Diversity Appraisal
Preliminary Summary Report

October 20, 2004
This preliminary summary report provided by the College of Engineering highlights current efforts or initiatives, both at the college-level and at the department-level, focused on increasing diversity among students, staff, and faculty. The College is committed to increasing diversity and developing a climate and culture within the College that welcomes and nurtures diversity and therefore excellence among students, staff, and faculty. It is only by developing this climate and culture that the College and the University can truly increase diversity among students, staff, and faculty. We are certainly not satisfied with where we are in regards to our climate and with our diversity among our students, staff, and faculty therefore we welcome this campus-wide diversity appraisal and will seek to be active contributors to this important effort.

This report is presented in three parts 1) A narrative responding to the three broad questions asked by the UW Diversity Appraisal Steering Committee, 2) a section summarizing diversity efforts and initiatives primarily administered at the college-level or by non-academic units within the College, and 3) a section summarizing diversity efforts and initiatives administered at the academic department-level. While there is considerable coordination and collaboration that occurs between college-level program service providers and the engineering academic department units, we chose to present college-level and department-level efforts separately to acknowledge the initiative put forth at each level. Where possible the summaries attempt to show the coordination between the college and departments.

SECTION 1

1) How is diversity a visible and active part of your unit?

The College of Engineering is known throughout the region for its effort to increase the diversity both of its student body, and of its faculty and staff. The outreach programs for students of color, women, and students with disabilities are strong, well-funded and highly visible. Our statewide MESA program is particularly effective at precollege outreach and academic preparation. College-wide programs for undergraduate and graduate students include: Minority Science Engineering Program (MSEP), Women in Science and Engineering (WISE), Disabilities, Opportunities, Internetworking and Technology (DO-IT), Genomics Outreach for Minorities (GenOM), and University of Washington Engineered Biomaterials (UWEB). Descriptions of the services these programs provide can be found in Section 2.

While the College has always placed a strong emphasis on diversity in student services, we have recently undergone a reorganization to focus our efforts even more strongly on diversity. We are currently hiring for a new Director of Diversity and Student Services who will coordinate the efforts of all of our outreach and support programs, reducing duplication, increasing efficiency, and above all, increasing the number of women and students of color who graduate with degrees in engineering. In the new structure, traditional boundaries between different programs will be eliminated with strong leadership and close coordination. The synergistic, flexible teams and their tasks are driven by specific goals of recruitment and retention. We emphasize the importance of data assessment and continuous improvement in the new structure.
The long-term vision for the College is to graduate students that represent the demographics of our regional population. We have made significant progress from our first efforts in the 1970s, but still have not reached parity. To that end, the College is increasing its efforts to both recruit and retain underrepresented students, through our outreach programs, and through strong leadership from the Dean and Associate Deans.

Academically, the college has made strides in increasing the diversity of its faculty. With an aggressive and creative recruitment program, we have been successful in recruiting both women and people of color to join our faculty. The Electrical Engineering department in particular deserves recognition – our department has more women faculty than any other EE department in the country, and is attracting very high caliber candidates for its open faculty positions.

In 2001, the University of Washington received an ADVANCE Institutional Transformation award from the National Science Foundation to increase the participation and advancement of women faculty in academic science, engineering, and mathematics (SEM) careers. UW ADVANCE envisions a campus in which all SEM departments are thriving, all faculty are properly mentored, and each SEM faculty member is achieving his or her maximum potential. UW believes cultural changes that are designed to help underrepresented groups invariably improve the environment for everyone.

As part of the ADVANCE award, the University of Washington created the Center for Institutional Change (CIC), which is housed in the Engineering Dean’s office. The ADVANCE grant has been instrumental in the University of Washington’s ability to implement several innovative and highly successful programs to eliminate existing barriers and to precipitate cultural change at both the departmental and institutional levels. Throughout all of our activities and programs, the CIC seeks to address issues of diversity.

The CIC has six areas of focus:

- Leadership development for current chairs and deans in SEM
- SEM department cultural change
- Examination of UW policies for equity and policy transformation
- Mentoring women in SEM for leadership
- Transitional support for women faculty in SEM
- Visiting Scholars Program

Recently ADVANCE dedicated a Leadership Team meeting to diversity. The discussion focused on ways to broaden ADVANCE’s efforts on diversity, conceptualizing diversity among women, and create inclusive definitions and activities that will not create barriers to women outside the mainstream. ADVANCE has now established a subcommittee which will consider ways of extending the diversity conversation beyond the Leadership Team meeting and devising a strategy to address the identified issues.
Several examples of how ADVANCE is addressing diversity are found throughout this report. Full information about the wide variety of ADVANCE initiatives can be found online at www.engr.washington.edu/advance.

2) The specific ways that diversity is integrated into your academic mission in regard to curricula, your undergraduate and graduate students, your faculty, and your staff.

For students to succeed as engineers, they must be able to interact with people from a wide variety of backgrounds and experiences. Our corporate partners stress this often, and look to us to educate a diverse population who can positively impact their companies and their communities. A monolithic style is no longer functional in this multicultural and multinational world. Therefore, opportunities are offered at several academic levels to highlight and increase the diversity of our undergraduates. Several academic courses (ENGR 197, 199 and 202) provide additional academic training that is targeted to students of color and women. In addition, our entry level course (ENGR 100) stresses team work and cooperation as essential to engineering problem-solving.

3) The ways in which you have structured your unit so that diversity is institutionalized as part of your criteria for success.

As mentioned, the College of Engineering is currently reviewing and embarking on a structural reorganization of its college-level offices and programs that provide services to students. The main impetus of this effort is to more effectively recruit, retain, and graduate a diverse pool of talents, including women and underrepresented students. Included in this examination will be a review of how these college-level efforts are coordinating with not only department-level efforts but also with campus units such as the Office of Minority Affairs to increase diversity among our student population.

Also as the efforts of ADVANCE unfold, we are expecting feedback on any structural – organizational changes can be made that would more effectively institutionalize diversity as part of our criteria for success.
<table>
<thead>
<tr>
<th>1) Student Access and Opportunities</th>
<th>ACCESS; Outreach program for talented minority high school students interested in engineering. Involves Saturday morning computer learning labs with follow up scholarships.</th>
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<tbody>
<tr>
<td></td>
<td>TALPA; Outreach program that develops computer learning labs in remote Native American High Schools</td>
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<td></td>
<td>LEÓN; Outreach program features one-on-one real-time tutoring with new tablet PC's to remote communities. (new program in development/partnership with OMt)</td>
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<td></td>
<td>ALVA (Alliances for Learning and Vision for underrepresented Americans) Rigorous nine week summer interns for entering freshmen that includes four hours of math preparation per day. Work sites include work at NASA, Bechtel, Hewlett Packard, Boeing and UW research labs.</td>
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<td>Bridge; Five day orientation program for entering freshmen affiliated with the Minority Science and Engineering Program (MSEP) conducted just prior to first quarter classes.</td>
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<td>High School Genomics Workshops; GenOM staff visit MESA (Mathematics, Engineering, Science Achievement) and High School Human Genome Project (HSHGP) schools, connecting with teachers involved in those programs, giving a hands-on workshop in sequencing, or conducting a genetics debate, and presenting summer research program opportunities to students.</td>
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<td></td>
<td>GenOM High School Summer Research Program; modeled after the ALVA Program, this program provides high school rising seniors and incoming UW freshmen with the opportunity to conduct genomics research while developing their math skills.</td>
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<tr>
<td>Program/Team</td>
<td>Description</td>
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<td>DO-IT (Disabilities, Opportunities, Internetworking, and Technology program) Summer Camp</td>
<td>This on-campus opportunity prepares students with disabilities for the transition to postsecondary institutions and employment. Approximately 45 high school students and 15 college students with disabilities involved annually.</td>
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<td>DO-IT Quarterly Newsletters</td>
<td>Developed in collaboration with all three UW campus Disabled Student Services offices inform students with disabilities about resources, services, and opportunities for work-based learning. Reach approximately 450 students.</td>
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<td>Emerging Leaders Program</td>
<td>The recruitment component of this program invites high achieving and diverse high school students to campus for engineering tours and presentations led by UW engineering students, staff, and faculty.</td>
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<td>NW Alliance AccessSTEM Team</td>
<td>Developed by DO-IT and partners across the region involve high school and college students with disabilities with mentoring, special preparation events, and work-based learning experiences in the science, technology, engineering and math fields. Approximately 50 students are currently involved.</td>
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<td>Community College Outreach</td>
<td>Numerous community colleges across the region are visited annually to better inform prospective engineering transfer students – includes class and transfer fair visits.</td>
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<tr>
<td>Academic Advising</td>
<td>Available to diverse populations of prospective high school students and parents.</td>
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<tr>
<td>UWEB (University of Washington Engineered Biomaterials) Education and Outreach SET-UP</td>
<td>A program which brings 18 middle school students from the African American Academy each year to campus for presentations and activities.</td>
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Research Opportunities for High School Students; a number of College programs including GenOM and UWEB offer research opportunities to minorities and women during the summer.

Scholarships; The College and its various programs for students offer numerous scholarships for incoming students including minorities and women. Increasing scholarship offerings to incoming students is one of the priorities of the College in the coming years.

Cohort Scheduling for Incoming Minority Students; to assist with community building, the College has worked with New Student Programs to create a Freshman Interest Group (FIG) for MSEP affiliated students each autumn quarter that includes Engr 100, an introductory engineering course in design.

| 2) Student Development and Retention | Academic Support Services; numerous initiatives are aimed at assisting diverse populations of students develop academically as they face the transition into and rigor of university math and science courses and application to competitive engineering and science programs. These services include:

|                      | • *Academic Workshops* for MSEP affiliated students that parallel key gateway courses, including Chemistry, Calculus, and Physics. These one-credit workshops are facilitated by minority graduate and upper-class students and stress collaborative learning, group discussions and intensive problem-solving.
|                      | • *Tutoring*; providing WISE (women in science and engineering) students with free one-on-one support in Computer Science, Math, Chemistry, Biology, Physics and Engineering pre-requisite courses. Tutoring is also provided for MSEP affiliated students and GenOM students.
|                      | • *Study Centers*; diverse populations of students as engineering and sciences pre-majors may utilize a number of study centers in engineering to work together and/or received tutoring, e.g. the Engineering Student and Advising Center in 301 Loew offers study space as well as tutoring in engineering fundamental courses. |

The College of Engineering activities and opportunities summarized in this section are meant to assist with student development, enrichment, and retention either at the university or in students’ transition into engineering degree programs.

The efforts summarized in this section are also, in general, viewed as college-level activities or as efforts that have been initiated and are administered at the college-level. Department-level activities specific to each engineering academic program are summarized in later sections of this report.

Additional information on this opportunities and programs can be found at the College of Engineering’s Recruitment and Retention website at http://www.engr.washington.edu/org/recruit/
or by calling Cindy Bush at 206-543-8590

- **Supporting the UW Instructional Center:** many pre-majors in engineering and sciences from diverse populations utilize the UW Instructional Center; therefore some initiatives in engineering like GenOM have partnered with the Office of Minority Affairs (OMA) and others to jointly pay for staff to tutor in subject areas such as biology.

**Personal and Professional Development:** numerous efforts are aimed at assisting diverse populations of students develop personally and professionally. These efforts include:

- **WISE Mentoring Programs:** designed to increase the participation of women of diverse backgrounds in engineering and science, WISE students may participate in the following programs: **Peer Mentoring,** which matches WISE pre-majors with more advanced students who can provide informal advising on classes, internships and undergraduate research opportunities; **Professional Mentoring,** pairing WISE students with professional mentors from over 50 local engineering and biotechnology companies; and **Graduate Student Mentoring,** which offers graduate women mentoring on academic and industry careers, research, and professional development.

- Other programs have also initiated mentoring programs – DO-IT for example provides an electronic mentoring community for high school and college students with disabilities to support academic and career aspirations.

- **Undergraduate Research Opportunities:** numerous college programs assist diverse populations of undergraduate students with identifying and securing research positions on campus including GenOM, UWEB, and DO-IT.

- **CO-OP and Internship Opportunities:** numerous college programs assist diverse populations of undergraduate students with identifying and securing co-ops and internships with various corporate partners – specifically the CO-OP (Cooperative Education) Program in Engineering serves as a clearinghouse and logistics office for formal coop
opportunities however students can also find internships through programs such as MSEP, WISE, GenOM, and DO-IT.

- **Global Engineering Educational Exchange Program (Global E³);** which offers UW engineering students the chance to study abroad in over 14 countries.

- **Personal and leadership development opportunities:** include but are not limited to business skills workshops, networking events, study skills and student development courses, and leadership seminars through the Emerging Leaders Program. In addition, the College supports the development of student leaders through its support of student chapters of societies such as the National Society of Black Engineers (NSBE), the Society of Hispanic Professional Engineers (SHPE), the American Indian Science and Engineering Society (AISES) and the Society of Women Engineers (SWE).

- **Service and volunteer opportunities for our students:** for example, WISE students and other interested students may volunteer at such activities as the annual MLK Math and Science Celebration for under-represented elementary students, the annual WISE Conference that attracts many women high school students or for any number of K-12 outreach activities where volunteers serve as presenters, mentors or tutors for younger students interested in STEM fields.

**General Retention Support:** numerous college personnel and programs provide general retention support and opportunities for diverse populations of students including minorities, women and students with disabilities. These would include but not limited to;

- Academic/career advising and information sessions/seminar series so that students can become better informed about various engineering and science fields.

- Numerous mechanisms for information dissemination and notification of opportunities to various populations of students – listservs have been established and are used regularly by programs such as WISE, MSEP, GenOM, DO-IT, and general pre-engineering advising.
3) Engagement with the External Community

The efforts and activities summarized in this section are meant to connect and engage the College of Engineering with external communities for the purpose of finding partners in these communities that can assist and support College’s diversity goals. These efforts also represent ways in which the College is of service to or supportive of others.

Additional information on this opportunities and programs can be found at the College of Engineering’s Recruitment and Retention website at http://www.engr.washington.edu/org/recruit/ or by calling Cindy Bush at 206-543-8590

- A computer learning center provided in part by corporate partners for MSEP affiliated students.
- Cohort class scheduling to sustain and build community among certain student populations.
- Other examples of general retention support include the direct support provided by DO-IT personnel to identify and secure necessary adaptive technology or other accommodations for students with disabilities participating in academic, enrichment, or outreach programs at the high school and college level.

Scholarships: various scholarships are made available to diverse populations of students. The sources for these scholarships include corporate, foundation, and individual donors. One example is the National Science Foundation (NSF) Computer Science, Engineering, and Mathematics Scholarship (CSEMS) Program that provides scholarships to talented yet low socioeconomic students. Programs such as MSEP, WISE, GenOM also award scholarships to their target student populations.

The following is a representative sample of the type and nature of engagement in external communities by the College of Engineering in the area of diversity;

Pacific Alliance: Funded by NSF, HP and Siemens Building Technologies, funds scholarships, workshop facilitators, building remodeling expenses, labs, and staff salaries. Involves interaction with the Universities of Alaska and Hawai’I – to increase the numbers of minorities in engineering and related fields.

Partnerships through the NW Alliance with Washington State Univ, Univ of Oregon, Oregon State Univ, Univ of Alaska - Fairbanks, Univ of Alaska - Anchorage, Univ of Idaho to increase the number of students with disabilities in the science, technology, engineering and math fields.

Women in Engineering Programs & Advocates Network (WEPAN); WISE is part of a national network including members from engineering schools, fortune 500 corporations and non-profit organizations from around the country. WEPANS
mission is to effect a positive change in the engineering infrastructure conducive to the academic and professional development of women and men.

*Martin Luther King Jr. Annual Math & Science Celebration*; invites students from several elementary schools in the Seattle School District, as well as volunteer student mentors from the University of Washington, go to the Pacific Science Center for a fun-filled day of hands-on science activities in honor of the Rev. Dr. Martin Luther King, Jr. The students are treated to a laser show, lunch, and engaging science-related activities.

*Annual WISE Conference* hosts a diverse group of students and professionals from area universities, community colleges, and industry actively participate in this daylong event. The primary goals of this conference are to:

- Encourage female students to continue their engineering and science studies,
- Build self-confidence,
- Ease the transition from school to work, and
- Provide students with a greater awareness of the opportunities within each field.

*Engineering Open House* – annual signature college event that attracts 6,000 K-14 students, parents, teachers, families, and community members. Working in conjunction with MESA, diverse populations of middle and high school students visit campus and learn more about engineering and the College of Engineering.

The College of Engineering has strong connections with K-12 and other related partners through numerous efforts including those of the statewide MESA Program. The total MESA Program in the State of Washington involves:

- 4 Sponsoring Universities
- 25 Participating School Districts
- 78 Industrial, Business, and Collegiate Partners
- 3,479 Students Served in 2001-2002 - MESA Academic Program
- 4,935 Students Served in 2001-2002 - All MESA Activities
The College of Engineering is engaged in various ways with our partners at state community colleges through efforts that involve students, staff, and faculty. Examples include but not limited to:

- Participation in WCERTE (Washington Council for Engineering and Related Technical Education), a voluntary organization of post secondary educational institutions within the State of Washington who are involved with some portion of the total spectrum of engineering and engineering related technical education.
- Relationships established with community college transfer advisers and student services providers, faculty, multicultural services personnel, disabilities office personnel, and women services personnel that assist students in their transition to the UW.
- Participation with other campus units in such events as Plan-a-Transfer Day for prospective transfer students and the CC/UW Advising Conference for advising personnel.
- Monthly informational emails to community college advisers and faculty across the state.

Other external communities include such entities as the Washington Business Leadership Network, the ACCESS Foundation, NAMEPA, NACME, and MESA USA. As well as various business groups and corporate partners including NASA, Boeing, and Microsoft that are too numerous to name.

For the College of Engineering, we also view as critical our relationship and engagement with internal communities at the University of Washington including but not limited to the Office of Minority Affairs, the UW Office of Admissions, New Student Programs, and the Gateway Advising Center. These are offices we have all partnered with and supported in the pursuit of attracting and retaining diverse populations of students to the university.

### 4) Staff and Administrative Diversity

The efforts and activities summarized in this section are

The college is currently developing a toolkit similar to the one developed and successfully implemented for faculty searches.
meant to assist with staff and administrative diversity. This would include but not be limited to such activities as wider and more targeted distribution of position announcements, applicant review, diverse representation on review and interview committees, and success mentoring for all staff particularly new hires.

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<tr>
<th>Faculty Diversity</th>
<th>Faculty Recruitment and Retention</th>
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<tr>
<td>Numerous College personnel regularly distribute information about campus employment opportunities to established external networks and communities in order to attract more diverse candidates.</td>
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5) Faculty Diversity

The Faculty Recruitment Toolkit contains concrete suggestions for recruiting a diverse applicant pool. This toolkit was written and compiled on behalf of the University of Washington’s President's Advisory Committee on Women and is shared with all College of Engineering faculty search committees. (The toolkit can be viewed at [http://www.washington.edu/admin/eoo/forms/ftk_01.html](http://www.washington.edu/admin/eoo/forms/ftk_01.html))

Topics discussed in the Toolkit include:

- Faculty hiring policies and procedures
- General search tips
- Resources for diversity
- Language for advertisements and announcements
- Benefits and resources for new hires
- Miscellaneous resources

Faculty retention is as critical as recruitment to the health of a university department. ADVANCE has created a new Faculty Retention Toolkit to assist department chairs in retaining their faculty across all ranks. The topics discussed in the toolkit include:

- Monitoring the health and welfare of departments
- Transparency in operations including fair and open promotion and tenure guidelines
- Creating a welcoming department climate
- Mentoring
- Valuing diversity in the department
Supporting career development of pre-tenure faculty
Encouraging mid-career professional development
Faculty development programs, benefits, and resources
Flexible and accommodating policies and practices

The toolkit was can be viewed online at the ADVANCE web page (www.engr.washington.edu/advance/Retention/)

**Mentoring and Professional Development for Women Faculty**

ADVANCE has designed a leadership development program to encourage women faculty to consider and pursue positions of academic leadership. Prior to the ADVANCE grant, women faculty generally shared their wisdom and experiences informally and often on a one-on-one basis. But because women faculty are isolated, these kinds of interactions were limited and *ad hoc*. Now, each month, a different woman leader (either from UW or from the national arena) discusses her career trajectory and the benefits and challenges of holding an administrative job. Emphasized are techniques for time management, obtaining consensus among faculty, and implementing a vision of excellence. Featured women leaders have included two deans of engineering, three associate deans, two department chairs, and one Center director. This model allows more women to have the opportunity to learn from their fellow faculty members, both at the peer level and above.

For pre-tenure faculty, ADVANCE has developed a group mentoring program rather than using the traditional one-on-one mentoring model. The mentoring opportunities occur at a peer level and across ranks. In addition to monthly networking lunches, ADVANCE has hosted several workshops on topics such as navigating the tenure track, time management, promotion and tenure, and connecting with college development offices. Many of these workshops are open to all pre-tenure faculty, regardless of gender.

6) Curriculum and Research

- DO-IT provides resources to increase the awareness and resources
available to faculty working with students with disabilities.
- DO-IT coordinates a national project to provide training and improve the skills of faculty and student services staff around universal design, accessibility, and accommodations.
- DO-IT provides ongoing support of "The Faculty Room", a web-based resource with a searchable knowledge base that provides postsecondary faculty information about maximizing educational opportunities and exploring accommodation strategies for students with disabilities.

7) Climate

The efforts and activities summarized in this section highlight ways in which the College of Engineering is seeking to enhance the climate for diversity for students, staff, and faculty.

Department Cultural Change.

The ADVANCE Center for Institutional Change (CIC), which is housed in the Engineering Dean’s office, is sponsoring two initiatives around department cultural change. First, in response to feedback from department chairs regarding low numbers of women and minority faculty, and requests for suggestions on improving unit culture, the CIC created the Department Transformation Grant. The grants provide monetary support to departments interested in pursuing these issues. Proposals must address BOTH creating opportunities for women and minorities AND departmental cultural change.

Second, the CIC along with ADVANCE Visiting Scholar Chris Loving has developed a Cross-Department Cultural Change Program (CDCCP) which is designed to help departments enrich communication, enhance collaboration, seek and utilize diversity more effectively, and improve faculty recruitment and retention. The CDCCP is further intended to encourage more effective peer mentoring and collegiality, to foster a positive and inclusive environment, and thus to create a more vibrant and fulfilling intellectual community. The CDCCP is an opportunity for department chairs and faculty to work together on specific department issues around cultural change.

The CDCCP’s structure reflects the need for skills development and frequent, ongoing opportunities to address cultural change. The CDCCP’s structure of
regular (monthly) cross college and cross department networking and brainstorming sessions emphasize the exploration of cultural change concepts and acquisition of related individual and leadership skills. Concurrently, these concepts and skills will be used to create and implement specific initiatives to improve the climate for everyone in the department. Department chairs along with two other faculty form a department team and identify a department project. In an effort to increase the number of faculty who support improving department climate, some department chairs have chosen to invite faculty other than those who are already clearly supportive of department cultural change.
SECTION 3

Departmental diversity initiatives

The Departments in the College of Engineering support the College’s commitment to diversity, and are active partners with the various College diversity programs. The departments work together with the College’s diversity programs to help achieve their diversity goals in the areas of student access and opportunities, student development and retention, and engagement with the external community. To prepare for this report, each department submitted a diversity effort self-study report to the college. These reports provide detailed information about the departments utilize the College’s diversity programs. The combined reports appear below.

In addition to working with the college programs, many departments have developed policies, procedures and programs of their own to help address diversity needs. Departments have implemented admissions policies that enable their admissions committees to consider factors beyond grades for acceptance into their programs, such as background, interests and goals. This leads to a better assessment of an applicant’s overall capabilities. These changes have helped to create a more diverse student population, while also strengthening the overall level of students.

Our departments participate in the UW National and Western Name Exchange, attend the UW GOMAP recruitment fair, and participate in the GOMAP Prospective Student Days, all designed to help recruit under represented minority students to our graduate programs. Additionally, the departments work with student and professional societies to help recruit women and under represented minorities to undergraduate and graduate programs by attending recruitment fairs, providing presentations at meetings, and providing general information sessions.

All departments have student development and retention processes in place to help students through their programs, and all departments strive to be attentive to the needs of their students. Two of our departments have created student affairs committees to address student affairs and policies, and to help resolve problems. Another department holds regular “Talk to a Chair” meetings, where any and all students are invited to talk to a chair about topics of their choosing. Departmental advisors monitor student progress, and are quick to act when problems are identified.

Many departments are introducing more group and teamwork projects and courses, which helps students learn from each other as well as learning to value the strength of a diverse team. Additionally, departments have added introductory courses and seminars to their curricula that are designed to provide exposure to and assist entry into a field that many diverse student populations may not otherwise explore.
1) Student Access and Opportunities

Aeronautics & Astronautics

Undergraduate Program

Through K-12 outreach activities in the greater Seattle area we seek to interest as many potential students as possible to apply to our program. This is done through visits by faculty and students to K-12 classrooms, through hosting school visits to our department (which occur primarily in the spring), or through programs such as King County’s Opportunity Skyway and GEAR UP. We do not have resources to provide outreach statewide or nationwide.

General student access to the A&A department starts with Engineering Open House and our freshman-level introductory course, AA101, Air and Space Vehicles. Open House allows both UW and K-12 students to see what goes on in the department, while AA101 gives students of diverse backgrounds an opportunity to learn what aerospace engineers do. This course has proved to be an effective recruiting tool for us. Our web page states the University’s policy of equal opportunity, and provides information about obtaining disability accommodation.

Opportunities exist for students to become involved in research. At least 50% of A&A undergraduates become involved in research at some point in their undergraduate education. Many labs have juniors or sophomores working along with seniors and graduate students. In addition we have hosted ALVA students during the summer.

Graduate Program

The A&A web page, our Graduate Handbook, and personal contacts with other universities are our main recruiting tool for graduate students. Our web site and Graduate Handbook state the University’s policy of equal opportunity, and provide information about obtaining disability accommodation (which we also include on seminar notices).

We participate in the UW National and Western Name Exchanges (a consortium of universities that collects and distributes the names of ethnic minority students interested in graduate study). We contact all students on the list who indicate an interest in our department, provide them program and admissions information, and maintain contact with those who respond to our outreach. We also attend the annual Graduate Opportunity and Minority Achievement Program (GOMAP) graduate school recruitment fair, answer questions and provide application information to prospective minority students.

Accommodation

A&A provides accommodation for disabled students, including finding note takers and providing additional time for completion of exams. In 2000, a stair lift was installed to enable wheelchair bound students to have access to labs, classrooms, and offices on all floors of Guggenheim Hall.

Bioengineering
Over the past nine years the Department of Bioengineering at the University of Washington has initiated systematic efforts to increase the participation of women and under-represented minorities in bioengineering. Dr. Patrick Stayton, Professor, has been working on our bioengineering admissions committee and is helping to coordinate larger efforts in the School of Medicine.

Dr. Stayton and other Bioengineering faculty work closely with the College of Engineering's Minority Science and Engineering Program office. We have directly recruited together at targeted institutions with high numbers of talented under-represented minority students and have jointly recruited at national student conferences such as AISES (American Indian Science and Engineering Society) and SACNAS (Society for Advancement of Chicanos and Native Americans in Science). The MSEP office is now very familiar with our program and can effectively communicate opportunities in bioengineering to undergraduate students.

Developing a close working relationship with a few selected minority institutions with relatively high numbers of talented students is a very effective mechanism for increasing diversity. We have placed particular focus on Prairie View A&M, North Carolina A&T, Tougaloo and University of Texas – El Paso where we have ties to both faculty members and administrative leaders. Talented undergraduates are identified, brought to the UW for summer research experience and provided with a stipend and housing costs. In addition to research, the students are mentored and coached on presentation skills, written skills and graduate admissions. We feel that this individualized approach is more successful because it provides a richer experience.

Through the creation of the GAANN Fellowship Program in Bioengineering, the department has been able to leverage significant UW support for recruiting efforts and to strengthen relationships with the College of Engineering's diversity programs and personnel. Such recruiting efforts resulted in the admission of two particularly talented students. Our GAANN program is in collaboration with the Women in Science and Engineering (WiSE) Program. We have jointly sponsored workshops addressing such topics as how to get into graduate school (for undergraduates), and how to succeed in graduate school (for first year graduate students). As part of the new GAANN program, we have worked with the WiSE directors, Dr. Suzanne Brainard and Ms. Meesha Grinter, to institute a new mentoring program for the GAANN fellows and for the undergraduate summer research students. WiSE has developed new curricular materials for successful mentoring that both provide instruction on how to effectively mentor for graduate student and faculty mentors, and instruction in how to be mentored for the undergraduate students. WiSE will be working with our new GAANN fellows to help them serve as better mentors to the undergraduates during the summer research program that they will be involved in, and at the summer GAANN workshop on diversity. WiSE will also provide mentoring to the summer research students participating in our UW Engineered Biomaterials Center REU as well as their ongoing involvement with the Center for Nanotechnology, of which Bioengineering is a participating department.

In addition to the efforts outlined above, the Department of Bioengineering participates in the National and Western Name Exchange. Approximately 100 informational letters were sent to students included on that list in November 2003. As part of our efforts to assist GO-MAP in
assisting us, we are sending details to our 2004 recruits with information regarding, and
encouragement for, their participation in GO-MAP’s Prospective Student Days. Luckily, our
Recruitment Weekend falls on the same dates as the Prospective Student Days and we anticipate
recruit and staff involvement between the two events.

Our Lead Academic Counselor, Kelli Jayn Nichols, created a job shadow program for aspiring
bioengineers at the high school level to spend time in the lab of a Bioengineering faculty
member. There has been a great deal of interest in this program. Ms. Nichols tracks these
students to see how the experience has shaped their goals and, as appropriate, guides them
toward UW Bioengineering.

Our Senior Academic Counselor, Jennifer Gouine, recently worked with her counterparts in the
School of Medicine to create major promotional materials directed to underrepresented
undergraduate students. Information is included about pursuing a Ph.D. versus an M.D.,
strengthening a graduate school application, and how the Pacific Northwest is a great place
to live and do research. Jennifer will take these materials and a student with her to several
conferences in 2004-2005 including those sponsored by the National Society of Black Engineers
(NSBE), the Society of Hispanic Professional Engineers (SHPE), the Annual Biomedical
Research Conference for Minority Students (ABRCMS), and SACNAS. Ms. Gouine is also a
member of SafeZone, a UW program designed to visibly identify staff and faculty peers who
support the gay, lesbian, bisexual, and transgendered (GBLT) population, understand some of the
issues facing GBLT individuals, and are aware of the various GBLT resources.

Each year we appoint undergraduate and graduate admissions committees that reflect the
varieties of our research as well as the diversity of our backgrounds. We recognize that the issue
of diversity in admissions decision-making is restricted so we encourage the use of the
‘application statement’ as a means for potential B.S. and Ph.D. students to provide a fuller
picture of their experiences inside and outside of the classroom and lab.

Chemical Engineering

Faculty, staff, and students participate in a number of activities and efforts designed to increase
student access and opportunities. These include but are not limited to:

- Freshman Seminar taught by Bruce Finlayson
  GEN ST 197: “How Chemistry, Biology, and Physics are Used to Make New Products
  We Use”

- Graduate Recruiting and Admissions led by Larry Ricker

- Participation in the SET-UP Program by Buddy Ratner, a program that engages students
  from the African American Academy

- Participation in DO-IT Program activities by J. Ray Bowen
Civil & Environmental Engineering

We carefully read our application statements to find students with life experiences that would help broaden the diversity of our department.

Computer Science & Engineering

a) CSE Professor Larry Snyder created CSE/INFO 100, a computer fluency course developed for students who have had limited or no exposure to computing. First offered in Spring 1999 by CSE, with the arrival of the Informatics undergraduate major it is now offered jointly with the Information School. This course has provided a stepping stone to computer science for over 1500 diverse students who would have been otherwise left out of many of the traditional paths to computer science.

b) CSE Graduate Student, Vibha Sazawal, has created and implemented a class for freshmen and sophomore women students registered in CSE 100 and CSE 142 (our introductory programming course). The purpose of the class is to provide a supportive environment, boost confidence in CS and engineering ability, break down CS stereotypes, offer a complete picture of computer science and its applications, and spark interest in computer science. Funding for the class came from a grant from Intel. The grant covers expenditures for computers, robots, and undergraduate TA staff. Materials are also sponsored in part by private donations to CSE toward CSE diversity initiatives.

c) CSE 142 students have the option of enrolling in a low-preparation or high preparation section. Students can elect to enroll in a low-preparation section if they have had little or no programming experience prior to the course. While 142 is intended for those with limited or no programming experience, in practice those who enroll have a wide range of programming backgrounds. For those with limited backgrounds or low confidence in their technical skills (which is common in women and underrepresented minorities), learning alongside students with even a small amount of experience can be intimidating. By offering high-preparation sections we can cluster together the more experienced students and allow the lower-preparation sections to foster a supportive environment.

d) Beginning Autumn 2003 CSE has offered a one credit seminar to students in our introductory programming courses. The seminar addresses issues for women in computer science, exposes them to the breadth of the field in a manner that will encourage additional interest, and provides them with an increased sense of community.

e) In 1999, CSE updated our undergraduate admissions criteria from a more quantitative process to a much more qualitative process. The new process enables CSE to consider factors beyond grades for acceptance into our bachelor’s program. The personal statement criteria was amended to give greater weight to the applicant’s overall situation and to allow the admissions committee to give additional consideration to student background, interests and goals. Since studies have shown several factors including a lack of outside experience cause many women to struggle in
introductory CSE courses, yet excel once they are further along in the major. These additional considerations have allowed for a more diverse CSE population while strengthening the overall level of our students.

f) In late 2003 CSE solicited funding from four local high-tech corporations to provide scholarships for Direct Admission Program candidates.

g) In 1990, CSE established an endowed scholarship with contributions from many sources both inside and outside the department. This Diversity Scholarship Fund has since been used in support of CSE graduates and undergraduates.

**Electrical Engineering**

Our undergraduate admissions numbers (total, percentage of women, and percentage of under-represented minorities) have been holding steady over the past two years. Since we have not received any new funds for new spots, this is unlikely to change drastically in the near future. Our Autumn 2002 graduate admissions went very well with over 1/3 of those enrolling being women. Autumn 2003 graduate admissions were slightly down from this, to about 26%, and the cause for the decline is not apparent, since our admissions procedures and policies were unchanged. The percentage of under-represented minority students is still very low for both our undergraduate and graduate programs, roughly about 1-2% in comparison to the approximately 10% under-represented minority population of the Seattle metropolitan area.

**Industrial Engineering**

**New Student Orientations.** At graduate and undergraduate orientations students are introduced to resources within IE, the College and the University. These resources include student organizations such as the American Indian Science and Engineering Society, the National Society of Black Engineers, the Society of Hispanic Professional Engineers, the Society of Women Engineers, as well MS EP, WISE, SCORE and CO-OP. Representatives from these groups regularly speak at orientations. IE students have been active members of all of these organizations and currently an IE student serves as the president of SWE and another serves as an officer of SHPE.

**IE 101.** Originally suggested by the IE Student Advisory Board (SAB), IE 101 is a way to reach out to students who might not otherwise learn about IE. The one-credit course is used as a tool to recruit new majors as well as educate others about what IE’s do.

**Pre-major information sessions.** Co-sponsored by the student chapter of the Institute of Industrial Engineers (IIE), Alpha Pi Mu (APM), the IE honor society, and the SAB, faculty and industry representatives discuss their careers as industrial engineers. IE’s academic counselor gives a presentation on the IE program and answers student questions.
Freshman admissions policy. IE was one of the first departments in the College to institute a freshman admissions policy thereby providing the opportunity for outstanding freshman to declare an IE major.

Individualized Recruitment. Both the faculty undergraduate program coordinator and academic counselor keep an eye out for promising students who might not otherwise have considered applying to IE.

New Student Orientations. At graduate and undergraduate orientations students are introduced to resources within IE, the College and the University. These resources include student organizations such as the American Indian Science and Engineering Society, the National Society of Black Engineers, the Society of Hispanic Professional Engineers, the Society of Women Engineers, as well MSEP, WISE, SCORE and CO-OP. Representatives from these groups regularly speak at orientations. IE students have been active members of all of these organizations and currently an IE student serves as the president of SWE and another serves as an officer of SHPE.

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Materials Science & Engineering

The MSE Chair and Academic Counselor have worked with the Minority Science & Engineering Program (MSEP), the Society of Black Engineers (SBE), and the Society of Hispanic Professional Engineers (SHPE) by providing presentations to minority students about the field of materials science and engineering and provided them general information about the Department. In addition, the Counselor identifies scholarships for minority students and helps them with the application process including writing letters of recommendation. The Academic Counselor refers female students to the WISE Center on campus to receive tutoring and academic support and works closely with them to recruit students. The department uses prestigious scholarships (e.g. Marsh, ARCS, Go-MAP and Nanotech Early Bird) to recruit potential graduate students.
Mechanical Engineering

Entry to the Department is very competitive. Autumn 2003 students had an average GPA of 3.55. ME Student services participated in numerous recruitment and retention activities for underrepresented populations. These include: McNair Early Identification Program, GO-MAP, MSEP, SWE, National Society of Black Engineers, Society of Hispanic Engineers, WISE, Corporate relations regarding Diversity Scholarship, Hui Ho Aloha Ulana (Hawaii Club), Disabled Student Services, Multicultural Alumni Partnership volunteer, Career Mentor/UW Alumni Association, and WA State Achievers Program.

ME Student Services Staff recruit and advise prospective ME students from the local Community Colleges, meet with prospective students and families at annual events such as COE Open House They work on Plan a Transfer Day and support efforts in K-12 relations.

One faculty member volunteers at the Jubilee Women's Center in Seattle tutoring in math and science. Another faculty member was a co-organizer of a NSF Workshop for the Advancement and Retention of Underrepresented & Minority Engineering Educators.

We are currently working with Upward Bound on a special 2004 summer program in ME for high school students, and with MESA/MSEP on a special 8 week ME ACCESS program for high school students to be offered in the spring and autumn of 2004.

We have also met with Trish Millines-Dziko to discuss ME participation in the Tech Access Program she heads.

2) Student Development and Retention

Aeronautics & Astronautics

Undergraduate Program

Students are monitored from the moment they enter the department. Department advisors and faculty intervene if a student begins to struggle in the program. Careful admissions and uniform prerequisites result in a low drop out rate. When problems appear, the department is quick to respond and learn the cause of the problem, and implement solutions. The overall atmosphere of the department is one of nurturing our students and being attentive to their needs.

Graduate Program

Graduate advisors and the faculty take much the same approach with graduate students as with undergraduates, but taking account of the fact that the former are more mature and generally need less guidance.
The department supports the Women in Science and Engineering (WISE) program, sponsoring students to participate in the WISE Annual Conference, and providing them department updates for their quarterly newsletter.

We participate in the GOMAP Prospective Student Days, a recruitment event for visiting minority applicants, as well as UW minority students and others. In addition, when we have had prospective minority students visit the department, we coordinate meetings for them with the GOMAP office so they can learn more about opportunities available to them on campus, and to give them an idea of how they will be integrated into the UW community.

**Bioengineering**

Our efforts to retain minority and underrepresented students are best shown through two examples; Both students had difficulties with their respective advisors and, at times throughout their tenure, found themselves facing a quarter without funding. We believe in supporting our students toward graduation so we stepped in with funding to enable these bright students to complete their degrees. These students exemplify our commitment to the success of all of our students.

To ensure this success, we have created a standing Student Affairs Committee (SAC) that meets on a bimonthly basis to discuss policy, monitor student progress and act as last resort for “sticky” student issues. Faculty members are appointed for two-year terms, students (undergraduate and graduate) and post-docs are appointed for one-year terms with the option to extend their terms if they choose. All members are reminded of confidentiality obligations. We feel it is important for all students to have an audience to hear their issues but especially an audience with the authority to change policy or plead their case further when necessary.

Bioengineering provides full funding to doctoral students in the first year of graduate study, unless students arrive with their own support or are admitted directly to a professor’s lab. We feel it is important for our students to have three quarters in which to rotate between labs and find a good “fit”. Recruits and currently enrolled students have told us that this flexibility during the first year is a top selling point of our program. Each student is assigned a faculty member to guide him or her on issues of coursework, potential labs, the University, and the city in general. The Senior Academic Counselor and Vice-Chair are also available for practical and emotional support as we recognize that the transition from undergraduate to graduate status is an adjustment.

We maintain a strong relationship with our graduate students via the UW Bioengineering Student Association (BESA). In Spring 2001, BESA leaders polled the graduate students regarding their anonymous feelings toward the department, their relationship with their advisor and their committee members and solicited suggestions for improvement. The results were mixed and, since then, we have been working to research causes and collectively solve problems. We realize that such collectivity is an ongoing importance and not a mindset to abandon once problems have been solved. We bring this attitude to departmental diversity as well.
To evaluate our efforts at improvement, we conducted a follow-up survey in late Summer 2003. A high percentage of students responded and reported strong satisfaction with a) our Student Services team, b) diversity of and opportunity within research, and c) faculty advising. Areas in which we need to redouble our efforts are curriculum and teaching. Our Curriculum Committee and the Bioengineering faculty as a whole are strategizing with CIDR on the best path to improvement in these areas.

Finally, we hope to strengthen the connection between students, staff, and faculty when we move into our new building in Fall 2005. We anticipate an increased camaraderie between and within research groups as labs are moved from 11 separate buildings into a central location.

**Chemical Engineering**

Faculty, staff, and students participate in a number of activities and efforts design to enhance student development and increase retention. These include but are not limited to:

- Leadership and participation in the Genomics Outreach to Minorities (GenOM) Program by Mary Lidstrom
- Leadership and participation in UWEB Education and Outreach by Buddy Ratner and others
- Freshman Seminar taught by Bruce Finlayson
  GEN ST 197: “How Chemistry, Biology, and Physics are used to Make New Products We Use”
- Participation in the WISE Mentorship Program by Barbara Krieger-Brockett
- Participation in the SET-UP Program by Buddy Ratner, a program that engages students from the African American Academy
- Providing undergraduate research opportunities especially to minorities and women. A number of faculty participate in providing these opportunities.

**Civil & Environmental Engineering**

96% of students that enter our program graduate.

**Computer Science & Engineering**

a) CSE alumnus Jeremy Jaech made a considerable contribution to CSE in 1998 to be used for CSE diversity efforts. As a result we established a minority outreach coordinator position funded
for three years. With the benefit of this funding CSE was able to establish minority support programs that are still in use today.

b) In 1998 CSE created Women in CSE (WICSE), dedicated to providing numerous activities and connections in support of women within CSE.

c) CSE offers monthly women’s and diversity lunches to provide an additional forum for undergraduate and graduate CSE students.

d) Each quarter CSE graduate students volunteer their time to provide tutoring resources to women and underrepresented minority undergraduates. The tutoring program provides an extra resource for students from diverse academic backgrounds.

e) CSE regularly uses the resources of the Minority Science and Engineering Program and the Equal Opportunity Program’s Instructional Center to support the needs of our minority students.

f) Each year CSE tries to sponsor for our colloquia series at least one lecturer to address topics relating to diversity in technology.

**Electrical Engineering**

The College of Engineering received a new diversity grant from Intel Corporation of $60,000 for the 2003-2004 academic year. This grant was split as $30,000 for Electrical Engineering and $30,000 for Computer Science and Engineering. The portion for Electrical Engineering was to help support Summer research experiences for Freshmen and Sophomores before they enter our BSEE major. The intention is to increase the representation of women in our undergraduate program and retain them, through those initial research experiences where they build a relationship early on with our department.

**Industrial Engineering**

**Professional Opportunities.** IE recently provided travel expenses for an undergraduate to participate in the Society of Hispanic Professional Engineers national conference in Chicago. Students have been encouraged to submit proposals to the Director to participate in the national conferences of professional groups.

**Student Advisory Board.** The SAB consists of undergraduate and graduate students who discuss issues related to IE’s strategic planning, curriculum restructuring, outside reviews, and other IE related concerns. Meetings are chaired by student members on a rotating basis. Students also rotate the responsibility of recording meeting minutes. Students learn to explore their roles as advisors and develop leadership skills. The SAB also holds a joint meeting once a year with the IE Visiting Committee.
**Student Suggestion Box.** Two years ago the SAB instituted a suggestion box for students. At each SAB meeting, members review suggestions and pass the information on to the appropriate person(s) for response. The SAB provides a yearly report to the faculty, staff, and students regarding suggestions made and actions taken to address them. Last year’s suggestion box report and analysis addressed the issues of facilities, advising, coursework, student organizations, and instructors.

**Institute of Industrial Engineers.** The student chapter of IIE maintains close ties with the IIE Puget Sound Chapter. Members and leaders from IIE-PS make it possible to provide professional events for students that have been invaluable to students’ experiences. The student chapter is consistently awarded Silver and Gold awards from the National Organization for their work in promoting professional skill development and providing mentoring opportunities for students.

**Alpha Pi Mu.** The IE honor society, APM, promotes higher education opportunities among undergraduate and graduate students. Each year APM hosts graduate school information sessions where current graduate students and faculty give presentations and answer questions regarding graduate school.

**Mock Interviews.** Each year, the IE Visiting Committee gives students an opportunity to improve their interviewing skills and resumes through the annual mock interviews. Students interview with an industry representative for 20 minutes followed by a feedback session.

**Teaching/Research Assistantships.** IE strategically awards TA and RAships for recruitment and retention purposes. Two years ago IE instituted a new Teaching Assistant Development Program. Coordinated by Professor Zelda Zabinsky, the goal is to enhance learning opportunities for both TAs and the students they work with.

**Individualized Assistance.** The IE advisor, graduate program coordinator, and undergraduate program coordinator work closely with students experiencing difficulties. Grade reports are monitored quarterly to identify students who may be in need of individualized assistance.

**Materials Science & Engineering**

The department takes considerable pride in being able to recruit and retain a diverse group of students. A number of national studies have indicated the crucial need to focus on the training of women and underrepresented minorities in engineering to address the future technical workforce needs of the country. In addition, our recruiters have consistently given us the message that they desire a diverse work force. As a result, we have aligned some of our recruitment efforts with programs focused on enhancing the diversity (ethnic, gender and people with disabilities) of students in science and engineering. A measurable result of these interactions is that our student body is highly diverse. During 2002-03 academic year, 21% of our undergraduate degrees were awarded to women. Currently, 18% of our undergraduate students are underrepresented minorities.
The Department has actively recruited women and underrepresented minority students to the graduate program. We have used a variety of recruiting tools including special scholarships (GOMAP, ARCS and Nanotechnology Center Early Bird). Although the current percentage of women in our graduate program is high (33%), we recognize that we need to continue our efforts in recruiting more women to the program. The recruitment of underrepresented minority students needs to be significantly strengthened. Currently, 12% of our grad students are under-represented minorities.

**Mechanical Engineering**

One of our ME PhD students, received a PRIME fellowship. She created and led mechanical engineering workshops for MESA and the UW educational outreach program. She taught two continuing education classes for the Seattle Public Schools for teachers about inquiry based K-5 science education.

ME PhD student involvement in CAEE's Engineering Teaching Portfolio Program. This is a pilot program for guiding advanced engineering graduate students through the process of creating teaching portfolios, and helped perform a research study analyzing the processes that participants used, the challenges they faced, and the support they received while creating their portfolios.

ME has received an advance Department Transformation grant for a "Strategic Plan for Recruitment, Retention and Advancement of Women and Minority Faculty and graduate Students in Mechanical Engineering."

ME has been selected and will participate in the UW ADVANCE Cross Departmental Cultural Change Program.

We are currently working with an alumnum at Microsoft for a special tour for ME students at Microsoft.

3) Engagement with the External Community

**Aeronautics & Astronautics**

**Undergraduate Program**

As noted in the first section above, the department is involved in K-12 outreach activities. Classroom visits by AA faculty and students, tours of laboratories, such as the Kirsten Wind Tunnel, and participation in national outreach programs through the AIAA, all target a diverse group of students.

AA101, Air and Space Vehicles, is aimed at non-engineering students. Thus, outreach to K-12 students has been a perfect outgrowth of this course. AA101 labs, such as the flight simulator lab and the water rocket lab, have been adapted for pre-college students who visit campus. Simpler
experiments or demonstrations are sometimes taken to K-12 schools on visits our faculty, staff, or students.

Our faculty lecture to the Society of Women Engineers (SWE), the Student and Community Relations (SCORE), and for Freshman Orientation. The department has held a summer course for the GEARUP program for five years.

**Graduate Program**

In our graduate program, engagement to the outside community is relatively limited, taking the form of site visits to schools by graduate students interested in K-12 outreach issues, and through participation of graduate students in activities such as Open House and school tours of our facilities.

**Bioengineering**

We debuted two courses in Spring 2003 which we hope will address yield and pipeline issues: BIOEN 202, “Genomics, Human Life, and the Future of Society” and BIOEN 497, “Bioengineering Outreach”. BIOEN 202 is the department’s first general education course and we anticipate it will broaden the department to new students and give them an opportunity to discover bioengineering at an earlier stage in their studies. Currently undergraduate students apply to the department while taking requisite science courses and typically do not take departmental courses until admitted to the highly competitive major. BIOEN 497 is a combined undergraduate and graduate course that involves credit for team science- and math-based projects completed in local K-12 sites. The department has encouraged and assisted students with outreach projects for many years but this is the first course that organizes the projects and provides a weekly meeting for feedback, support and discussion.

One obstacle to our diversity success is the ‘pipeline’ issue. In addition to spotlighting diversity efforts in recruiting current graduate applicants, we need to focus science and engineering efforts in the secondary and undergraduate environments. The Department of Bioengineering’s University of Washington Engineered Biomaterials program (UWEB) has partnered with the School of Medicine’s BRIDGES4 program to accomplish this goal. In addition, UWEB and BRIDGES4 recently received approval on a joint grant to the National Science Foundation to increase the ability of undergraduate and community college students to enter the field of Bioengineering at the graduate level. Additionally, we actively participate in the College of Engineering’s annual Open House that brings thousands of local K-12 students to campus to partake in a wide variety of hands-on science and engineering activities. We have several science exhibits at this event but our Student Services team also staffs an educational booth to answer questions such as, “What classes should I take in 7th grade to prepare me to be a bioengineer?” We try to take every opportunity to make accessible the field of bioengineering as well as the Department of Bioengineering. Our job shadow program, described earlier, is another example of such effort.
**Chemical Engineering**

Faculty, staff, and students participate in a number of activities and efforts designed to enhance student development and increase retention. These include but are not limited to:

- Participation in the SET-UP Program by Buddy Ratner, a program that engages students from the African American Academy
- Performing Community College Outreach led by René Overney
- Students, staff, and faculty participate in the annual Engineering Open House that has attracted close to 6,000 K-14 students, parents, teachers, and community members.

**Civil & Environmental Engineering**

Seminar speakers from diverse backgrounds are used in many classes.

**Computer Science & Engineering**

a) CSE regularly participates in outreach to and recruitment of underrepresented minority students through several campus organizations each year. Sponsoring organizations include the Office of Minority Affairs, MSEP, WISE, Making Connections and SWE.

b) CSE also regularly participates in outreach activities with a variety of other diversity organizations and programs including the Technology Access Foundation, Girls in Engineering, Math, and Sciences (a middle school program), and GEAR-UP.

c) Several individuals among CSE’s faculty, staff and students participate in outreach with Seattle area K-12 schools that have a large population of women and/or underrepresented minority students.

d) CSE is in the initial stages of collaboration with the UW Office of Educational Partnerships to create pathways for Yakima Valley/Heritage College students.

e) CSE publicized the history of women in computer science for K-12 students during the 2003 College of Engineering Open House.

f) CSE is in the initial planning stages under the direction of Professor Susan Eggers for the creation of a one week summer computing camp for high school students. The aim is to familiarize 50 high school students from a variety of socio-economic backgrounds with computer science concepts to encourage their further exploration in the field. This proposal will be submitted in January 2004.
g) An CSE graduate student, recipient of a PRIME Fellowship, spent the 2002-2003 academic year teaching math and computer science concepts at the African American Academy in Seattle.

**Electrical Engineering**

We are again offering EE-400W, Community K-5 Outreach for Engineers, taught by Prof. Denise Wilson. This course is usually offered once each year in the Winter quarter.

**Industrial Engineering**

**IE Student Groups.** IE student groups have participated in numerous community events. Most recently undergraduate students participated in Science Night with Lake Forest Park Elementary School. Using the Learning Curve concept from Professor Storch’s INDE 237 class. Undergraduates enjoyed the company of over 50 K-6 graders while teaching them about the benefits of exploring peoples’ “learning curves.” Community members from forensic scientists to aeronautical engineers participated in the event.

In the past students have also participated in the annual Rev. Dr. Martin Luther King, Jr. Math and Science Celebration at the Pacific Science Center. IE students served as mentors and role models to almost 500 4th and 5th graders from Cooper Elementary, Dear Park Elementary, Dunlap Elementary, and Rainer View Elementary.

**Industry Visits.** IE works with College and University Development to coordinate visits from industry representatives who are often interested in recruiting women and minority students for internship and career opportunities.

**College and University Events.** IE provides demonstrations and support for the College of Engineering Open House as well as University activities such as GEAR UP.

**Materials Science & Engineering**

We have worked closely with Math, Engineering and Science Achievement (MESA), Women in Science and Engineering (WiSE), the Minority Science and Engineering Program (MSEP), the Disabilities, Opportunity, Internetworking and Technology (DO-IT), the Society of Black Engineers, and the Society of Hispanic Professional Engineers (SHPE). We are currently developing new strategies for grad student recruitment in consultation with MSEP and GOMAP. In addition, we are involved in various activities designed to encourage students of all ages, particularly minority students, to pursue science. These include events such as the annual College of Engineering Open House held each spring and the week-long Materials Camp each summer in conjunction with ASM International. In addition our Outreach Program sends students and faculty to local science and technology classes in high schools and middle schools, and the department works with individual teachers for specific projects (e.g., demonstration of some uses of various kinds of science knowledge in a real materials engineering context).
The Chair and Academic Counselor both send letters to targeted groups of teachers and students telling them about the Department’s accomplishments, research and academic programs and outreach activities, and encouraging them to consider materials science as educational and career goals. In particular, these mailings target female and minority students.

**Mechanical Engineering**

Several have already been mentioned in 1 and 2.

Our faculty have been engaged in activities, such as:

- WISE presentation, "Choosing ME as a Major"
- Served as "mentors" for several WISE students
- Member WISE Faculty Advisory Board
- Member Advisory Board for MESA
- Member Special Committee for Minority Affairs

4) Staff and Administrative Diversity

**Aeronautics & Astronautics**

Staff turnover is extremely low. When positions are vacated, and we have resources to hire replacement staff, we make concerted efforts to increase the diversity of our staff. Personnel searches are conducted in full compliance with EOO guidelines.

**Bioengineering**

The research and administrative staff are 56% female, and ethnicity is distributed among Pacific Islanders/Filipino, Native American, African American, Asian, Caucasian.

**Civil & Environmental Engineering**

We have low staff turnover.

**Computer Science & Engineering**

a) Two years ago, the CSE Chair established a diversity committee comprised of faculty, students and staff. The committee is committed to increasing diversity and diversity awareness throughout the department. The committee meets at regular intervals to help develop and support all CSE diversity initiatives as needed.
b) In November, two CSE staff members attended the People of Color and Predominantly White Institutions Conference at the University of Nebraska-Lincoln. The diversity of UNL’s student population closely mirrors the UW’s. The conference focused on ideas and practices to foster a welcoming environment for underrepresented minority students and to help gain awareness of the experiences of underrepresented minority students who attend predominantly white institutions.

**Electrical Engineering**

We have 46 professional and classified staff. We just hired our first female computing staff person and we are moving closer to a 50-50 gender balance. At present we do not have any under-represented minorities on our permanent staff.

**Industrial Engineering**

IE has six staff members.

**Materials Science & Engineering**

Our administrative staff is 4.5. Our technical staff is composed of three men. Currently, our staff also includes 1.5 positions funded by research.

**Mechanical Engineering**

Approx. 10 FTE and including 5 women

5) Faculty Diversity

**Aeronautics & Astronautics**

Faculty position openings are also infrequent. During the large scale faculty search that took place in the 2000-2001 academic year, when five new faculty were sought, special efforts were made to identify women and minority candidates (who are few and far between in our field). The search resulted in our hiring the first woman faculty member in our department’s history.

**Bioengineering**

Our Core Faculty consist of 29 members. This is a culturally diverse group who come from the US, Canada, China, Germany, India, Italy, Korea, and Spain. 41% of our Senior Fellows are female. In the past three years, we have hired three female faculty.
Chemical Engineering

The department and Eric Stuve are working closely with ADVANCE in developing and implementing the ADVANCE Visiting Scholars Program. Prof. Camille George (Univ. of St. Thomas) Jan. 18 - Feb. 1, was a recently hosted by the department and ADVANCE.

Civil & Environmental Engineering

Last year we searched for three positions and had 9 finalists.

Computer Science & Engineering

Discussions are taking place at the Chair level and in the Faculty Recruiting Committee to insure faculty hiring policies and practices include considerations for diversity. We intend to continue to pursue highly qualified minority candidates.

Electrical Engineering

Our department now has a total of 9 tenure-track faculty members who are women. This is exactly 20% of our current 45 tenure-track faculty and is one of the highest, if not the highest, percentage of women faculty at any Electrical Engineering Department in the nation, including departments which are organized as combined EE/CS or ECE departments.

Industrial Engineering

Industrial Engineering has one of the most diverse faculties in the College.

Materials Science & Engineering

The department is committed to recruiting and retaining a diverse faculty. In our recent faculty searches (since 1998), we have used the Toolkit developed by the College of Engineering to ensure a diverse pool of candidates. In addition, we work closely with the University Materials Council (Chairs of other MS&E Departments) to identify potential faculty candidates particularly from underrepresented groups. Most recently we have also worked with the NSF ADVANCE program in University (a collaboration between College of Engineering and Arts and Sciences). This program has the goal of enhancing the recruitment and retention of women faculty members. One of the female faculty members holds the prestigious Kyocera Chair in the
Department. There are only three Kyocera Chairs in the entire country and it is considered one of the most prestigious Chair in materials science and engineering. Our current total faculty of 14 includes members of Indian, Turkish, Chinese, and Japanese nationality.

**Mechanical Engineering**

Approximately 27 FTE faculty.

**6) Curriculum and Research**

**Aeronautics & Astronautics**

**Undergraduate Program**

Interdisciplinary projects have been introduced in many courses. Group projects, which appeal to a diverse group of students, have become commonplace in departmental courses. AA101 and the design courses, AA410/411 and AA420/421 are examples where multidisciplinary, group projects take place.

Typically, 50% of undergraduates in the A&A department participate in UG research. A diverse group of students participates in research through work-study and the ALVA summer program.

**Graduate Program**

As is the case with our undergraduates, graduate students are well nurtured in our department by staff and faculty in terms of program planning, curriculum advising, notification of research and funding opportunities, and assistance with department and campus administrative operations. More than 70% of our eligible minority and international students receive funding, most being engaged in research activities.

**Civil & Environmental Engineering**

We have seven undergraduate research assistants doing internships at the Washington State Department of Transportation.

**Computer Science & Engineering**

a) Development of Women’s Seminars at the 100-level.

b) High- and low-preparation sections for our introductory programming courses have been developed and implemented.
c) One of our graduate students has devoted his research to understanding undergraduate women’s experiences in computer science and engineering. Among other areas, he is working with CSE introductory programming courses to make them more accommodating to women.

**Electrical Engineering**

In addition to EE-400W, mentioned above, we have been offering EE-401 and EE-402, Engineering Design: Robots I and Robots II, taught by Prof. Alex Mamishev. These two courses support the FIRST robotics competition which has been very successful in pulling in and engaging high school students. The demographics of these students have had a higher percentage of women and under-represented minorities than the EE population as a whole, and offer another vehicle for attracting these groups into our programs at earlier stage in their educational careers.

**Industrial Engineering**

**Assessment and Curriculum Change.** IE has used intensive assessments of the graduate and undergraduate curricula over the past two years to measure student learning and has instituted a number of changes.

**Materials Science & Engineering**

In our curriculum, we have a strong emphasis on teamwork and hands-on experience. This focus, together with a diverse student body, ensures that students learn from each other and learn to value the strength of a diverse team. Recently we have significantly enhanced student exchange programs with our international partners. We have learned from our recruiters that international collaboration is the major emerging trend in professional engineering practice and we are preparing our students for this.

**Mechanical Engineering**

Only those previously mentioned

7) Climate

**Aeronautics & Astronautics**

**Students**

As noted above, the climate in our department is very collegial and nurturing, with special attention given to minority and women students. The percentage of women students has remained steady, at about 15%, over many years, but the percentage of minorities has remained
very low, only about 2-3% in both the undergraduate and graduate programs, despite our best efforts to attract them. These numbers generally reflect the trend in aeronautics and astronautics programs at universities nationwide.

Faculty and Staff

The climate for faculty and staff is also very collegial and pleasant. A new female faculty member, the first in the department’s history, has greatly enhanced the vision of equal opportunity in our department. A new faculty search is underway at present, and special attention is being devoted to identifying strong minority and women candidates.

Bioengineering

We strive to create an open and welcoming climate in Bioengineering and we recognize that our efforts have focused primarily on students. There is always more to do to recruit and retain a diverse student body, but we are most lacking in the recruitment and retention of a diverse department as a whole. Endeavors such as this Diversity Appraisal are appreciated and serve to help us appreciate where we must pinpoint our efforts.

Chemical Engineering

Faculty, staff, and students participate in a number of activities and efforts design to enhance the climate for diversity. These include but are not limited to:

- Participation in the SET-UP Program by Buddy Ratner, a program that engages students from the African American Academy
- Participation in DO-IT Program activities by J. Ray Bowen
- Providing undergraduate research opportunities especially to minorities and women. A number of faculty participate in providing these opportunities.

Civil & Environmental Engineering

Our department is involved in the ADVANCE cultural change program.

Computer Science & Engineering

a) The CSE Chair established the Diversity Committee two years ago to insure that diversity remains as one of CSE’s top priorities.
b) CSE maintains several diversity Web pages for staff, faculty, student and public access. Pertinent articles, a calendar of events, and examples of student experiences are all displayed on or linked to these pages.

c) CSE’s Diversity Mission Statement is well publicized throughout the department.

d) CSE faculty and staff routinely exchange diversity articles and information via department e-mail. This more than anything contributes to the overall appreciation for and concern about diversity issues.

**Industrial Engineering**

**Community Building.** The IE students work with the staff and faculty to host a number of community building activities – annual holiday party, ski trip, bowling tournaments, and year-end celebration and dinner cruise. These events have been particularly successful in welcoming new students and making them feel a part of IE. The recent program review noted that “the students are a cohesive group,…..very supportive of the IE Program.”

**Materials Science & Engineering**

The department is committed to the providing a supportive environment for all members of its community and ensuring that each is included in the life of the Department and the University. We value diversity and actively work to ensure participation of underrepresented groups in the department.

**Mechanical Engineering**

Open and friendly staff who have dealt with a variety diversity issues and acted on them as appropriate.

Working with ADVANCE on several projects to maintain and improve the climate.

Regular "Talk to a Chair" meetings. Dept. Chair sits in the student lounge and talks to any and all students who want to talk about anything. Often quite revealing.