NAE Workshop on Sharing Exemplary Admissions Practices that Promote Diversity in Engineering

Diane Rover and Sriram Sundararajan
Iowa State University
May 24-26, 2021
State of Iowa Board of Regents Schools

Iowa State University

College of Engineering
Regent Admission Index

• Unified minimum criteria for all three regents universities

**RAI Formula**

ACT composite (or converted SAT) score \( \times 3 \)

+ Cumulative GPA \( \times 30 \)

+ Number of years of high school core courses \( \times 5 \)

\[ \text{RAI (Regent Admission Index)} \]
Engineering Specific at Iowa State

- RAI + 2 years of foreign language
- Open ‘Liberal Arts and Science’ track for students who do not meet the RAI
  - Pathway to taking basic program and transitioning to engineering
Admissions Partnership Program

- Guaranteed admission to Iowa State provided requirements are met
- Personal academic advising and mentoring
- Degree planning to ensure timely graduation
- Real-time degree audit information
Engineering Scholarships

- Stackable onto central packages
- Merit based qualifications
- Rated on two essay questions
- College wide faculty and admissions staff review of applications
Scholarship Yield

- Yields have increased from 30% in 2018 to 61% in 2021
- Scholarship Cohorts
  - 2018: 14% women and 6% multicultural students
  - 2021: 27% women and 11% multicultural students
Student Success Structures

• Learning Communities (LCs)
• Academic Program for EXcellence for Engineers (APEX-E)
  • 8 week summer program
  • Coursework + Research
Student Success

- 45% Continued research engagement
- 95% participation in LCs
Iowa State University
Partnerships and Practices

NSF S-STEM and RED Programs
WiSE Program
Student Pathways & Experiences
Research & Evaluation

ecscl.ece.iastate.edu  engineering.iastate.edu  wise.iastate.edu

"...the culture in engineering is completely different...It’s a very technical field, so a lot of the students are very like, ‘Oh, I need to do this math,’ ‘I need to get the right answer.’... I think I feel more like an engineer now that I’m my later years...more projects, interacting with other people, because I’m also a TA, so I feel like that’s helped me... I can do it. I am an engineer.”

Anita
NSF S-STEM Grant in ECE Department

- ECSEL (Electrical, Computer/Cyber, Software Engineers as Leaders) funded by NSF Scholarships in STEM (S-STEM)
- Multi-institutional collaborative effort among the department and two community colleges
- Scholarships for diverse students in ECSE majors (or preparing to transfer)
Engineering Scholarships

Renewable $8000/academic year scholarships!

Scholarship Requirements
- U.S. Citizen
- Enrolled in Electrical, Computer or Software Engineering at Iowa State
- Demonstrated financial need through FAFSA

ECSEL student experience through WiSE and ECE Department
- Learning communities
- Leadership development
- Professional development
- Academic advising and support
- Mentoring
- Co-curricular and extracurricular activities

For more information and to complete application: https://ecsel.ece.iastate.edu/students/interested-students/
Partnership with ISU WiSE Program

- Women in Science and Engineering (WiSE) programming and practices as models of inclusion and equity
- Leadership development
  - Help students from marginalized social groups understand underlying structural and cultural inequities in organizations
Partnership with ISU WiSE Program

Our Mission: Enhance STEM experiences for women by advocating for diversity and inclusion through opportunities, resources, and support.

Goal 1: Prepare global citizens for 21st century careers through experiential learning and leadership opportunities.

Goal 2: Enhance and cultivate environments where women in STEM are safe, feel welcomed, supported, included, and valued.

Goal 3: Provide opportunities, support, and intervention to ensure each individual reaches their potential.

We value:

- people as individuals;
- integrity and accountability;
- inclusion;
- collaboration;
- continuous learning;
- leadership; and
- excellence in all we do.
Student Pathways and Experiences

- Recruitment of scholars along different pathways into majors
- Community of scholars
- Support and mentoring
- Professional and leadership development
Conference Experience

- AfroTech
- Grace Hopper Celebration
- IEEE WIE Leadership
- Richard Tapia Celebration
- SACNAS Diversity in STEM
- SHPE Convention
- Women in Cybersecurity

"I never thought I would be able to see over 100 women in tech in a room, let alone 18,000,” Full story: goo.gl/2xkTvD
Engineering Identity Research


Evaluation

• Enrollment progress
  • Frontiers in Education Conference Best Diversity Paper Award

This material is based upon work supported by the National Science Foundation under grant number 1565130. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.