



<http://www.foundationcoalition.org>

From Jeff Froyd, Project Director

As the project director, I'm often asked for brief summaries of successes across the Foundation Coalition (FC). Since many of the FC curriculum projects are complex, describing the success of one is a challenge because short stories are simple and accurate stories are lengthy. Nevertheless, schools have assembled success stories that attempt to convey the effect of the curriculum changes that have been implemented. In each story, the effect of the curriculum change has been illustrated with data. One of the more recent stories may be found on the page 2 of this newsletter. Others can be found at http://foundationcoalition.org/home/keycomponents/assessment_evaluation.html. In last month's newsletter Nick Pendergrass from the University of Massachusetts Dartmouth described the effect of the IMPULSE program on student retention and performance on common examinations. Together, these stories demonstrate the positive impact of the FC curriculum changes. Hopefully, they will inspire colleagues to initiate further innovations that will lead to improvements in student learning, retention, and time to graduation.

- Jun 10–14 Electrical and Computer Engineering Summer Camp** at Southern Illinois University Edwardsville for high-schoolers. [Read more.](#)
- Jun 16–19 American Society for Engineering Education Annual Conference and Exposition** in Montréal, Québec, Canada. [Read more.](#)
- Jul 21–Aug 3 Engineering Workshop for High School Girls** at Union College, Schenectady NY. [Read more.](#)
- Aug 11–16 E-technologies in Engineering Education: Learning Outcomes Providing Future Possibilities** (United Engineering Foundation conference) in Davos, Switzerland. E-mail [Sarah Pfatteicher](#). [Read more.](#)
- Sep 30–Oct 1 Engineering and Computing Education Grantees Conference** in Washington DC. E-mail [Susan Kemnitzer](#) or call 703.292.8382. [Read more.](#)
- Nov 6–9 Frontiers in Education 2002** in Boston MA. [Read more.](#)
- Mar 16–18 Share the Future IV**, the cross-coalition conference, is tentatively scheduled to be held in Tempe, near Arizona State University.

Attention electrical engineering instructors interested in assessment!

The signals and systems concept inventory (SSCI) is a 25-question multiple-choice exam that measures students' understanding of core concepts in linear systems. See http://fc1.tamu.edu/events/news/ssci_study.html.

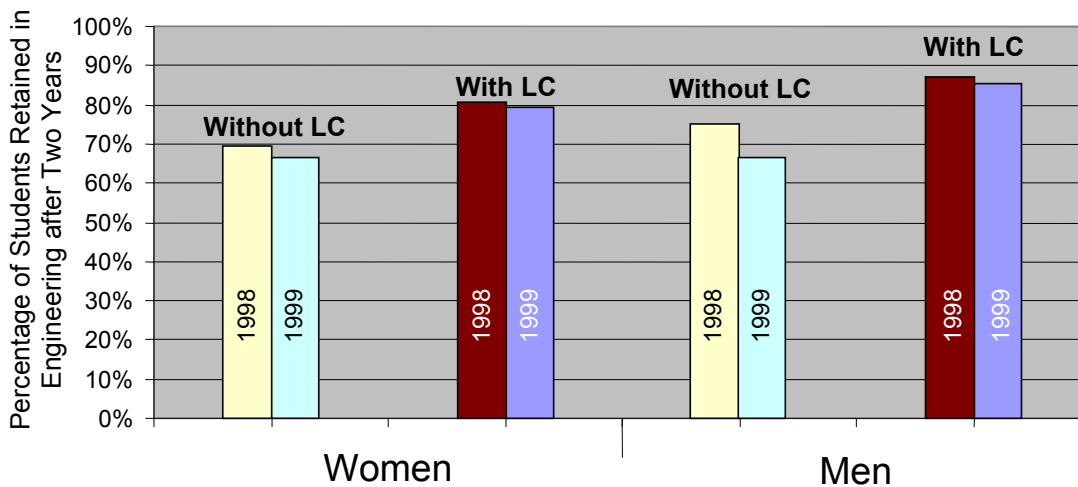
Check the FC Web site soon for updated information (including reports) on [past workshops!](#)

First-year Engineering Learning Communities Improve Retention

At Texas A&M University (A&M), the restructured, college-wide first-year program was implemented in 1998. Learning communities in which students take two or more of their required first-year science, engineering, and mathematics courses together in groups of one hundred are a feature that built on the experiences of the first-year prototype curricula. Learning communities value diversity, are accessible to all interested individuals, and bring real-world situations into the engineering classroom. Their key components are clustering of students in common courses (math, engineering, science), teaming, active/cooperative learning, industry involvement in the classroom, technology-enhanced classrooms, undergraduate peer teachers, curriculum integration, faculty team teaching, and assessment and evaluation. Learning communities, since they facilitate social relationships in a context directly connected with the classes students are taking, should increase retention and encourage students to continue in their first-year classes as a coherent unit. Learning communities offer a superior educational experience for engineering students.

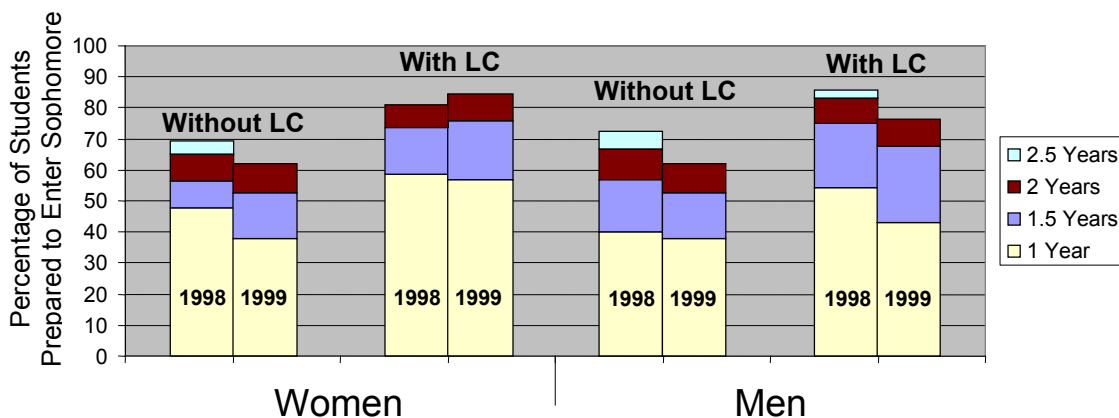
Improved Retention: Students who participate in learning communities (With LC) are retained in engineering at a much higher rate than similar students who do not participate in learning communities (Without LC) during their first year at A&M.

Learning Communities (LC) Improve Retention for Women and Men



More Rapid Progress toward Graduation: In addition to retaining students at a higher rate, learning communities also promote more rapid progress toward graduation. The graph below shows the percentage of the students prepared to enter sophomore engineering courses. The percentage of students who participated in learning communities is greater than the percentage of students who did not.

Learning Communities (LC) Help Students Make More Rapid Progress toward Graduation



Improved Attitudes toward Teamwork and Integration: In the 2000 cohort, students who participated in learning communities for both semesters scored more positively on questions about working in teams and recognizing the integration of mathematics and science in their engineering courses than students who did not participate in learning communities in either semester. Scores were based on the Engineering Perception Test given at the end of the first year.

Reference

Caso, R., Clark, C., Froyd, J., Inam, A., Kenimer, A., Morgan, J., and Rinehart, J., 2002. "[A Systemic Change Model in Engineering Education and its Relevance for Women](#)" *Proceedings, 2002 ASEE Conference*. Montréal, Québec, Canada.