ISU Institutional Advisory Board

December 15, 2009

Grant No. 0653236, July 2007–July 2012
STEM Student Enrollment and Engagement through Connections

**Agenda**

- Project, team and board introductions
- Overview of the project
  - Project objectives and logic model planning
  - Enrollment data
- Project accomplishments
  - Selected highlights for each objective
  - Discussion
- Feedback on activities, results and challenges
  - Discussion
  - Recommendations
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SEEC Advisory Boards

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Leigh Hagenson Thompson
# SEEC Team

## Principal Investigators
- Diane Rover
- Harry McMaken

## Co-principal Investigators
- Monica Bruning
- Frankie Santos Laanan
- Steven Mickelson
- Mack Shelley

## Senior Personnel
- Robyn Cooper
- Mary Darrow
- Mary Goodwin
- Mani Mina
- Derrick Rollins
- Loren Zachary
- Karen Zunkel

## Team Members
- Ahmed Agyeman
- Doug Beck
- Paul Castleberry
- Lora Leigh Chrystal
- Laura Doering
- Randy Gabriel
- Jennifer Garrett
- Doug Gruenewald
- Carol Heaverlo
- Ann Howsare
- Randall Jedele
- Joel Johnson
- Michael Lentsch
- Randy Mead
- Ted Millen
- Les Pearey

## Other Personnel
- Sokish Sands
- Kevin Saunders
- Randy Smith
- Jay Staker
- Vicky Thorland-Oster
- Gloria Hill
Overall Grant Objectives

Increase College of Engineering graduates to 900, by approximately 100 per year. The percentage of women and minority graduates will approach 20% and 10%, respectively.
Recruitment and Retention

High School

Year 2

Year 3

Year 4

Year 5

Recruitment
Articulation
Retention

DMACC
Iowa State University
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Logic Models and Planning

• Pictorial representation of the steps needed to think through an evaluation.
  • Provides a process for linking activities to outcomes (and in turn evaluation)
  • Focus on and be accountable for what matters – OUTCOMES
  • Provides common language
  • Promotes communications

• Guide to purposeful activity planning for each of the grant objectives.

• Becoming more prevalent in grant proposal submissions and grant evaluations.
STEM Student Enrollment and Engagement through Connections

Logic Model Planning

**01. Learning Village**

**Objectives:**
To build a learning village that enhances student engagement and creates Iowa State connections for community college pre-engineering transfer students.

**2009 Activities:**
1. Build Admissions Partnership Program (APP)-Engineering Foundation (E-APP).
2. Enhance/expand Learning Community Model at DMACC and Iowa State.

**02. Curriculum**

**Objectives:**
To enhance first- and second-year learning experiences, with an emphasis on relevance, retention, rigor, student success and engagement, and classroom climate.

**2009 Activities:**
1. Review first-year curriculum and develop a pilot plan.
2. Update transfer programs of study with community colleges.
3. Identify distance education opportunities of interest to community college partners.
4. Introduce new “Engineer of 2020” student development modules through learning communities.

**03. Advising**

**Objectives:**
To develop and enhance academic advising and mentoring programs for pre-college, community college, and university students.

**2009 Activities:**
1. Develop a data system which informs program development toward pathways of success in engineering.
2. Develop and implement communications and transfer advising materials for community college audiences.
3. Provide professional development to community college pre-engineering advisors and faculty.
4. Develop and implement a mentoring and transfer intervention program.

**04. Networking**

**Objectives:**
To establish a recruiting and outreach network across Iowa and with alumni using ISU Extension, DMACC, and involving parents and teachers; to tap into diverse communities of students; and to improve the awareness and understanding of engineering among those who influence student choices.

**2009 Activities:**
1. Conduct needs assessment and asset mapping related to 9–14 educational and recruitment materials, develop materials based on Changing the Conversation recommendations, and disseminate broadly.
2. Develop and implement the Engineering Talent in Every County (E-TEC) Initiative with ISU Extension.
3. Develop outreach and recruitment plans for community college students, advisors, faculty, and parents.

**05. Evaluation**

**Objectives:**
To evaluate project effectiveness and improve project activities.

**2009 Activities:**
1. Conduct project progress interviews with all PI's and key personnel for year-end evaluation report.
2. Continue to develop and conduct assessment and evaluation activities for each objective team as identified in their logic models.
3. Create a SEED database to track retention and enrollment of College of Engineering students with a focus on DMACC transfers and new freshmen.

*Led by Iowa State University Research Institute for Studies in Education (RISE)*
Data Summary

• Enrollment trends
  • Increasing new student enrollment, including transfer students
  • Highest enrollment in 25 years
  • Increasing enrollment in engineering from DMACC

• Slightly higher percentages of underrepresented students

• 85% participation in learning communities
  • Highest retention across ISU colleges from fall 2008 to 2009 of 88.5%, with 76.4% remaining in COE
  • Opportunity to improve retention rates for first, second and third years in college and in departments
  • Need to improve retention rates for transfer students
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Partnerships

Connecting organizations and people leverages knowledge and resources and promotes strategic, sustainable approaches to meet recruitment and retention goals.
Partnerships

- 5 joint SEEC workshops sponsored between Iowa State and DMACC
- 140 community college students attended the Iowa State Engineering Career Fair
- 5 SEEC transfer peer mentors hired by E-APP Program
- Transfer Student Social Network developed
- 55 DMACC students took EGR100
- 70 new E-TEC scholarships available annually
- 24 new E2020 scholarships available annually
- 2 E-TEC Summits conducted including over 100 Extension staff
- 3 recruitment lunches hosted for female STEM students
- 85% participation by incoming students in engineering learning communities
Communications

Sharing information and engaging stakeholders through various mediums paves the way for effective partnering and advancement of project goals.
STEM Student Enrollment and Engagement through Connections

Women and Minorities in STEM Programs at Iowa's Public Universities

Engineering Admissions Partnership Program (E-APP)

STEM Talent Expansion Program (STEP)

SEEC: STEM Student Enrollment and Engagement Through Connections & E-TEC: Engineering Talent in Every County

Taking the Road Less Traveled

Your Challenge, Your Choice

In Iowa

Example of collaborative funding initiative:

- National Science Foundation $2 million grant to DMACC and ISU to increase number of students earning a bachelor's degree in engineering fields.
Communications

- E-APP brochure
- E2020 Scholars Program with scholarship
- E-TEC Program with scholarship
- Facebook presence
- Advisory Board newsletter
- Recruitment brochure
- College of Engineering alumni newsletter
- College of Engineering newsletter

- Conference presentations and workshops
  - ASEE
  - NASPA
  - Iowa State’s PWSE Taking the Road Less Traveled Career Conference
  - E-TEC Summit
  - Iowa Community College Summit
  - 4-H Leadership Conference
- Reports mentioning SEEC
  - IMSEP
  - Iowa Board of Regents Annual Report on Student Retention and Graduation
Diversity

Broadening participation in and promoting a broader understanding of engineering are necessary to achieve project outcomes.
Diversity

**Project Goal**
Increase the number of engineering graduates at Iowa State University by 122 per year. Within this number, increase underrepresented graduates by a minimum of 15 and women graduates by a minimum of 42. By connecting stakeholders and leveraging their knowledge and resources to promote strategic, sustainable approaches to recruitment and retention, SEEC will achieve its goal.

**Recruiting and Retention**
The SEEC project is supporting recruiting efforts by sponsoring new brochures and updates to the Perspective Students home page. These efforts will help “change the conversation” about engineering. Their messages and content will focus on how engineers make a difference by solving problems that help shape the future. This approach is supported by NSF research that shows it is effective in attracting women and underrepresented minorities to engineering.

The ability to finance an engineering education is also crucial to recruiting efforts. The SEEC project has created two new engineering scholarships, E-TEC and E2020. E-TEC reaches out to every county in Iowa and E2020 is open to students across the nation. Both aim to encourage women and underrepresented minorities to consider engineering by making an engineering education more affordable. Because E2020 is renewable, it will also aid in student retention.

Learning communities continue to play a key role in recruitment and retention efforts. The SEEC project has established learning communities within the College of Engineering for the creation of a transfer student learning village. These communities are attractive to women and underrepresented minorities because they create connections among students, faculty, and staff and provide educational, academic, and social support.

**Collaboration**
The SEEC project continues to collaborate with existing organizations to promote engineering among females and underrepresented minorities. E-APT works with community colleges to recruit transfer students. Pathways to a STEM Degree focuses on female transfer students. PIE-IE and PWISE reach out to all potential women in engineering. E-TEC partners with Iowa State Extension and is working to provide “conversation-changing” information to stakeholders in every Iowa county.

There is opportunity for involvement in SEEC project initiatives for all engineering stakeholders. Certainly everyone can help “change the conversation” to attract a more diverse range of students to engineering. The collaborative programs involve students, faculty and staff, and welcome additional members and supporters.

If you would like to collaborate with the SEEC project, contact Diane Sharp, Principal Investigator, at 515-294-1339 or dsharp@iastate.edu.
Highlights & Discussion of Objectives

- Learning Village
- Curriculum
- Advising
- Networking
- Evaluation
# Agenda

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Next Steps

• NSF Third Year Review
• Advisory Board interaction

Thanks!