

2008

# Annual Report – Year One

SEEC: Student Enrollment and Engagement  
through Connections

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## 1. Project Background

The STEM Student Enrollment and Engagement through Connections (SEEC) project, pronounced “seek,” does what its name implies – seeks students and connections. The goal is to increase the number of engineering graduates at Iowa State University by 122 per year. The means to that end are connections rooted in community: learning communities, community colleges, and Iowa communities. The project is collaborative between Iowa State University (ISU) and Des Moines Area Community College (DMACC). The cornerstone of SEEC is the success of learning communities for recruitment and retention, and the project builds upon ISU’s established learning community infrastructure, leadership, and expertise. Retention at DMACC and ISU will be increased by a new learning community model, called a learning village or meta-community. First-year and gateway engineering courses are being reviewed to engage students more effectively, to provide flexibility, and to support transfer students. Working with DMACC and the STEM Pathway project, student-centered advising is being coordinated to broaden the diversity of students enrolled in engineering and to make students aware of the various paths to successfully completing an engineering degree, including transfer from a community college. Students are being advised on the range of STEM disciplines. Interestingly, in this day and age of high-tech communications, the SEEC project employs a recruiting approach using one of the oldest services of a land-grant institution. With ISU Extension, we are seeking to improve the public awareness and understanding of engineering, especially among students and their parents. The methods of the project will serve ISU and DMACC in several contexts and will be adaptable (scalable and portable) to other institutions.

ISU, chartered in 1858 as Iowa Agricultural College and Model Farm became the nation’s first land-grant institution, and was renamed Iowa State University of Science and Technology in 1959. Today, ISU is a broad-based public university of international stature with more than 26,000 students from all 50 states and nearly 120 other nations. ISU, a Carnegie Doctoral/Research-Extensive university, has led the development of several fields of study that are central to the land-grant movement, including engineering, agriculture, family and consumer sciences, statistics, and veterinary medicine. Today, ISU is a recognized leader in many areas of science and technology, including plant and animal genomics, materials sciences, analytical chemistry, behavioral studies, physics, computer science, and many areas of engineering, with new initiatives in food safety and food security, human/computer interaction, combinatorial chemistry, and bioeconomy.

DMACC is a publicly supported two-year institution serving the Des Moines metropolitan area and surrounding counties and enrolling over 16,000 students in credit courses. It is Iowa’s largest two-year college. Approximately 25% of the state’s population resides within the area served by DMACC’s six campuses, including all or major portions of Audubon, Boone, Carroll, Dallas, Guthrie, Jasper, Madison, Marion, Polk, Story, and Warren counties and parts of adjacent counties. College transfer curricula meet the requirements of four-year colleges and universities. In 2005, DMACC began delivering technical education at its new Story County Career Academy – Hunziker Center in Ames, seven minutes from the ISU campus. About 60% of new undergraduate transfer students to ISU are from Iowa area community colleges, of which over one-third are from DMACC.

### 1.1 Project Organization and Goals

There are six main objectives of the SEEC Project:

**01. Learning Village.** To enhance the Learning Community (LC) model at ISU by improving programming and availability; and to create a LC model that spans DMACC and ISU.

02. **Connected Curriculum.** To redesign the first-year engineering curriculum to enable flexibility and commonality across LCs; and to make selected engineering gateway courses available to DMACC students via distance education.

03. **Student-centered Advising.** To develop and enhance academic advising and mentoring programs for precollege, community college, and university students.

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

05. **Evaluation.** To evaluate project effectiveness and improve project activities.

06. **Dissemination.** To share best practices on campus in other areas of STEM, with other community colleges in Iowa, with other institutions in the Big 12 consortium, and at national meetings.

Each of the objectives 01 – 04 is related to recruitment and retention, and hence to increasing the number of graduates in engineering and other STEM fields. The recruitment and retention methods in the SEEC Project represent a combination of both proven and new approaches. The objectives are tied to recommended practices of effective recruitment, retention, and engagement, including: inclusiveness, engaged faculty, mentoring, peer support, experiential learning, student development, community involvement, relevant curricula, pre-college student/adult relationships, encouragement to consider engineering, and the influence of parents, peers, teachers/counselors, and the media.

**The goal of the SEEC Project is to increase the number of engineering graduates at Iowa State University by 122 per year.** As a baseline for the project, we used an average of the American Society for Engineering Education (ASEE) 2001-2006 degree data, as shown in Table 1. The ASEE 2006 degree data represent a peak, resulting from record enrollments in 2001 and 2002. The additional graduates represent an increase of about 15% over the total number of engineering degrees awarded at ISU compared to the baseline. Enrollment and graduation data are maintained by ISU’s Office of Institutional Research.

Table 1.1.1

*Number of B.S. Degrees in Engineering for Iowa State University (ASEE)*

Year	African-American	Asian-American	Hispanic	Native-American	Foreign	Caucasian	Other	Men	Women	Total
2001	6	28	9	0	93	555	0	574	117	691
2002	12	31	11	1	68	594	0	607	110	717
2003	9	27	8	1	94	711	0	696	154	850
2004	11	23	14	1	89	668	0	662	144	806
2005	18	32	24	1	83	672	38	741	127	868
2006	33	38	15	4	62	742	38	788	144	932
Avg.	15	30	14	1	82	657	13	678	133	811

More specifically the numeric goals of SEEC are as follows:

- Increase in graduates (degrees) per year: 122 (15% increase compared to baseline)
- Total graduates per year: approximately 930  
This total would place ISU back in the ASEE top 10 list of schools by degrees awarded. ISU is currently 12th. Our goal is to stay in the top 10.
- Increase in diversity of graduates per year: increase the number of minority graduates by a minimum of 12 (20% increase) and women graduates by a minimum of 43 (32% increase)
- Total undergraduate enrollment at the levels of 2001-2002: 4800-4900 undergraduate students

Of the 930 total graduates, we are aiming for a minimum of 175 women and 75 minority graduates. These represent the following percentages of total graduates.

Percentage of women in 2006 graduates:	15.5%	Minority students in 2006 graduates:	9.7%
Percentage of women in baseline data:	16.4%	Minority students in baseline data:	5.7%
Percentage of women in SEEC graduates:	18.8%	Minority students in SEEC graduates:	8.1%

The number of minority graduates is set rather aggressively at the 2006 total, representing both a peak degree production and a minority degree production 20-25 greater than preceding years.

These are achievable goals within the five years of the SEEC Project. We expect the project to create a positive trend in diversity that continues, such that women will constitute 25% of all graduating students within five years after the project, and minority graduates, 12%. With the number of Hispanic high school graduates in Iowa more than tripling by 2012, there is the potential for even greater strides in the number and percentage of minority graduates.

The Fall 2007 new student enrollment in engineering at ISU is 1410 students, an increase of almost 90 compared to 2006. Of these new students, 62.5% are residents and 37.5% non-residents; 14.5% are transfers, and 85.5% new freshmen. For additional background on enrollment data and graduation rates at ISU, see the ISU website under Enrollment Statistics and Fact Book (refer to the Index). The total number of DMACC students enrolled at ISU in Fall 2007 is approximately 1144, with 310 being in STEM majors, including 94 in engineering majors, 97 new transfers from DMACC were admitted in Fall 2007 in STEM majors, and of these, 31 in engineering.

## 1.2 Project Strategy

The objectives of the SEEC project are being addressed through a set of recruitment, retention, and engagement activities associated with developing the community, curriculum, advising, and networking components of the project. Both recruitment and retention goals are supported by project components related to objectives O1-O3 (community, curriculum, and advising). Recruitment goals are primarily supported by the networking component of objective O4.

Key project objectives and related activities are identified below. Specific activities conducted toward meeting the project objectives for the year 2007-2008 are discussed in section 4 of this report.

### Community (Learning Village)

A1. Build a learning village or meta-community that involves all engineering majors, special interests, lower and upper-level years, and DMACC pre-engineering students.



A2. Enhance student engagement and measure results through data from NSSE (National Survey on Student Engagement, in which ISU participates); enhance student-faculty interaction.

### Curriculum

A3. Apply outcomes-based design to first-year engineering courses and identify multiple tracks to achieve outcomes that fit within the learning village.

A4. Implement interdisciplinary service-learning projects and undergraduate research projects as part of LC programming for 2nd and 3rd year students.

A5. Develop and implement the ACCESS (Academic Courses for Colleges in Engineering Study and Scholarships) program, a new College of Engineering distance education program to offer selected gateway courses in engineering to community college students at community college tuition rates.

### Advising

A6. Implement the Admissions Partnership Program with DMACC.

A7. Define options and paths for success and satisfaction in engineering and communicate to student, parent, and high school audiences; use best practices for diversity and STEM recruiting and advising. Use and adapt resources from Laanan's "STEM Pathway" dissemination project. Use results from Bruning's "Views" Gender in Science and Engineering project.

### Networking

A8. Collaborate with ISU Extension to implement programs to improve awareness, understanding, and interest in engineering in every county in Iowa. Establish a parent network to encourage student interest.

A9. Collaborate with ISU Extension and Admissions on diversity recruiting across Iowa, seeking at to develop cohort groups within clustered counties and emphasizing engagement/participation of ethnic minority and female populations (i.e., E-TEC Recruitment – Engineering Talent in Every County). Offer scholarships through Extension in coordination with the College of Engineering scholarship program.

A10. Develop recruiting kits for use by various stakeholders, including Extension, Admissions, and the Alumni Association (PERK, Personal Engineering Recruiting Kit; or PRKS, Personal Recruiting Kit for STEM).

### Evaluation

A11. Apply quantitative and qualitative evaluation methods, both formative and summative.

A12. Create and use internal and external advisory groups.

### Dissemination

A13. Coordinate activities and share practices with related efforts on the ISU and DMACC campuses. Transition results to other STEM disciplines and community college partnerships.

A14. Create an active network of Big 12 institutions to advance STEM recruiting and retention in the central United States. Organize regional forums on best practices in STEM involving the Big 12, including sharing project outcomes among institutions having NSF STEP grants.

A15. Document and publish project results, and participate in national meetings.

## **2. Project Participants**

Table 2.0.1 lists SEEC project participants for 2007-2008, along with their project role, time involvement, and objective team involvement.

Table 2.0.1

*SEEC Project Participants, Year One (2007-2008)\**

Participant	Institution	Project Role(s)	> 160 Hours	Objective Teams				
				L	C	A	N	E
Diane Rover~	ISU	Principal Investigator	Yes		LE			
Harry McMaken~	DMACC	Principal Investigator	Yes	CO	CO			
Monica Bruning~	ISU	Co-Principal Investigator	Yes				LE	
Frankie Laanan~	ISU	Co-Principal Investigator	No			LE		
Kim Linduska	DMACC	Co-Principal Investigator	No					
Steve Mickelson~	ISU	Co-Principal Investigator	Yes	LE	CO			
Mack Shelley~	ISU	Co-Principal Investigator	Yes					LE
Mary Darrow~	ISU	Senior Personnel	Yes	CO	CO	LE	CO	
Mary Goodwin~	ISU	Senior Personnel	Yes	CO	CO	LE		
RM Johnson~	ISU	Senior Personnel	Yes					CO
Mani Mina~	ISU	Senior Personnel	No	CO	CO			
Derrick Rollins	ISU	Senior Personnel	No		CO			
Loren Zachary	ISU	Senior Personnel	No		CO			
Karen Zunkle~	ISU	Senior Personnel	No		CO			
Paul Castleberry	ISU	Other – collaborator	No	CO	CO			
Kevin Saunders	ISU	Other – collaborator	No	CO	CO			
Randall Jedele	DMACC	Other – collaborator	No	CO				
Doug Beck	ISU	Other – collaborator	No			CO	CO	
Anne Howsare	DMACC	Other – collaborator	No			CO		
Ahmed Ageyman	DMACC	Other – collaborator	No			CO		
Randy Mead	DMACC	Other – collaborator	No				CO	
Randy Gabriel	DMACC	Other – collaborator	No				CO	
Jay Staker	ISU	Other – collaborator	No				CO	
Carol Heaverlo	ISU	Other – collaborator	No				CO	
Sue Ziegenbusch~	ISU	Other – collaborator	Yes	CO				

\*Maximum of 25 participants are allowed to be entered into NSF Fastlane System

~Received grant funds

Note: L=Learning Village, C=Curriculum, A=Advising, N=Networking, E=Evaluation; LE=Leader, CO=Contributor/Collaborator

The NSF Fastlane Reporting System limits reporting to 25 project participants. Appendix A provides a more detailed list of project participants for year one (2007-2008) and their roles within each of the objective teams.

## 2.1 Partnering Organizations

Currently, DMACC is the only external organization partnering and participating in the SEEC grant with ISU.

## 2.2 Additional Collaborators

The SEEC project collaborates with a number of ISU internal organizations and departments outside of the College of Engineering. They are:

- E-SET (ISU Extension)
- Iowa 4-H Clubs
- Office of Admissions
- Office of Community College Research and Policy (OCCRP)
- Office of Financial Aid
- Office of the Registrar
- Program for Women in Science and Engineering (PWSE)
- Research Institute for Studies in Education (RISE)

## 3. Activities and Findings

In year one (2007-2008) of the SEEC project, the leadership team and objective teams participated in a number of activities designed to help meet the SEEC project goals.

### 3.1 Activities for Year One

#### Leadership Team

The following action items took place in year one toward supporting the goals of the SEEC project.

- *Action.* The leadership team comprised of Rover (PI), Bruning (co-PI), Laanan (co-PI), Mickelson (co-PI), Shelley (co-PI), Darrow (senior personnel), Johnson (senior personnel), and Hill (support) met on a bi-weekly basis to discuss project activities and goals.
- *Action.* An intranet site was developed for project team members to help disseminate information and facilitate communication across objective teams and institutions.
- *Action.* A project website was developed: [www.eng.iastate.edu/seec/](http://www.eng.iastate.edu/seec/)
- *Action.* Conducted two all-day meetings for the project: one in the fall, as a retreat to launch the project with full teams from both ISU and DMACC participating; and one in the spring, a workshop to culminate the first year focused on evaluation and activity planning for year two. Members from all Objective Teams participated.
- *Action.* Participated in the NSF STEP Grantees Meeting. Five members of the ISU team and two members of the DMACC team participated in the meeting. The following sessions were attended:
  - Recruiting Undergraduate Students – Bruning, McMaken
  - Freshman/Sophomore Seminars & Learning Communities – Jedeke, Mickelson
  - Gateway Courses – McMaken, Rover
  - Internships & Undergraduate Research – Bruning
  - Community College Issues – Darrow, Jedeke, Mickelson, Shelley

- Transfer/Transition from 2-yr to 4-yr Schools – Darrow, Jedele, McMaken, Mickelson, Shelley
- Effective Project Management – Rover
- Success of the Overall Program – Shelley
- Institutional Transformation – Rover
- Type 2 Roundtable – Bruning, Darrow

In the remainder of this section, action items that took place specific to each of the Objective Teams' goals and activities (as defined in the SEEC project proposal) are highlighted.

### **Learning Village Objective Team**

The overall objective is to enhance the Learning Community (LC) model at ISU by improving programming and availability; and to create a LC model that spans DMACC and ISU.

**Activity 1.** Build a learning village or meta-community that involves all engineering majors, special interests, lower and upper level years, and DMACC pre-engineering students. The following action items supporting this activity guideline took place in year one:

- *Action.* All engineering degree programs at ISU will now have an associated LC starting in the fall of 2008. Programs were encouraged to establish LCs for at least their incoming freshmen students to help build the “learning village” within the College of Engineering at ISU. Materials Science and Engineering was the only engineering program at ISU without some kind of a LC. They will begin their new community in the fall of 2008. Now all 10 engineering degree programs have at least a freshmen level LC. Each LC collects data for program assessment. These are collected in annual reports due each June. These reports will be evaluated by the Learning Village Objective Team this summer (2008).
- *Action.* Special interest LCs have expanded to include three additional undeclared residential based LCs and one academic based undeclared LC starting in the fall of 2008.
- *Action.* Some engineering programs have expanded their already successful LCs to include more students (freshmen and sophomores) starting in the fall of 2008. These programs include Mechanical Engineering (one additional LC team), Chemical Engineering (one additional LC team), and Computer Engineering (two new LC teams).
- *Action.* ISU and DMACC common activities and programming that promoted cross-community interaction included: (1) A coordinated Engineering Spring Career Fair program focused on helping students to be successful at a career fair and to plan successfully their academic program with the help of engineering academic advisors; and (2) an Ultimate Frisbee Challenge with integrated DMACC and ISU engineering student teams focused on developing community and to help students understand how engineering can be fun.

**Activity 2.** Enhance student engagement and measure results through the National Survey on Student Engagement (NSSE) in which ISU participates; enhance student-faculty interaction. The following action items supporting this activity guideline took place in year one:

- *Action.* A new pre-engineering LC was started during the spring of 2008 that included a new pre-engineering orientation course and face-to-face engineering academic advising on the DMACC campus. Faculty from DMACC and ISU co-taught this course. Thirteen students enrolled in the course and an engineering junior transfer student at ISU was the peer mentor for this group.
- *Action.* Students and faculty interacted at the Career Fair event and the Ultimate Frisbee event.
- *Action.* Students at DMACC met with faculty and staff academic advisors to plan their 4-5 year academic program.
- *Action.* Faculty from ISU visited several science, math, and pre-engineering courses at DMACC to promote the new “Learning Village.”
- *Action.* New NSSE data were collected for the College of Engineering during the spring of 2008.
- *Action.* Numerous faculty/student programs were conducted in the engineering learning communities at ISU. Some of these include: service learning projects, faculty/staff/student dinners, etiquette dinners, faculty/staff/student BBQ's, faculty/student industry visits, and hands-on laboratories related to their field of study.

### **Curriculum Objective Team**

To redesign the first-year (FY) engineering curriculum to enable flexibility and commonality across the LCs; and to make selected engineering gateway courses available to DMACC students via distance education.

**Activity 3.** Apply outcomes-based design to first-year engineering courses and identify multiple tracks to achieve outcomes that fit within the Learning Village. The following action items supporting this activity guideline took place in year one:

- *Action.* First-year curriculum review planned for 2008-2009.
- *Action.* Faculty first-year Steering Committee being formed.
- *Action.* Review of and support for student success factors in coordination with Advising Team and Engineering College Advising Committee.
- *Action.* Participating in new university initiative to enhance rigor in the undergraduate curriculum (Spring 2008 launch).
- *Action.* Development and exploration of new first-year learning experiences for potential use in LC, leadership competencies (Engineering Leadership Program, [www.eng.iastate.edu/leadership](http://www.eng.iastate.edu/leadership)), and critical thinking skills.

**Activity 4.** Implement interdisciplinary service-learning projects and undergraduate research projects as part of LC programming for 2<sup>nd</sup> and 3<sup>rd</sup> year students. The following action items supporting this activity guideline took place in year one:

- *Action.* To be undertaken in coordination with the Learning Village Team and Engineering Learning Communities Task Team.
- *Action.* First-year service-learning project in Engineering Leadership Program provides a starting point (Spring 2007, Spring 2008, [www.eng.iastate.edu/leadership/serviceprojects.asp](http://www.eng.iastate.edu/leadership/serviceprojects.asp)).
- *Action.* Leveraging of new College of Engineering program to facilitate undergraduate research: PERUSE, Providing Experiences in Research for Undergraduate Students in Engineering, [www.engineering.iastate.edu/peruse.html](http://www.engineering.iastate.edu/peruse.html)).

**Activity 5.** Develop and implement the ACCESS program, Academic Courses for Community Colleges in Engineering Study, an engineering distance education program to offer selected gateway courses in engineering to community college students. The following action items supporting this activity guideline took place in year one:

- *Action.* Ongoing review of engineering programs of study, transfer guides, and courses on the critical path.
- *Action.* Promotion and expansion of ISU and DMACC Cross Enrollment Programs.
  - For ISU students: [www.public.iastate.edu/~registrar/info/crossroll.html](http://www.public.iastate.edu/~registrar/info/crossroll.html)
  - For DMACC students: [www.dmacc.edu/registration/cross-enrollment.asp](http://www.dmacc.edu/registration/cross-enrollment.asp)
- *Action.* Summer 2008: distance offerings of EM 274 (Statics) and EM 374 (Mechanics of Materials).

**Activity 6 (newly identified).** Improve classroom climate. The following action items supporting this activity guideline took place in year one:

- *Action.* Received Center for Excellence in Learning and Teaching (CELT) Teach Grant on “Improving Classroom Climate” to the College of Engineering Diversity Affairs. Originated with ISU Professional and Scientific Recruitment/Retention grant, in partnership with CELT and PWSE. A Series of three workshops for faculty and staff in the College of Engineering on “Enhancing the Climate in Engineering” were conducted.
  - Workshop 1: Increasing Participation, Leadership, and Community
  - Workshop 2: Women’s Perspectives on the Engineering Classroom
  - Workshop 3: Course Planning to Improve Your Classroom Climate
- *Action.* SEEC personnel participate on the ISU Retention Task Force charged with identifying curricular and co-curricular factors that affect 2<sup>nd</sup> and 3<sup>rd</sup> year retention.

### **Advising Objective Team**

Student-centered Advising - to develop and enhance academic advising and mentoring programs for pre-college, community college, and university students.

**Activity 7 (listed in proposal as 6).** Implement the Admissions Partnership Program (APP) with DMACC. The following action items supporting this activity guideline took place in year one:

- *Action.* Developed resources for the APP for students including a new web-based information resource.
- *Action.* Provided advising services for APP students.
  - August 2006 to July 2007 – 22 students
  - August 2007 to July 2008 – 13 students

**Activity 8 (listed in proposal as 7).** Define options for paths for success and satisfaction in engineering and communicate to student, parent, and high school audiences; use of best practices for diversity and STEM recruiting and advising. Use and adapt resources from Laanan’s “STEM Pathway” dissemination project. Use results from Bruning’s “Views” Gender in Science and Engineering project. The following action items supporting this activity guideline took place in year one:

- *Action.* Gathered input (e.g., advising team meetings, individual meetings with community college faculty and staff, meetings with ISU transfer students, and meetings with outreach/extension personnel) from various stakeholders regarding advisors and student needs.
- *Action.* Developed eight-week engineering orientation class.
- *Action.* Developing transfer student guide and web-based materials that can be posted online for print and/or electronic use.
- *Action.* Developing web-based career development site for pre-engineering students and/or students exploring engineering.
- *Action.* Developing plans for connecting community college students with ISU’s Program for Women in Science (PWSE), Girlslink e-mentoring, WISE and Transfer Learning communities, Mentornet, and student role model programs.
- *Action.* ISU Career Fair visits for 60+ community college students.
- *Action.* On-site engineering advising for DMACC students (2-3 hours a week) – approximately 20 students.
- *Action.* Presentation to all DMACC advising and counseling staff to disseminate transfer advising materials and literature on engineering majors.
- *Action.* Advising meetings with faculty and staff at five community colleges.

### **Networking Objective Team**

To establish a recruiting and outreach network across Iowa to broaden participating in engineering and to improve the awareness and understanding of engineering among those who influence

student choices. Targeted efforts focus on under-represented student populations (i.e., women and minority students). The coordinated network includes: ISU and DMACC faculty, staff, and alumni; ISU extension; and parents and K-12 teachers.

**Activity 9 (revised from proposal).** Collaborate with ISU Extension to develop, refine, and launch the E-TEC (Engineering Talent in Every County) program. The following action items supporting this activity guideline took place in year one:

- *Action.* E-TEC Summit hosted and follow-up survey administered to further assess needs for E-TEC program design and content.

**Activity 10 (revised from proposal).** Identify existing Iowa STEM-focused networks and connections. Explore mutual interests, collaborative opportunities, and leveraging resources. The following action items supporting this activity guideline took place in year one:

- *Action.* Networks are numerous and expansive. No centralized inventory exists and coordination among entities is limited. Need for coordination is a priority to assure time and resources are maximized. The Summit used Adobe Connect web conferencing to involve participants from Extension offices around the state.

**Activity 11 (revised from proposal).** Conduct a needs analysis with primary stakeholders – needs for information, delivery medium, and partnering opportunities. The following action items supporting this activity guideline took place in year one:

- *Action.* In-process. The online survey approach emulated the spirit of collaboration and partnering. Anecdotal feedback was positive, and analysis will result in the compilation or development, and dissemination of “what is engineering” materials, program/activity, and professional network connections. Training sessions will also be offered.

**Activity 12 (revised from proposal).** Facilitate the development of a SEEC visual identity system. Initiate the development of recruiting kits and marketing materials. The following action items supporting this activity took place in year one:

- *Action.* A visual identity strategy needs to recognize and leverage the unique graphics of multiple stakeholders, e.g., (1) College of Engineering, (2) ISU/Extension, and (3) DMACC.
- *Action.* Information in the following three areas will guide the development of materials and contents for kits. (1) survey data, (2) inventory and critique of current materials, and (3) emerging research on the importance of gender friendly, relevant, socially responsible information, and integrated communications.

**Activity 13 (revised from proposal).** Develop scholarship and financing awareness campaigns and award policy and process. The following action items supporting this activity took place in year one:

- *Action.* Inventory of applicable ISU scholarships conducted. Packaging strategy for 2008-2009 explored and discussed.



- *Action.* NSF S-STEM proposal submitted and recommended for funding. Successful proposal would fund cohorts of E-TEC students and other SEEC recruits. Discussion and brainstorming about financing education in-process.

**Activity 14 (newly identified).** Develop collaborative recruitment strategy for pre-collegiate/dual enrolled high school students enrolled in DMACC programs who have an aptitude in STEM fields.

- *Action.* Inventory of existing STM pre-collegiate programs and current awareness and recruitment strategies.
- *Action.* Identified critical influencers (advisors, teachers informal educators) for training program.

### **Evaluation Objective Team**

To evaluate project effectiveness and improve project activities.

**Activity 15 (listed in proposal as 11).** Apply quantitative and qualitative evaluation methods (both formative and summative) to improve project activities. The following action items supporting this activity took place in year one:

- *Action.* Conducting a process evaluation with SEEC Objective Team Members for year one.
- *Action.* Conducted a SEEC project workshop using the development of Logic Models for planning grant activities in year 2 – See Appendix B for workshop outline.
- *Action.* Created a SEEC database and defined variables to track retention and enrollment of College of Engineering students. Focusing on transfer students from DMACC as well as new freshmen students in the College of Engineering.

**Activity 16 (listed in proposal as 12).** Create and use internal and external advisory groups. The following action items supporting this activity took place in year one:

- *Action.* SEEC leadership team identified internal and external advisory groups. The Institutional Advisory Committee, chaired by Provost Hoffman, will meet to review first-year progress and second-year planning. The External Advisory Board will be chaired by James Melsa, Dean Emeritus of the College of Engineering and outgoing President of the ASEE. The SEEC leadership team is confirming the membership of individuals to the board. The board will also meet to review progress and plans.

## **3.2 Findings and Conclusions from Year One Activities**

In this section, we describe the findings (i.e., what we have learned) from SEEC activities/action items conducted in year one. Findings are listed below by leadership and objective teams.

### **Leadership Team**

As a result of attending the NSF STEP Grantee meeting, leadership team members highlighted a number of key points that are relevant to the success of the SEEC project:

- **Project Management**
  - Need for close collaboration between DMACC and ISU, to ensure communication and sharing of data to help the project succeed.
  - Most STEP projects underestimate the time and effort needed for project management. NSF is willing to allow reallocations in a budget to improve project effectiveness.
- **Evaluation**
  - Evaluation pointers: start early, identify clear measurement goals, define the distribution/frequency (e.g., front-loading, bursts, etc.).
  - A clear, thorough evaluation plan is critical to receiving continued funding and avoiding complications at the third-year review by NSF.
  - Need specific measurable outcomes, quantitative measures of progress on objectives.
  - Project success depends on evaluation.
  - Evaluation requires collaboration and is a shared responsibility among team members and evaluators.
  - The evaluation structure used by projects varies, including internal evaluators, external evaluators, institutional research offices, and external review committees.
  - NSF is interested in numbers, but...
  - Evaluation is about creating a story, not just reading a meter. Need to interpret results, draw conclusions. Numbers are necessary but not sufficient. It is important to understand the context and effect of interventions.
- **Activities**
  - Calculus courses continue to play a critical role in retention, and there are various versions and arrangements being used. Universities are also using aggressive, proactive advising and monitoring of students in calculus.
  - There is considerable interest in the Big 12 STEP Conference.
  - Need to develop systems that track students between institutions.
  - Engineering is a field of study that offers great breadth in career opportunities for graduates; be what you want to be with an engineering degree. Can we market it better to prospective students?
  - We are in a good position to propose a parallel STEP Type II project.
- **Institutional Change**
  - Need to change the daily conversation, because the daily conversation supports the myths that define the university culture.
  - Need to understand your own environment. Inevitably, one gets “stuck” with change processes, and getting “un-stuck” requires understanding the environment.
  - If change involves faculty development, need to find the so-called “bell cows.”

### ***Project Context***

The following is not a result of the project, but it represents a new context in which the project will be conducted. The university is implementing a form of decentralized budgeting, or resource centered management, referred to locally as the Resource Management Model (RMM). It begins Fiscal Year 2009 (July 1, 2008). The success of the College of Engineering will be tied to the success of the College’s financial management under the RMM. Recruitment and retention have expanded in strategic value under RMM. While recruitment, retention, and graduation data have long been used to measure the success of the College, academic programs, and students, and data have been maintained for educational, benchmarking, and reporting purposes, data will now be monitored and used to establish priorities for budgetary purposes.

## **Learning Village Objective Team**

- Building an objective team with experience with learning communities, service learning, women's programs, under-representative minority issues, assessment, undergraduate engineering programs and community college transfer issues was key in developing quality programming for year 1.
- Frequent site visits to the community college and other interaction with the community college team members by the learning village objective team members helped to build the community needed for successful program development and implementation.
- It is critical to have a frequent physical presence at DMACC to show the potential transfer students that ISU cares about them and their future success.
- Promotion in DMACC classes, such as math, chemistry, physics, and biology was critical for recruiting students into the newly created engineering orientation class for DMACC transfer students.
- Peer mentoring is an important way for DMACC pre-engineering students to connect with someone who has been successful in transferring to ISU in engineering.
- DMACC students are extremely interested in taking the correct classes for their intended engineering major at ISU. They also have concern on time management, study skills, and financial planning.
- In order to expand the learning community model at ISU, faculty and staff need to see how they will be rewarded by administration.
- Transfer student focus groups before and after they arrive at ISU provide valuable qualitative data for help in developing a successful learning village model.
- The DMACC pre-engineering students found great value in having an engineering orientation class that addressed transfer issue, engineering competency development, internship/cooperative education preparation, resume building, financial planning, and job analysis.
- It is difficult to engage transfer students in activities (service learning, career fair events, ISU engineering teambuilding events, etc.) outside the typical school day due to their diverse background, work schedules, and personal life commitments. Programming needs to be convenient and not burdensome to the DMACC student in order for them to participate in a meaningful way.
- Having convenient, face-to-face engineering transfer advising from an ISU advisor is important to the DMACC students.
- A need for a "pre-engineering" designator at DMACC is needed in order to have better communication about engineering learning opportunities.
- In order to increase the diversity of our "Learning Village", it is necessary to engage the DMACC Urban Campus students which have a high number of female and under-representative minority students.
- There is a need for quality recruitment material that clearly defines what the "Learning Village" is.

## **Curriculum Objective Team**

- The first year of the project has led to identification of resources and programs relevant to the Curriculum Objective that will serve as a basis and contribute to implementation.

### **Advising Objective Team**

- Inter-institutional/collaborative planning can lead to meaningful improvements in advising for community college students.
- Web-based resources are not always easy to find or user-friendly in terms of advising.
- Some community college and/or high school advisors and counselors would prefer “one click” printable advising materials.
- Uniform formatting across departments assists community college and high school advisors in their work.
- The APP program will assist us in institutionalizing advising services for community college students.
- The APP program allows community college students to access key ISU/College of Engineering advising resources including the Graduate Planner and Career Management Services while still in community college.

### **Networking Objective Team**

- Networks coordination is a priority to assure time and resources are maximized.
- Strategic partners responded positively to early networking activities (e.g., ISU Extension).
- Additional data are needed to develop relationships and communications materials relevant to prospective partners.
- Survey data revealed the importance of age appropriate engineering and financial aid information (including professional training for using resources) and the development of networks to facilitate communication about programming and contacting local/regional engineers for education/awareness purposes.

### **3.3 Opportunities for Training and Development from Year One Activities**

The team members, even those involved peripherally, have gained greater awareness about assessment and evaluation in relation to recruitment, retention, and student learning. This awareness will be translated into actions as the project moves forward. Other specific opportunities include:

- Through this project we are beginning to create a repository of qualitative and quantitative data with regard to transfer students that will serve to inform practice, instruction, and assessment at all levels.
- Through O-Team meetings and project-related presentations, project leaders have contributed to the education of key advising and counseling staff regarding the transfer issues, transfer data, effective practice, and research.
- Several team members are graduate students and may identify problems, issues, or gaps in our SEEC initiatives and pursue issues via other grant opportunities.

### **3.4 Outreach Activities from Year One Activities**

The list below describes the numerous outreach activities in which the SEEC project was involved for year one.

- When the project began, a news release was posted to the front page of the ISU website and the College of Engineering website, and newspaper articles appeared in the *Des Moines Register* and the *Ames Tribune*. Also, the story was picked up by a statewide radio network, Radio Iowa, which broadcast an interview with PI Diane Rover and posted a summary to their website (effort underway to increase the number of engineering students, Wednesday, August 22, 2007, 9:14am, by Pat Curtis).
- All news items are listed at the project website:  
<http://www.eng.iastate.edu/seec/news.shtml>
- The project was also reported in the “ECPE Connections,” Spring 2009, pp. 6-7, a print and web newsletter for the Department of Electrical and Computer Engineering, distributed to thousands of alumni and stakeholders.  
<http://www.ece.iastate.edu/fileadmin/www.ece.iastate.edu/uploads.media/ECpEConnections-spring08.pdf>
- Science, math, and pre-engineering courses were visited at the Ankeny and Urban DMACC campuses to promote the new “Learning Village” between DMACC and ISU. Over 100 students were exposed to the presentation.
- 60+ community college students attended the Engineering Career Fair which included a tour of the College of Engineering programs and meeting with an engineering advisor.
- Meetings were conducted with faculty and staff in 5 community colleges.
- Advising staff have piloted on-site pre-engineering advising at the DMACC Ankeny Campus one morning per week in the spring semester.
- A presentation was made to all DMACC advising and counseling staff to disseminate transfer advising materials and literature on the engineering majors.
- An Adobe Connect E-TEC Summit was hosted.
- In May, SEEC participants Diane Rover, Frankie Santos Laanan, and Mary Goodwin attended the Iowa Community College Summit hosted by ISU (see agenda Appendix C). A large portion of the agenda focused on STEM education and community college transfers. Provost Hoffman highlighted the SEEC project in her presentation (see SEEC slides Appendix D).

#### 4. Publications and Products

The following is a list of the products developed and disseminated in year one of the SEEC project.

- A project website was developed and can be accessed at:  
<http://www.eng.iastate.edu/seec/> (see Appendix E for website welcome page)
- Two items were developed by the SEEC executive team for the NSF STEP Grantees Meeting, March 6-7, 2008.
  - SEEC Project Abstract, <http://www.eng.iastate.edu/seec/reports/abstract-seec-feb08.pdf> (see Appendix F for Project Abstract)
  - SEEC Project Poster, [http://www.eng.iastate.edu/seec/reports/SEEC\\_Posters.pdf](http://www.eng.iastate.edu/seec/reports/SEEC_Posters.pdf)
- A pre-engineering website was developed and located on Dr. Harry McMaken’s DMACC faculty website, <http://www.dmacc.edu/instructors/hlmcmaken/EGR100/EGR100.htm>
- A pre-learning village assessment tool was created to determine student perceptions of the academic experience prior to the start of a new learning village
- An APP Engineering website was created, <http://www.eng.iastate.edu/transfer/app/>
- Community College Course Grids were created for each engineering major.
- A database was developed for incoming new transfer students in the College of Engineering.
- An E-TEC Needs Analysis Survey was created.

- A SEEC project dataset is currently being developed with information sharing between DMACC enrollment data and ISU enrollment data.

## **5. Contributions, Major Accomplishments, Innovations, and Successes of Project**

The majority of contributions, major accomplishments, innovations, and success of the SEEC project in year one have been made at the institutional level with respect to the engineering discipline. In other words, these contributions are specific to ISU and DMACC STEM programs. It is assumed that in subsequent years, as the SEEC project model continues to progress, information gained from the SEEC project will support and inform the development of tools that can be utilize to recruit and retain transfer students in the STEM disciplines nationwide. The following subsections describe the contributions from the project in year one.

### **5.1 Contributions to the principle discipline of the project**

All engineering departments in the ISU College of Engineering now have LCs. A specific focus is now on adding a LC at DMACC to further develop the concept of the learning village which is unique to the SEEC project and a central tenet of the project's model to increase engagement and retention.

At the conclusion of year one, DMACC has identified a pre-engineering major track which will help identify potential transfer students as well as develop a community for increased student engagement in the engineering field. Furthermore, an Engineering 101 (i.e., engineering orientation) class was developed and delivered to students at DMACC.

A partnership has been developed between the SEEC project and ISU Extension including the identification of mutual goals and working collaboratively to achieve targets and objectives focused on recruitment and retention of engineering students.

An additional significant contribution in year one was the development of web materials for the Engineering APP students.

### **5.2 Contributions to other disciplines in science or engineering**

Over 60 community college students were recruited to attend a career fair hosted at ISU; participation in the career fair enhanced exposure to STEM careers.

An alignment of the calculus sequence across institutions (DMACC and ISU) was achieved as well as a better understanding at DMACC of how credits will transfer to ISU. DMACC has identified a need to improve schedule coordination because of an overlap between Calculus 3 and Physics. Furthermore, a need was identified for supports to enhance calculus success.

### **5.3 Contributions to the development of human resources**

There is enhanced understanding of how to work better together and increase the dynamics of project teams and the collaborations across campuses. Communication is occurring through avenues that did not exist before.

There is an increased understanding of perceptions of ISU campus from student perspective (e.g., ISU can be threatening). Efforts conducted this year in face-to-face contact help support positive

changes in this perception. Additionally, implementation of ISU peer mentors has helped to facilitate a positive change in perceptions of intimidation.

There are previously unforeseen opportunities for new courses for collaboration/coordination across institutions.

The creation of a first year (FY) steering committee will maximize human resources across institutions.

#### **5.4 Contributions to the physical, institutional, or information resources that form the infrastructure for research and education**

There is a better understanding of how to institutionalize the APP program and to identify barriers to student participation in the program.

The development of podcast materials leverages information technology used by today's students.

In the future, there is a need to bring together various groups involved with teaching and learning to discuss practices and strategies.

Cross-institutional communication paths are developing. The Learning Communities Task Team (ISU Engineering) is developing strategies to support SEEC.

#### **5.5 Contributions to other aspects of public welfare beyond science and engineering**

A shared financial planner (ISU/DMACC) to discuss planning and finances contributes to financial literacy.

### **6. Special Requirements**

The SEEC project has no special requirements to report for year one.

## Appendix A

### Project Participants and their Roles by Objective Teams

\*roles are defined by Objective Team Leaders

#### 01. Learning Village Objective Team

Participant	Role	Job Title, Department, and Institution	Contact Information
Steve Mickelson	Team Leader	Associate Professor, Associate Chair, Agricultural and Biosystems Engineering; Director of Assessment, College of Engineering; Director of Center for Excellence in Learning and Teaching, ISU	<a href="mailto:estaben@iastate.edu">estaben@iastate.edu</a>
Paul Castleberry	Member	Student Services Specialist, Engineering Academic/Student Affairs, College of Engineering, ISU	<a href="mailto:paulca@iastate.edu">paulca@iastate.edu</a>
Lora-Leigh Chrystal	Member	Program Coordinator, Program for Women in Science and Engineering, ISU	<a href="mailto:lchrysta@iastate.edu">lchrysta@iastate.edu</a>
Jennifer Garrett	Member	Student Program Coordinator (service learning/leadership), Memorial Union, ISU	<a href="mailto:Garrett1@iastate.edu">Garrett1@iastate.edu</a>
Doug Gruenwald	Member	Co-Director of Learning Communities, Student Affairs Office, ISU	<a href="mailto:dgrenwld@iastate.edu">dgrenwld@iastate.edu</a>
Mani Mina	Member	Senior Lecturer, Electrical and Computer Engineering, ISU	<a href="mailto:mmina@iastate.edu">mmina@iastate.edu</a>
Kevin Saunders	Member	Coordinator of Continuous Improvement, Office of the Provost, ISU	<a href="mailto:saunders@iastate.edu">saunders@iastate.edu</a>
Harry McMaken	Advisor	Professor, Mathematics/Engineering, DMACC	<a href="mailto:hlmcmaken@dmacc.edu">hlmcmaken@dmacc.edu</a>
Randall Jedele	Member	Instructor, English, DMACC	<a href="mailto:rejedele@dmacc.edu">rejedele@dmacc.edu</a>
Sue Ziegenbusch	Member	Academic Advisor, Agricultural and Biosystems Engineering, ISU	<a href="mailto:sziegenb@iastate.edu">sziegenb@iastate.edu</a>
Mary Goodwin	Advisor	Advising and Transfer Programs Director, Student Services, College of Engineering, ISU	<a href="mailto:goodwinm@iastate.edu">goodwinm@iastate.edu</a>
Mary Darrow	Advisor	Program Coordinator, Educational Leadership and Policy Studies, ISU	<a href="mailto:mdarrow@iastate.edu">mdarrow@iastate.edu</a>



## 02. Curriculum Objective Team

Participant	Role	Job Title, Department, and Institution	Contact Information
Diane Rover	Team Leader	Associate Dean and Professor, College of Engineering, ISU	<a href="mailto:drover@iastate.edu">drover@iastate.edu</a>
Mary Goodwin	Collaborator (FY success, transfer plans)	Advising and Transfer Programs Director, Student Services, College of Engineering, ISU	<a href="mailto:goodwinm@iastate.edu">goodwinm@iastate.edu</a>
Mani Mina	Collaborator (FY development)	Senior Lecturer, Electrical and Computer Engineering, ISU	<a href="mailto:mmina@iastate.edu">mmina@iastate.edu</a>
Krishna Athreya	Peripheral participant (FY leadership development, service learning)	Director, Engineering Leadership Program; Adjunct Professor (MSE), College of Engineering, ISU	<a href="mailto:Ksa1@iastate.edu">Ksa1@iastate.edu</a>
Mike Kalkhoff (ChE)	Peripheral participant (FY leadership development, service learning)	Engineering Leadership Program Student Director, College of Engineering, ISU	
Amy Joines (CprE)	Peripheral participant (FY leadership development, service learning)	Engineering Leadership Program Student Director, College of Engineering, ISU	
Adam Bragg (ME)	Peripheral participant (FY leadership development, service learning)	Engineering Leadership Program Student Director, College of Engineering, ISU	
Greg McGrath (ME)	Peripheral participant (FY leadership development, service learning)	Engineering Leadership Program Student Director, College of Engineering, ISU	
Steve Mickelson	Collaborator (Learning Village, ELP, FY development)	Associate Professor, Associate Chair, Agricultural and Biosystems Engineering; Director of Assessment, College of Engineering; Director of Center for Excellence in Learning and Teaching, ISU	<a href="mailto:estaben@iastate.edu">estaben@iastate.edu</a>
Paul Castleberry	Peripheral participant	Student Services Specialist & Learning Communities Coordinator, Engineering Academic/Student Affairs, College of Engineering, ISU	<a href="mailto:paulca@iastate.edu">paulca@iastate.edu</a>
Nancy Knight	Peripheral participant (climate, PERUSE)	Graduate Enrollment, Management Director, College of Engineering, ISU	<a href="mailto:nknight@iastate.edu">nknight@iastate.edu</a>
Derrick Rollins	Collaborator (climate)	Professor, Chemical and Biological Engineering; Assistant Dean for Diversity, College of Engineering, ISU	<a href="mailto:drollins@iastate.edu">drollins@iastate.edu</a>
Loren Zachary	Collaborator (ACCESS)	Professor Aerospace Engineering; Assistant Dean for Engineering Education, Director of Engineering Distance Education, College of Engineering, ISU	<a href="mailto:zach@iastate.edu">zach@iastate.edu</a>
Harry McMaken	Collaborator, DMACC Leader	Professor, Engineering and Math; DMACC	<a href="mailto:hlmcmaken@dmacc.edu">hlmcmaken@dmacc.edu</a>
Karen Zunkel	Peripheral participant (original climate workshop series)	Director, Program for Women in Science and Engineering, ISU	<a href="mailto:kzunkel@iastate.edu">kzunkel@iastate.edu</a>
Mary Darrow	Collaborator on other objective	Member, ISU Retention Task Force	<a href="mailto:mdarrow@iastate.edu">mdarrow@iastate.edu</a>

Kevin Saunders	Collaborator on other objective	Member, ISU Retention Task Force
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### 03. Advising Objective Team

Participant	Role	Job Title, Department, and Institution	Contact Information
Frankie Santos Laanan	Team Leader	Associate Professor, Educational Leadership and Policy Studies, ISU	<a href="mailto:laanan@iastate.edu">laanan@iastate.edu</a>
Mary Darrow	Co-Team Leader	Program Coordinator, Educational Leadership and Policy Studies, ISU	<a href="mailto:mdarrow@iastate.edu">mdarrow@iastate.edu</a>
Mary Goodwin	Co-Team Leader	Advising and Transfer Programs Director, Student Services, College of Engineering, ISU,	<a href="mailto:goodwinm@iastate.edu">goodwinm@iastate.edu</a>
Doug Beck	Member	Advising Coordinator, Mechanical Engineering, ISU	<a href="mailto:dbeck@iastate.edu">dbeck@iastate.edu</a>
Ted Millen	Member	Advisor, Civil Engineering, ISU	
Vicky Thorland-Oster	Member	Manager, Electrical and Computer Engineering Student Services, ISU	<a href="mailto:vthorl@iastate.edu">vthorl@iastate.edu</a>
Tony Snow	Member	Advisor, DMACC	
Ahmed Ageyman	Member	Advisor, DMACC Ankeny Campus	<a href="mailto:akagyeman@dmacc.edu">akagyeman@dmacc.edu</a>
Anne Howsare	Member	Interim Vice Provost/Counselor, DMACC Urban Campus	<a href="mailto:amhowsare@dmacc.edu">amhowsare@dmacc.edu</a>

### 04. Networking Objective Team

Participant	Role	Job Title, Department, and Institution	Contact Information
Monica Bruning	Team Leader	Director of Talent Expansion, Academic/Student Affairs, College of Engineering, ISU	<a href="mailto:mbruning@iastate.edu">mbruning@iastate.edu</a>
Jay Staker	Member	Youth Development Specialist, ISU Extension	<a href="mailto:jstaker@iastate.edu">jstaker@iastate.edu</a>
Carol Heaverlo	Member	Program Coordinator, Program for Women in Science and Engineering, ISU	<a href="mailto:heaverlo@iastate.edu">heaverlo@iastate.edu</a>
Doug Beck	Member	Advising Coordinator, Mechanical Engineering, ISU	<a href="mailto:dbeck@iastate.edu">dbeck@iastate.edu</a>
Mary Darrow	Member	Program Coordinator, Educational Leadership and Policy Studies	<a href="mailto:mdarrow@iastate.edu">mdarrow@iastate.edu</a>
Laura Doering	Member	Associate Registrar and Director of Transfer Relations, ISU	<a href="mailto:ljoer@iastate.edu">ljoer@iastate.edu</a>
Randy Gabriel	Member	Director, Program Development, DMACC	<a href="mailto:Rgabriel1@dmacc.edu">Rgabriel1@dmacc.edu</a>
Randy Mead	Member	Executive Dean, Program Development, DMACC	<a href="mailto:ramead@dmacc.edu">ramead@dmacc.edu</a>
Michael Lentsch	Member	Director, Enrollment Management, DMACC	<a href="mailto:mjlentsch@dmacc.edu">mjentsch@dmacc.edu</a>
Mark Steffen	Member	Executive Director, Program Development, DMACC	<a href="mailto:masteffen@dmacc.edu">masteffen@dmacc.edu</a>
Sokish Sands	Member	Academic Advisor, Success Center, DMACC	<a href="mailto:stsands@dmacc.edu">stsands@dmacc.edu</a>

## 05. Evaluation Objective Team

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Participant	Role	Job Title, Department, and Institution	Contact Information
Mack Shelley	Team Leader	University Professor, Political Science and Statistics, ISU	<a href="mailto:mshelley@iastate.edu">mshelley@iastate.edu</a>
RM Johnson Cooper	Member	Program Coordinator and Lecturer, Educational Leadership and Policy Study, ISU	<a href="mailto:robynj@iastate.edu">robynj@iastate.edu</a>
Joe DeHart	Member	Executive Director, Institutional Effectiveness, Assistant to the President, DMACC	<a href="mailto:jcdehart@dmacc.edu">jcdehart@dmacc.edu</a>

## Appendix B

### Year Two Planning Workshop Outline

#### SEEC Workshop

April 24, 2008

#### Agenda

- 11:00am Welcome – Introductions
- Year 1 Updates from PIs and O-Team Leaders
- NSF Workshop (Diane)
  - O-Team Updates (Steve, Monica, Diane, Mary/Frankie, Mack)
    - Highlight 1 or 2 bullets on powerpoint update slide
- NSF Year 1 Annual Report and Evaluation Activities**
- 11:30am Student Numbers and Benchmarks Year 1 and beyond
- Group Discussion (see questions on powerpoint slide)
- 12:00pm SEEC Outcomes Year 1 (**Working Lunch**)
- O-Team brainstorm on SEEC contributions
  - worksheets and poster paper activities
- O-Team Processing Year 1
- Process evaluation by individual O-Team members (questionnaire)
- Planning for Year 2**
- 1:30pm Program Planning for Year 2 (3, 4, and 5) with Logic Models
- Logic Model Review (powerpoint) (1:30pm-2:00pm)
  - Logic Model Activity with O-Teams (2:00pm-3:10pm)
    - Worksheets and poster paper activities
    - Break 3:10-3:20pm
  - O-Team Logic Model Report Outs (3:20pm)
- 3:50pm Wrap up and next steps

## Appendix C

### ISU – Iowa Community College Summit – May 13, 2008 at ISU

#### Final Schedule

10:00 – 10:30 (Campanile Room, Memorial Union – Parking in Memorial Union Ramp)

- Arrival of Participants; Coffee; Informal Interaction

10:30 – 12:00 (Entire Group; Campanile Room, Memorial Union)

- Welcome (President Geoffroy)
- Discussion of Higher Education Issues (Sara Martinez Tucker, U.S. Under Secretary of Education)
- Overview of initiatives and actions resulting from 2007 summit (Dave Holger)
- Discussion/comments/questions

12:00 – 1:15 (Sun Room, Memorial Union)

- Lunch
- Critical Stem Education Issues (Betsy Hoffman, Chair, National Science Board Committee on Education and Human Resources; Executive Vice President and Provost, ISU)

1:30 – 3:00 Senior Leadership and Academic Leadership in Separate Sessions (2030 Morrill Hall and 1030 Morrill Hall)

Senior Leadership Primary Themes (Ebbers facilitate, 2030 Morrill Hall)

- Admissions Partnership Program Report
- STEM Education and Workforce Issues
- Collaboration in Biorenewables/Bioeconomy
- Educating Future Community College Leaders
- Collaboration in Economic Development and Entrepreneurship
- Seamless Transition
- High Priority Topics for the Future

Academic Leadership Primary Themes (Holger/Harding/Doering facilitate, 1030 Morrill)

- Admissions Partnership Program Report
- Iowa IT Adventures Update
- ISU Articulation Website
- Honors Articulation
- STEM Discipline Articulation
- Biotechnology Articulation
- Wind energy
- Transfer Student Success Study
- Articulated Bachelor of Technology
- High Priority Topics for the Future

3:15 – 3:45 Entire Group (2019 Morrill Hall)

- Summary of Afternoon Sessions (Holger, Ebbers)

## Appendix D

### SEEC Slides from Provost Hoffman's Presentation


Iowa Community College Summit – May 13, 2008



## In Iowa

- Example of collaborative funding initiative:
  - National Science Foundation \$2 million grant to DMACC and ISU to increase the number of students earning a bachelor's degree in engineering fields

ISU-Iowa Community College Summit May 13, 2008






## In Iowa

- Five strategies focus on recruitment and retention
  - creating an ISU/DMACC learning village
  - developing a connected curriculum for first-year transfer students
  - partnering in student-centered advising
  - using coordinated networking throughout the state with strategic partners and messages
  - evaluating cross-institutional practices and measures
- <http://www.eng.iastate.edu/seec/>

ISU-Iowa Community College Summit May 13, 2008

# Appendix E

## SEEC Website Welcome Page

<b>IOWA STATE UNIVERSITY</b> <span style="float: right;">INDEX A B C D E F G H I J K L M N O P Q R S T U V W X Y Z</span>		
A Collaborative Project with Des Moines Area Community College <span style="float: right;">Search ISU <input type="text"/></span>		
<b>STEM Student Enrollment and Engagement through Connections (SEEC)</b>		
<ul style="list-style-type: none"><li>About</li><li>Who We Are</li><li>Initiatives</li><li>News &amp; Events</li><li>Reports &amp; Resources</li><li>Contact Us</li><li><b>Quick Links</b></li><li><a href="#">Iowa State University</a></li><li><a href="#">Des Moines Area Community College</a></li><li><a href="#">ISU College of Engineering</a></li><li><a href="#">ISU Extension</a></li><li><a href="#">ISU Office of Community College Research and Policy</a></li><li><a href="#">National Science Foundation</a></li><li><a href="#">NSF STEP Program</a></li></ul> <div style="text-align: center;"></div>	 <p>The project is implementing five strategies through a set of integrated recruitment and retention objectives to increase the numbers of engineering graduates at Iowa State University (ISU) and pre-engineering students at Des Moines Area Community College (DMACC). The strategies include creating an ISU/DMACC learning village, developing a connected curriculum for first-year transfer students, partnering in student-centered advising, using coordinated networking throughout the state with strategic partners and messages, and evaluating cross-institutional practices and measures.</p>	<b>Fast Facts about ISU Engineering</b> <p>The programs are among the top 10 in the Midwest among all engineering colleges (USN &amp; WR ranking).</p> <p>ISU Learning Communities are consistently ranked by U.S. News &amp; World Report as among the top 25 programs in the nation.</p> <b>News</b> <ul style="list-style-type: none"><li><a href="#">Engineering colleges want more local grad students</a></li><li><a href="#">Iowa State and DMACC work together to increase engineering graduates</a></li><li><a href="#">Award Information</a></li></ul> <p>Collaborating with:</p> 
<small>This material is based upon work supported by the National Science Foundation under Grant No. 0653236. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.</small>		
<b>IOWA STATE UNIVERSITY</b> <b><i>Becoming the best.</i></b> College of Engineering, 104 Marston Hall, Ames, IA 50011. (515) 294-5933, <a href="mailto:info@eng.iastate.edu">info@eng.iastate.edu</a> Copyright © 2005, Iowa State University of Science and Technology. All rights reserved.		

## Appendix F

### SEEC Project Abstract

# IOWA STATE UNIVERSITY

## Student Enrollment and Engagement through Connections (SEEC)

Iowa State University (ISU) and Des Moines Area Community College (DMACC) are partnering on the STEM Student Enrollment and Engagement through Connections (SEEC) project to increase the number of students graduating with a bachelor's degree in engineering at ISU and the number of students in STEM areas of study at DMACC, including increasing the number of transfers from DMACC to ISU in engineering. Retention at DMACC and ISU will be increased by a new learning community model, called a learning village or meta-community. First year and gateway engineering courses will be reviewed to better engage students, to provide flexibility, and to support transfer students. The ACCESS program makes gateway courses available through distance education. Working with DMACC and the STEM Pathway project, student-centered advising will be coordinated to broaden the diversity of students enrolled in engineering and to make students aware of the various paths to successfully completing an engineering degree, including transfer from a community college. ISU Extension will partner on the project to develop the STEM TEC (Talent in Every County) initiative.

The goal of the SEEC Project is to increase the number of engineering graduates at Iowa State University by 120 per year. The percentage of women and minority graduates will approach twenty percent and ten percent respectively.

#### The six main objectives of the SEEC project are:

- **Learning Village.** To enhance the Learning Community (LC) model at Iowa State University by improving programming and availability; and to create a LC model that spans DMACC and ISU.
- **Connected Curriculum.** To redesign the first-year engineering curriculum to enable flexibility and commonality across LCs; and to make selected engineering gateway courses available to DMACC students via distance education.
- **Student-centered Advising.** To develop and enhance academic advising and mentoring programs for pre-college, community college, and university students.
- **Coordinated Networking.** 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.

#### Principal Investigators

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