**Engineering Orientation (EGR 100)**

“Without the SEEC project, we would not have developed the course,” said Harry McMaken, math and engineering instructor at Des Moines Area Community College (DMACC) in reference to Engineering Orientation (EGR 100).

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 Iowa State’s College of Engineering as well as professionals in the industry. Scheduled plant tours give students the opportunity to see engineering in action. “We try to 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 Iowa State and the guest speakers from there. Learning about the 2050 Challenge was a great way to learn about national and international things engineering is working on.”

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 Iowa State Engineering Career Fair each semester.

The course was originally developed with an emphasis on providing DMACC pre-engineering students who would be transferring to Iowa State’s College of Engineering with information about the transfer process. It now includes more general information about the transfer process to meet the needs of those who will go into engineering at any four-year institution. However, the ties to Iowa State remain strong as currently over 95% of the EGR 100 students transfer to Iowa State.

To that end, students are introduced to Iowa State’s Admissions Partnership Program (APP), which connects them with an Iowa State engineering advisor and the specific Engineering Admissions Partnership Program (E-APP) Learning Community. Most EGR 100 students who will transfer to Iowa State take advantage of this program. “The type of advising they can get through the program is invaluable in terms of helping them stay on track to graduation and earning an engineering degree,” explained McMaken. Andrew Smith, a DMACC transfer student stated, “E–APP was a really good experience. I was especially pleased that the program guided me to take only classes that would transfer to Iowa State.”

Broader transfer information includes information about financial aid and ways to finance an engineering education. A course audit is done and graduation plan created that encompasses both the student’s graduation from DMACC and their plan for graduation from a four-year institution. Additionally, information about the differences in culture between DMACC and a four-year institution are discussed to help students make a smoother transition to a larger institution.

EGR 100 is growing. Enrollment numbers from its inception in Spring 2008 through Fall 2010 are as follows.

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Fall Enrollment</th>
<th>Spring Enrollment</th>
<th>Total Enrollment</th>
<th>Women Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-2008</td>
<td>N/A</td>
<td>13</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>2008 - 2009</td>
<td>16</td>
<td>18</td>
<td>34</td>
<td>1</td>
</tr>
<tr>
<td>2009-2010</td>
<td>23</td>
<td>16</td>
<td>39</td>
<td>6</td>
</tr>
<tr>
<td>2010-2011</td>
<td>32</td>
<td>TBD</td>
<td>35</td>
<td>3</td>
</tr>
</tbody>
</table>
Now that the class is established, DMACC advisers are working to guide pre-engineering students into EGR 100 their first or second semester. This will help continue to increase enrollment. Positive word-of-mouth among DMACC students is also helping with enrollment. As Garrison explained, “I think it’s a great class for people who are thinking about engineering.”

The course is also having a positive impact on the pre-engineering program at DMACC. The course makes students more aware of pre-engineering courses at DMACC and enrollment in these classes has steadily increased since the advent of EGR 100.

Now that the program is established at DMACC’s Ankeny campus (one of six in Central Iowa), it has been implemented at the Boone campus as well. It is scheduled to be offered at the Urban campus in Des Moines in the spring of 2011. The SEEC project will help with these propagations. “It's been a very, very positive class to add. We're confident it can run on other campuses and increase enrollment in pre-engineering courses there. It's here to stay,” concludes McMaken.

**About the SEEC project**

The Student Enrollment and Engagement through Connections (SEEC) project is a collaboration between Iowa State University and DMACC funded by the National Science Foundation’s STEM Talent Expansion Program. The goal of the project is to increase the number of engineering graduates at Iowa State University by approximately 100 per year. The percentage of women and minority graduates will approach 20% and 10%, respectively.

To that end, EGR 100 was created in pursuit of the project’s Learning Village Team’s primary objective: building a learning village that enhances student connections and creates Iowa State connections for community college pre-engineering transfer students. It also contributes to the Advising Team’s goal: to develop and enhance academic advising and mentoring programs for precollege, community college, and university students.
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SEEC TEAM

Principal Investigators
Diane Rover
Professor, Electrical and Computer Engineering
Iowa State University
Email: drover@iastate.edu

Harry McMaken
Professor, Engineering and Math
Des Moines Area Community College
Email: hlmcmaken@dmacc.edu

Frankie Santos Laanan
Interim Director, Center for Excellence in Science, Mathematics and Engineering Education
Associate Professor, Educational Leadership and Policy Studies
Iowa State University
Email: laanan@iastate.edu

Co-Principal Investigators
Monica Bruning
Senior Research Associate and Lecturer, Educational Leadership and Policy Studies
Iowa State University
Email: mbruning@iastate.edu

Steven Mickelson
Professor and Chair, Agricultural and Biosystems Engineering
Iowa State University
Email: estaben@iastate.edu

Mack C. Shelley
University Professor
Political Science and Statistics
Iowa State University
Email: mshelley@iastate.edu

Senior Personnel
Mary Darrow
Transfer and E-APP Coordinator
College of Engineering
Iowa State University

Andrew Ryder
Research and Evaluation Scientist
Research Institute for Studies in Education (RISE)
Iowa State University

Karen Zunkel
Program Manager
Program for Women in Science and Engineering
Iowa State University

Other Personnel
Virginia Anderson
Information Assurance Center
Electrical and Computer Engineering
Iowa State University

Sandy Jennings-Hammond
Communications Consultant
Iowa State University

Other Executive Team Members
Joel Johnson
Program Manager
Engineering Academic/Student Affairs
Iowa State University

Marcia Laugerman
Graduate Assistant-Research
Agricultural and Biosystems Engineering
Iowa State University

Carlos Lopez
Graduate Assistant-Research
Educational Leadership and Policy Studies
Iowa State University

http://www.eng.iastate.edu/seec

Collaboration between
IOWA STATE UNIVERSITY
DAMACC
DES MOINES AREA COMMUNITY COLLEGE