” However, based on pressure from our industrial partners, it is time to move past conventional means and expand upon academic and professional opportunities. Methods to accomplish such a task include:

1. **Communicating the Goals** - By doing so the program gains exposure to unknown territories. This is traditionally done by telephone, in meetings, and articles in newsletters. However, living in a technology driven society we have access to several multi-media platforms that allow us to communicate without traveling long distances to reach out to more potential partners and customers. Examples of ways the Minority Engineering Program Director communicates these goals are:
   - Present a report of Minority Engineering Program activities to the College Executive Committee (Department Heads) every semester. Furthermore, meet with faculty and staff during their weekly staff meetings.
   - Invite faculty to welcome receptions, faculty mixers, and academic award ceremonies; and
   - Provide opportunities for faculty to present the engineering profession to pre-college, undergraduate and graduate student programs and activities.

2. **Leading by Example** - The stature of the program depends on the desire and willingness of the Director to always be “on the leading edge” or “the best in class” with the support of the Dean of the College. Examples of going the “extra mile”, placing the program a step above the rest are:
   - Honor faculty and staff for their support in the presence of the University President;
   - Identify alumni/ae who have made significant contributions to the engineering workforce and society for Outstanding Achievement Awards; and
   - Initiate efforts with Development Office to identify additional resources to support the program.

3. **Documenting and Evaluating Progress** - In order to evaluate and assess current practices it is important to document the progress being made. The establishment of tools and techniques that allow generation of documentation to be repeated is essential. Typically, this is in the form of surveys and/or questionnaires. Findings from these instruments calibrate the direction of the goals being achieved.
Finally, *The Collaboration Stage* essentially reaps all the benefits of the two previous stages. This stage of the process requires the building of relationships that will add value by identifying long-term partners and customers. The commitment to the program depends on the guidelines established early on. Examples of collaborations with other units on campus include:

- The Minority Engineering Program, the Women in Engineering Program, the Engineering Coalition of Schools for Excellence in Education and Leadership (ECSEL) and the Office of Engineering Instructional Services have taken the lead in instituting a wide variety of programs to welcome new students and faculty, establish and strengthen peer networks, increase awareness of climate issues, and improve classroom and workplace climate.

- The Minority Engineering Program collaborates with the engineering and science research centers to offer research experiences to undergraduate students considering graduate school.

- The Minority Engineering Program collaborates with the Associate Dean for Undergraduate Studies, Admissions, the Women in Engineering Program, and the engineering departments to identify scholarships for potential undergraduate students.

- The Minority Engineering Program collaborates with the Graduate School, the Associate Dean for Graduate Studies and Research, as well as the engineering departments to identify Master’s and Ph.D. candidates for assistantship and fellowship opportunities.

- The Minority Engineering Program Director collaborates with other Minority College Directors to address issues on the recruitment and retention of underrepresented minorities, as well as issues that arise with the local School District and downtown merchants.

**CONCLUSION**

We all know the sum of the parts is greater than the whole. Informing, reaching out and collaborating are essential to the very existence of minority sponsored programs. Making it known to faculty, staff and students that they have an important role to play in this process is the challenge. By informing them of the facts, reaching out to them for participation, and collaborating with them on recruitment and retention programs and activities, the viability of the Minority Engineering Program is ensured. This engagement will hold us all accountable for the goals set forth in the College of Engineering Strategic Plan and Diversity Plan.

*Instead of reacting to the pressures of internal and external forces, it is in the best interest of Minority Engineering Program and its supporters to become proactive. Step up to the challenge!*
REFERENCES


2The Pennsylvania State University College of Engineering 1995 Diversity Plan, David N. Wormley, Dean.

SAUNDRA D. JOHNSON

Johnson brings seven years of industry experience from Bechtel Power Corporation to the position as Director of the Penn State Minority Engineering Program. She earned her Bachelor of Science Degree in Civil Engineering in 1986 from Penn State University. During the past three years she has been involved locally and nationally advocating the mission of the Minority Engineering Program at Penn State.