Engineer of 2020 - E2020 Scholars Program

College of Engineering • www.eng.iastate.edu/e2020

Overview
The E2020 Scholars Program provides scholarships to first-year and transfer students who have demonstrated academic potential, an interest in solving the challenges engineers of 2020 will face, and financial need. Scholarship award amounts total $2,500 per year, renewable up to four years, for a potential $10,000.

E2020 Scholars Program Expected Outcomes:
• Provide academic and professional development opportunities to greater numbers of students and create learning outcomes consistent with the National Academy of Engineering’s (NAE) E2020 vision.
• Improve educational opportunities for students, faculty, and student support staff.
• Increase retention of students to degree achievement.
• Improve student support programs at institutions of higher education.
• Increase numbers of well-educated and skilled employees in technical areas of national need.

“Scholarships are vital to bringing students into STEM fields of study and broadening participation in engineering. The E2020 scholarship recognizes not only the academic accomplishments of the Scholars, but also the vision these Scholars have for creating a better world. Each Scholar brings unique experiences and talents, and collectively, they represent the promise of engineering to society.”
Dr. Diane Rover, E2020 Principal Investigator and Professor, Electrical and Computer Engineering.

Program Development
First Semester:
Focus on transitioning to Iowa State

Second Semester:
E2020 Scholars Program Seminar – Overview of E2020 Pillars (ENGR 110X)

Third Semester:
E2020 Scholars Program Seminar – Leadership & Systems Thinking (ENGR 210X)

Fourth Semester:
E2020 Scholars Program Seminar – Innovation/Entrepreneurship & Global Awareness/Understanding (ENGR 210X)

Remaining Semesters:
Capstone Experiences

Program Pillars
Programming has been developed around the NAE’s vision of the Engineer of 2020. Four areas of focus have been identified within this vision and transformed into the four pillars of the program.

Leadership

Includes teamwork, communication and service

“I now understand that leadership is not just about leading other people, but being able to lead myself through teamwork, communication, and service.”
E2020 Scholar

Systems Thinking

Includes interdisciplinary engineering design

“I came to realize just how many things you have to consider when you are working on a project. Not only the dimensions of the project and how something works, but also how it is going to affect the surrounding environment and those who use it.”
E2020 Scholar

Innovation and Entrepreneurship

Includes creativity and planning

“Entrepreneurship is not just thinking of new ideas, but working together as a team, taking initiatives, accepting criticism, and being creative.”
E2020 Scholar

Global Awareness and Understanding

Includes cultural adaptability

“Innovation is not just thinking of new ideas, but working together as a team, taking initiatives, accepting criticism, and being creative.”
E2020 Scholar

“I never realized the importance of culture and customs in designing a product to meet a country’s needs. This class has helped me to realize that there is more to engineering than just building something that works for us.”
E2020 Scholar

Student Demographics

<table>
<thead>
<tr>
<th>2009-2010 Cohort</th>
<th>Gender</th>
<th>Ethnic Minorities</th>
<th>Scholars Retained</th>
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<tbody>
<tr>
<td>14 First-Year</td>
<td>4 Women, 10 Men</td>
<td>5</td>
<td>12 First-Year*</td>
</tr>
<tr>
<td>7 Transfer</td>
<td>7 Men</td>
<td>None</td>
<td>6 Transfer**</td>
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<tr>
<td>21 Total</td>
<td>12 Total</td>
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<table>
<thead>
<tr>
<th>2010-2011 Cohort</th>
<th>Gender</th>
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</tr>
</thead>
<tbody>
<tr>
<td>12 First-Year</td>
<td>7 Women, 5 Men</td>
<td>4</td>
<td>12 First-Year</td>
</tr>
<tr>
<td>14 Transfer</td>
<td>5 Women, 9 Men</td>
<td>None</td>
<td>14 Transfer</td>
</tr>
<tr>
<td>28 Total</td>
<td>28 Total</td>
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*One student was retained in STEM, but not College of Engineering. One student is deceased.
**Student left school.

Students expressed that the pillars had
• expanded their perspective on the field of engineering
• gave them a greater appreciation for the complexity of engineering
• allowed them to see common threads across their classes

Students agreed the peer mentor, program coordinators, and faculty were helpful and appreciated the sense of community created by the program.

Based on the E2020 Scholar survey administered by Iowa State’s Research Institute for Studies in Education (RISE).

Outcomes:
E2020 Scholars Program Expected
Students
• A majority of E2020 Scholars agree the Program was a positive experience.
• supported their growth as a person.
• enhanced their educational experience.
• fit well with their courses.
• helped them feel better prepared to succeed in college.

E2020 Scholars represent nine different states.

Student Success
An overwhelming majority of E2020 Scholars agree the Program
was a positive experience.
supported their growth as a person.
enhanced their educational experience.
fit well with their courses.
helped them feel better prepared to succeed in college.

Based on the E2020 Scholar survey administered by Iowa State’s Research Institute for Studies in Education (RISE).