Increasing Participation of Women and Underrepresented Minorities in Engineering

One-Page Introduction
- Despite progress since 1982, we still have a long way to go!
- Did you know?
- Why Should This Data Alarm Us?
- What is the Foundation Coalition Doing?
- Success Stories
  - Improved Retention of Women and Underrepresented Minorities at Texas A&M University
  - Improved Retention of Women and Underrepresented Minorities at Arizona State University

Workshops
- Inclusive Learning Communities: Lessons from Foundation Coalition Experiences
- Retention of Undergraduate Students in Engineering

Goal
Increase the diversity of the engineering education learning environment by attracting a larger percentage of women and underrepresented ethnic minorities into the study of engineering and retaining them through graduation.

Introduction
A diverse student body can be defined as one that shows variety in its gender and racial or ethnic composition and resembles the population as a whole. One result of having a more representative student body is a better sense of community and hence a better learning environment for students.

Experience in a diverse student community makes available to students a wider variety of experiences as they interact with students whose gender and culture differ from their own. Seeing different ways to identify, define, assess, and solve problems provides a useful learning environment for students as they progress through the engineering curriculum. If a larger number and greater variety of perspectives are brought to bear in discovering, defining, and solving problems, solutions are more creative. Successfully addressing team maintenance and process problems in groups with diverse members helps students gain useful abilities on conflict resolution, abilities increasingly sought by industry. Today's graduates will be working in a fiercely competitive world market that is multicultural and globally oriented. Providing experiences in gender, cultural, or ethnic diversity will directly benefit our students, who are and will continue to be living in a diverse environment.

There are close relationships between this key component (link to key components page) and others. For example, pre college girls prefer cooperative learning strategies and the role of pedagogy in retention, especially as it relates to women and minorities, has been documented.

Related Links
Society of Hispanic Professional Engineers, http://www.shpe.org/
Society of Women Engineers, http://www.swe.org/

Research Foundations for Improving the Representation of Women in the Information Technology Workforce: NSF sponsored a virtual workshop that explored research issues underlying the underrepresentation of women in Information Technology.

Achieving Gender Equity in Science Classrooms: A Guide for Faculty: In this handbook we describe the aspects of culture that researchers believe contribute to attrition from SME majors, and we give concrete suggestions for addressing each of these issues. If implemented, these changes may prevent very capable students from leaving the sciences and may also attract students initially uninvolved in the sciences. We hope that this handbook will help faculty members become more aware of the issues that affect women in science and will provide them with ideas on how to address these issues in their own classrooms.

Integrated Gender Equity and Reform (InGEAR): This is a compilation of curriculum materials that promote excellence and equity in mathematics, science, and engineering instruction. This web site is being developed as part of a multiuniversity project titled Integrating Gender Equity and Reform (InGEAR). To learn more about InGEAR, visit the In GEAR Home Page.
Foundation Coalition Publications

Shawna Fletcher, Dana C. Newell, Leyla D. Newton and Mary R. Anderson-Rowland
*Women in Applied Science and Engineering Program*

Mary McCartney and Mary Anderson-Rowland
*Building a Pipeline of Future College Engineering Students*

Maria A. Reyes, Mary R. Anderson-Rowland, and Mary Ann McCartney
*Freshman Introductory Engineering Seminar Course: Coupled with Bridge Program Equals Academic Success and Retention*

Shawna Fletcher, Mary R. Anderson-Rowland, and Stephanie Blaisdell
*Industry Involvement in the Women in Applied Science and Engineering (WISE) Recruiting and Retention Programs*

Karan Watson and Mary R. Anderson-Rowland
*Interfaces Between the Foundation Coalition Integrated Curriculum and Programs for Honors, Minority, Women, and Transfer Students*

Mary McCartney, Maria Reyes, Mary Anderson-Rowland
*Internal and External Challenges for Minority Engineering Programs*

Mary Anderson-Rowland, Maria Reyes, Mary Ann McCartney
*MMP Summer Bridge Program: Mathematics Assessment Strategies*

Stephanie Blaisdell, Angela Middleton, and Mary Anderson-Rowland
*Re-engineering Engineering Education to Retain Women*

Mary Aleta White, Stephanie Blaisdell, and Mary R. Anderson-Rowland
*Recruiting Women into Engineering Graduate Programs*

Stephanie L. Blaisdell, Rebecca J. Dozier, and Mary R. Anderson-Rowland
*Teaching and Learning in an Era of Equality: An Engineering Program for Middle School Girls*

Mary White, Stephanie Blaisdell, Mary Anderson-Rowland
*Women in Engineering Scholars Program*

Stephanie Blaisdell, Russell Jones, and Constantine Andreyev
*An Interactive CD ROM to Sensitize Engineering Students to Diversity Issues*

Stephanie Blaisdell
*Predictors of Women's Entry into Engineering: Why Academic Preparation is Not Sufficient*

Stephanie L. Blaisdell, Rebecca J. Dozier, and Mary R. Anderson-Rowland
*Teaching and Learning in an Era of Equality: An Engineering Program for Middle School Girls*

Mary White, Stephanie Blaisdell, Mary Anderson-Rowland
*Women in Engineering Scholars Program*

James M. Graham, Rita Caso and Jeanne Rierson
*The Effect of the Texas A&M University System AMP on the Success of Minority Undergraduates in Engineering: A Multiple-Outcome Analysis*

Karen Frair, Karen Watson
*The NSF Foundation Coalition: Curriculum Change and Underrepresented Groups*

Antonio Garcia, Gary Keller, Albert McHenry, Fred Begay
*Enhancing Underrepresented Student Opportunities Through Faculty Mentoring and Peer Interactions*
References for Further Information


15. Tobias, S, They're Not Dumb, They're Different: Stalking the Second Tier, 1990, Tucson, AZ, Research Corporation