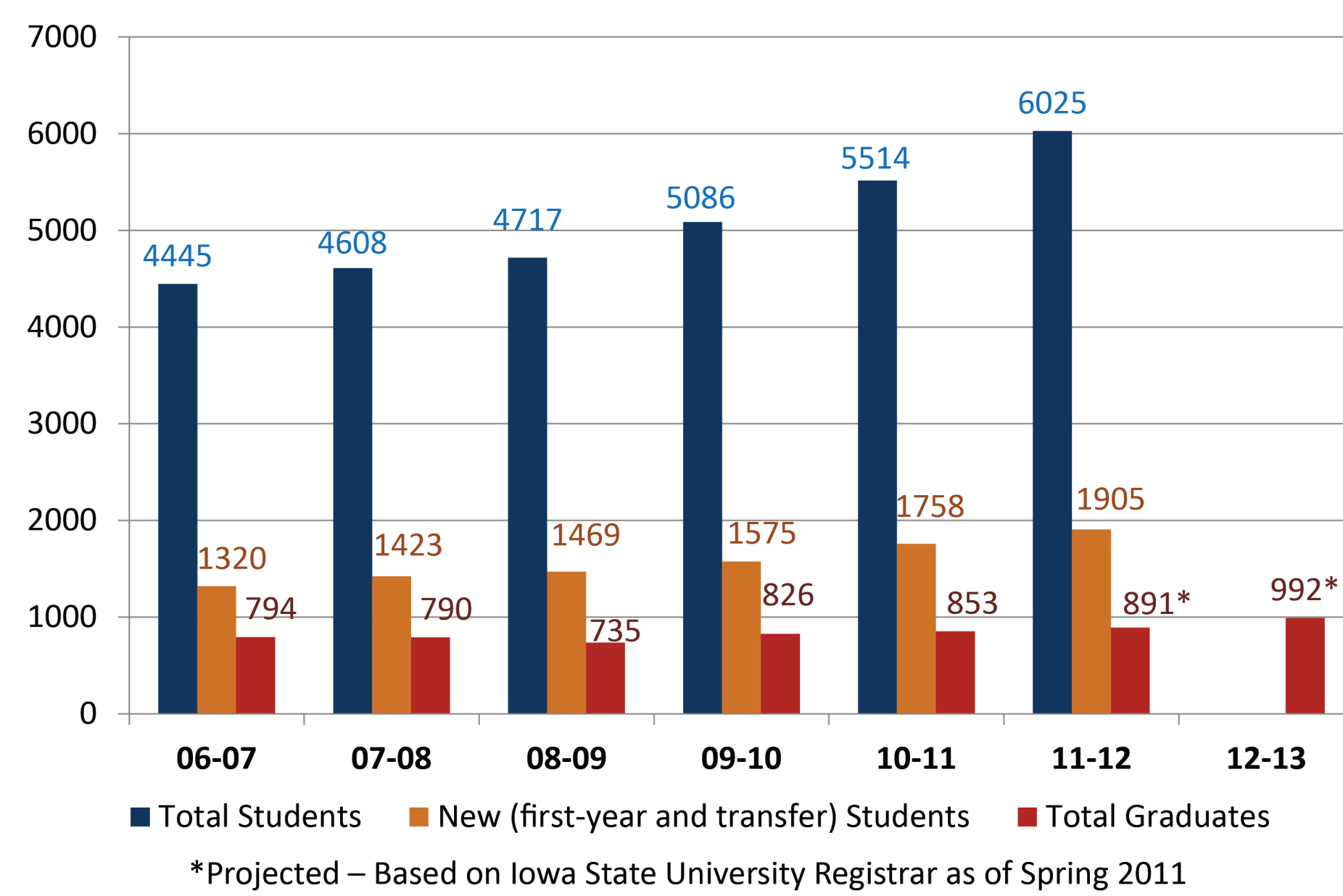


STEM Student Enrollment and Engagement through Connections

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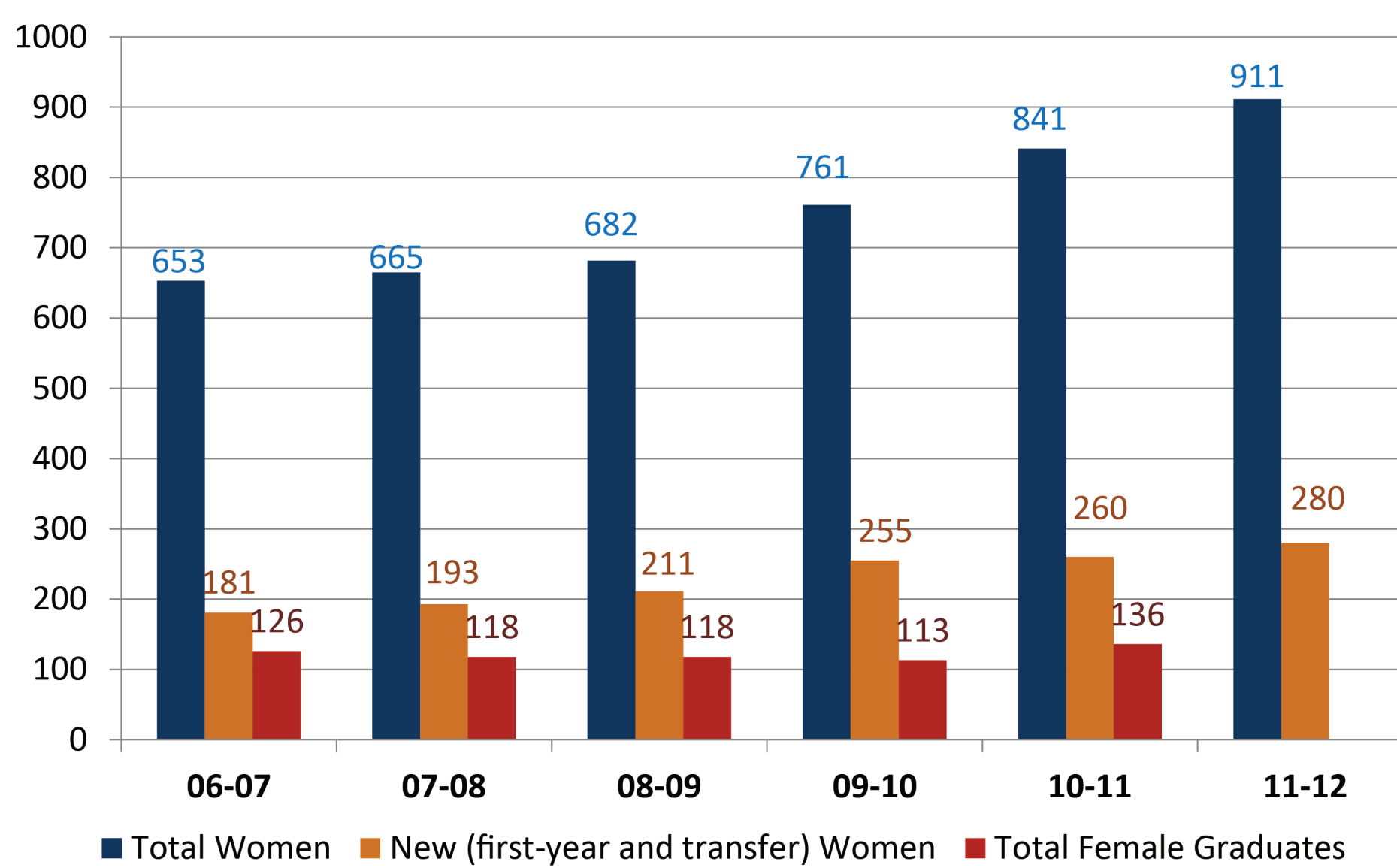
Project Results

CoE Total Enrollment and Graduates



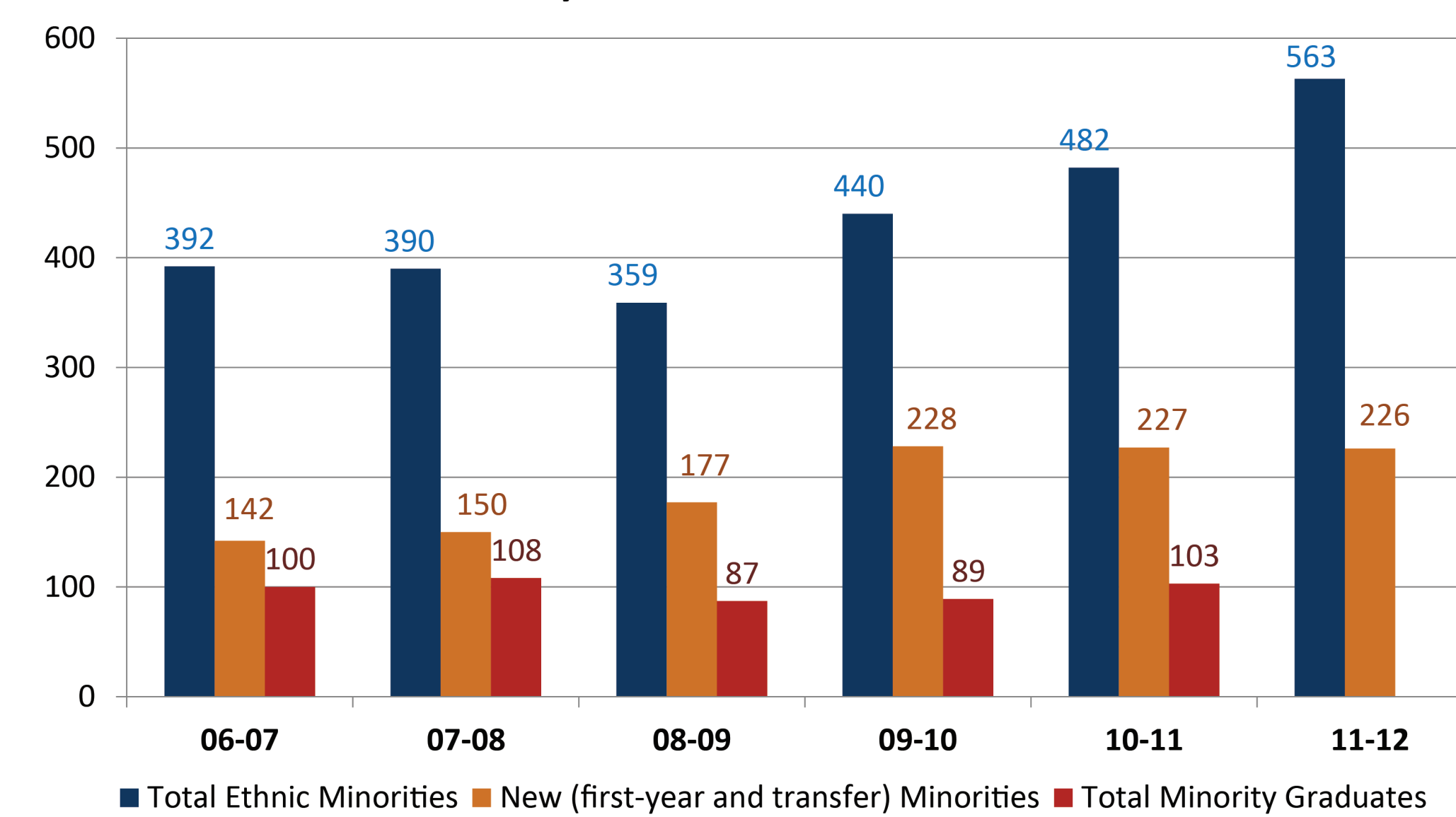
The number of graduates in the College of Engineering is expected to approach the goal of 900 by 2012 and surpass the goal in 2012-13.

CoE Female Enrollment and Graduates

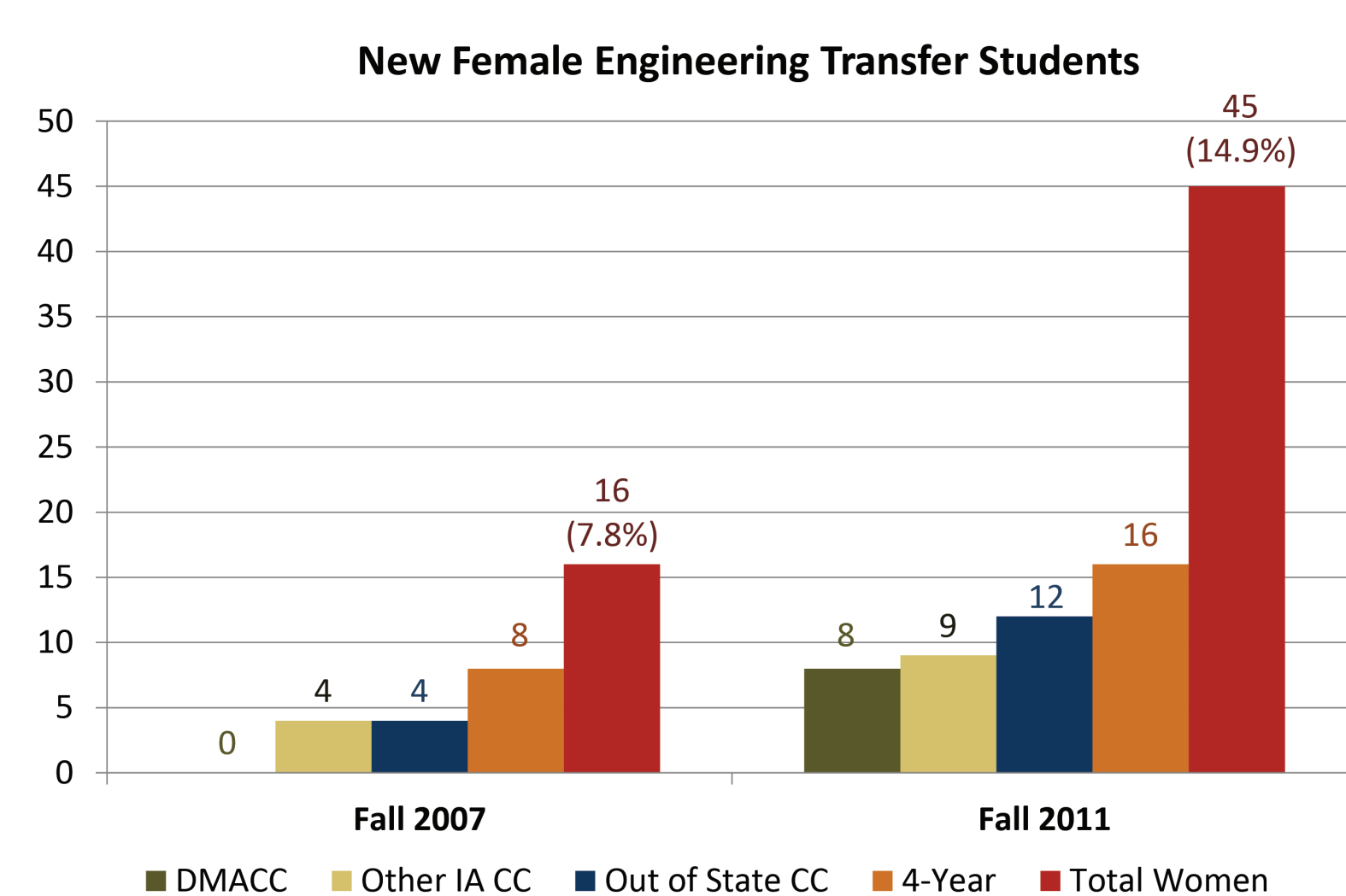


The number of women and minority transfer students enrolled in engineering has increased and is expected to result in increases of women and minority graduates.

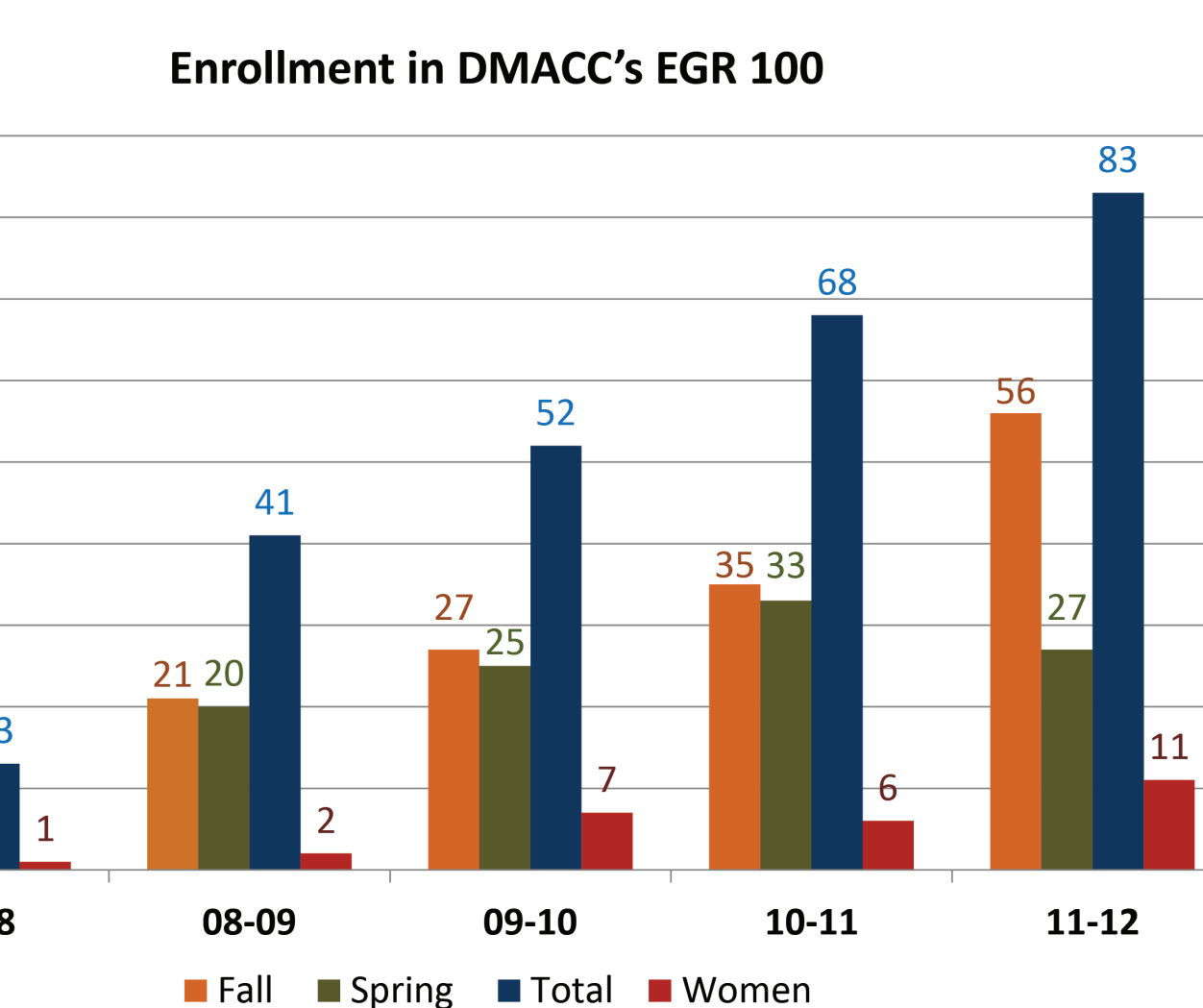
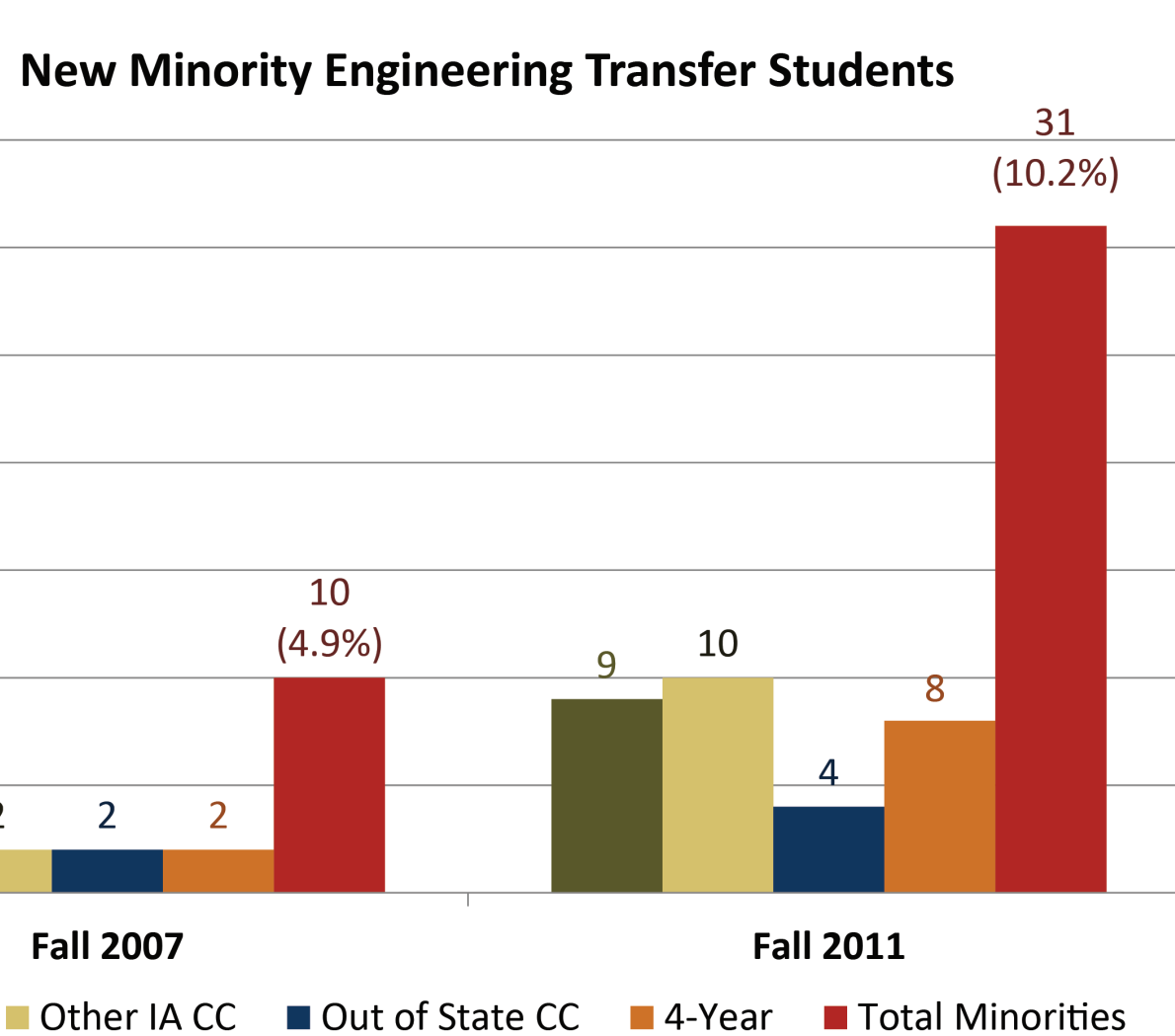
CoE Minority Student Enrollment and Graduates



Project Highlights



The number of women and minority transfer students enrolled in engineering has increased and is expected to help increase the total numbers of women and minority graduates.



Enrollment in DMACC's EGR 100 continues to grow. As pre-engineering students complete the Basic Program, more are expected to transfer to Iowa State.

E-APP Effects for Iowa Community College Transfer Students (entering 2008 – 2010)

| College | Status | Retained in ENGR after 1 year | | Retained at ISU after 1 year | | Total Count |
|--------------------------------------|--------------|-------------------------------|-----|------------------------------|-----|-------------|
| | | n | % | n | % | |
| All Iowa Community College Transfers | E-APP | 62 | 74% | 77 | 92% | 84 |
| | not in E-APP | 258 | 67% | 313 | 81% | 386 |
| DMACC Transfers | E-APP | 40 | 77% | 47 | 90% | 52 |
| | not in E-APP | 62 | 58% | 81 | 76% | 106 |

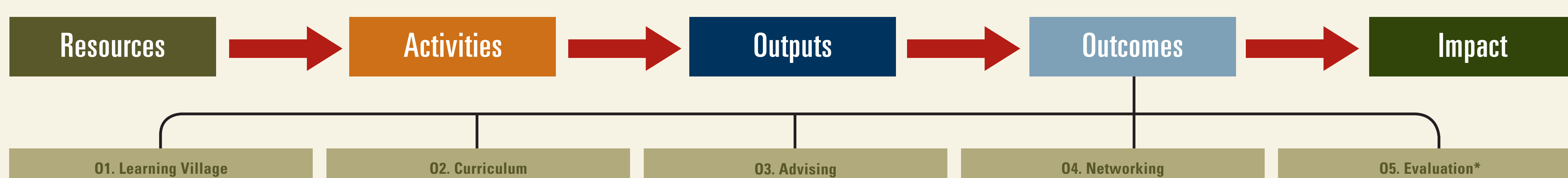
Significantly higher retention rates in bold

The data indicate that E-APP and Non E-APP student groups have similar Math ACT scores, which suggest plausible statistical comparisons between the groups. Enrollment in E-APP has grown from 59 students in Fall 2007, its first year, to 145 in Fall 2011—a 145% increase. Enrollment is expected to continue increasing.

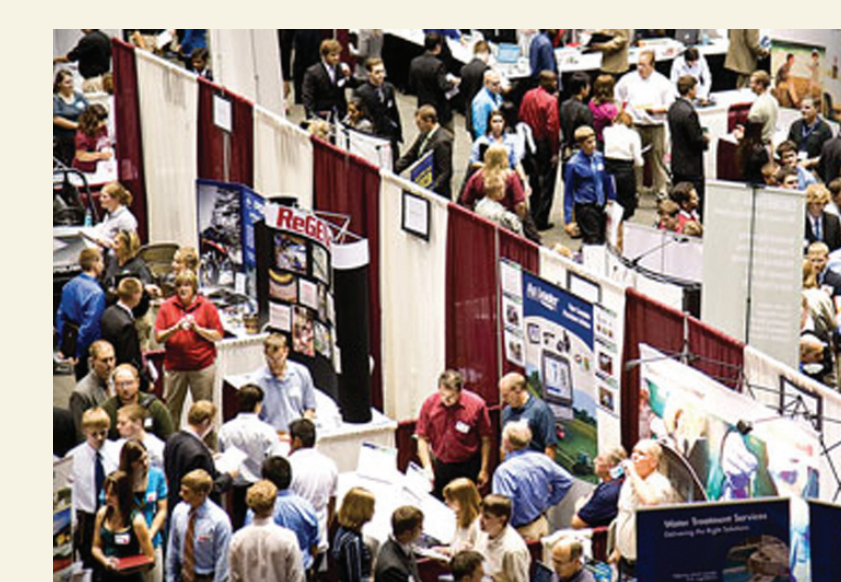
Project Goal

Increase the number of engineering graduates at Iowa State by 100 per year to approximately 900 graduates annually. Included with this goal are increases in the percentages of women and minority graduates in engineering at Iowa State and the number of pre-engineering students at Des Moines Area Community College.

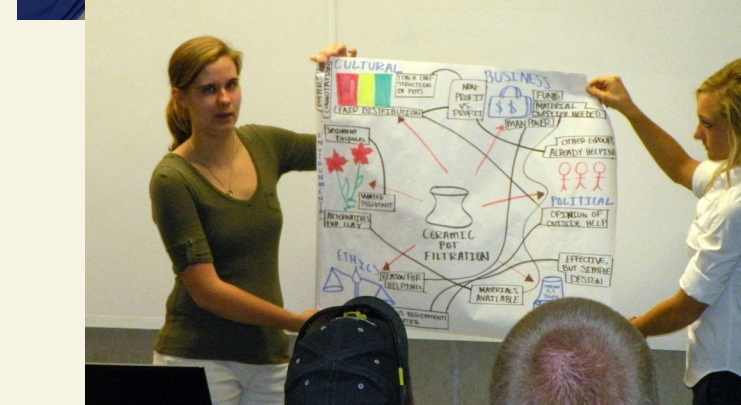
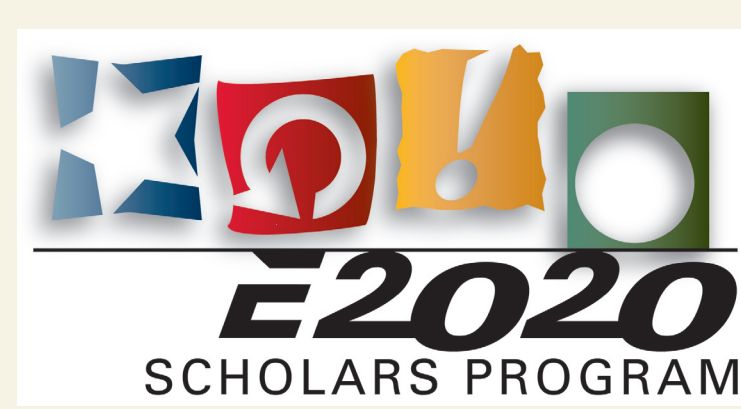
Logic Model Planning



| 01. Learning Village | 02. Curriculum | 03. Advising | 04. Networking | 05. Evaluation* |
|--|---|--|--|--|
| Objective: To build a learning village that enhances student engagement and creates Iowa State connections for community college pre-engineering transfer students Sustainable Outcomes: 1. Engineering Admissions Partnership Program (E-APP) supports prospective engineering transfer students. 2. Transfer learning communities support engineering transfer students. | Objective: To enhance first- and second-year learning experiences, with an emphasis on student success and engagement and classroom climate Sustainable Outcomes: 1. DMACC's EGR 100 targets students with key learning experiences and professional development and its pre-engineering program allows engineering transfer students to complete the Basic Program courses prior to transfer. 2. Innovative curriculum created for the E2020 Scholars Program will be continued. | Objective: To enhance and enhance academic advising and mentoring programs for precollege, community college, and university students Sustainable Outcomes: 1. Transfer students are entering engineering with a clear plan and connections that will assist them in making a smooth transition. 2. Iowa State and CC advisers and faculty are engaged in activities aimed at dissemination of student success reports, best practices, curriculum, and new resources. | Objective: To establish a recruiting and outreach network across Iowa to tap into diverse communities of students, and to improve the awareness and understanding of engineering among those who influence student choice Sustainable Outcomes: 1. NAE Changing the Conversation-based E-TEC resource kits are available through ISU Extension for formal and informal educators to create engineering career awareness. 2. CYS-TEC connects Iowa youth, parents, formal and informal educators to STEM resources in Iowa. | Objective: To evaluate project effectiveness that will enhance project activities Sustainable Outcomes: 1. Data sources and procedures for continuous tracking of retention and enrollment of College of Engineering students with a focus on DMACC transfers and new freshman has been established. 2. Longitudinal qualitative and quantitative assessment and evaluation activities are in place. |



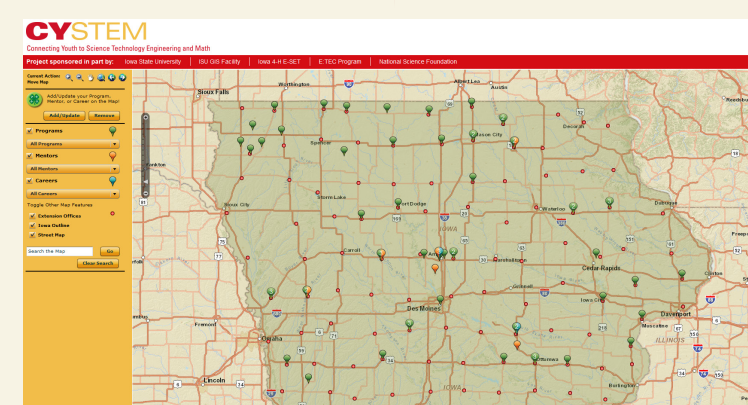
E-APP supports prospective engineering transfer students with curriculum planning, advising by Iowa State engineering advisers, peer mentoring, and more.



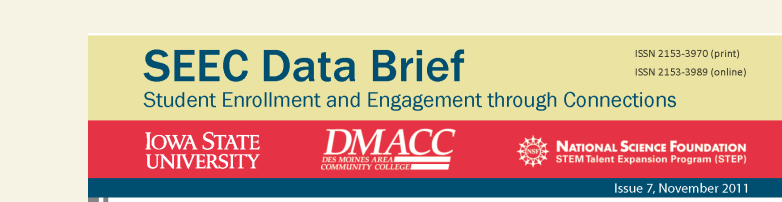
Innovative curriculum designed for the E2020 program will be continued.

TIPS FOR TRANSFERRING

DMACC's pre-engineering students have a formalized pathway to guide their transfer to Iowa State.



Formal and informal educators throughout Iowa are becoming aware of resources that create and promote interest in engineering careers.



Data Briefs share information with institutional stakeholders and are available to interested parties in print (ISSN 2153-3970) and online (2153-3989).

Longer-term Outcomes

Building a culture that embraces transfer student programming through professional and program development

Leveraging learning community best practices to retain students at the second- and third-year levels, ultimately contributing to higher graduation rates

Using synergistic partnerships (e.g., with ISU Extension) to develop new resources and create interest in engineering study and careers

Challenges

Recruiting and retaining women to make up 20% of engineering graduates

Measuring and documenting the SEEC Effect to improve and sustain effective practices and promote a culture of evidence

Future Inquiry

Increasing data sharing between community colleges and Iowa State to better understand background characteristics of community college transfer students

Using the data to predict success in engineering for community college transfers

Determining how E:TEC outcomes can be systematically infused across the University Extension Network

SEEC Team Members

- | | | | | |
|---|--|--|--|---|
| Principal Investigators Diane Rover Harry McMaken Co-principal Investigators Monica Bruning Frankie Santos Leanan Steven Mickelson Mack Shelley Kari Hensen | Senior Personnel Mary Darrow Mani Mina Derrick Rollins Andrew Ryder Karen Zunkel | Other Personnel Virginia Anderson Sandy Jennings-Hammond Team Members Anne Hovsare Paul Castleberry Laura Leigh Chrystal Laura Doering Randy Gabriel | Jennifer Garrett Doug Gruenewald Carol Heaverlo Randall Jedele Joel Johnson Marcia Laugerman Michael Lentsch Carlos Lopez Les Pearey Jason Pontius | Ted Millen Sokish Sands Jay Staker Vicky Thorland-Oster |
|---|--|--|--|---|

- | | | | |
|---|--|---|---|
| Advisory Boards ISU Institutional Advisory Board Chair: Elizabeth Hoffman Sandra Gahn Doug Gruenewald Connie Hargrave Thomas Hill Gary Mirka | DMACC Institutional Advisory Board Chair: Kim Linduska Ahmed Agyeman Randy Mead Randy Smith Carol (Renee) White Laurie Wolf | External Advisory Board Chair: James Melsa Professor & Dean Emeritus Iowa State College of Engineering Kimberly Douglas-Mankin Associate Professor, Industrial & Manufacturing Systems Engineering Kansas State University | Robert Driggs Dean of Mathematics & Science Kirkwood College Leigh Hagenson Thompson Technology Manager & Hardeners Platform Project Leader The Dow Chemical Company |
|---|--|---|---|

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