SAME K12 STEM Outreach COI

Reaching Underrepresented Communities Through Engineering For Us All

January 18, 2023

3:00 p.m. ET

HOUSEKEEPING NOTES & TIPS

- Those connecting through a VPN will likely have difficulties. Please, ditch the VPN!
- Audio is broadcast through your computer speakers; when you entered you should have been prompted to connect to the audio stream. Click connect…and turn up your volume.
- Use the “Chat” tab on the control panel to submit a technical issue. Look at the “private” tab for your response.
- Submit a written question at any time via the “Q&A” tab. “Upvote” questions already asked to avoid duplication but indicate you also want an answer to that!
- Click on the “Handouts” tab to download a copy of the presentation slides.
- This webinar will be recorded for future viewing.

Applications for the 2023 SAME STEM Engineering & Construction Camps are now open!

www.same.org/engineering-construction-camps

#SAMECamps

Reaching Underrepresented Communities Through Engineering For Us All

A National Pilot Program for High School Engineering

By Darryll J. Pines,
President and Professor of Aerospace Engineering
University of Maryland

2023 SAME Presentation

THE AGENDA

engineering 4 us all

- **National Problem**
- Program Overview
  - Partnerships
  - Curriculum
  - Professional Learning
  - Research
  - Credit and Placement
- Student Outcomes
- Student Video

The National Problem

In 2007, *a Carnegie Foundation* commission of distinguished researchers and public and private leaders concluded that "the nation's capacity to innovate for economic growth and the ability of American workers to thrive in the modern workforce depend on a broad foundation of math and science learning, as do our hopes for preserving a vibrant democracy and the promise of social mobility that lie at the heart of the American dream". However, the U.S. system of science and mathematics education is performing far below par and, if left unattended, will leave millions of young Americans unprepared to succeed in a global economy.

- **Reduction of the United States' competitive economic edge**
  - Shrinking share of patents: Foreign competitors filed over half of U.S. technology patent applications in 2010.
  - Diminishing share of high-tech exports.
- **Lagging achievement of U.S. students in PISA Testing**
  - In 2018, Program for International Student Assessment-PISA ranks the United States as 18th in Science, 37th in Math, and 13th in Reading Literacy out of 65 OCED education systems.
  - In 2018, 61% of high school graduates did not meet the **ACT's college readiness benchmark** levels in math, and 64% of graduates failed to meet the readiness benchmark levels in science

The National Problem - HS Graduates Declining

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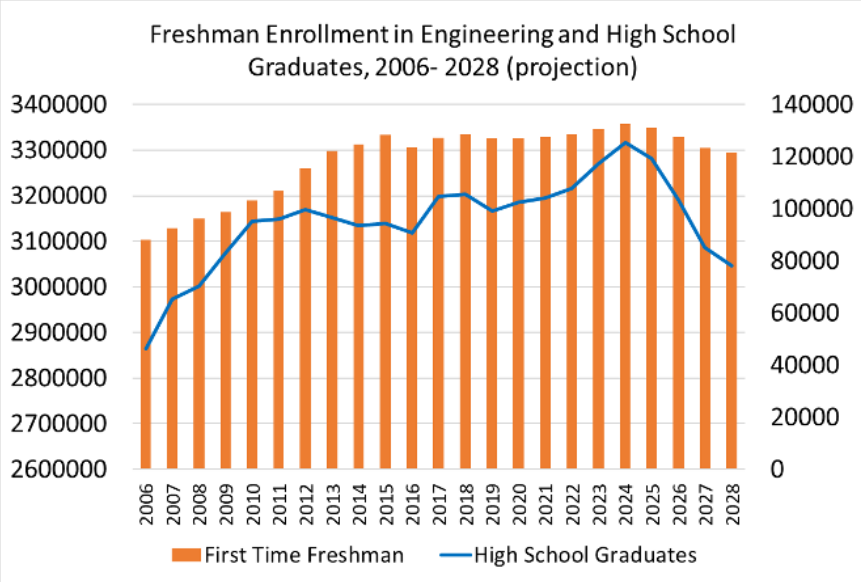

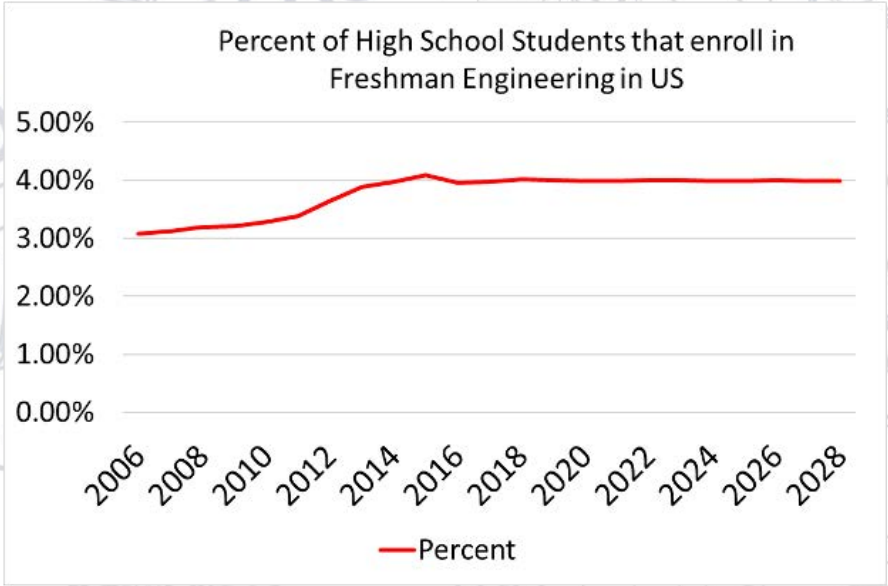

Can **we develop a HS course to** reverse these two trends for Freshman Engineering?

Our goals are to increase the:

- total number of diverse freshmen entering engineering;
- percentage of HS graduates pursuing engineering

National Academy Studies

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Program Overview

E4USA Conceptual Program Framework

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Theory of Action

Conjecture

Democratization of engineering education "for all" can be achieved by bringing together stakeholders to engage pre-college students in scaffolded disciplinary practices & evaluation of the real-world consequences of engineering

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Key Features

Curriculum
- Age-appropriate, team-based, progressively challenging projects
- Community Interactions
- Explorations of personal values & connections to engineering
- Case studies of engineering & its impacts

MyDesign®
- Online portfolio & detailed rubric
- Support for teachers to assess engineering design projects

Teacher Professional Learning
- Curriculum introduction via hands-on learning & teaching experiences
- Relationship & trust building
- Inclusive classroom practices
- Adaptive & responsive support for teachers of all backgrounds

Community of Practice
- Structured participation
- Socially embedded stakeholder collaboration
- Collective learning
- Support for pre-college engineering classrooms

Mediating Processes

Students engage in & are assessed on real contexts through authentic design-based experiences.

Teachers participate in a structured, year-round & collaborative learning community & engage in reflection.

Stakeholders leverage & improve their collective knowledge & expertise.

Intended Outcomes

Students
- Demonstration of engineering principles, skills, & practices in multiple contexts
- Increased efficacy & access for all
- Better understanding & awareness of engineering & its impact on daily life
- Established career interest in engineering

Teachers
- Confidence & requisite skills to teach engineering

Schools & Broader Community
- Better educated citizenship
- Broader participation of students, teachers, & schools in engineering
- Large-scale adoption through stakeholder partnerships
- Models that align with local school district & state requirements

Post-Secondary Institutions
- Enhanced relationships with pre-college schools & students
- New models for engineering education & outreach
- Pathways to earned credit

Engineering For US All is an NSF-funded pilot national high school engineering curriculum. The curriculum is designed as a **thirty-week** course focused on four "big ideas."

"Every high school student should learn engineering", Dr. Dan Hall (EEC), NSF, 2018

"Our goal is to develop engineering for all", Daryll Pines (PPO), NSF, 2018

e4usa CORE Organizational Chart

Amelia Greer

Don Millard

Advisory Board

Karl Reid, Northeastern-(formerly w/ NSBE)
Maureen Reyes, College Board
Ruthe Farmer, CEO, The Last Mile, CSforALL
Michelle Sedberry, Texas Educational Agency
James Holly, jr., Wayne State University

PI/Director

Darryll Pines
University of Maryland
Principal Investigator

Stacy Klein-Gardner
Vanderbilt University

Co-Director and co-PI

e4usa Working Group Leads

Ken Reid

Bruk Berhane
Florida International University

University/HS Partnership Lead

Jenny Kouo
Johns hopkins University

Teacher PL Lead

Adam Carberry
Arizona State University

Research Lead

Kevin Calabro
University of Maryland

Credit/ Placement

James Zahniser
University of Maryland

Mike Bitner

Abubakr Hamid
Project Manager

Evaluator Team:
STEM Education Insights

Fraunhofer Institute

Data Management System

MyDesign

Student Design Tool

E-portfolios

What is unique about E4USA?

- This course promotes the development of students' professional skills through engineering design experiences.
  - NOT technology focused
  - NOT a survey course
- This course is designed with ***all students*** in mind, inclusive of both students who plan to pursue engineering as a career as well as those who do not.
  - Intended to provide connections for students among fields of personal interest.
  - High School ***Algebra*** is the only pre-requisite prior to enrolling
- We invite ***all schools, teachers, and students*** to participate fully regardless of their technical background.

Dec 2018 project launch

- "For us all" meant that we couldn't start with AP Engineering
- Needed to start with an Intro Course
- We need you now!

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E4USA Core Team

UNIVERSITY OF MARYLAND

VANDERBILT UNIVERSITY

MORGAN STATE UNIVERSITY

ASU Arizona State University

NSF

UIndy UNIVERSITY OF INDIANAPOLIS

Funding provided by
NSF-Award No. 2120746

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Partnerships

Partnership Model



Schools Teachers Students Institutions

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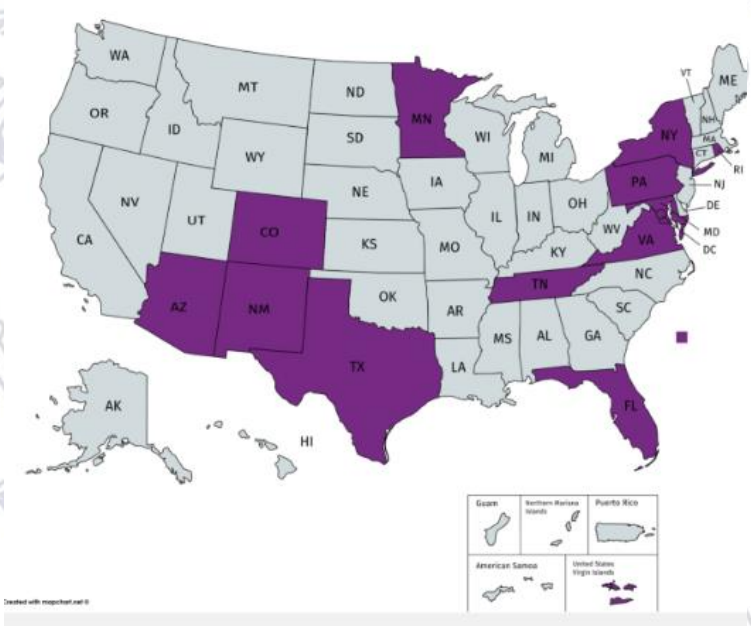
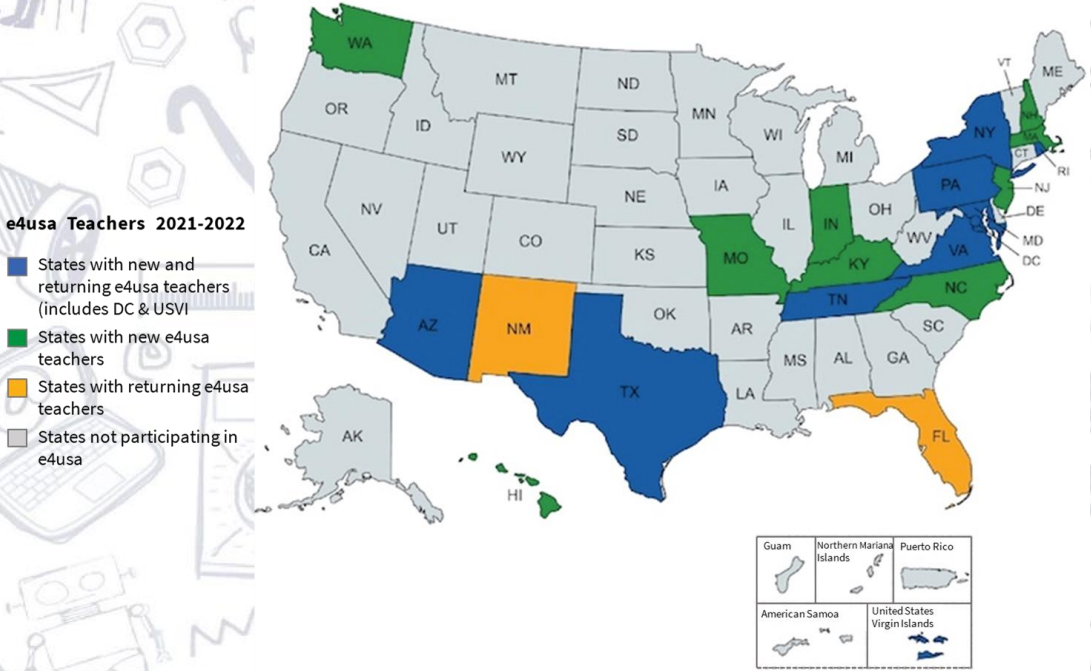


2020-21

36 High schools
39 instructors
12 states + DC and the USVI:
--0 e4usa+FIRST teachers

engineering 4 us all



2021-22

47 High schools
49 instructors
19 states + DC and the USVI:
--13 e4usa+FIRST teachers

'21-'22 by the Numbers

47

SCHOOLS

49

TEACHERS

1426

STUDENTS

2021-22 E4USA HIGH SCHOOLS THAT HAVE JR-ROTC PROGRAMS

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As of: 9/19/2019	Legend:	ARMY	NATIVE AMERICAN RESERVATION SCHOOL	Air Force	Navy	USMC		
Brigade/ Region	School ID	School Name	Street Address	City	State	Zip Code	Program Type	DODDAC
	VA-20012	Chantilly H.S. Academy	4201 Stringfellow Road	Chantilly	VA	20151	AFJROTC	
7TH BRIGADE	1489	COOKEVILLE HS	2335 N WASHINGTON AVE	COOKEVILLE	TN	38501	ARJROTC	W9046N
	MD-901	Eleanor Roosevelt High School	7601 Hanover Parkway	Greenbelt	MD	20770	AFJROTC	
	MO-851	Gateway STEM High School	5101 McRee Avenue	Saint Louis	MO	63110-2019	AFJROTC	
	MD-011	Oxon Hill High School	6701 Leyte Drive	Oxon Hill	MD	20745	AFJROTC	
	MD-932	Patterson High School	100 Kane Street	Baltimore	MD	21224	AFJROTC	
2ND BRIGADE	1936	REVERE HIGH SCHOOL	101 SCHOOL ST	REVERE	MA	02151	ARJROTC	W56UMU
7TH BRIGADE	1308	RIVERDALE HS	802 WARRIOR DR	MURFREESBORO	TN	37128	ARJROTC	W90NJE
	NM-951	Sandia High School 550	7801 Candelaria Rd. N.E.	Albuquerque	NM	87110-3797	AFJROTC	

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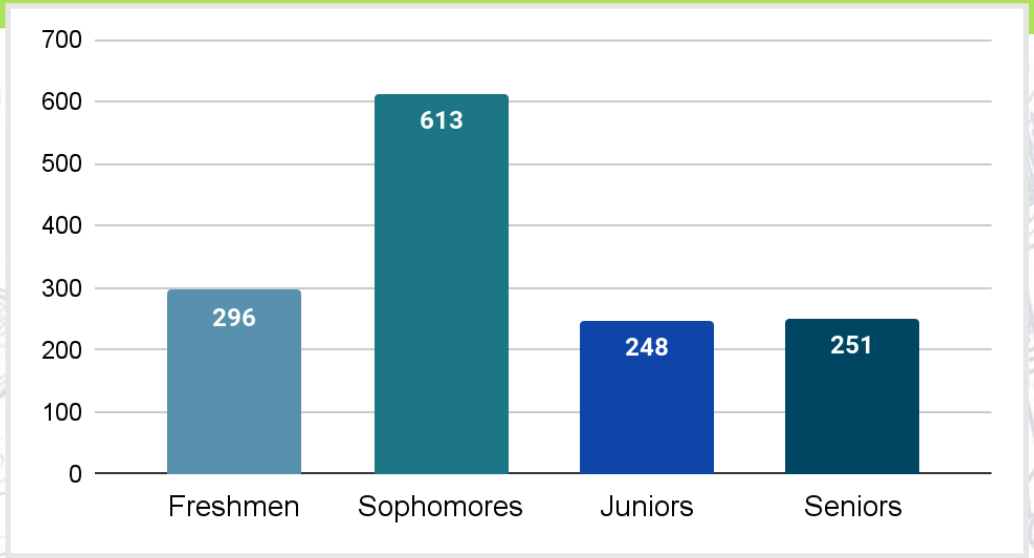
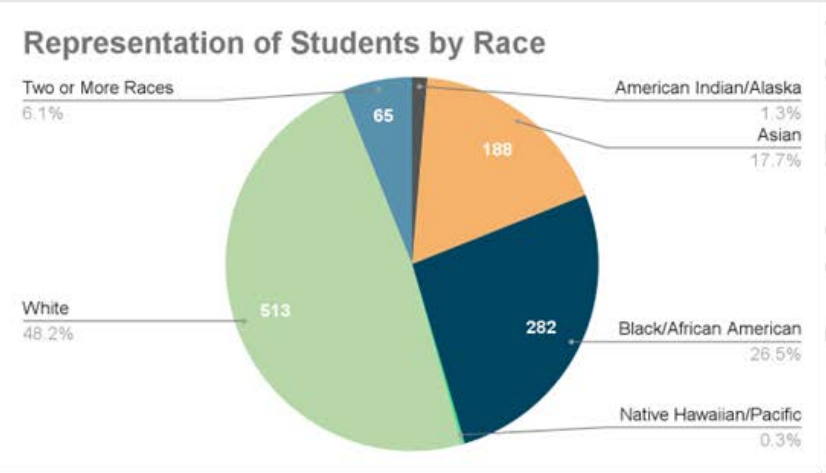
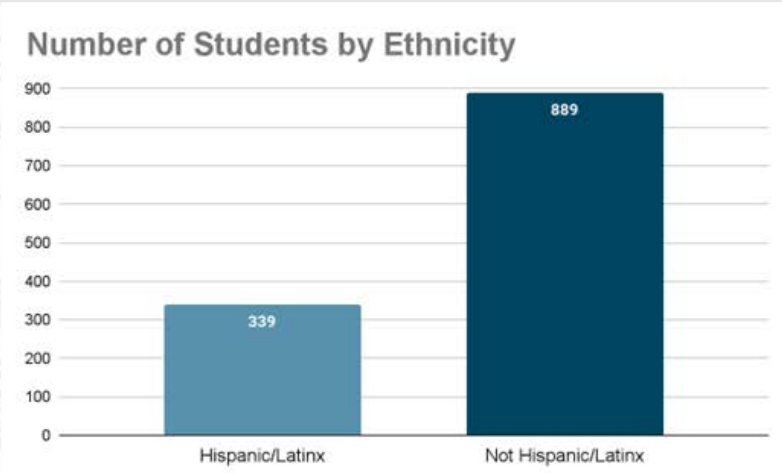
'21-'22 STUDENT DATA BY GRADE LEVEL



'21-'22 STUDENT DATA





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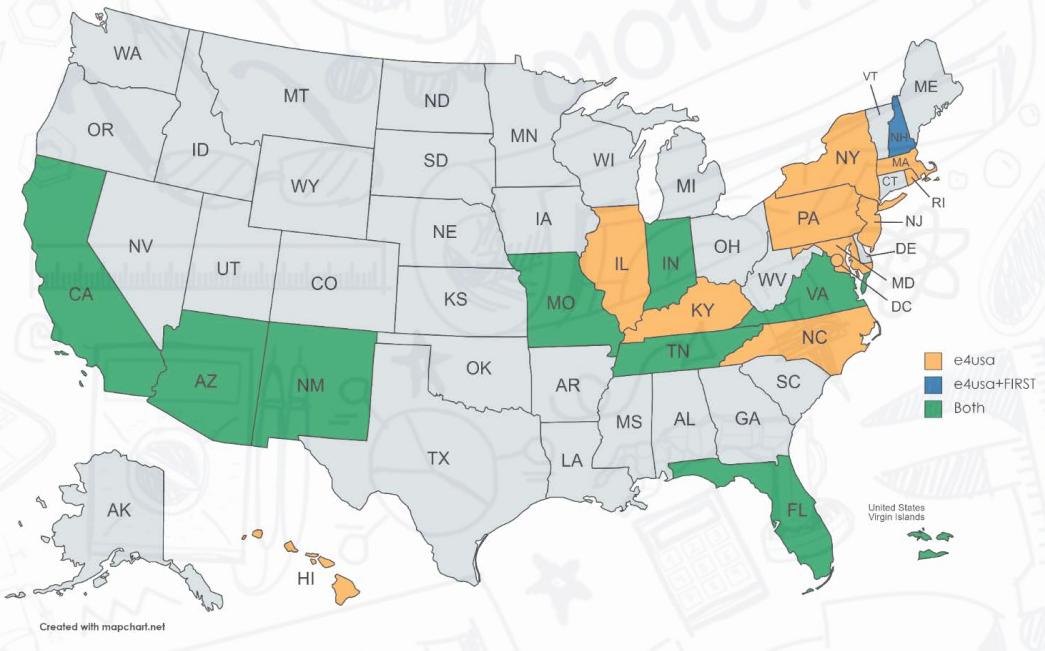

2022-23

63 teachers
16 states + DC and the USVI:
--50 e4usa teachers
--13 e4usa+FIRST teachers

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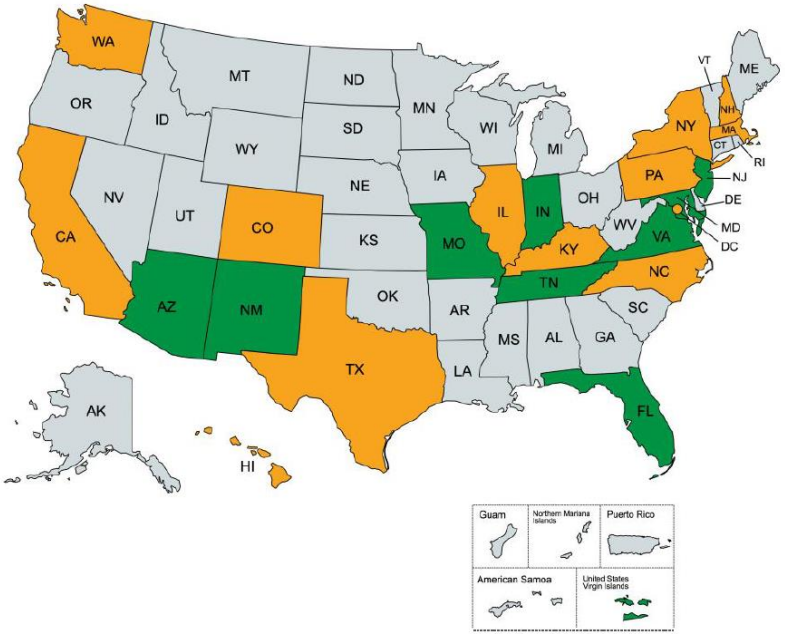
States and territories with e4usa high schools 2019-2023

States and territories with e4usa high schools and institutions awarding credit or placement

Institutions

Arizona State University
Florida International University
Lincoln Memorial University
Morgan State University
Purdue University
Regent University
Saint Louis University
South Mountain Community College
Tennessee State University
The College of New Jersey
University of Hawai'i at Manoa
University of Indianapolis
University of Maryland
University of New Mexico
Virginia Tech



2019-23

92 teachers
21 states + DC and the USVI:
--82 e4usa teachers
--13 e4usa+FIRST teachers

'19-'23 by the Numbers

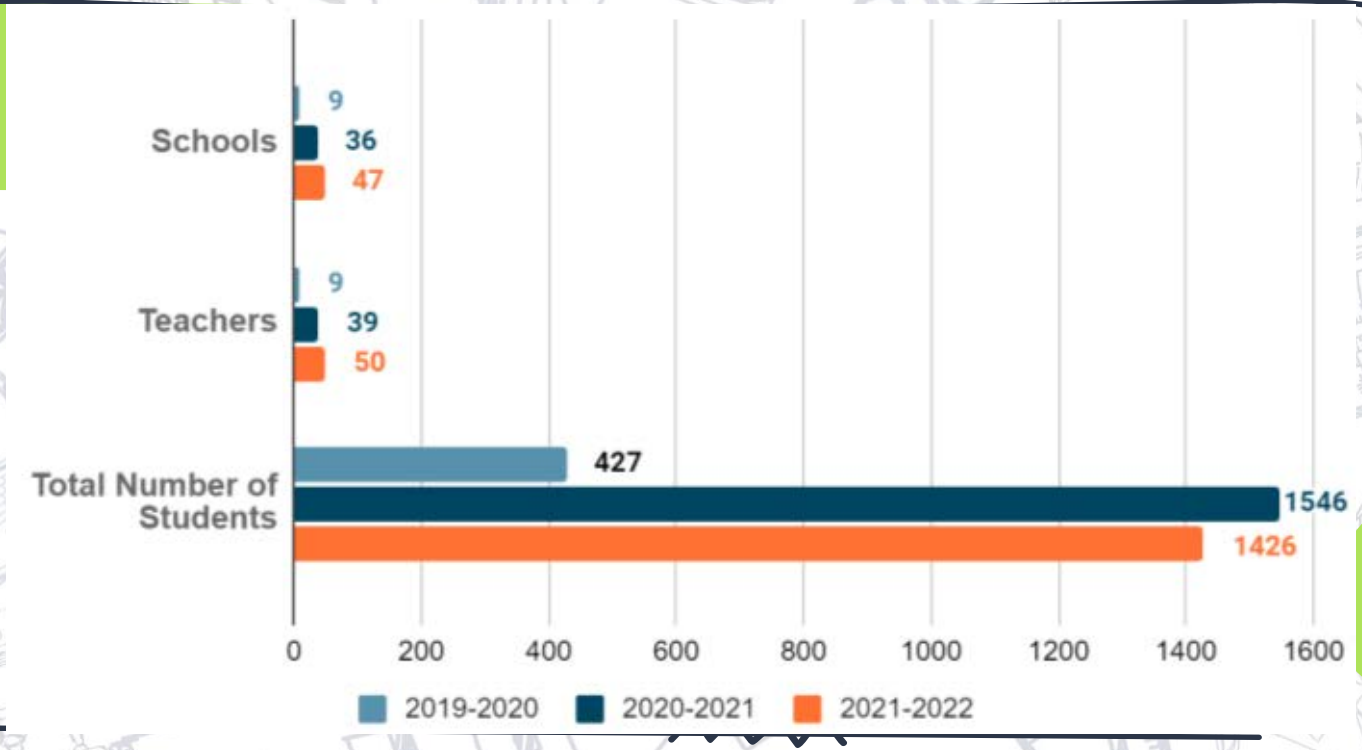
82
Schools

92
Teachers

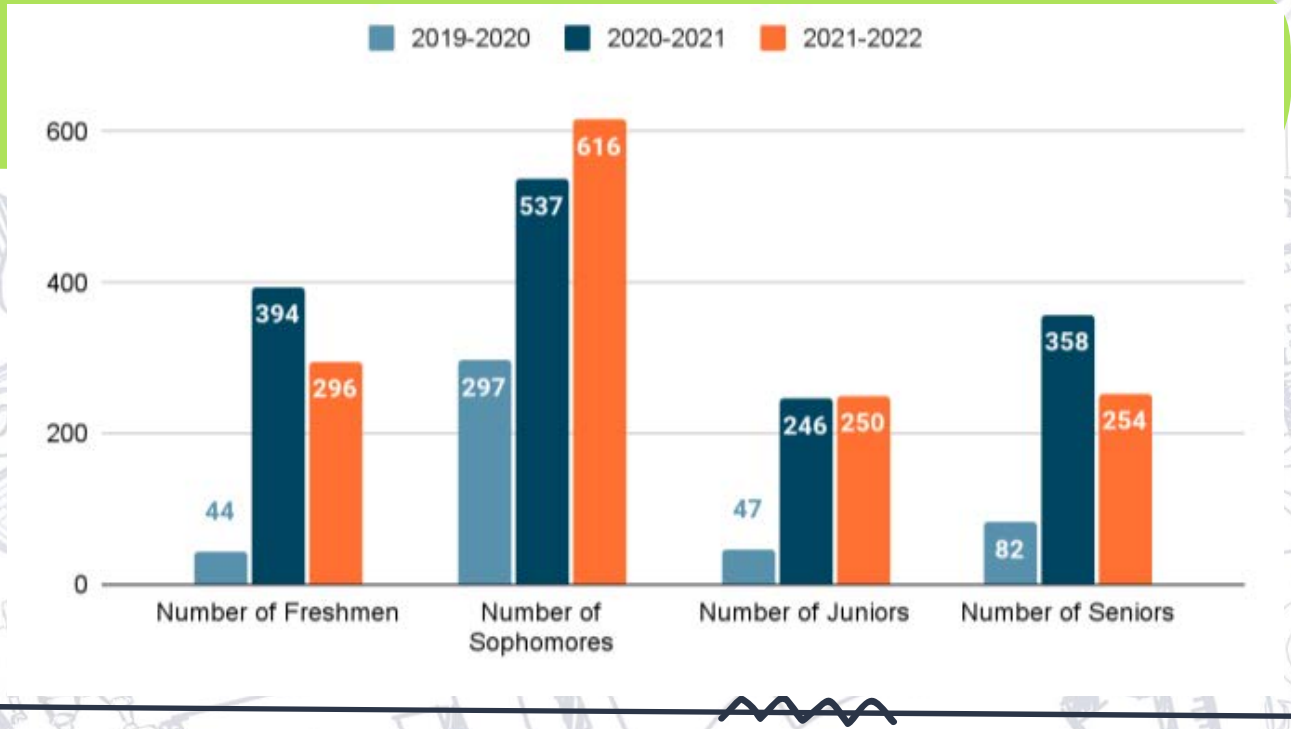
5049
Students

18
Institutions

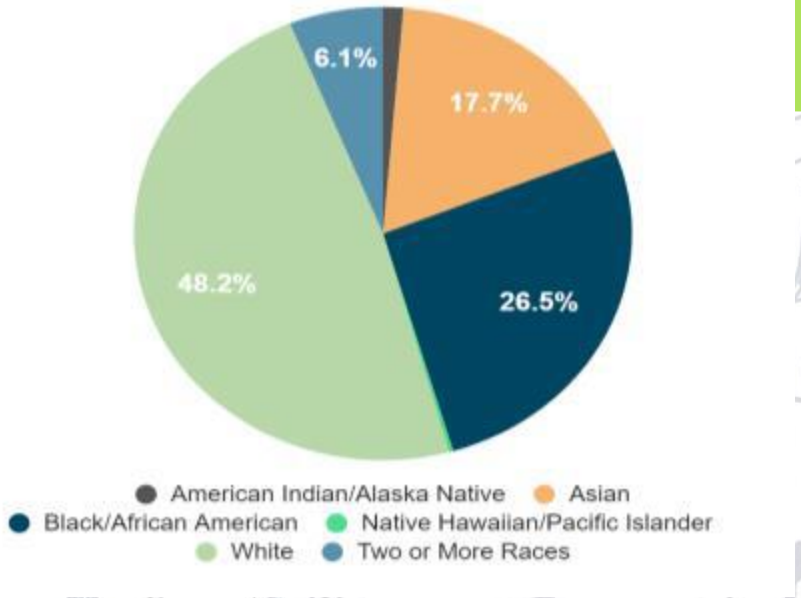
E4USA Growth (2019-2022)

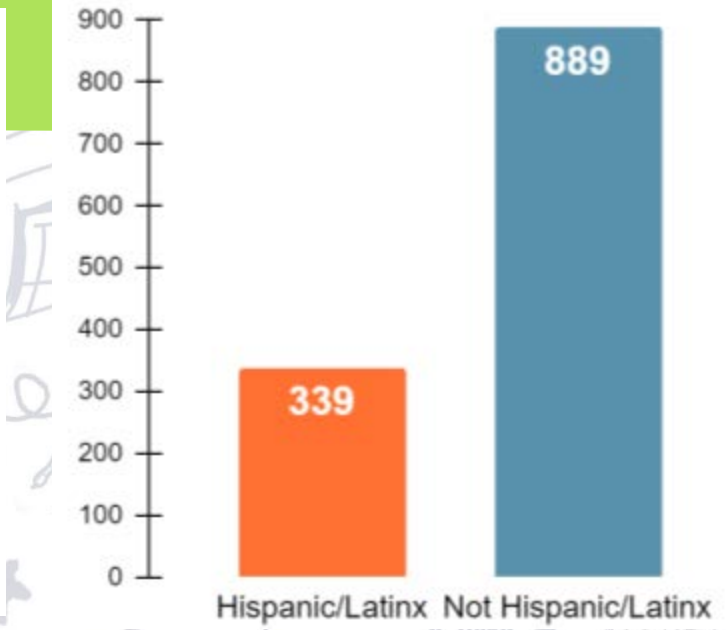


Student Grade Level(2019-2022)



Student Diversity(2021-2022)





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Contact apply@e4usa.org if you are interested in joining e4usa in the 2023-24 academic year!

THE AGENDA

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- X National Problem
- X Program Overview
  - Partnerships
  - **Curriculum**
  - Professional Learning
  - Research
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- X Student Outcomes
- X Student Video

Curriculum

E4USA Year-Long Curriculum Overview

The curriculum is designed as a thirty-week course focused on four “big ideas.”
This course is meant to explore ‘**why**’ and ‘**who**’ of engineering;
not a technology focus, pre-engineering, or survey course.

- Connect with Engineering
- Engineering Professional Skills
- Engineering in Society
- Engineering Design

Eight Curriculum Units - Summary

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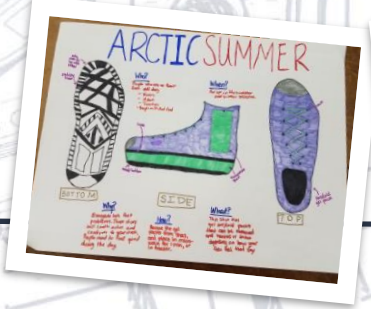
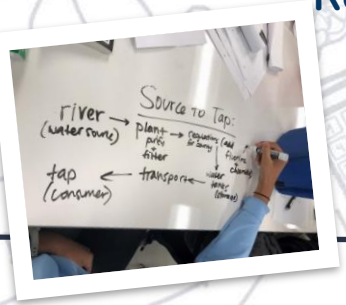
Introducing Engineering

Unit 1 - Engineering is Everywhere
Unit 2 - Engineering is Creative

Applying Engineering: Generating a solution to a local problem

Unit 3 - Engineering is Human-Centered
Unit 4 - Engineering is Responsive





Applying Engineering: Generating a solution to a global issue

Unit 5 - Engineering is Intentional
Unit 6 - Engineering is Iterative

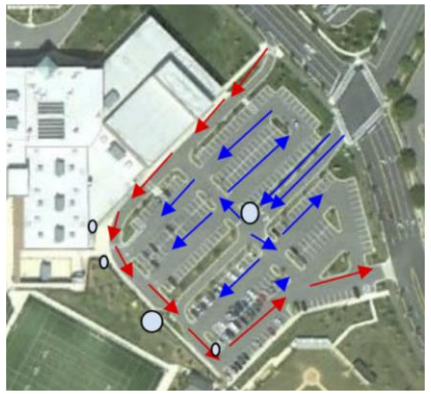
Generating an engineering solution to a problem relevant to you

Unit 7 - Engineering is Personal

Reflection and Wrap-up

Unit 8 - Engineering is Reflective

Example Projects



Examples: Students Engineering Design Projects

Community Partner: Image Center of Maryland-Helping the disabled community live

Need: Child with disabilities needed a portable swing to provide safe play

Solution: Students designed an assisted swing with an innovative harness for an at-needs member of the community.

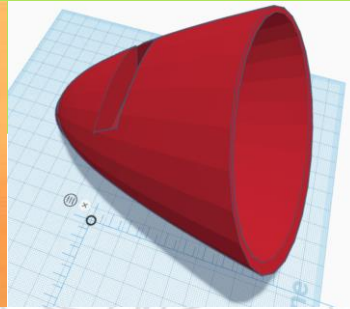
Examples: Students Engineering Design Projects

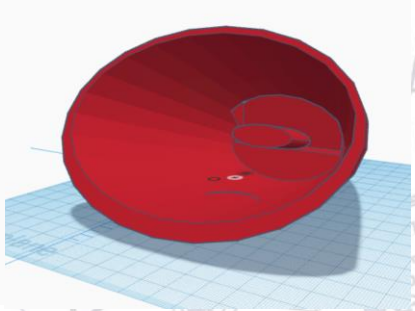
Community Partner: VU Center for Autism & Innovation's co-Director

Need: Ability to work a retail job using both hands

Solution: A new hands-free leash for an autistic young woman's service animal

Examples: Students Engineering Design Projects





Community Partner: Seniors in Community

Need: new solution for a smart phone amplifier with no moving parts.

Solution: 3D printed amplifiers that direct and focus the sound from a smartphone. Designed to use by seniors who need a simple solution for listening to their smartphones.

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engineering 4 us all

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Professional Learning

E4USA Inaugural Pilot Teachers (2019-2020)

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Sharon Ball
Patterson HS
Baltimore, MD

Dave Eisenberg
Eleanor Roosevelt HS
Greenbelt, MD

Brendan McCarthy
College Park Academy
College Park, MD

Carlton Sims
Oxon Hill HS
Oxon Hill, MD

Jim Muscarella
Plymouth Whitemarsh HS
Plymouth Meeting, PA

Richard Maxwell
Arcadia HS
Phoenix, AZ

Mike Kiser
Brentwood HS
Brentwood, TN

Kayla Cantrell
Buchanan County Career & Tech
Grundy, VA

Angelique Sykes
Woodson HS
Washington, DC

5 States (AZ, MD, VA, PA, TN) and D.C.

9 high schools
427 students
Stipend = $5,000
Materials = $2,500

2019 Summer Professional Development

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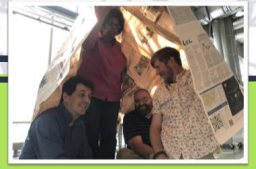

2020 Summer Professional Development

01	Marathon Version	Four- week professional learning experience, with two afternoons of virtual group sessions and outside assignments and collaborations.
02	Sprint Version	Experiences encapsulated in one week of daily virtual sessions.

Professional Development for Teachers 2019-2020

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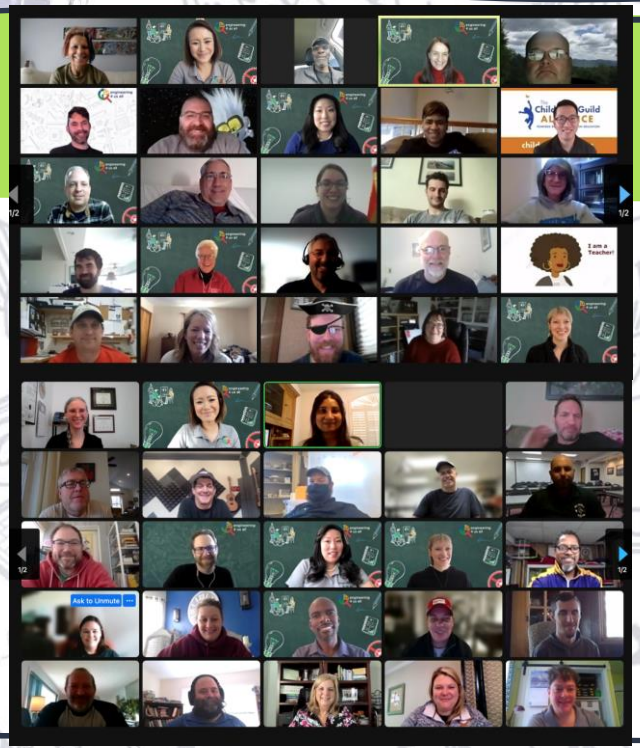
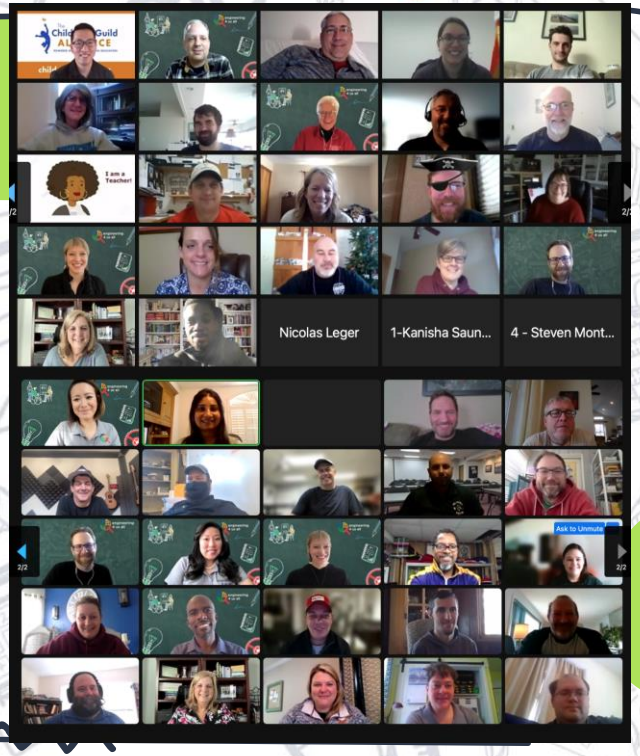
Professional Development for Teachers 2021-2022





Our Community of Practice

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e4usa community & industry liaison

additional community partners

e4usa engineering educator

e4usa coach and team

e4usa staff and fellow teachers

Supporting YOU!

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University & industry Liaisons

Our E4USA Coaches

Kristy Moss
Missouri

Kevin Martz
Maryland

Brendan McCarthy
Maryland

Christine Zito
Virginia

Amanda Jones
Tennessee

Marla Rudnick
Maryland

James Beam
Maryland

Karolyn Thacker
Tennessee

Dave Eisenberg
Maryland

Bryan Silver
Hawaii

Carsten Binsner
Washington DC

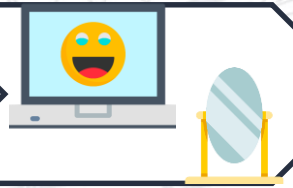
Jim Muscarella
Pennsylvania

Other PD throughout the year

MyDesign & EDPPSR

e4usa Winter PD

End-of-Year Teacher Celebration



Community of Practice and Teacher Performance Reflection

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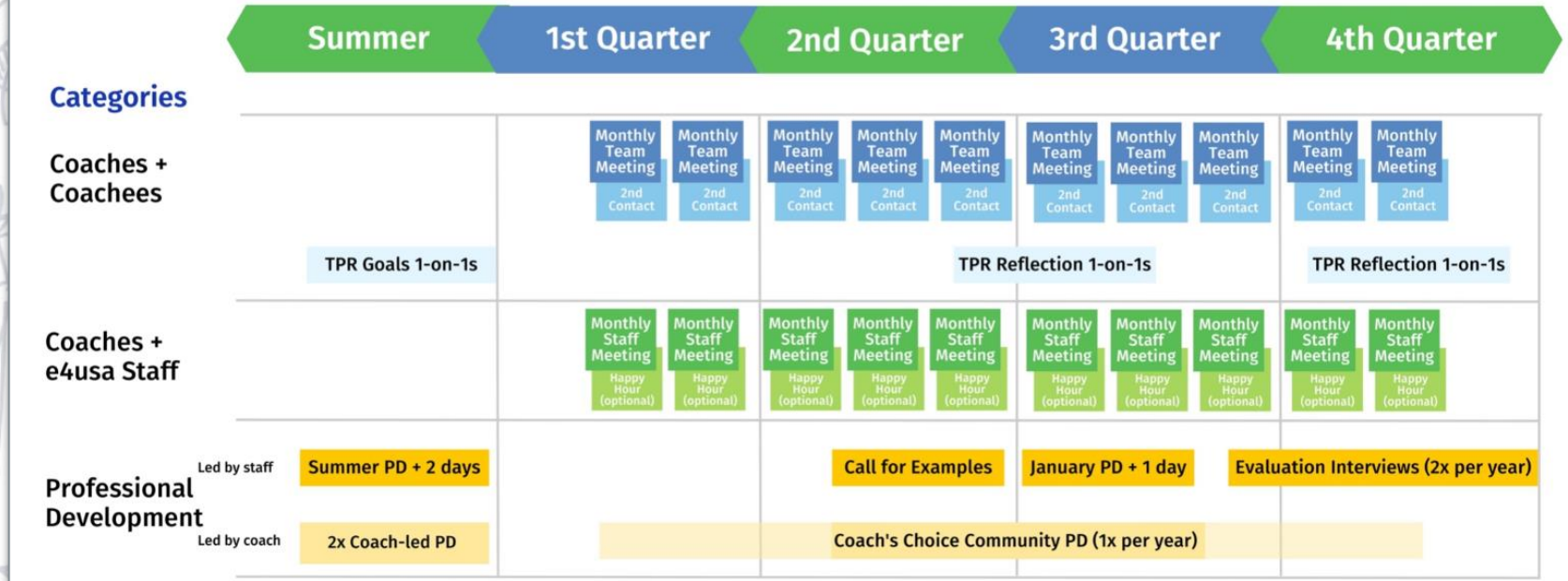
e4usa Coach Timeline

2022 - 2023



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Research

Theory of Action

Conjecture

Democratization of engineering education "for all" can be achieved by bringing together stakeholders to engage pre-college students in scaffolded disciplinary practices & evaluation of the real-world consequences of engineering

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Key Features

Curriculum
- Age-appropriate, team-based, progressively challenging projects
- Community Interactions
- Explorations of personal values & connections to engineering
- Case studies of engineering & its impacts

Assessment/MyDesign®
- Support for teachers to assess student engineering work
- Online portfolio & detailed rubric, i.e., MyDesign®

Teacher Professional Learning
- Curriculum introduction via hands-on learning & teaching experiences
- Relationship & trust building
- Inclusive classroom practices
- Adaptive & responsive support for teachers of all backgrounds

Community of Practice
- Structured participation
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Stakeholders leverage & improve their collective knowledge & expertise.

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- Increased efficacy & access for all
- Better understanding & awareness of engineering & its impact on daily life
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- Confidence & requisite skills to teach engineering

Schools & Broader Community
- Better educated citizenship
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- Large-scale adoption through stakeholder partnerships
- Models that align with local school district & state requirements

Post-Secondary Institutions
- Enhanced relationships with pre-college schools & students
- New models for engineering education & outreach
- Pathways to earned credit

Conjecture

Democratization of engineering education for all can be achieved by **bringing together stakeholders** (teachers, school leaders, school counselors, district leaders, engineering deans, university faculty liaisons, industry partners, and parents) to engage pre-college students in **scaffolded disciplinary practices** and **real world engineering experiences**

How can e4usa...

a) provide access for all students and teachers?
b) help to better educate the broader citizenry?
c) be brought to scale and be made sustainable?



Research activities

Collect and analyze data examining:

1. Development and testing of the e4usa curriculum
2. Curriculum implementation across diverse sites
3. Student outcomes
4. Teacher outcomes
5. Efficacy of the e4usa learning (including PL and CoP)
6. Partnerships with school and broader community partners
7. Alumni pathways

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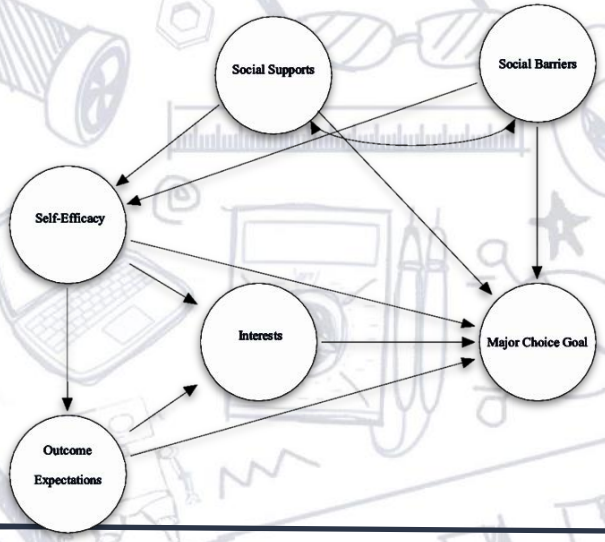
STUDENTS

3399

1373

42 - 279

Results- Social Cognitive Career Theory



Expanded Understanding of Engineering

Development of Professional Skills

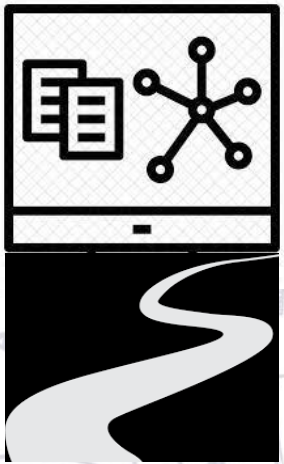
Engineering and Eng. Design Self-efficacy

Identity Play and Choices

Case studies

5

Community Partners



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Credit and Placement

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Our Credit and Placement schools

1. Arizona State University
2. Florida International University
3. Lincoln Memorial University
4. Morgan State University
5. University of Oklahoma
6. Purdue University
7. Regent University
8. Saint Louis University
9. South Mountain Community College
10. Tennessee State University
11. The College of New Jersey
12. University of Hawai'i at Manoa
13. University of Indianapolis
14. University of Maryland
15. University of New Mexico
16. Virginia Tech

Credit Pathways

- Concurrent Enrollment
- Prior Learning Assessment
- Credit by Exam

University of Maryland

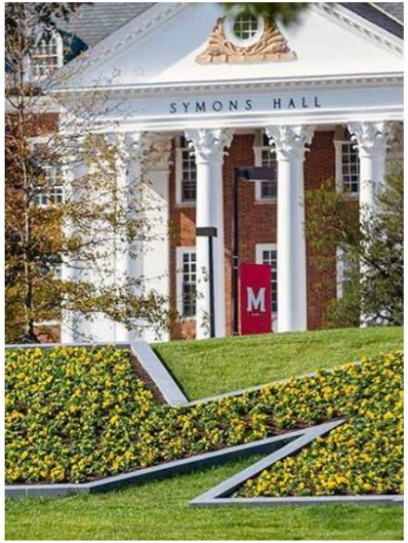
About University of Maryland

Located nine miles from the Nation's Capital, The University of Maryland is the Flagship Institution of the State of Maryland.

The A. James Clark School of Engineering offers full-time undergraduate programs leading to the Bachelor of Science degree in the fields of:

- Aerospace Engineering
- Biocomputational Engineering
- Bioengineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Fire Protection Engineering
- Materials Science and Engineering
- Mechanical Engineering

Learn more by visiting
https://eng.umd.edu/prospective-students



Fast Facts

Course: ENES 192: Engineering For US All

Credits: 3 in General Education Scholarship in Practice (DSSP)

Credit pathway: Departmental Proficiency Exam

Details: Proficiency Exam consists of 1) e4usa high school engineering design portfolio review and 2) a 30-minute written examination.

Point of Contact: Kevin Calabro (kcalabro@umd.edu) or Jackelyn Lopez Roshwalb (roshwalb@umd.edu)

Cost: $30

Other: Students must matriculate at University of Maryland to earn credits. To initiate the process visit: https://ltsc.umd.edu/documents/CBE-Instructions.pdf

Student Assessment of Learning

Improve a Train Station in Mt Juliet, Tennessee

The Big Picture - Commuting in Nashville

For this exam, you will read about a real-life engineering project involving a train station in Nashville, Tennessee. There are several sections that focus on different aspects of this project, which you will be asked to reflect on and work on. We begin with the big picture.

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downtown riverfront
his train is known as the
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ville.

ess to use in designing

ble to change these
ted and your own

MyDesign

Sink Team 1 | Design Report Element D | Design concept generation, analysis, and selection

Design Report Element D

Element D:

Morphological Chart (Brainstorming ideas for each function):

Functions	Concept 1	Concept 2	Concept 3	Concept 4	Concept 5
Provide cold and hot water	2 tanks with hot and cold water, when turned on, the water from both tanks is used and the knob adjusts the quantity of water coming out from either side. Both tanks are already pre filled with hot and cold water	Have cool water that can be heated using electric coils that can help transfer heat into the water storage	Have only one tank that stores one temperature of water at a time.	Use electrical heating pads and wrap them around the tank that will be heated	Use a pump that heats the water as it passes through it.
Store clean water	Pitchers of water with removable caps(for refills) and spout (caps are like those of water guns)	Flexible trash-bag-like material to hold differently heated water	Use plastic water tanks that can be stored on the exterior of the sink	Contains multiple tanks of clean water. Both hot and cold	Water can be stored in a 3D printed box, and the interior would be walled with plexiglass.
Stores waste water	Water filters through strainer and into a container under the sink Mini door is at the bottom of the sink to prevent children from getting into dirty water, while also allowing easy access to the container.	Have it stay in the sink basin. For this to work the sink basin would have to be large in size.	Tank placed on the bottom of the sink that catches. This can be taken out and removed in order to empty out and drain. Just a whole in the bottom of the sink basin.	Has a big tank to hold all the waste water from both the hot and cold water tanks. Can not be taken out but has a valve at the bottom for emptying. The draining system would resemble a cooler's.	Waste water goes through a tube connected to the bottom of the sink basin that goes out the bottom of the sink so the water can reach a waste bucket.
Dispense water	Purchase an a faucet online that is compatible with our dimensions	Use PVC pipes to create a faucet-like shape that can be used to dispense water	3D print a faucet shape so that it has the same diameter as the internal piping and run the	If the water is being stored above the sink basin, have the water storage be	

Grading Schema

1. Process for Generating & Comparing Possible Solutions. The Process for Generating Possible Solutions

Not graded yet

5/5	was comprehensive, iterative, and consistently defensible (viable design highly likely).
4/5	was thorough, iterative, and generally defensible (viable design likely).
3/5	was adequate, generally iterative and defensible (viable design is possible).
2/5	was partial or overly general and only somewhat iterative and/or defensible (raising issues with the design viability).
1/5	was incomplete or minimally iterative and/or defensible (raising issues with the design viability).
0/5	was not evident that there was an attempt.

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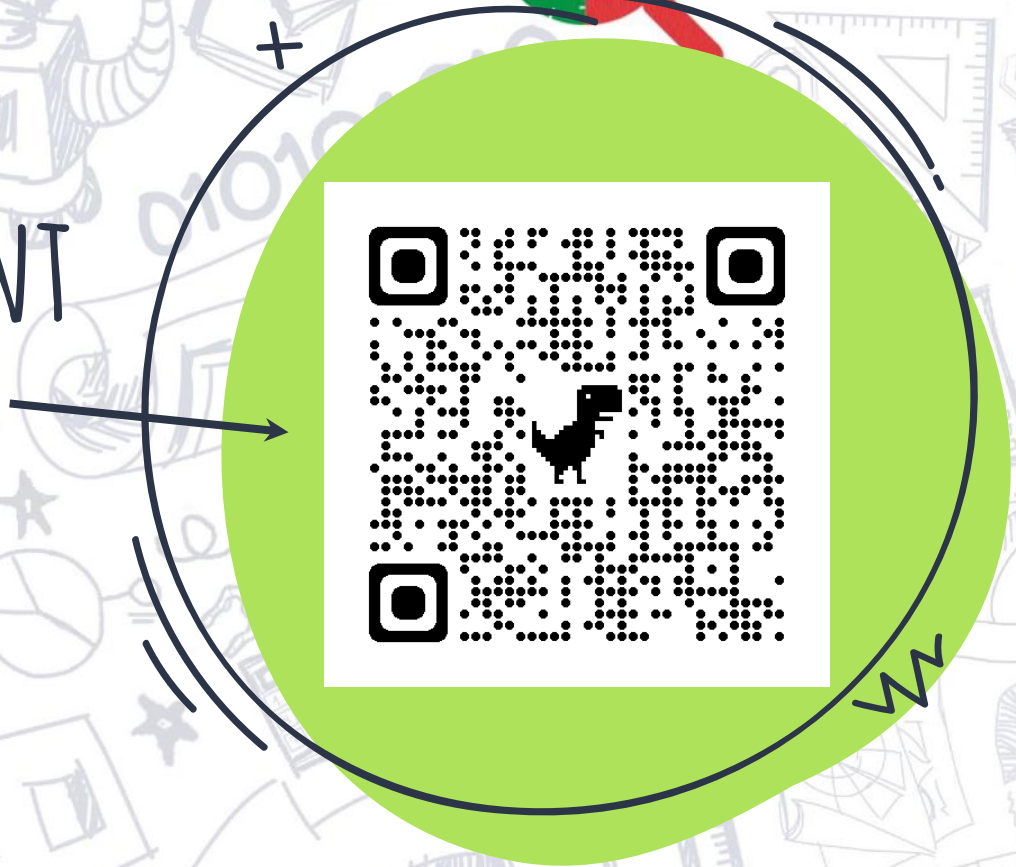
2021-22 Credit & Placement Prospectus



THE AGENDA

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- National Problem
- Program Overview
  - Partnerships
  - Curriculum
  - Professional Learning
  - Research
  - Credit and Placement
- **Student Outcomes**
- Student Video

Student Outcomes

Seniors who enrolled in e4usa in 2019-2020

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Arcadia HS: 3
Woodson HS: 5
Patterson HS: 0
College Park Academy: 8 (6 completed)
Eleanor Roosevelt HS: 13
Oxon Hill HS: 0
Plymouth Whitemarsh HS: 12
Brentwood HS: 22
Buchanan HS: 19

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Student Outcomes- Eleanor Roosevelt HS (MD)

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	Gender: Male, Female or Non-binary	College: Yes/No?	College: If Yes, Name of College/University	STEM Major: Yes/No?	STEM Major: If Yes
Student 1	Male	Yes	University of Maryland	Yes	Computer Science
Student 2	Male	Yes	Purdue	Yes	Mechanical Engineering
Student 3	Female	Yes	University of Maryland	Yes	Electrical Engineering
Student 4	Male	Yes	Messiah College	Yes	Engineering
Student 5	Male	Yes	UMBC	Yes	Computer Science
Student 6	Female	Yes	University of Maryland	Yes	Mechanical Engineering
Student 7	Male	Yes	University of Maryland	Yes	Materials Engineering
Student 8	Male	Gap Year		Yes	Environmental Science
Student 9	Female	Yes	University of Pittsburgh	Yes	Informations Science
Student 10	Male	No			
Student 11	Male	Yes	University of Maryland	No	Undecided
Student 12	Male	No	Air Force		
Student 13	Male	Yes	Widener University	Yes	Robotics Engineering

Student Outcomes-Eleanor
Plymouth Whitemarsh HS (PA)

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Student 1	M	Drexel University	Mechanical Engineering
Student 2	M	Purdue University	Mechanical Engineering
Student 3	M	Purdue University	Chemical Engineering
Student 4	F	Drexel University	Engineering (General)
Student 5	M	Penn State University	Mechanical Engineering
Student 6	F	New York University	Mechanical Engineering
Student 7	M	Widener University	Civil Engineering
Student 8	F	Temple University	Engineering (General)
Student 9	F	Drexel University	Mechanical Engineering
Student 10	F	Purdue University	Mechanical Engineering
Student 11	M	Purdue University	Mechanical Engineering
Student 12	M	Drexel University	Electrical Engineering

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Student Outcomes-College Park Academy (MD)

Student 1	M	AACC	Undecided
Student 2	F	Howard CC	Undecided
Student 3	M	AACC	Undecided
Student 4	F	PGCC	Undecided
Student 5	F	PGCC	Undecided
Student 6	M	PGCC	Undecided

Arcadia High School (AZ)

Student 1	M	Scottsdale CC	Undecided
Student 2	F	Scottsdale CC	Undecided
Student 3	M	Arizona State University	Non-STEM

A few Student Testimonials

- **Jim Muscarella (PA)** checked in with some of his students who are now first year engineering students at the university level. He asked them how e4usa has impacted them and their success in engineering school so far. See responses below…
- *E4USA's biggest impact in preparing me for college engineering was project management. While the requirements, projects, and information are always changing, the process never does. Having spent a year learning how to efficiently and effectively work through an engineering project before I came to college, I was well ahead of the curve. This allowed me to spend time making sure that my work was the highest quality it could be, as well as make sure that everything got done on time. That practice has made my transition to College all the easier. –* ***Jacob Davis, Purdue University***
- *"Learning how to code and 3D model in one of our E4USA projects has been very useful since our final project is a robotics project. My E4USA experiences have allowed me to be an effective leader of my project group as well." -* ***Tyler Belford, Drexel University***
- *"E4USA (and you) prepared me for my 1st year of engineering school by giving me the experience and exposure to the engineering design process. In my first semester I took 'Introduction to Engineering and Technology' where I used this to come up with a possible solution to the current water crisis in Lobitos and Peidritas, Peru. It reminded me of the Play Pump that we learned about and analyzed in class last year. This, as well as the small activities of breaking down each step of the process gave me background knowledge that helped me construct a better alternative solution."* ***– Kate Pezzano, Temple University***

Student Testimonial Video

https://www.youtube.com/watch?v=kjO7GnmYOIM&t=15s

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Questions

Final Reminders

- A copy of the webinar slides are available to download under the “Handouts” tab.

- A recording of this Webinar will be available on SAME’s Big Marker channel within 5 days.

https://www.bigmarker.com/communities/same/conferences

Upcoming Events

Registration is Open

Registration Opens in January