MINORITY ENGINEERING PROGRAM
UNIVERSITY OF NOTRE DAME · COLLEGE OF ENGINEERING

DEFINING THE MEP COMMUNITY

I have been on the Notre Dame campus for a little over six months. During this time, I’ve taken the opportunity to observe the campus, students, and staff. I continue to learn and ask myself questions such as: What makes ND students unique? What role does ethnicity and culture play in the ND engineering student’s ability to succeed academically and thus, what is the most critical need for the MEP?

I have experienced the “minority engineering experience” myself and the statistics below show the basic need to increase the numbers, but I realize that the Notre Dame experience is quite different.

Thus, I’m actively trying to know each student and extend opportunities to get in touch with alumni.

As we finish up our ‘strategic plan’ that will guide our activities, it is crucial to have active participation from the “MEP community” if we are to have a successful Minority Engineering Program. So what defines the “MEP community”? We will work with any student that walks through our door although our special focus is with those traditionally underrepresented in the field of engineering. With this in mind, I encourage you to find your role within this community of support and learning and get involved. If you don’t think you fit in, let us know; We want to involve you too!

Our goal is to make a significant and positive difference in our students as well as to serve as the epitome of Minority Engineering Programs. This means we will address the lack of minority students in engineering, build upon academic excellence, create mentoring & professional opportunities, and guide more students towards advanced degrees. Students simply looking for a “home away from home” will find a whole lot of support and high expectations.

I look forward to making a difference in promoting diversity initiatives within the College of Engineering. I welcome your input and assistance.

Ivan Favila, Director

KELLOGG INSTITUTE PROGRAM IN PERU

Callao, Lima, Perú. COPRODELI (Communion, Promocion, Desarrollo, y Liberacion) is a non-governmental organization in Peru that works in some of the poorest areas of the country. So far this summer I have been working with a team of Civil and Environmental Engineers trying to develop a couple of technical proposals (1) for the efficient distribution of clean and affordable drinking water and (2) for the utilization of wastewater for the irrigation of parks and other green space. In the past three weeks I learned the true value of a good engineer being the project manager. This internship afforded to me by the Kellogg Institute in the Hesburgh Center for International Studies is the best way I could have imagined spending my summer working, traveling, getting to know a new country, a new culture and expanding my horizons to a new reality.

“Working with COPRODELI this summer has been the most formative experience of my engineering career thus far.”

Felipe Witchger
Civil Engineering
Class of 2008

DEFINING THE MEP COMMUNITY

Statistics for Minority Engineering Students

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>% enrolled at ND-Eng.</th>
<th>% in US population</th>
<th>US BS College Enrollment</th>
<th>US BS Degrees Attained</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td>2.0%</td>
<td>12.3%</td>
<td>6.3%</td>
<td>4.9%</td>
</tr>
<tr>
<td>American Indian</td>
<td>0.1%</td>
<td>0.9%</td>
<td>0.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Asian</td>
<td>4.4%</td>
<td>3.6%</td>
<td>11.8%</td>
<td>12.6%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>5.1%</td>
<td>12.5%</td>
<td>7.9%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

* Data from ND COE Spring ‘05.
^ US Census 2000

MEP FACTS

- 50% of African-American engineering students at ND are female.
- Average GPA for MEP students is 2.8.
- Half of the Hispanic engineering students have a GPA > 3.0.
- Access this and other MEP information online at www.nd.edu/~mepnd
The College of Engineering’s Mission is
“To nurture the intellectual growth of our students and to serve humanity through the creation, application, and dissemination of knowledge relevant to technology.”

**MENTORING PROGRAM**

The MEP is initiating a mentoring program with the goal of bringing Notre Dame’s MEP community past and present together.

Notre Dame Alumni (and friends) who are interested in participating as a mentor can participate. The time commitment is minimal, the impact on another is grand.

Students and mentors will communicate via email (as little as 10 minutes per week) to discuss engineering, academics, and navigating through Notre Dame successfully.

The MEP will periodically instigate communication with topics to consider.

Application forms are available online at: [www.nd.edu/~mepnd/mentor](http://www.nd.edu/~mepnd/mentor)

**CALL FOR TUTORS**

"By learning you will teach, by teaching you will learn."

Latin proverb

The College of Engineering has a need for students to serve as tutors.

Tutors need to have a familiarity with the subject matter (A or B in the course), have good communication skills, and be in good academic standing.

Tutors will indicate their availability and will be summoned via request.

Tutors can receive “service hours” for requirements. Tutoring hours may be paid at the standard College of Engineering rate.

Students interested should contact the MEP office: (574) 631-6092 or mepnd@nd.edu.

**STUDY GROUPS & MEP STUDY AREA**

 MEP students are encouraged to use the MEP conference room (256 Fitzpatrick) for quiet study. We are making an effort to provide academic resources available in this area. By the Fall semester, we would have added an additional computer and have organized the test files available to students.

NSBE and MAES/SHPE committees and boards are welcomed to hold their meetings there as well. A file cabinet will be available to store your records. The room is available 24/7. Please ask Dana or Ivan to share the access code.

The Engineering Study Lounge (217 Cushing) is also available for student use.

<table>
<thead>
<tr>
<th>Conference room use by students Spring 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sign-ins</td>
</tr>
<tr>
<td>Purpose</td>
</tr>
<tr>
<td>Study</td>
</tr>
<tr>
<td>Meeting</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Other = computer use, test files, tutoring</td>
</tr>
</tbody>
</table>
**INTERNSHIP UPDATES**

**WIND TUNNEL RESEARCH AT RICE UNIVERSITY**

This summer I am participating in the Alliances for Graduate Education and the Professors (AGEP) program at Rice University in Houston, Texas.

My project involves the use of the Sequential Function Approximation Method to create artificial neural networks that allow faster data interpretation. My mentor this summer is Dr. Andrew Meade.

Using MATLAB, we are currently working with codes that use Basis functions mapped into graph-directed representations (artificial neural networks). The principal idea is to be able to choose the fewest points in a given matrix that will yield an accurate solution, which in turn allows for more efficient experiments in wind tunnels.

Kevin Wilson
Mechanical Engineering
Class of 2008

**ENGINEERING SNACK FOODS WITH FRITO LAY, INC.**

I am interning this summer with one of the premier snack food companies in America, Frito-Lay, Inc. The company assigned me to a project that relates directly to my major, chemical engineering. The main project I have been working on this summer is monitoring the cooking oil uses and losses at their Arlington, TX facility, the only Frito-lay bean dip plant in the US. FUNYUNS and Muchos are also produced at this location. The losses the plant experienced reflected negatively on their weekly usage reports showing huge mone-

tary deficits in oil.

My research uncovered major inconsistencies in the readings on the meters set to track the amount of oil flowing into the fryer. Each meter differed from the others in numbers exceeding tens of thousands of pounds of oil per day. Based on these findings, I designed and implemented a plan to isolate and resolve the issues in the problem meters to get them up and functional with reliable readings. As a result, weekly reports show gains revenue from the oil that have not been apparent in the past few years.

In addition to this project, I have started work on some other, smaller projects including automation and cost analysis of the bean dip line. Frito-Lay, Inc. has also afforded me the opportunity to work across more than one location during my internship. I am able to spend the back half of each week in a larger plant. This allows me to see production on a larger scale.

Richelle C. Thomas
Chemical Engineering
Class of 2008

**INVALUABLE EXPERIENCE AT DELPHI ELECTRONICS**

This summer I am completing my second internship with Delphi Electronics and Safety in Kokomo, IN.

My internships with Delphi have not been apparent in the past few years.

In addition to this project, I have started work on some other, smaller projects including automation and cost analysis of the bean dip line. Frito-Lay, Inc. has also afforded me the opportunity to work across more than one location during my internship. I am able to spend the back half of each week in a larger plant. This allows me to see production on a larger scale.

Richelle C. Thomas
Chemical Engineering
Class of 2008

Ariana Salazar
Electrical Engineering
Class of 2006

“The company assigned me to a project that relates directly to my major”
PROFILES

Name: Diego Fernandez
Co-President of MAES/SHPE
Class of 2006
Hometown: Monterey
High School: Prepa Tec Campus Guadalajara
Major: Chemical Engineering
About My Family: 2 brothers, 1 sister, 61 cousins
Hobbies: tennis, working out, reading, dancing
Professional aspirations: I eventually want to own my own business.
Best advice I ever received: Listen closely to advice, but even more closely to your intuition.
The one thing I wish I knew as a freshman: That 4 years can go by so fast.
Internships: PPG summer intern

Name: Sheena Bowman
President of NSBE
Class of 2006
Hometown: New York, New York
High School: AP Randolph Campus HS
Major: 1st: Chemical Engineering (w/ Pre Med Option) 2nd: Biology
About My Family: Black, Irish, Native American (Blackfeet), 2 sisters (Rutgers, Maryland), 1 brother (RIT). 25 First cousins
Hobbies: watching ESPN, collecting foreign currency & stamps,
Professional aspirations: OB/GYN or Orthopedic Surgeon
The one thing I wish I knew as a freshman: That you could drop classes.

Name: Richelle Thomas
Secretary of NSBE
Class of 2008
Hometown: Dallas, TX
High School: Science and Engineering Magnet High School
Major: Chemical Engineering
About My Family: I’m an only child, I live with both my parents
Hobbies: sleeping
Best advice I ever received: Study hard so you can play hard.
The one thing I wish I knew as a freshman: I just finished so I don’t have much to add
Internships: Frito-Lay (the chip people)

Name: Marcus Jackson
Webmaster of NSBE
Class of 2006
Hometown: Hammond, LA
High School: Hammond High School
Major: Management Information Systems and Theology
About Me: Valedictorian and Captain of the Football team in HS
I am the youngest of seven. President of Voices of Faith Gospel Choir
President of the MIS Club
Professional Aspirations: Earn a Doctorate in Divinity to become a Professor in Theology
Internships: Ethicon Endo-Surgery (A Johnson & Johnson company) in Cincinnati, OH.

Name: Ivan Favila
Director

Ivan spent the last 10 years at the University of Illinois at Chicago (UIC) where he worked as the Assistant Director of the Minority Engineering Recruitment and Retention Program and more recently as Director of the Cooperative Engineering Education Program. He continues to volunteer as the Associate Director for the Center for the Advancement of Hispanics in Science and Engineering Education (CAHSEE) based in Washington, DC.

He earned his BS in General Engineering at the University of Illinois at Urbana-Champaign and MS in Mechanical Engineering at UIC.

He and his wife, Lucy, both raised in Chicago, have a daughter, Lali (6), son, Ivan Julian (1 ½) and expect their next child in October.

Dana Marsh
Program Coordinator

Dana has been the MEP Program Coordinator for the past 8 years. She has a clear understanding of the day to day concerns and difficulties that some students encounter on campus. She believes it is crucial for students to take advantage of the extensive resources available to them in the Minority Engineering Program at Notre Dame.

Dana and her husband Craig have one son 22 month old Braylon Noah who is the miracle and joy of their life.
ALUMNI PAGE

ALUMNI SURVEY

Early in the Spring 2005 semester, the MEP sent all minority engineering alumni from the College of Engineering a survey requesting some information regarding their current activities, past experience with the MEP, and interest for involvement in future MEP programs. This page is dedicated towards reporting the feedback received. Those wishing to contribute to this data or give us updates on personal information can access the survey online at: www.nd.edu/~mepnd/alumni.htm

RESPONSES

We expected a higher response rate than the 8% we received. Regardless, we feel as if we have a strong enough support from MEP alumni to make an impact on the current students.

We will move forward by organizing those that expressed interest.

Total responses = 36

Further Education

<table>
<thead>
<tr>
<th>Degree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS: 9</td>
<td></td>
</tr>
<tr>
<td>PhD: 4 (2 non-engr)</td>
<td></td>
</tr>
<tr>
<td>MD: 2</td>
<td></td>
</tr>
<tr>
<td>MBA: 7</td>
<td></td>
</tr>
</tbody>
</table>

In non-Engineering careers: 5

Interest for Involvement

Visit ND as speaker: 13
Host for shadow day: 8
Help recruiting efforts: 19
Champion resumes: 7
Mentor MEP students: 19
Advisory Committee: 15

HAVE A MESSAGE FOR THE MEP COMMUNITY?

Have advice for the current student? Have study tips for the struggling student? How can ND students become involved in your industry?

The MEP would love to hear some solid advice from the professionals! Please send your articles to mepnd@nd.edu.

ALUMNI NOTES

Kevin Bethune, ME '98 out of Pittsburgh PA, received back-to-back Westinghouse Signature Awards for 2002 & 2003 while at Westinghouse Electric Company LLC in their Nuclear Services business. He started as a structural analyst and is now in project management. Melissa Castillo, ChemE '98 is now working at DPT Laboratories as a Facilities Engineer in San Antonio, Texas. Andrew DeBerry, AERO '04, is in San Angelo TX studying in Air Force Intelligence School. William Gaither III, CivE '99, received Professional Registration as a Civil Engineer in Alaska, July 2004. Lorie Gonzalez, ChemE '96, is currently pursing a Ph.D. in pharmacology and neuroscience at University of North Texas Health Science Center at Fort Worth. Dana and I had the pleasure of meeting baby Isaac (future domer?) last month. He is the son of Adriana Holguin (Gallegos), ChemE '00 who earned an MBA in the Spring of 2004. Daniel Lid, ME '98 out of La Quinta CA, is involved in projects relating to the Global Positioning System (GPS). Edith Rizo, EE '95, has earned 3 promotions in her 10 years with GE. She is currently a project manager for work in Arizona and Nevada. Christopher Sanabria, EE '01 is finishing up his PhD work at the University of California, Santa Barbara. Thanks to Dewan Simon, ChemE '98, for being our guest speaker for Senior Sendoff last semester. Miguel Vallarta, EE, '05, has accepted an Electrical Engineering position in Repair & Replacement Automation for Westinghouse Electric in Pittsburgh, PA.

Keep us updated! www.nd.edu/~mepnd or mepnd@nd.edu
MINORITY ENGINEERING PROGRAM

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WWW.ND.EDU/~MEPND

AISES

American Indian Science & Engineering Society promotes excellence, leadership and opportunities in education and professional development for American Indians and Alaska Natives. AISES (we) enrich the fields of science and engineering with Native traditions and strengthen communities with knowledge, resources and innovation.

NOTE: The MEP is interested in working with students to create an affiliation with the AISES national organization. Please contact the MEP office for details.

www.nd.edu/~maesshpe

NSBE

The National Society of Black Engineers (NSBE) with more than 15,000 members is the largest student-managed organization in the country. NSBE’s mission is to increase the number of culturally responsible Black engineers who excel academically, succeed professionally and positively impact the community.

The objectives of the NSBE organization are to:

• Stimulate and develop student interest in the various engineering disciplines.
• Strive to increase the number of minority students studying engineering.
• Encourage members to seek advanced degrees in engineering and to obtain professional engineering registrations.
• Encourage and advise minority youth in their pursuit of an engineering career.
• Promote public awareness of engineering and the opportunities for Blacks and other minorities in that profession.
• Function as a representative body on issues and developments that affect the careers of Black Engineers.

www.nd.edu/~nsbe

MAES / SHPE

Imagine the shock of a freshman engineering or science student when he receives his schedule and realizes he has to take 18+ credits with FYC being the only ‘easy’ course. Three-hour labs, ten-page slide presentations for each lecture, and the beginning of all-night studying--who could survive? Fortunately, MAES/SHPE (Mexican-American Engineers and Scientists/Society of Hispanic Professional Engineers) provides engineering and science students the opportunity to meet and associate with other students going through a similar situation. They can speak to upper-classmen for advice on how to handle the pressure as well as become better acquainted with professors and advisors who advocate MAES/SHPE.

Our club’s official mission is to promote excellence in engineering, science, and mathematics while cultivating the value of cultural diversity. Networking opportunities are provided at a local and national level, as well as the opportunity to give back to the community through outreach and volunteering programs. Becoming a member of MAES/SHPE is a great opportunity to experience all that Notre Dame has to offer, and it gives you the ability to go out into the workforce with a better sense of workmanship and pride.

Christina Rangel
MAES/SHPE Co-president
Class of 2006

www.nd.edu/~maesshpe

Logos

You might see a MEP student wearing the following symbols. Ever wonder what they mean?

The Symbol for AISES combines the traditional American Indian precepts with modern portrayal. The ‘A’ represents covering and protection of the traditional structure over Native family and cultural values. The sun’s rays strike an ancient Indian calendar as at Chaco Canyon, NM, or the Pueblo at Casa Grande, AZ, indicating a proper time to plant in the spring, harvest and even to hunt. The discovery is considered to be one of the greatest American Indian "scientific" achievements. Present is the kernel of corn, a substance central to American Indian life.

www.nd.edu/~maesshpe