

# STEM Student Enrollment and Engagement through Connections

College of Engineering • College of Human Sciences • College of Liberal Arts and Sciences • [www.eng.iastate.edu/seec](http://www.eng.iastate.edu/seec)

## Project Highlights

### 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*  |
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| <b>Objective:</b><br>To build a learning village that enhances student engagement and creates Iowa State connections for community college pre-engineering transfer students<br><b>Sustainable Outcomes:</b><br>1. Engineering Admissions Partnership Program (E-APP) supports prospective engineering transfer students.<br>2. Transfer learning communities support engineering transfer students. | <b>Objective:</b><br>To enhance first- and second-year learning experiences, with an emphasis on student success and engagement and university climate<br><b>Sustainable Outcomes:</b><br>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.<br>2. Innovative curriculum created for the E2020 Scholars Program is being integrated and disseminated. | <b>Objective:</b><br>To develop and enhance academic advising and mentoring programs for precollege, community college, and university students<br><b>Sustainable Outcomes:</b><br>1. Transfer students are entering engineering with a clear plan and connections that will assist them in making a smooth transition.<br>2. Iowa State and CC advisors and faculty are engaged in activities aimed at dissemination of student success reports, best practices, curriculum, and new resources. | <b>Objective:</b><br>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<br><b>Sustainable Outcomes:</b><br>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.<br>2. DMACC has compiled an NAE CTC-based Student Pre-Engineering Resource Kit that is available online to prospective students and others. | <b>Objective:</b><br>To evaluate project effectiveness that will enhance project activities<br><b>Sustainable Outcomes:</b><br>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.<br>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.



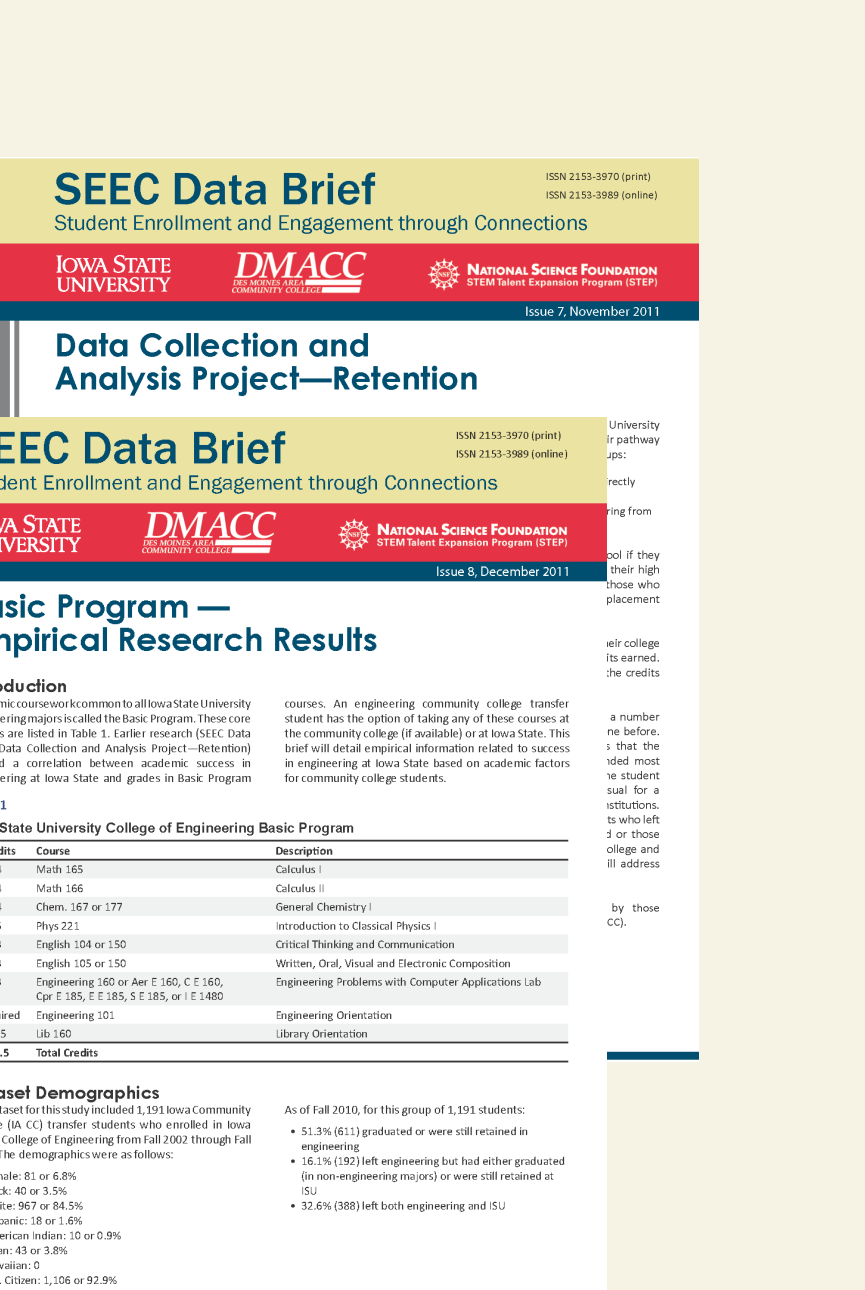
Innovative curriculum created for the E2020 Scholars Program is being integrated and disseminated.



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

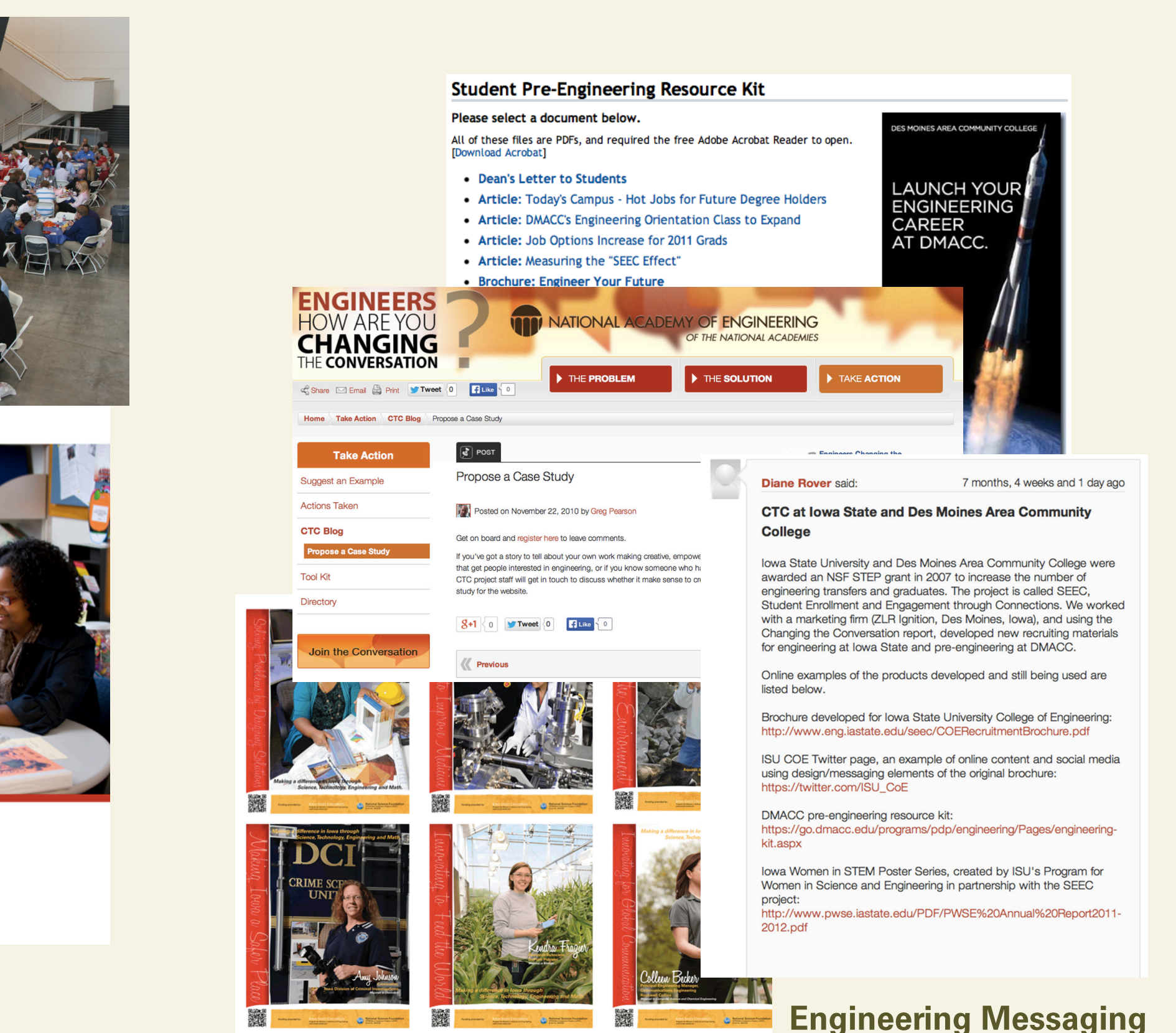
Recruiting and retaining women to make up 20% of engineering graduates

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

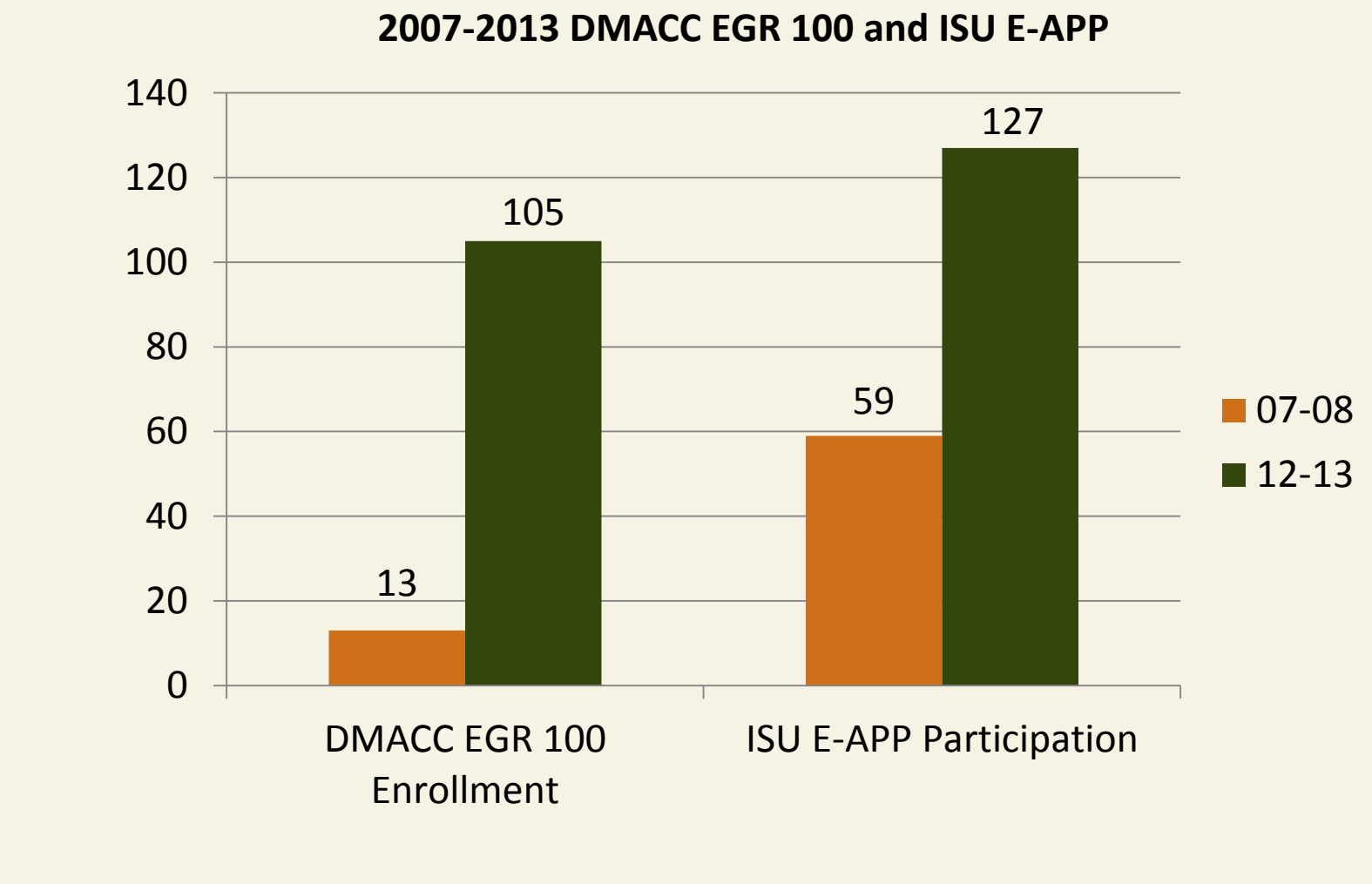
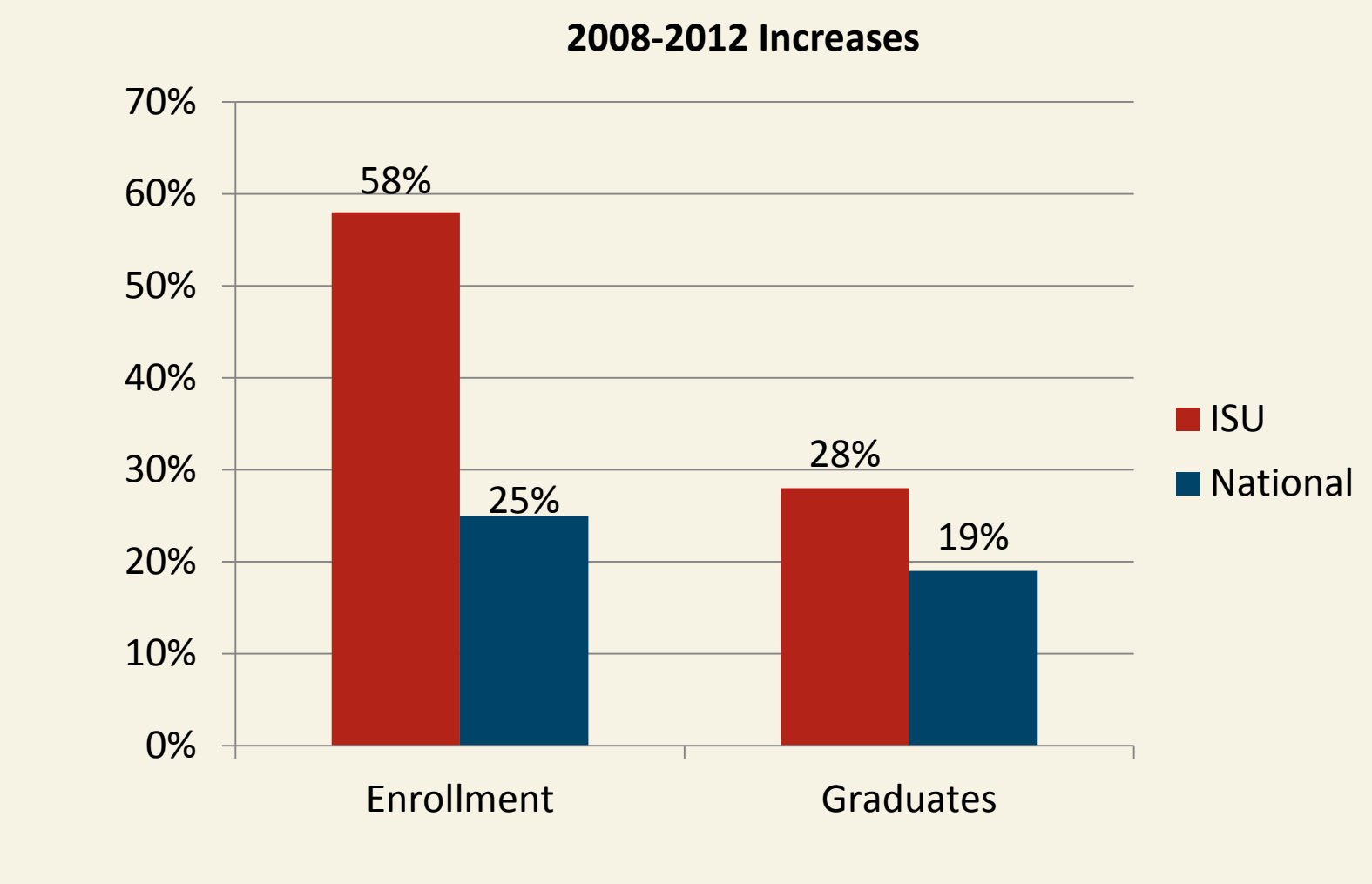
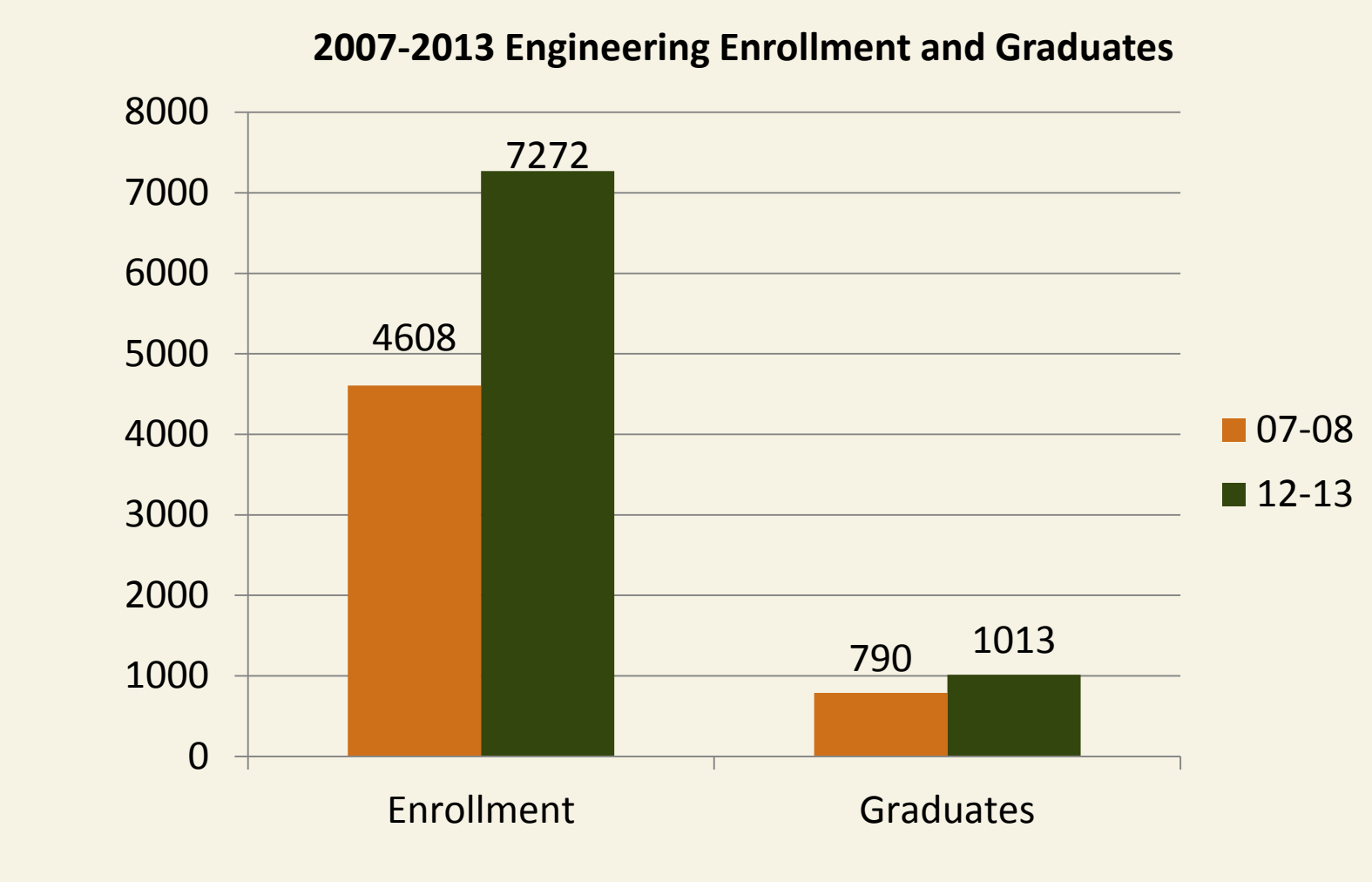
## Sustained Efforts

- Engineering Admissions Partnership (EAPP) continues as an established learning community at Iowa State University.
- New engineering messaging has been adopted in all recruiting materials at Iowa State.
- Engineering 100 continues to expand and is now offered on four DMACC campuses.
- Discover Engineering Days for high school students continue at DMACC and have expanded to include other career areas.

## Connections



## Results



## SEEC Team Members

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|---|---|
| <b>Principal Investigators</b><br>Diane Rover<br>Harry McMaken<br><br><b>Senior Personnel</b><br>Mary Darrow<br>Mani Mina<br>Derrick Rollins<br><br><b>Other Personnel</b><br>Virginia Anderson<br>Sandy Jennings-Hammond<br><br><b>Team Members</b><br>Paul Castleberry<br>Frankie Santos Leanan<br>Steven Mickelson<br>Mack Shelley<br>Kari Hensen<br><br><b>Co-principal Investigators</b><br>Monica Bruning<br>Frankie Santos Leanan<br>Steven Mickelson<br>Mack Shelley<br>Kari Hensen | <b>Marcia Laugerman</b><br>Michael Lentsch<br>Carlos Lopez<br>Jay Staker<br>James Stick<br><br><b>Advisory Boards</b><br><b>ISU Institutional Advisory Board</b><br>Chair: Jonathan Wickert<br>Sandra Gahn<br>Doug Gruenewald<br>Connie Hargrave<br>Joel Johnson<br>Gary Mirka<br><br><b>DMACC Institutional Advisory Board</b><br>Chair: Kim Linduska<br>Ahmed Aggeman<br>Randy Mead<br>Randy Smith<br>Carol (Renee) White<br>Laurie Wolf<br><br><b>External Advisory Board</b><br>Chair: James Melsa<br>Iowa State University (Emeritus)<br>Kimberly Douglas-Mankin<br>Kansas State University<br>Leigh Hagenson Thompson<br>The Dow Chemical Company |
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