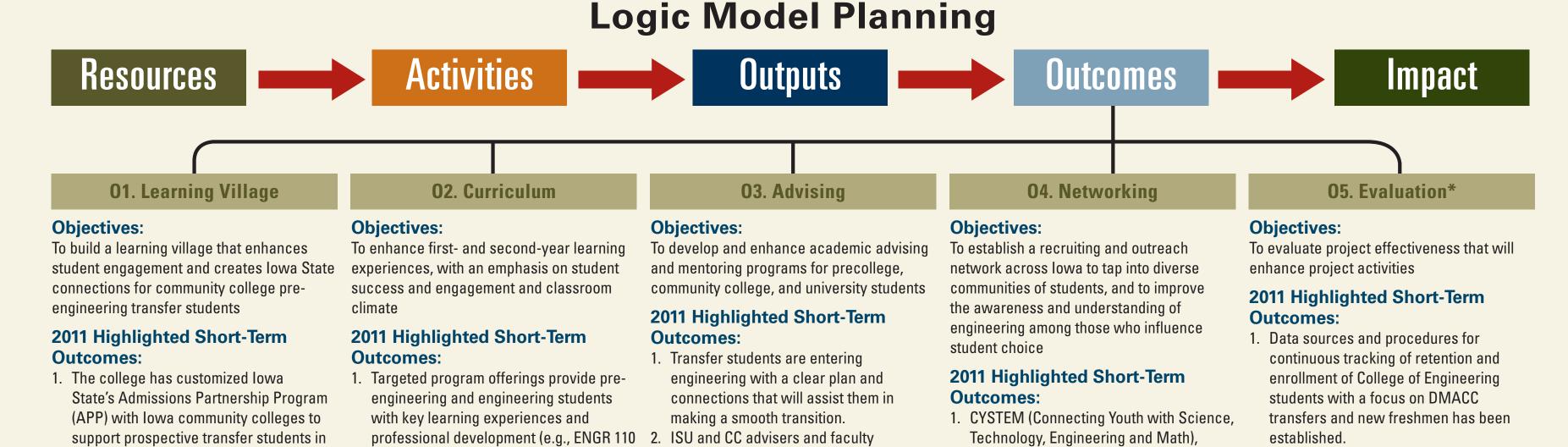
IOWA STATE UNIVERSITY DMACC **NATIONAL SCIENCE FOUNDATION** STEM Talent Expansion Program (STEP) COMMUNITY COLLEGE **STEM Student Enrollment and Engagement through Connections**

College of Engineering • College of Human Sciences • College of Liberal Arts and Sciences • www.eng.iastate.edu/seec

5 60 6

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 lowa State and the number of pre-engineering students at Des Moines Area Community College.





Continue to build a culture that embraces transfer student programming through professional and program development.

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

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

0 Measuring and documenting the SEEC Effect to improve and 5 sustain effective practices and promote a culture of evidence.

0	

and 210 E2020 courses, bioengineering engineering, called E-APP. are engaged in activities aimed at 2. The Transfer Peer Mentor Program minor, and DMACC/EGR 100). dissemination of student success report includes a web-based professional Departments are interested in the best practices, curriculum and new network which promotes multiple points transfer student transition and curricular resources. of engagement for community college aspects (e.g., transfer learning students. Transfer peer mentors serve communities, sophomore courses, and as leaders in E2020 (S-STEM) transfer 2+2 programs). cohort seminars. A university-wide student success summit and continued SEEC project 3. All Iowa State engineering departments have learning communities, and emphasis on data analysis of students' some have started transfer learning academic performance and success will inform department activities. communities.

an interactive, web-based GIS map/ 2. Longitudinal qualitative and quantitative assessment and evaluation activities are information repository was launched to connect lowa youth, parents, and in place. formal and informal educators to STEM resources (programming, mentors, and introduction to engineering jobs) in lowa. Led by Iowa State University Research Partnerships and networking continue Institute for Studies in Education (RISE) with University Extension, academic departments, Program for Women in Science and Engineering, Iowa State Admissions, industrial boards, and alumnia and educator networks.



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

The number of women

and minority students

enrolled in engineering

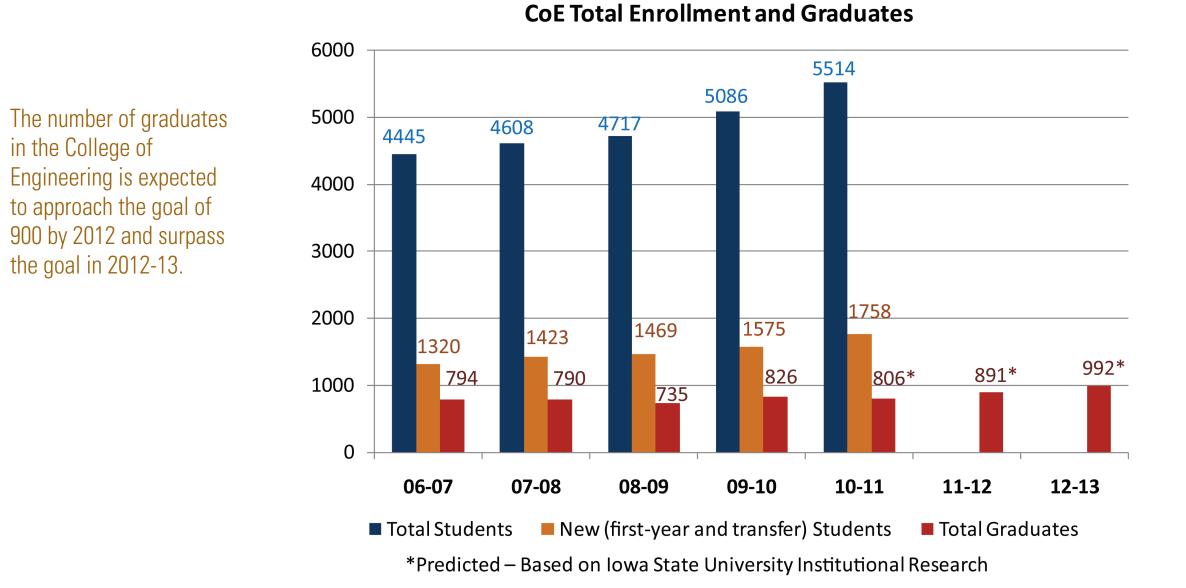
has increased and is

expected to result in

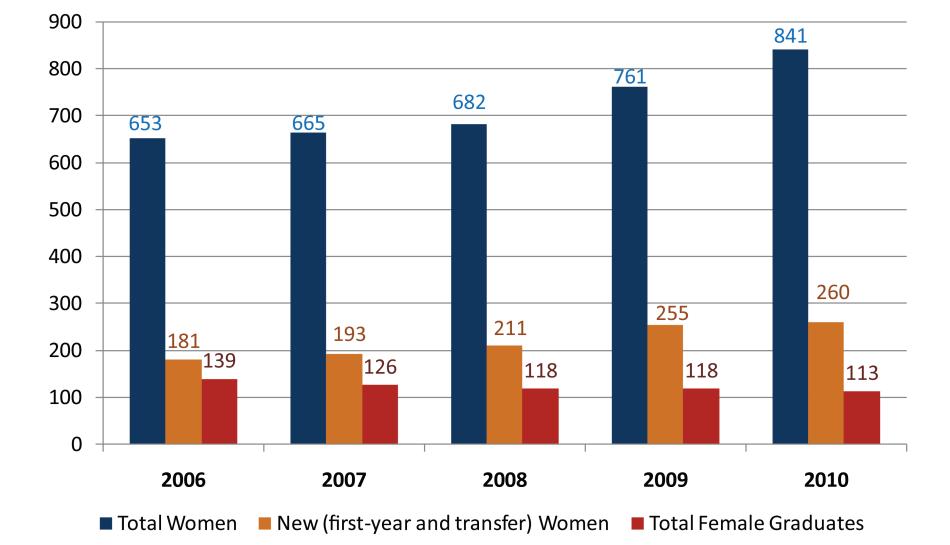
and minority graduates.

Increasing the Number of Engineering Graduates

1 5 1



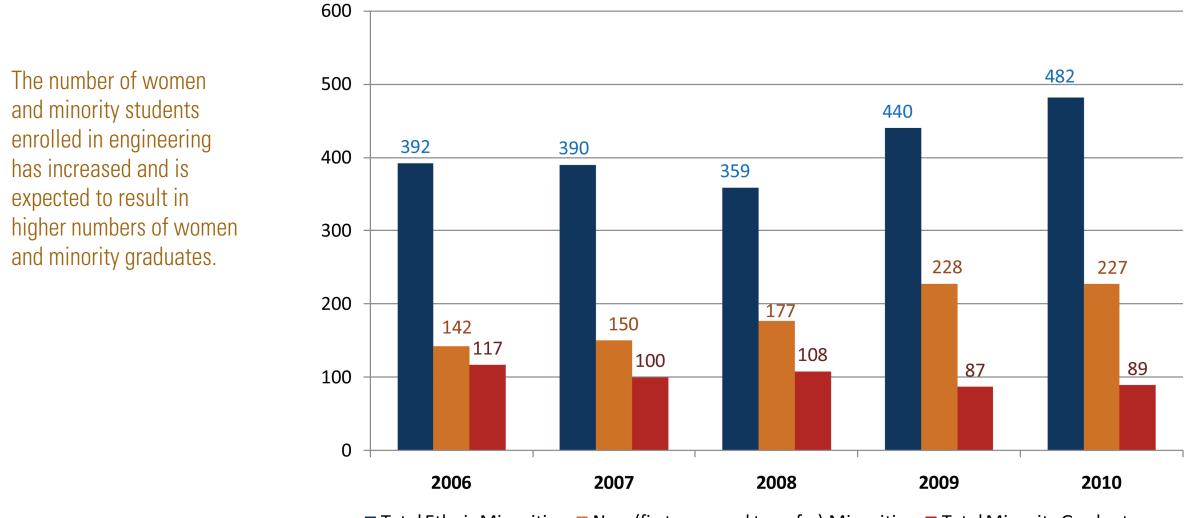




CoE Minority Student Enrollment and Graduates

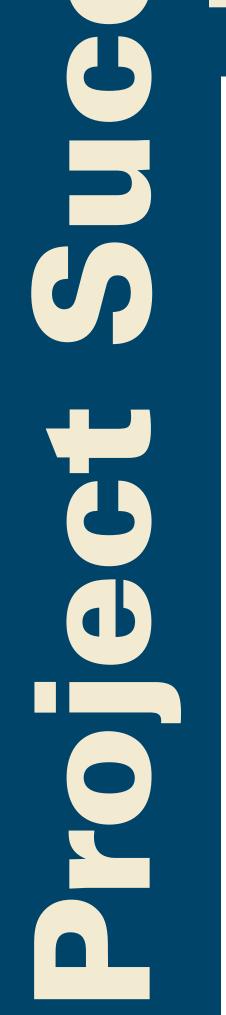
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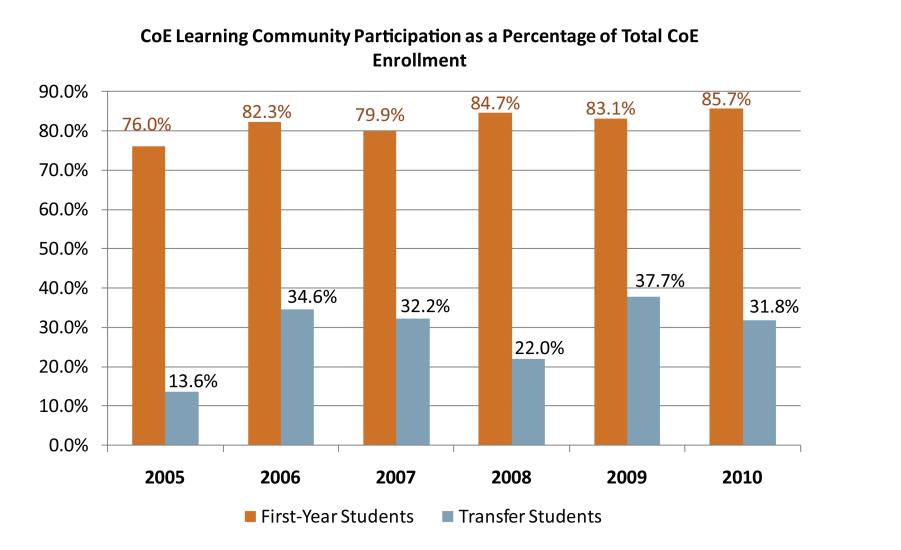
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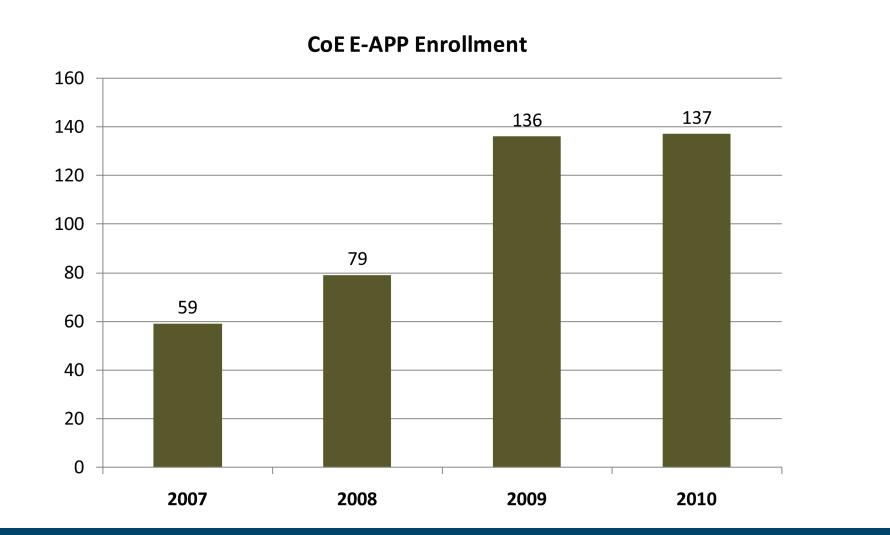


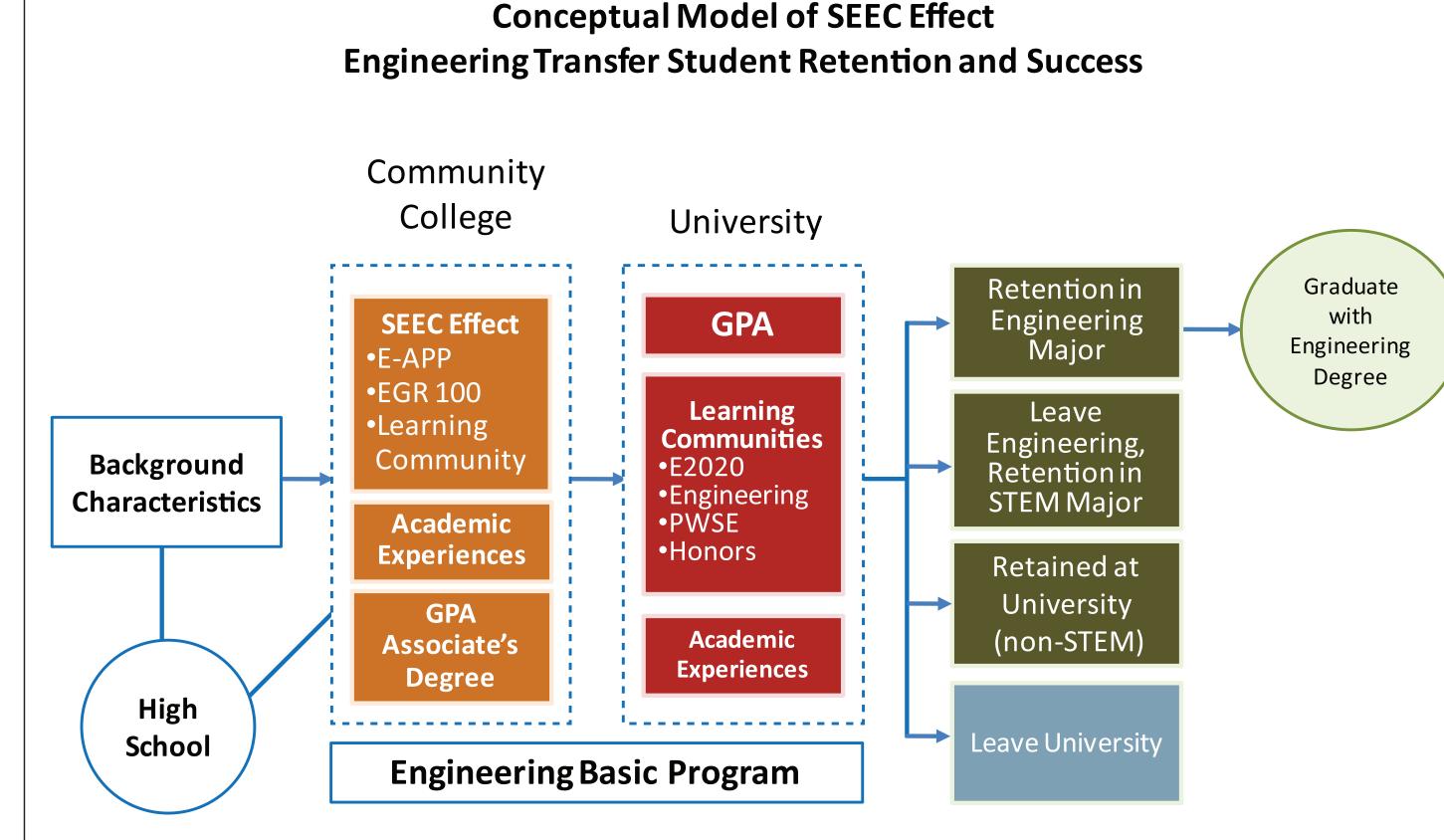
■ Total Ethnic Minorities ■ New (first-year and transfer) Minorities ■ Total Minority Graduates

Measuring the "SEEC Effect"

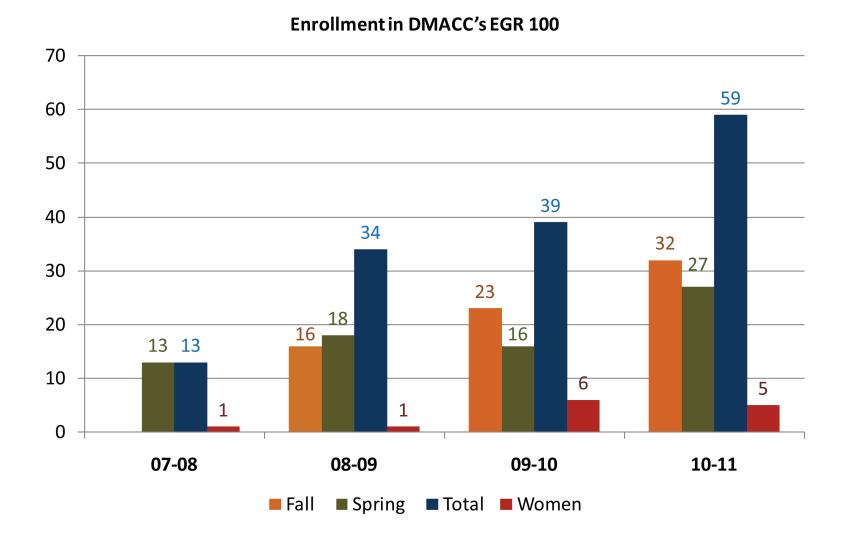








Source: Laanan, F., Rover, D., Bruning, M., Mickelson, S., & Shelley, M. (2011). Iowa State University.



"E-APP helped me get ready for lowa State by getting an ISU adviser, student ID card, and knowing that all my classes were going to transfer." *E-APP Student*

"What I liked about EGR 100 is that it hits on all the major points of what you're going through. It talks about financial aid, going to a four-year university and what classes you should be taking." EGR 100 Student

—— Informing and Involving Institutional Stakeholders

- Three SEEC Data Briefs were created to share information collected and programs designed as a result of the SEEC project. ISSN 2153-3970 (print) 2153-3989 (online)
- Biannual electronic newsletters were distributed to the advisory boards and other SEEC project advocates to keep them abreast of SEEC project progress.
- Advisory Board Meetings were held to discuss the third year review, the "SEEC Effect" and how to measure it, partnerships and sustainability.

SEEC Team Members

Principal Investigators	Senior Personnel	Other Personnel
Diane Rover	Mary Darrow	Virginia Anderson
Harry McMaken	Mani Mina	Sandy Jennings-Ha
	Derrick Rollins	
Co-principal Investigators	Andrew Ryder	Team Members
Monica Bruning	Karen Zunkel	April Anderson
Frankie Santos Laanan		Ann Howsare
Steven Mickelson		Paul Castleberry
Mack Shelley		Laura Leigh Chrysta
		Laura Doering

	dent Profile"	(EGR 100)"
	SEEC Data Brief Student Enrollment and	Student Enrollment and Engagement through Connections
	Engagement through Connections (SEEC)	IOWA STATE UNIVERSITY DECEMPTION STEM Talent Expansion Program (STEP) Issue 3, November 2010
		Engineering Orientation (EGR 100)
	SEEC Engineering Transfer Student Profile	"Without the SEEC project, we would not have developed the course," Sald Harry McMaken, math and engineering instructor at Des Moines Area Community Callege (DMACC) in reference to Engineering Drientation (EGR 100).
	July 1, 2010 Issue 1	EGR 100 provides pre-engineering students with a broad overview of the engineering disciplines and general information about the transfer process to a four-year institution. The course brings in guest speakers from lowa State's College of Engineering as well as professional is the industry. Scheduled plant tours give students the opportunity to see engineering in action. "We try tog get them acquainted with all the options—there are so many areas of engineering they could become interested in," stated McMaken. Rachel Garrison, an EGR 100 student noted, "I like the interaction with lowa State and the guest speakers from there. Learning about the 2050 Challenge was a great way to learn about national and international things engineering gin schlar genering schlar genering schlar genering is working on."
Io	WA STATE UNIVERSITY DMACC	Students not only learn about engineering career opportunities, but are given information about internships and co-ops they could participate in as students. A guest speaker explains behavioral based interviewing to help prepare students for their interviews. The class also makes a trip to the lows State Engineering Career Fair each semester.
_	DES MOINES AREAL COMMUNITY COLLEGE	The course was originally developed with an emphasis on providing DMACC pre-engineering students who would be transferring to lowa State's College of Engineering with information about the transfer process. It now includes
	Julie	Academic Year Fall Enrollment Spring Enrollment Total Enrollment Women Enrolled
	NATIONAL SCIENCE FOUNDATION STEM Talent Expansion Program (STEP)	Academic Year Fall Enrollment Spring Enrollment Total Enrollment Women Enrolled 2007-2008 N/A 13 13 1 2008 - 2009 16 18 34 1

	"Engineering Admiss Program (E-APP)"	sions Partnership
ISSN 2153-3970 (print) ISSN 2153-3989 (online) LIONS	SEEC Data Brie Student Enrollment and Engagen	
IENCE FOUNDATION ansion Program (STEP) ie 3, November 2010	IOWA STATE DMACCO	NATIONAL SCIENCE FOUNDATION STEM Talent Expansion Program (STEP) Issue 2, November 2010
he transfer process to ill go into engineering ever, the ties to Iowa erer 95% of the EGR 100 Juced to Iowa State's (APP), which connects ering advisor and the	Engineering Admissis Partnership Program (EAPP) was created in 2008 as a SEEC project initiative. E-APP's goal is to increase community college students' engagement prior to coming to lowa State and thus increase their retention and graduation rates. Pre-	
Partnership Program sot EGR 100 students ake advantage of this ey can get through the helping them stay on engineering degree," th, a DMACC transfer lilly good experience. I orgeram guided me to er to lowa State."	engineering community college students who sign up for lows State's Admissions Partnership Program (APP) are invited to join the E-APP Learning Community. This virtual learning community connects students to lowa State's College of Engineering faculty, staff, and students through multiple channels. One of these channels is the E-APP online professional network. This site is moderated by transfer peer mentors—former community college students who	In the coming year, incoming EAPY students with De invited to transition lunches to help them increase their connections on campus and in their departments. E-APP students are assigned an Iowa State engineering adviser who can help them choose the courses they will need for their transfer. Mitchel Steffes, a junior E-APP Agricultural and Biosystems Engineering transfer student from Des Moines Area Community College, declared, "E-APP helped me get ready for Iowa State by getting an ISU advise, student ID card, and knowing that all my
inance an engineering e and graduation plan e student's graduation or graduation from a y, information about n DMACC and a four- help students make a titution. t numbers from its all 2010 are a follows.	transferred into engineering at lowa State. Here transfer students connect with each other prior to transfer, as well as meet lowa State engineering students, faculty, and staff. Peer mentors offer advice based on experience, answer questions, post information about events, and guide discussions. Students are also apprised of on- campus speakers and other general engineering events through the online professional network. As Andrew Owens, a sophomore E-APP Aerospace Engineering	classes were going to transfer." In the 2009-2010 academic year 142 students participated in the program. All of these students were assigned an academic adviser and transfer peer mentor. Eighty of them participated in the L-APP online professional network in order to connect with Iowa State transfer peer mentors and learn more about engineering and the transfer process. Eighty-fue L-APP submits attended
Women Enrolled	transfer student from Iowa Central Community College, explained, "The on-line group was a good way to keep up with Iowa State events that were relevant to me."	unister process, eignsprive Every suderius auchined one or more events at lows State during the cardemic year. Forty-two of these students registered as fulltime engineering students in the fall 2009, spring 2010, or summer 2010 semesters.
1 1 6 3	E-APP also hosts events throughout the year to bring transfer students to campus. Each spring and fall E-APP students have the opportunity to attend a Transfer Students Career Fair event. And each spring they are	"The SEEC project has allowed us to experiment with new strategies for increasing community college engagement," Mary Darrow, Transfer and E-APP Coordinator, stated.

Partnership	Fall 2009		
ISSN 2153-3970 (print) ISSN 2153-3989 (online)	IOWA STATE UNIVERSIT College of Engineering	Y	
n Connections	CONNECTIONS The newsletter for SEEC project advo	ocates	
NATIONAL SCIENCE FOUNDATION STEM Talent Expansion Program (STEP) Issue 2, November 2010	Year Three We have arrived at the midpoint of our project, which gives us an opportunity to review the accomplishments and direction of the project. Key data (see "Success Stats" at right) indicates we are headed in the		ansferstudents ants—over20% ACC—50% incre transferstuden
a Transfer Student event during Iowa elebration. Engineering peer mentors, re on hand at these and other events to r students and answer their questions. ear, incoming E-APP students will be on lunches to help them increase their impus and in their departments. re assigned an Iowa State engineering	right direction. Enrollment in engineering is at a 25-year high, and while this surge is not unique to Iowa State this year, it is also not universal. The number of new transfer students entering engineering in fall 2009 is up over 20% compared to 2007, increasing percentages of women and multi of pre-engineering students doubled in one composed of women and students of color. graduating classes.	cultural students in to year, with over 20% (ented minority re-engineering ents were worr the record tal enrollm of the fall o
help them choose the courses they will ansfer. Mitchel Steffes, a junior E-APP isosystems Engineering transfer student s Area Community College, declared, ue get ready for lowa State by getting udent ID card, and knowing that all my g to transfer." academic year 142 students participated All of these students were assigned iser and transfer peer mentor. Eighty	Now, retention is critical to reaching the pr participation is an important factor, and at first-year, full-time students. In addition, tl students to participate in engineering learni Engineering reported first-year retention of 76.4% of students remaining in engineering retention rates, especially two year and the	Iowa State we are ma here are increasing op ng communities. From 88.5%—the highest a As the project contin	aintaining r portunities fall 2008 mong all Io nues, there
ated in the E-APP online professional to connect with lowa State transfer learn more about engineering and the Eighty-five E-APP students attended nts at lowa State during the academic	It's important to add that this is not the wo know that one person can make a difference collective effort of many to produce a recru contributor to these enrollment results.	e in recruiting or grad	uating a st
f these students registered as fulltime ents in the fall 2009, spring 2010, or nesters. has allowed us to experiment with new asing community college engagement,"		<u>E:</u>	TEC Progra
ansfer and E-APP Coordinator, stated.			Iowa Stat Institutio Board

DES MOINES AREA COMMUNITY COLLEGE Fall 2009 — View Onl ent Success Stats 2009-2010 eering students—25 year high rease from 200 nts in all—over 30% increase from 20 ring enrollment (up from 14.5% in 200 4% in 2007 ystudien ts—up from 5.1% in 2007 students-doubled from 2008 nen and students of color ship program is now in its second year. Forty-one incoming ents from across Iowa were chosen to receive a one-time d enrollment, we have seen slightly d scholarship. These students come from 33 Iowa counties nent figures. At DMACC the number C program continues to develop, the goal of attracting ich of Iowa's 99 counties becomes closer to reality. The engineering orientation class team and Iowa State Extension continue to work together hape our future transfer and eering Talent in Every County. raduates. Learning community bers from Iowa State and DMACC met in May to celebrat nearly 85% participation by es for upperclass and transfer 8 to fall 2009, the College of roject successes—and to plan for the future. Recruiting and e population of engineering students continues to be a Iowa State colleges. This includes the project. Team members watched and discussed a clip abowski's presentation at the <u>Diversity Fair</u>. Next, Adin Mann hanical engineering and assistant dean of the Graduate oups of students. cussion on diversity data and measures many factors and many hands. W student and that it takes the redit goes to each and every

Elizabeth Hoffma

Sandy Gahn Office of Institutio search



Joint Meeting of the ISU/DMACC Internal Advisory Boards

May 11, 2010

Grant No. 0653236, July 2007–July 2012

Randy Gabriel	Carlos Lopez	Advisory Boards	DMACC Institutional	External Advisory Board	Robert Driggs
Jennifer Garrett	Les Pearery	,	Advisory Board	Chair: James Melsa	Dean of Mathematics
Doug Gruenewald	Jason Pontius	ISU Institutional	Chair: Kim Linduska	Professor & Dean Emeritus	& Science
Carol Heaverlo	Ted Millen	Advisory Board	Ahmed Agyeman	lowa State College of	Kirkwood College
Kari Hensen	Sokish Sands	Chair: Elizabeth Hoffman	Randy Mead	Engineering	Leigh Hagenson Thomp
Dimitra Jackson	Jay Staker	Sandra Gahn	Randy Smith	Kimberly Douglas-Mankin	Technology Manager &
Randall Jedele	Vicky Thorland-Oster	Doug Gruenewald	Carol (Renee) White	Director/Associate Professor	Hardeners Platform
Joel Johnson		Connie Hargrave	Laurie Wolf	Women in Engineering	Project Leader
Marcia Laugerman		Thomas Hill		& Science Program	The Dow Chemical Compa
Michael Lentsch		Mary Holz-Clause		Kansas State University	
		Garv Mirka			

Grant No. 0653236, July 2007–July 2012

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