



# **Revolutionizing Engineering and Technology Diversity with a focus on Undergraduate Education**

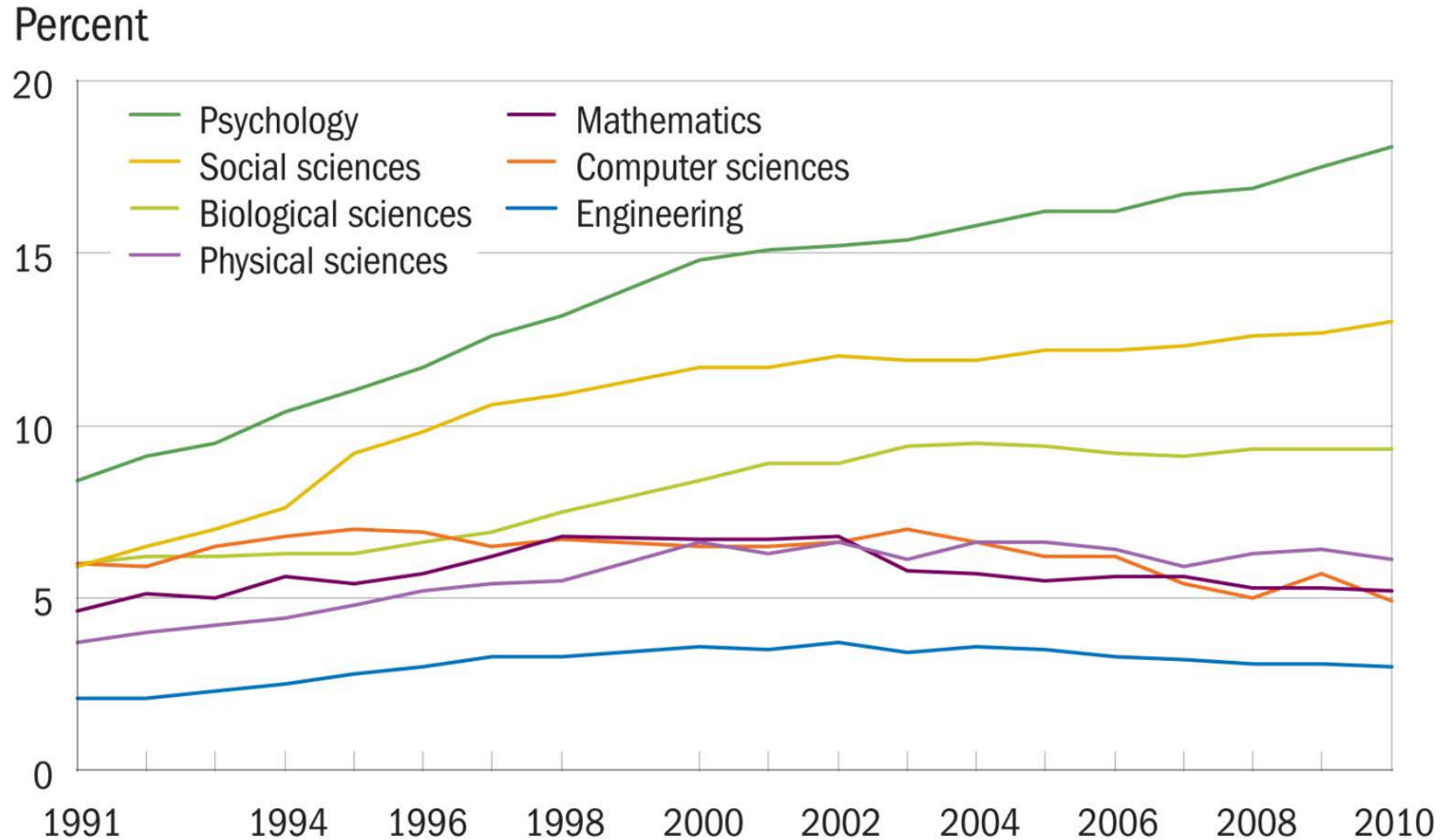
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# Minority Women's Participation in S&E (1991-2010)



NOTE: Data not available for 1999.



**What is required to change the skewed statistics?**

## Admission Standards

- SAT-optional admissions standard for CEE.
- Change evaluation process for transfer students.
- Offer an academic bridge program.

## Perception and understanding of diversity and inclusion among students, faculty and administrators.

- Faculty, staff and students will participate in workshops on inclusiveness, with the goal of developing a “collective intentionality” across the departmental culture.

## Develop Advocate and Allies Program for efficient transition, retention and graduation.

- Advocates and Allies for incoming freshmen and transfer students.
- Establish an Engineering living-learning community.

## Transform existing engineering curriculum of second and third year

- Faculty workshops on designing an inclusive curriculum.
- Re-design core sophomore/junior CEE courses

## Enrich students' aspirations and strengthen their identity as engineers

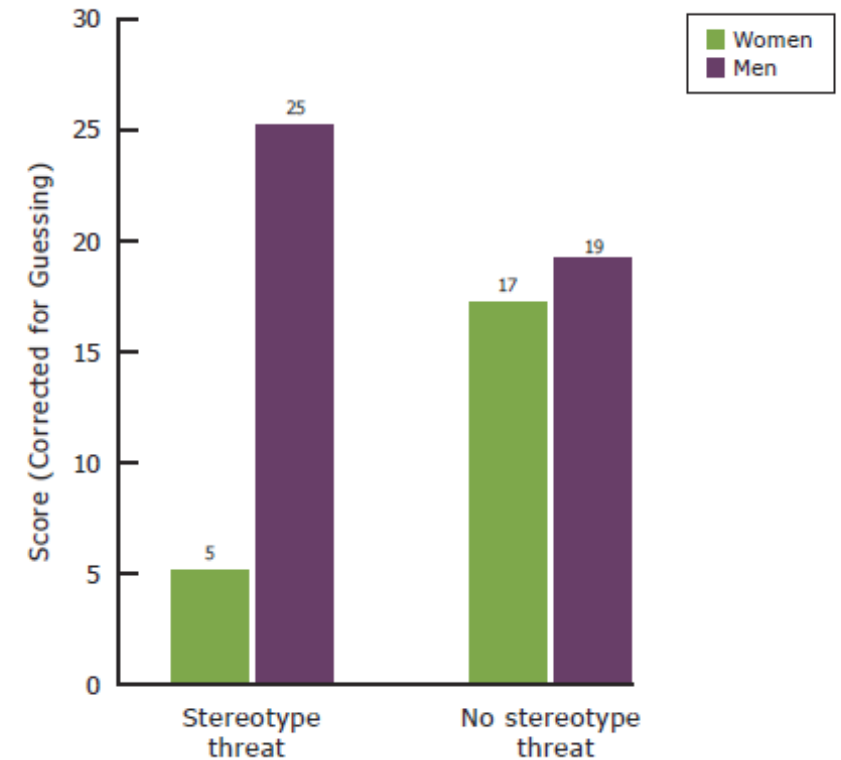
- Invite CE speakers who are role models of difference and who have impacted society and policy through professional practice.



# Admissions Policy

A consistent economic status, racial and gender bias in standardized tests has been found in 37 studies (Young & Kobrin, [2001](#)). Wainer and Steinberg ([1992](#)) found that men score 35 points higher on the SAT math section than women who earn the same grades in the same college math courses.

Negative stereotypes reinforce poor performance (Steele and Aronson, *Why so Few?* (AAUW report, 2010))



(Spencer et al., 1999, "Stereotype threat and women's math performance," *Journal of experimental psychology*, 35(1), p. 13.



# Showcasing Diverse Role Models

<https://revedatrowan.tumblr.com/>





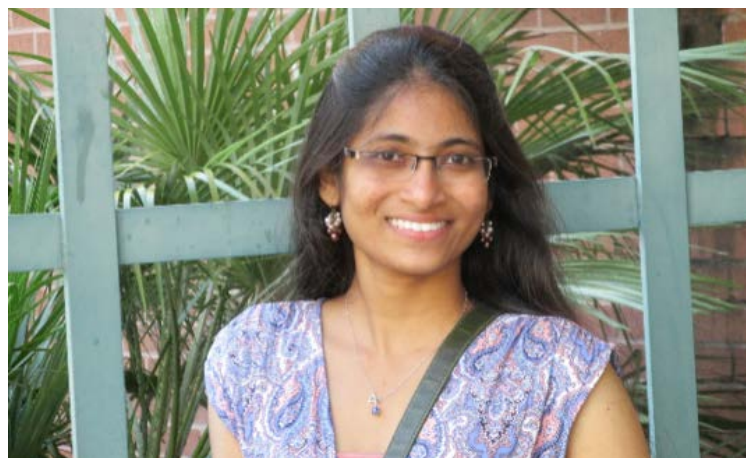
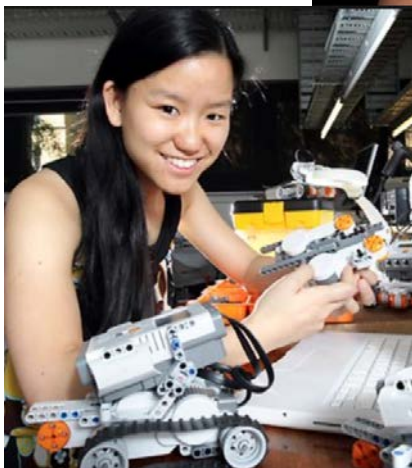
APRIL 16TH 2019

6PM - 8PM

Come out and support your peers at the final showcase where judges from each college will choose the best artistic design!

ROWAN ART GALLERY

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## Collective Intentionality

"Rowan's Civil and Environmental Engineering Department welcomes individuals of all races, religions, beliefs, ethnicities, genders, gender identities, gender expression, national origins, religious affiliations, sexual orientations, ability and other visible and nonvisible differences. We want to expand opportunities for all students and strongly believe that we will be better people and engineers when we embrace diversity."



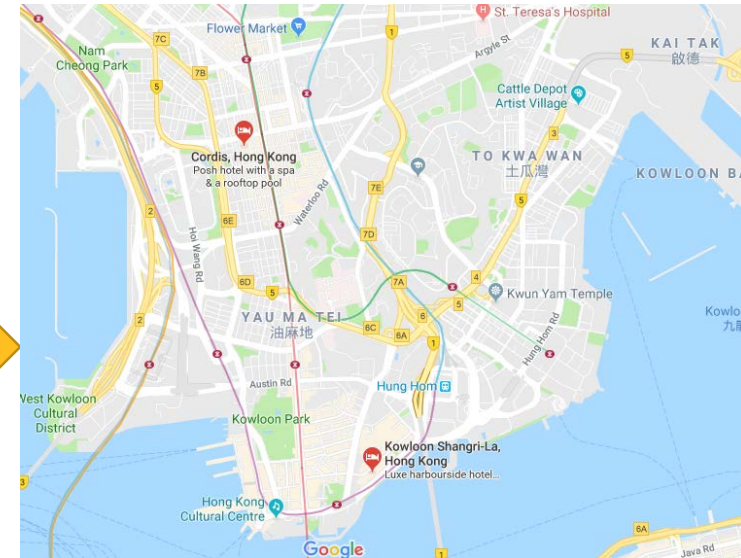


Transform existing engineering curriculum  
of second, third and fourth year



# Inclusive Curriculum: Transportation Engineering

- Developing solutions for traffic issues





## Freshman Clinics

### Goal

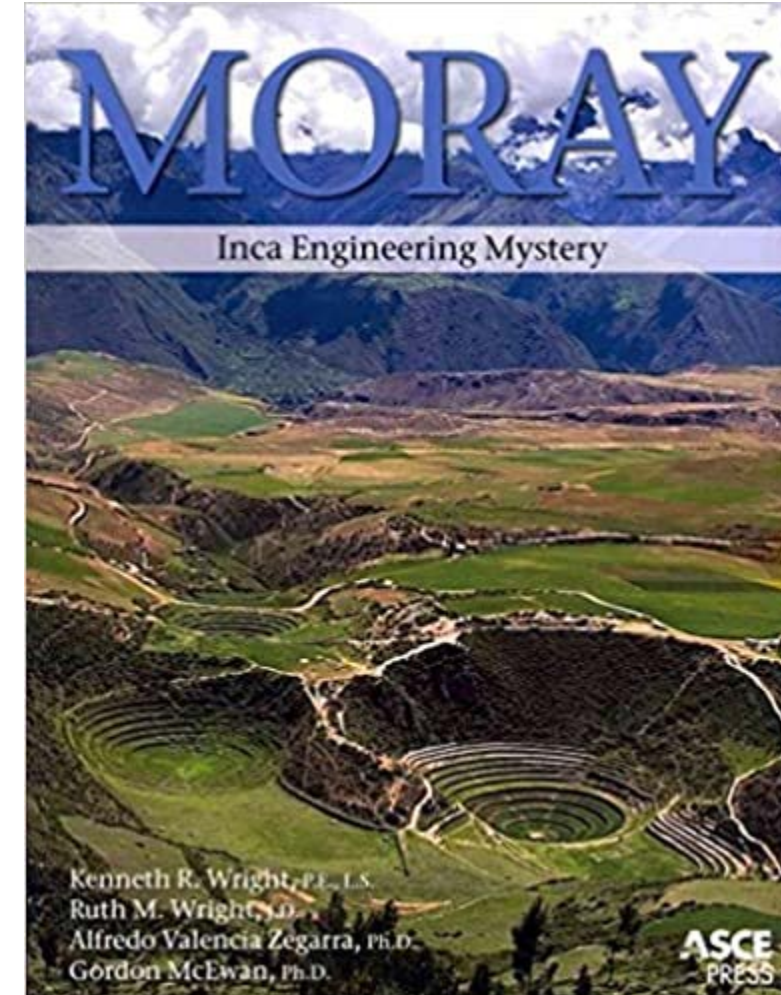
- Have students explore engineering in a non-Western historic context.
- Machu Picchu: A Civil Engineering Marvel
- Tipon: Water Engineering Masterpiece of the Inca Empire
- Moray: Inca Engineering Mystery
- Incamisana: Engineering an Incan Water Temple

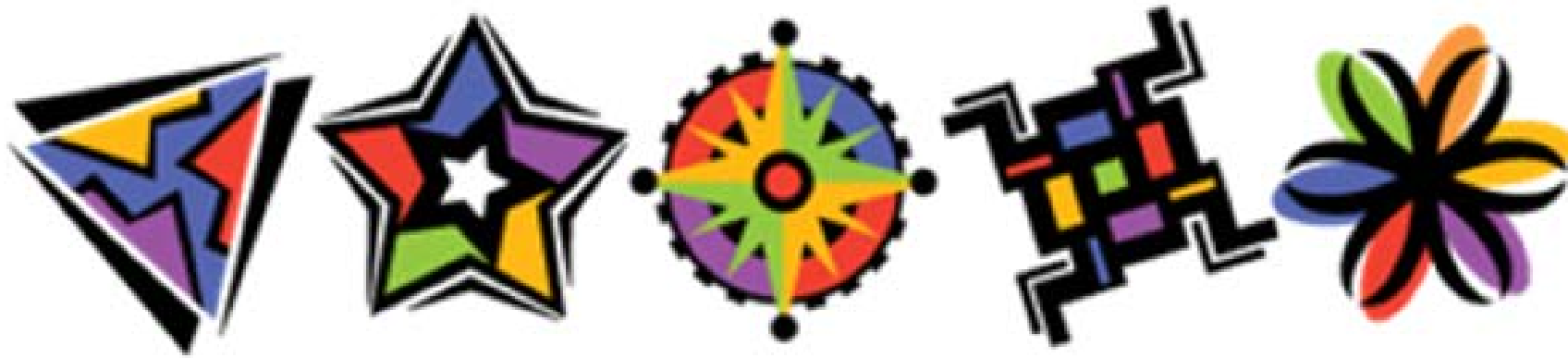
### Expectations for students

- Consider how ancient engineers carried out complex projects.
- Appreciate that ancient cultures had a deep comprehension of engineering.

### What students do

- Use critical thinking and research ability to investigate ancient engineering practices.



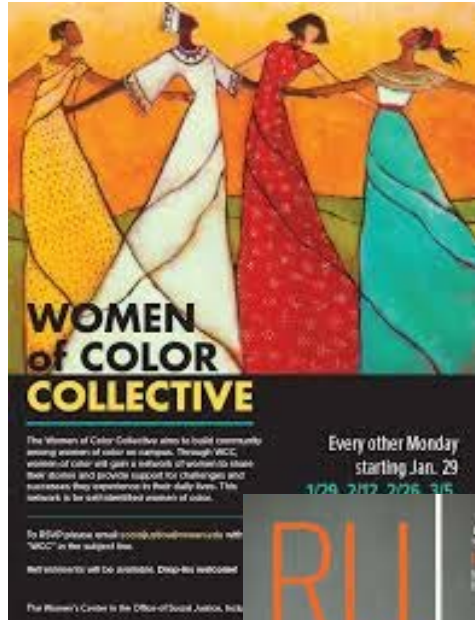


**PARTNERS IN DIVERSITY**





# Office of Social Justice, Inclusion and Conflict Resolution





## Certification

# DIVERSITY, EQUITY, INCLUSION



The Foundations of Diversity, Equity, and Inclusion certificate intends to bring together Rowan faculty and staff in a learning community- beginners to the topic, or experts are both critical as we work to define and explore the ways these critical concepts impact our Rowan community, develop common language, and explore strategies for change. Attend sessions 1.1 – 1.7 to earn a professional development certificate.

### 1.1 INTERCULTURAL DEVELOPMENT

Explore who we are and why difference matters

### 1.2 SYSTEMS OF POWER & PRIVILEGE

Explore how some benefit from power and others don't

### 1.3 UNDERSTANDING CULTURE

Explore how cultural values inform beliefs and behaviors

### 1.4 IDENTIFY WORK

Explore and identify social identity categories

### 1.5 IMPLICIT BIAS

Examine the unconscious biases we hold based on culture or identity groups

### 1.6 MICRO-AGGRESSIONS & INCLUSIVE LANGUAGE

Examine how implicit bias manifests as micro-aggressions and how we can use inclusive language

### 1.7 ALLY, ACCOMPLICE, ADVOCATE

Explore strategies to advocate for our own groups as well as others to build inclusive communities

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<https://shop.rowan.edu/store/events/listings/25467>





# Motivation Strategies

## Reward System Restructuring



## Funding Initiative - PIPER

- Funding for redesigning an existing course/courses or a newly developed course.
- Collaboration between departments in different colleges to team teach a course strongly encouraged.
- Proposals could be related to curriculum reform and assessment of course content, course material and textbooks for inclusivity.



## Acknowledgment of the RevED Project and Team

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