

# **Engineering and Technology Department**

## **Vaughn College Sixteenth Annual Technology Day Conference**

Presented to the Industry Advisory Board  
May 17, 2024



2024 Vaughn College Annual Drone Day



2024 NASA Human Exploration Rover Challenge – VCAT Rover Club



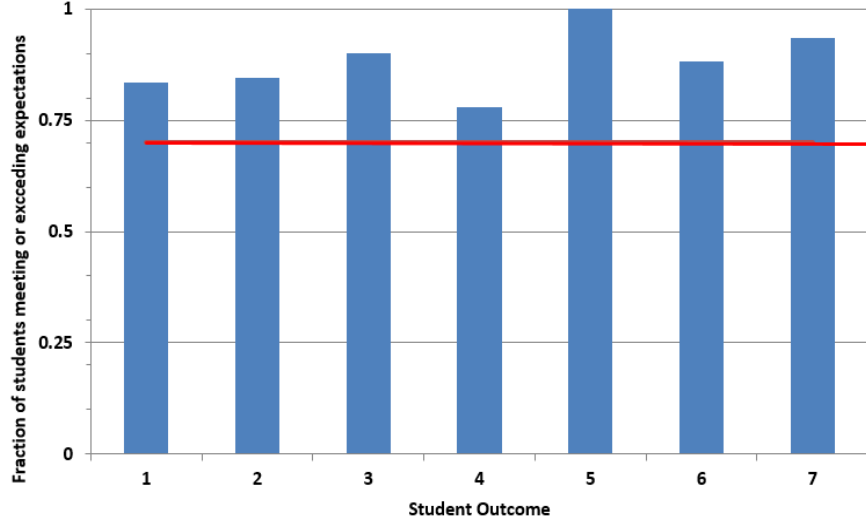
2024 VEX U Robotics World Championship



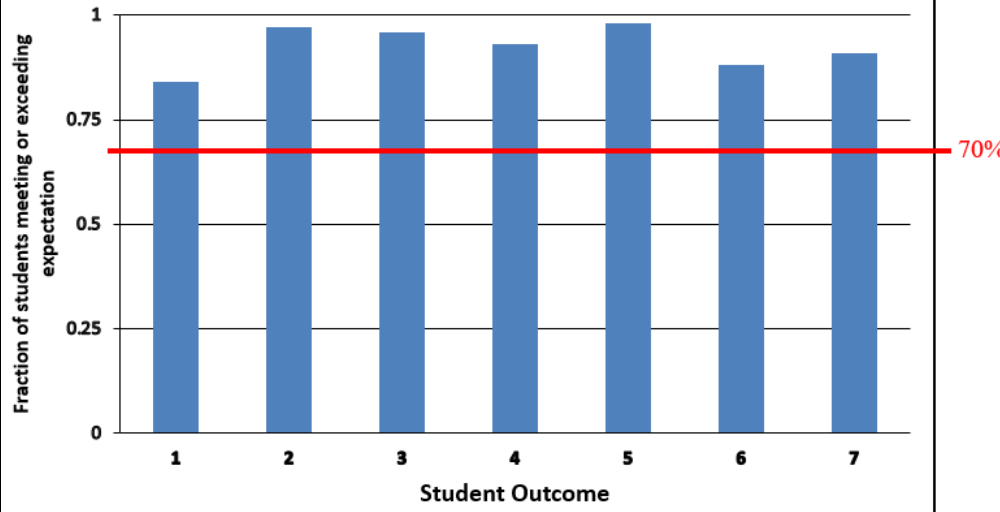
**A big part of willpower is having something to aspire to,  
•something to live for.” – Mark Shuttleworth**

# 2022-2023 Program Assessment based on EAC-ABET Student Outcomes (Mechanical, Mechatronic, and Electrical Engineering)

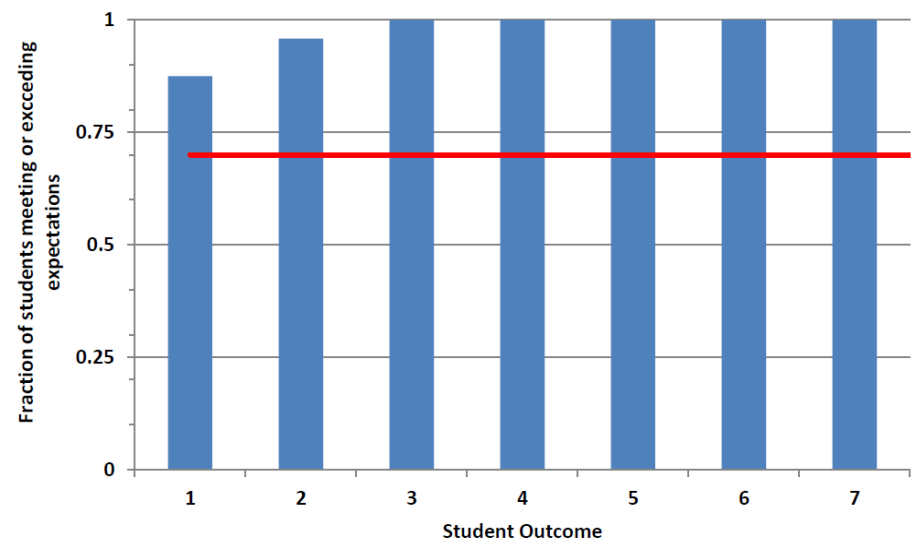
### Summary Student Outcome Attainment



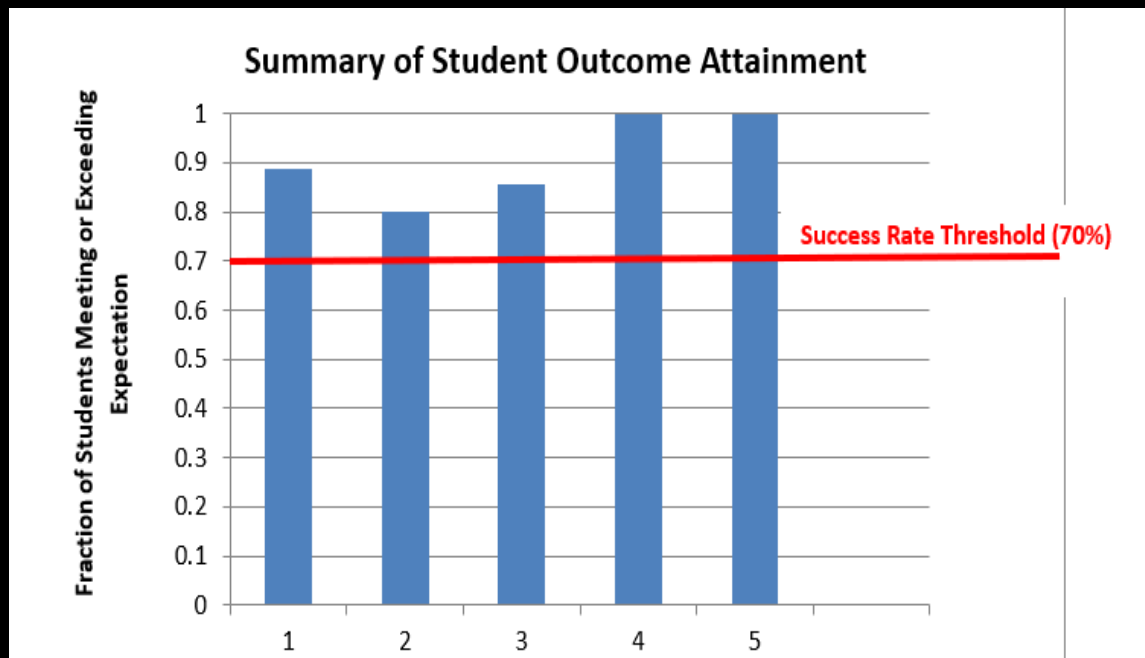
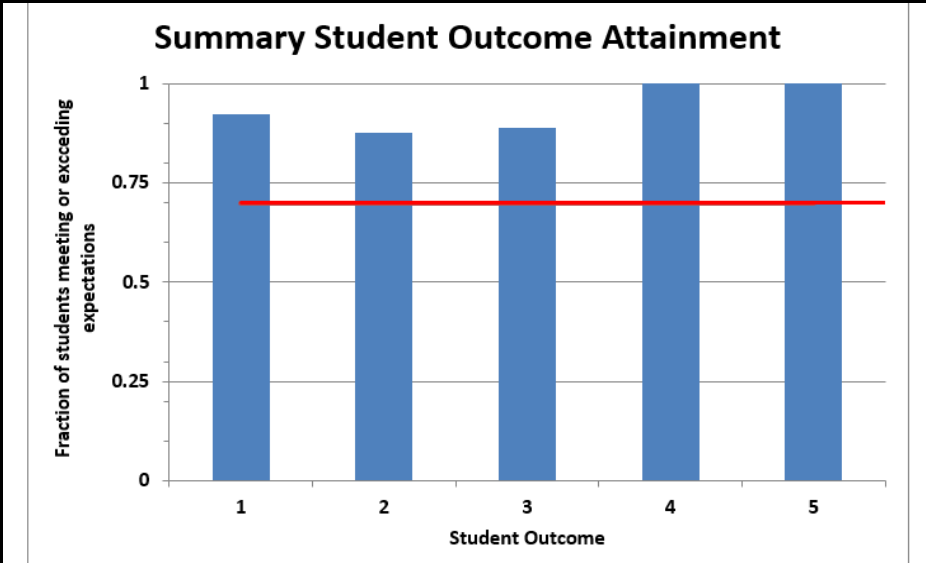
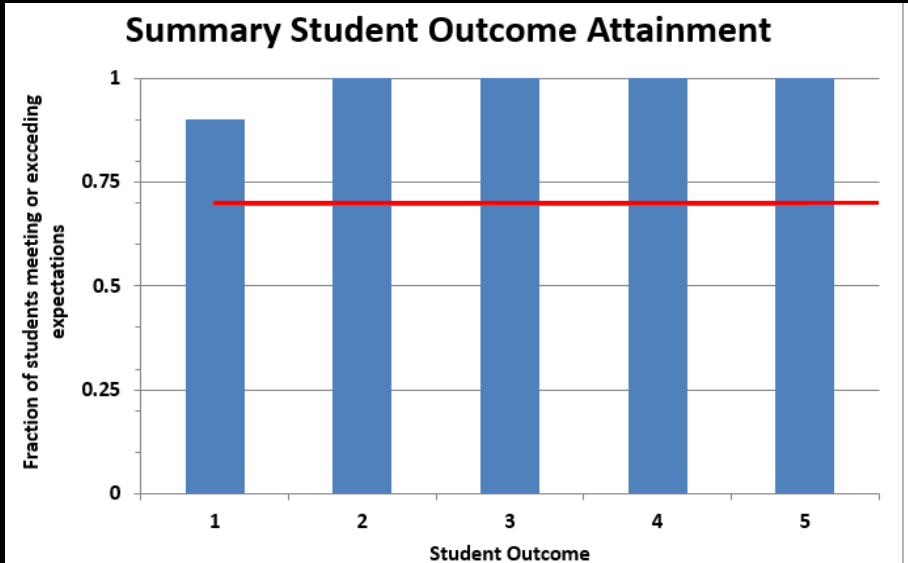
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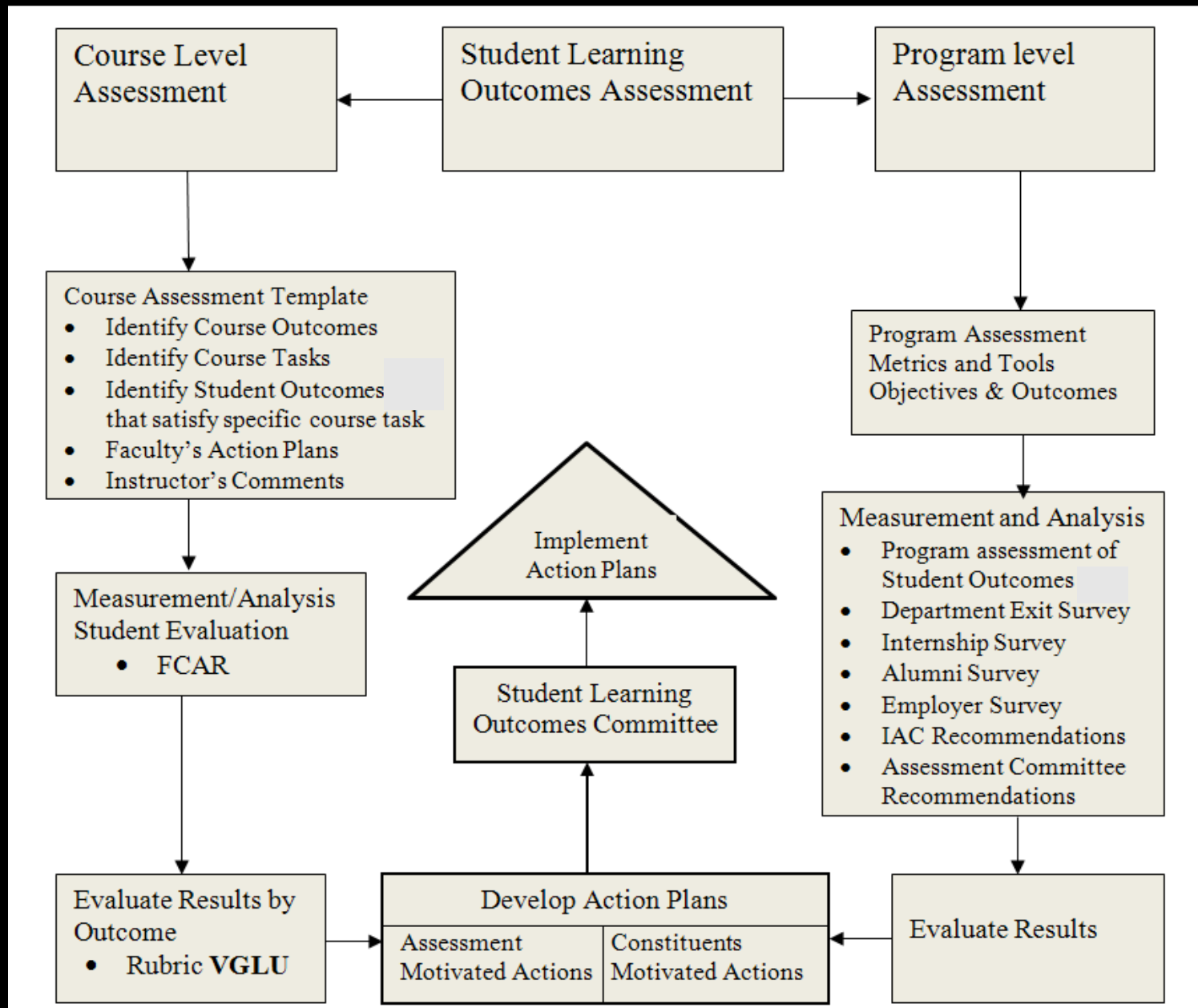
### Summary Student Outcome Attainment



# 2021-2022 Program Assessment based on ETAC-ABET Student Outcomes (BS EET-Avionics, BS EET-Electronics, AAS EET-Avionics)



# STUDENT OUTCOMES ASSESSMENT AND CONTINUOUS IMPROVEMENT PROCESS





**1) Title V HSI Grant (2020-2025)- “Closing the Equity Gap for Hispanic and Low-Income Students by Developing New Degree Pathways in High Need STEM Disciplines**

**2) Title III HSI-STEM Grant (2021-2026)- “Developing Guided STEM Degree Pathways to Prepare Hispanics and Low-Income Students for the Careers of the Future,”**

- **Cybersecurity and AI Center** – Established in Summer 2022
- **Mathematics and Computer Science (MCS) Center** – Established in July 2023 with 33 advanced level computer workstation, hardware, software, and related accessories
- **Data Science Center** – Established in June 2023 with 13 advanced level computer workstation, hardware, software, and related accessories
- **Summer Camp & Summer Bridge programs** - A five-week summer residential program that introduces high school students to topics related to an Intro to Cybersecurity, Artificial Intelligence, the First Year Initiative, Computer-aided design (CAD) & Additive manufacturing



# Title III HSI-STEM, Title V HIS, and CSTEP Grants

## ➤ Student Engagement in STEM related activities

### - Technical Clubs

1. UAV Club (a total of 20 active members)
2. Robotics Club (a total of 19 active members)
3. Rover Club (a total of 16 active students)

### - Student Chapter of Professional Society

1. Vaughn's Society of Women Engineers – SWE (20 active members)
2. Vaughn's Society of Hispanic Professional Engineers – SHPE (36 active members)
3. Vaughn's National Society of Black Engineers - NSBE (26 active members).

### - Conference participation, publication, and presentation – ASEE, LACCEI, AIAA, IEEE, ASME, .....

### - STEM Reinforcement Programs: Supplemental Instruction (SI), Recitation Session, and Summer Bridge program





# Industry Connection and Engineering Seminar Series

- **Engineering Seminar** - An Overview of Summer Internship Programs with Honeywell Intelligrated “Automated Systems in Material Handling”, Alina Santander, March 24, 2023
- **Engineering Seminar** - An Overview of Summer Internship Programs with PSEG ISS at Montclair State University “Sustainability”, Isa Al-Maktoum, April 13, 2023
- **Engineering Seminar** - An Overview of Spring Internship Programs with Tesla “Automated Systems in Battery Pack”, Suraiya Nawaz, October 19, 2023
- **An Overview of Projects and Industrial Experience**, Atif Saeed, a Life Cycle Engineer at Space X, November 9, 2023.
- **Aircraft Power Systems** , Carlo Asaro, a senior Aircraft Avionics Systems Engineer for Sikorsky, December 7, 2023.
- **Bolted Joint Analysis & Margins of Safety on Aerospace Flight Structural Components**, Ariel Ferrera, P.E., Structural Analyst, Blue Origin, Feb 8, 2024





# Vaughn's 9<sup>th</sup> Annual Manufacturing Day Conference, Oct 27, 2023, Time 10 am to 2 pm

- **Leadership Session:** industry leaders addressed the Vaughn community on manufacturing innovation in the area of Automation in Manufacturing, Autonomous Mobile Robots Safety, and Additive Manufacturing in Aerospace.
- **STEM Outreach: Workshops Session for High Schools**
- **Robotics Workshop** - Robotics design & autonomous programming for the 2022-23 VEX Robotics Competitions.
- **Drone Workshop** – A Build a Drone Workshop and flying practice in the Vaughn hangar flying arena



## Leadership Session



**Kang Jiang**  
Mechatronics Engineer  
ArcBest Technologies  
Autonomous Mobile Robot Safety



**Donlee Wilson**  
District Sales Manager  
FESTO  
Automation In Manufacturing



**Rich Brown**  
Chief Engineer  
Lockheed Martin  
Sikorsky Aircraft  
Additive Manufacturing in Aerospace



**Abhishek Bali**  
3DEXPERIENCE Works  
Startup Ecosystem Director  
Dassault Systèmes  
Kick-off, Scale and Grow your Startup with SOLIDWORKS



**Manuel Jesus**  
Professor  
CNC and Additive Manufacturing lab Development

## Vaughn College

Engineering & Technology Department  
9<sup>th</sup> Annual Manufacturing Day Conference

October 27, 2023  
10:00 am-2:00 pm

10:00 am—2:00 pm  
Technology & Manufacturing Leadership Session

10 am—2 pm  
STEM workshop Session On  
1) Robotics design, Autonomous programming, 2) Build a drone, 3) Rover design and Manufacturing

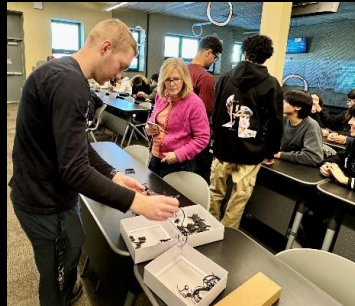




# Vaughn's Annual STEM Day Workshop, Feb 16, 2024, 10 am to 2 pm

Engineering and Technology department hosted a day workshop for high school students on Friday Feb 16, 2024. The participants of Vaughn's STEM Day workshop were students and faculty from Thomas Edison HS, Hillcrest HS, Bayside HS, August Martin HS, and two Uniondale Academy Charter schools and Vaughn College.

- **STEM Outreach:** This event introduced participants to the following STEM related activities
  - **Drone Workshop:** In this session Participants were introduced to drone 3D scanning and photogrammetry
  - **Avionics Workshop:** In this session participants were introduced to to avionics with hands-on experiences related to aircraft radar, communication, and navigation systems
  - **Student STEM Engagement workshop :** Vaughn's Robotics and UAV clubs organized and hosted Robotics and Build a Drone Workshops for the high school students.





## Latin American and Caribbean Consortium of Engineering Institutions, LACCEI2023 Conference, Bueno Aires, Argentina, July 19-22, 2023

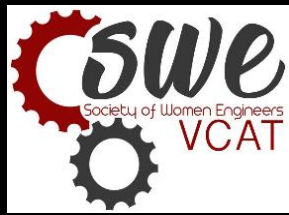
### Finalist for LACCEI Paper Session

1. “Telemetry System for the NASA Rover Challenge” by Alina Santander Vinokurova, and Tatiana Jaimes
2. “Design of Autonomous Search Robot for SAR Aide process of Earthquake Victims“ by Carla Montserrat Vasquez, Carlo Emmanuele Ovalle, and Paula Sofia Osorio.

**Vaughn’s Student paper “Telemetry System for the NASA Rover Challenge” won First Place Award and “Snake-Search Bot” won 3<sup>rd</sup> place at LACCEI 2023 Student Paper session Competition**







## 2023 Women Engineers Conference, October 26-29, 2023

13 Vaughn's chapter of SWE students attended 2023 Society of Woman Engineers annual conference in Los Angeles, California.. Vaughn's SWE team attended STEM workshops and poster session competition, and career fairs of this annual gathering.

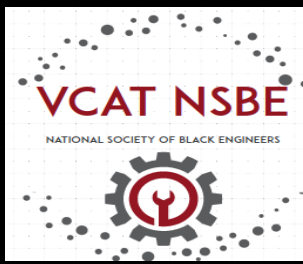


## 2023 Society of Hispanic Professional Engineers (SHPE) National Conference, Nov 1-5, 2023

30 Vaughn's chapter of Society of Hispanic Professional Engineers participated in 2023 SHPE annual conference, in Salt Lake City, Utah . Vaughn College students participated in the Cybersecurity challenge, Academic Olympiad, and STEM research Challenges. Vaughn's team finished 7<sup>th</sup> place in cybersecurity challenge.







## Lockheed Martin's Seventh Annual Ethics in Engineering Competition, Bethesda, MD, February 26-28, 2024

2 Vaughn's Engineering teams and faculty advisor participated in 2024 Lockheed Martin's Ethics in Engineering Competition. This year more than 200 students and faculty participated to present solutions to a business ethics case.

## 2024 National Society of Black Engineers (NSBE) Conference, March 20-24, 2024

30 Vaughn's chapter of NSBE students attended 2024 National Society of Black Engineers Conference in Atlanta, Georgia. Vaughn's BSBE team attended educational and certification workshops and seminars, and career fairs of this annual gathering.





## 2023 ASEE Annual Conference and Exposition, June 25<sup>th</sup> to June 28<sup>th</sup>, 2023

2 Vaughn's Engineering students and faculty advisors participated in 2023 ASEE Annual Conference.. Vaughn students presented their paper titled "Development of a Product Pipeline System to Teach Industrial Manufacturing Automation," during the ASEE Manufacturing Division Technical Session of this annual gathering.



## 2024 AIAA SciTech Annual Conference, Orlando, Florida, January 8-12, 2024



Paper - The Development and Implementation of The UAS Certificate Program at Vaughn College

## 2023 High Impact Technology Exchange Conference, Atlanta, GA, July 26-27, 2023

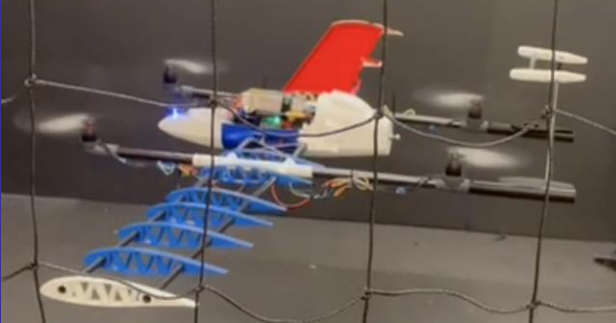




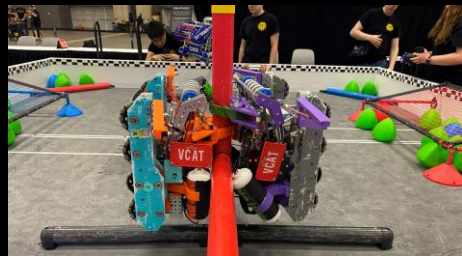
# 2024 NASA Human Exploration Rover Challenge, Huntsville, Alabama, April 18-20



# 2024 VFS annual electric-powered vertical takeoff and landing (eVTOL) of Design-Build Vertical Flight (DBVF) competition, Churchville, MD, April 10-12, 2024



# 2024 VEX U Robotics World Championships, Dallas, Texas, April 28 to May 1



# Acknowledgement:

1. We are thankful to the Department of Education federal grant (Title III, Part F, HSI-STEM and Articulation grant) Title V as well as CSTEP, and NSF which provided necessary funding support to engage Vaughn's students in STEM related scholarly and professional activities.
2. We would like to express our sincere gratitude to our industry advisory members, alumni, students, faculty, and technical clubs for their participation at Vaughn's Annual Manufacturing Day, Annual Technology Day conference, Vaughn's Annual STEM Day, Vaughn's Annual Drone Day, and other department's events as well as their continuous support in every aspect of the department and students' success.



# Thank You