

Engineering Office of Diversity Recruitment and Retention Plan

Recruitment plan

The School of Engineering Office of Diversity (EOD) has dedicated units and staff responsible for diversity issues in engineering. The EOD sponsors active programs for recruiting and retaining under-represented students, both from our current undergraduate programs as well as from US engineering programs, including national recruitment efforts and comprehensive student development strategies to increase retention as described below.

I. **STRATEGIC GOAL: Increase the number of women and under-represented populations in the PhD applicant pool.**

A. National Recruitment Efforts

1. Professional Societies- The School has active student chapters of the National Society of Black Engineers (NSBE), Society of Women Engineers (SWE), and the Society of Hispanic Professional Engineers (SHPE). It also participates in the Women in Engineering Program Advocates Network (WEPAN). Dr. Wosu regularly attends professional meetings of these organizations to disseminate information about graduate funding opportunities.

2. Partnerships with Minority Serving Institutions (MSIs)-Dr. Wosu makes routine visits to a number of MSIs for the purpose of recruiting outstanding students from underrepresented groups (e.g., African-American, Hispanics, Native Americans, women and disabled populations). As recruitment efforts are integrated across the departments, chairmen from the departments often accompany Dr. Wosu on these visits.

Dr. Wosu is also in the process of forming articulation agreements with over ten HBCUs and MSIs (Southern University Baton Rouge, Xavier University Louisiana, Grambling University, Morgan State University, North Carolina A&T Greensboro, Spellman College, Fort Valley State University, and 3 Puerto Rican Universities.) These articulation agreements will allow the University of Pittsburgh to build a pipeline for students through double/triple degree programs, called the Pre-PhD and PhD scholar programs, which are described below.

3. PhD and Pre-PhD Scholar Programs-The purpose of the Pre-Phd and PhD Scholar programs is to increase the number of under-represented students pursuing PhD degrees by identifying highly gifted prospective PhD students early in their academic careers. By admitting promising students as “Pre-PhD Scholars” or “PhD Scholars,” the “burnout factor” that tends to discourage students from pursuing a PhD after undergraduate education is minimized.

- *Pre-PhD Scholar I-* A six-year PhD plan to: (1) complete university and major BS/MS requirements in the first two years, and (2) complete the PhD program in approximately four additional years.
- *Pre-PhD Scholar II-* five-year plan to: (1) complete MS requirements in first year (2) complete the Ph.D. program in approximately four additional years.
- *PhD Scholar-*This option is for incoming students who have completed the MS degree and wish to complete the Ph.D. program in approximately four years.

4. Graduate Weekend-This recruiting event invites prospective students from across the nation to the Pitt Campus for close interaction with School of Engineering faculty and staff.

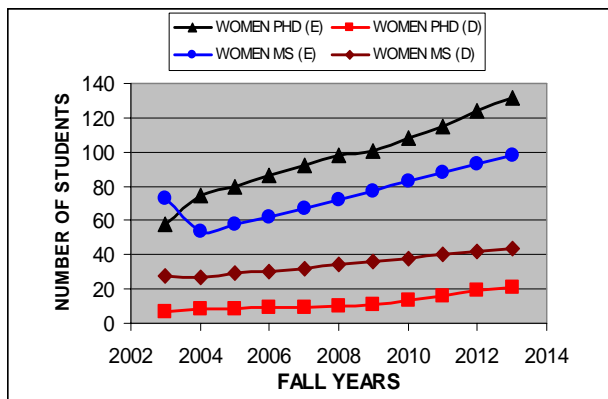
5. GEM-GEM membership allows the School of Engineering recruitment access to a pool of highly qualified fellowship applicants.

B. Recruitment Plan at the University of Pittsburgh

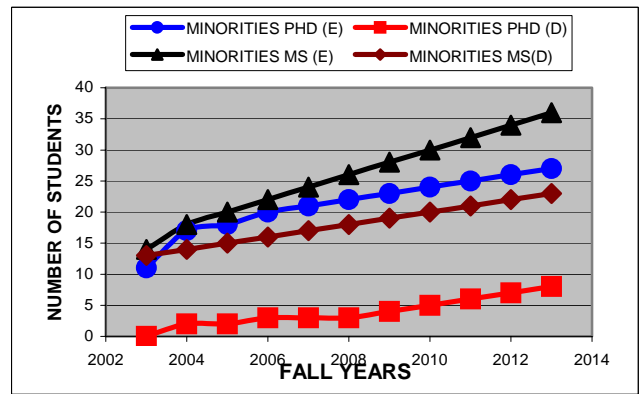
1. On-campus Recruitment by Academic mentoring- A systemic faculty-student mentoring program, the Mentoring Program for Excellence in Engineering (MPE²), provides the bridge between undergraduate and graduate educational experiences to help the student develop the motivation for graduate education and to help turn that motivation into reality.

2. Summer Research Internship (SRI)- Students in their junior or senior year at the University of Pittsburgh are selected to participate in a ten-week summer Summer Research Internship. At the end of each summer session, each team presents their research findings to School of Engineering faculty members and current graduate students. Participants are awarded a stipend.

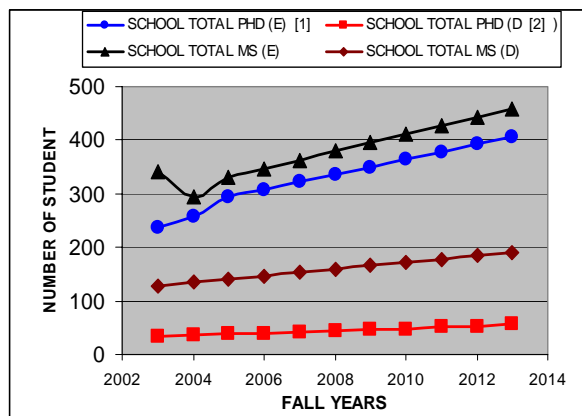
3. Past Success in Recruiting Under-represented graduate students-The School of Engineering has had considerable success in increasing the numbers of women and under-represented students enrolled in its MS and PhD programs. The number of women PhD candidates has risen dramatically, from 35 in 2000 to 75 in 2004-5. MS enrollment of women has decreased slightly in 2004-5, though it has trended upward since 2000-01. The number of minority MS students enrolled has risen steadily since 2000, while the number of minority PhD candidates has increased dramatically, from 6 in 2000-01 to 17 in 2004-5.



(a)



(b)



(c)

Fig 1. (a) Women MS/PhD enrollment and degree production (b) Minority MS/PhD enrollment and degree production (c) School total MS/PhD Enrollment Degree Production

II. STRATEGIC GOAL: To Improve the Graduation Rate of Women and Under-Represented Students.

A. Retention Plan for Under-represented Groups: Graduate Student Support and Socialization

1. **Effective academic support** at the departmental levels. Recommend that each department designate a faculty member to be responsible for minority and diversity issues and providing the needed nurturing and acceptance of the students and ensure that they are not isolated from the rest of the students.
2. **Continuous Academic Performance Evaluation.** The EOD gathers evaluations of under-represented graduate students each term to monitor academic performance. The goal is to guide the student to setting well-defined academic goals for excellence; (2) guide the student to develop a plan to achieve high performance; and (3) ensure that each student finishes his or her degree program.
3. **Financial Support-** The K. Leroy Irvis Fellowship, Graduate diversity fellowships, Teaching Assistantships (TA) and Teaching Fellowships (TF), Traineeships, Graduate Research Assistantships (GRA), GEM Fellowships, Provosts Development Fellowships.
4. **Graduate Engineering Community (GEC)-** EOD coordinates and encourages efforts to establish students' communities to improve the students' abilities to network and learn from each other. EOD recommends that the School fund a GEC as a cooperative learning environment that gives students the opportunity to work in multi-cultural groups as a means for reducing isolation, developing peer mentoring and encouraging academic activities.

B. Comprehensive Student Development Strategies

1. **Engineering Diversity Programs and Workshops-** Participants increase their knowledge and understanding of diversity in a global environment. Workshops offered include: using your experience to gain an internship in industry, marketing your skill set to gain employment in industry, utilizing university resources to discover graduate funding opportunities, and developing cognitive maps for graduate education.
2. **Survival Skills and Ethics Program-**This University-wide program offers eight all-day seminars over the fall and spring terms. Skills taught include the ability to make oral presentations, to publish research articles, to learn and teach, to obtain and keep a job, to manage stress and time, and to behave responsibly.

C. Faculty Involvement

1. **Engineering Diversity Workshops and Seminars-** This seminar helps faculty to hone their abilities to resolve conflicts and communicate across cultures, and understand the roles of privilege, power, and difference in multicultural engineering education.
2. **Mentor Training-**Training in effective mentoring is offered by the Mentoring Program for Excellence in Engineering (MPE2) and includes work on cross-cultural communication, building trust, demonstrating fairness, managing conflict and role clarity.

D. Faculty Reward System

1. **Performance Evaluations** on contributions to employee, faculty and student diversity measured by mentoring of women and under-represented students, integration of diversity into the curriculum, offering internships to under-represented students, participation in pre-college activities, participation in diversity workshops and on-campus seminars, grantsmanship and activities that increase diversity in the school.
2. **Robert O. Agbede Faculty Award for Diversity-** to recognize a faculty member and/or a department in the School of Engineering who has made what are determined to be the most significant contributions to enhance and support diversity in the School of Engineering.

E. Dissemination and communication

1. **Professional and Student Organization Conferences-**The results of our diversity initiatives are regularly published and presented at conferences of government agencies and professional organization.
2. **Internal Communications-**Success are communicated to the University and School community through print and electronic outlets.

III. STRATEGIC GOAL: To increase graduate support for women and under-represented students.

A. Increase school allocation and financial support for minority and women MS students

1. Increasing minority PhD Enrollment by 1 PhD every year will allow the School to surpass its record of 10% minority degree production (2001) by 2010, thus paving the way for national recognition.
2. Increasing the population of women PhD candidates by 6 each year as the school's population also increases as shown in Fig. 1 will allow for enrollment increase of about 35% in five years and degree production of about 25% by 2010. Such growth is clearly possible, as our population rose by 17 between last academic year and this academic year.
3. By achieving the strategies outlined in a and b, to increase all Enrollments by 35% in five years and 7% each year. To increase all degree production to above 25% in five years and increasing by 5% each year.

	PhD Enrollment and Degree Projections						MS Enrollment and Degree Projections					
	SCHOOL TOTAL		WOMEN		MINORITIES		SCHOOL TOTAL		WOMEN		MINORITIES	
	PH D (E) ¹	PHD (D) ²	PHD (E)	PH D (D)	PHD (E)	PHD (D)	MS (E)	MS (D)	MS (E)	MS (D)	MS (E)	MS(D)
2003-4 ³	237	33	58	7	17	0	341	127	73	28	14	13
2004-5 (BASE)	258	36	75	8	17	2	295	135	54	27	18	14
2005-6	294	38	80	8	18	2	331	141	58	29	20	15
2006-7	308	40	86	9	20	3	347	147	62	30	22	16
2007-8	322	42	92	9	21	3	363	153	67	32	24	17
2008-9	336	44	98	10	22	3	379	159	72	34	26	18
2009-10	350	46	101	11	23	4	395	166	77	36	28	19
2010-11	364	48	108	13	24	5	411	172	82	38	30	20
2011-12	378	51	115	16	25	6	427	178	87	40	32	21
2012-13	392	53	124	19	26	7	443	184	92	42	34	22
2013-14	406	56	132	21	27	8	459	190	97	44	36	23

Table 1. Projected enrollment increases

B. Increase Source of school contribution and Rationale for Support: The EOD is currently negotiating the dedication of 2.5% of yearly research/grant overhead return to support under-represented graduate student research.

C. Dedicated TA slots for women and minority graduate education-The School has dedicated 6 TA slots for incoming underrepresented graduate students. The average cost per full year's fellowship is \$35,000 for an in-state student and \$40,000 out of state.

¹ (E)=Enrollment

² (D)=Degrees

³ Sources: Enrollment (2003-4 and 2004-5) Engineering Office of Administration. Degrees 2003-04 Engineering Workforce Commission.

D. Increase funds and fellowships from in and outside the school-

1. **K. Leroy Irvis Fellowship** The Provost's Office has offered the School one additional fellowship per year (table 2).
2. **Provost's Development Fund-** In 2005, two School of Engineering doctoral students were awarded this prestigious fellowship (table 2).
3. **GEM-**In the School's first year as a member, three GEM Scholars will matriculate (table 2).
4. The EOD will aggressively pursue opportunities for funding from Department of Education and the Directorate for Education and Human Resources of NSF, including **CREST, AGEP, and PAESMEM.**
5. The School's application to become a site for the Alfred P Sloan Foundation Underrepresented Minority PhD Program has been approved.
6. The Engineering Office of Diversity is launching an aggressive campaign to raise \$250,000 from corporate funders this year. A portion of these funds will be directed toward graduate initiatives.

	2005/2006 (Students per Year)/Dollars	2005/2006 (Students per Year)/Dollars
Irvis Fellowship	(1) 42,000	(2) 84,000
GEM	0	(3) 67,500
Provost Office (PDF)	0	(2) 50,000
SOE-TA slot	0	(6) 240,000
Graduate Diversity Fellowship	(1) 25,000	(1) 25,000
	(2) 67,000	(13) 466,500

Table 2. Funding for under-represented graduate students.