Department of Electrical Engineering and Computer Science—Howard University

NSF Workshop
Building A Robust Workforce in Electric Power Engineering

Albuquerque, New Mexico
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Major Challenges In EE Program

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At Howard University, we experienced a reduction in enrollment in bachelor's degrees in EE program. Several factors contribute to this decline:

- **Howard-Google Tech Exchange Program: we have seen an increase in transfer students form EE to CS program.**
- **The competition for the FTIC with the Computer Science Program.**
- **Percentage of bachelor's degree in electrical engineering earned by black or African-American is decreasing over the past decade by approximately 2%.**
- **The overall national crisis**

Thus, retention and graduation are other challenges in this program.

Enrollment—Electrical Engineering

Fall 2018 - Fall 2022 Student Enrollment Trend

College/School
College of Engineering...

Student Level
All

Student Type
All

Gender
All

FT/PT
All

Citizenship
All

Major
Electrical Engineering

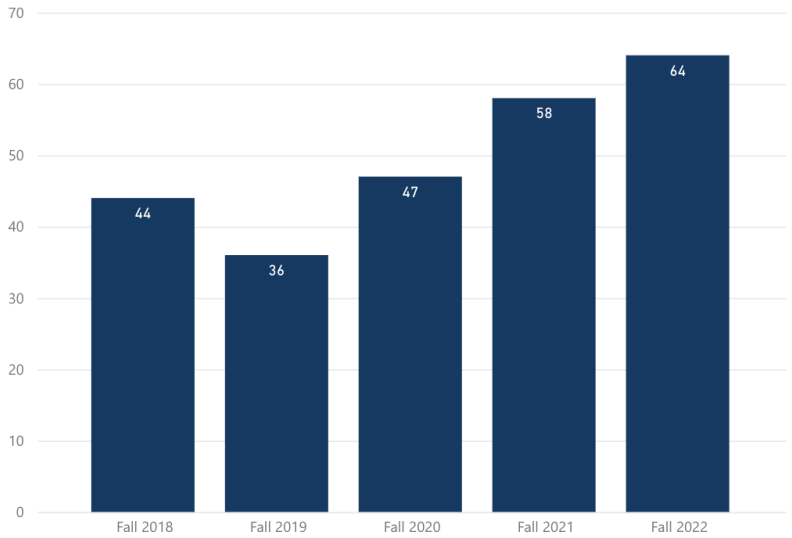
Program
All

Classification
All

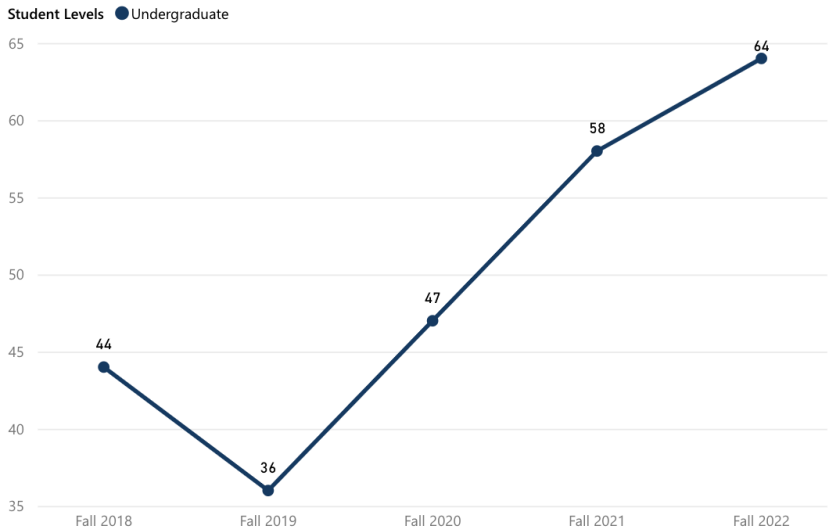
Ethnicity
All

Degree
All

Total Enrollment



Enrollment by Levels



Data Sources: Fall 2022 Enrollment Census data as of October 21, 2022
Office of Institutional Research & Assessment

Enrollment—Computer Engineering

Fall 2018 - Fall 2022 Student Enrollment Trend

College/School
College of Engineering...

Student Level
All

Student Type
All

Gender
All

FT/PT
All

Citizenship
All

Major
Computer Engineering

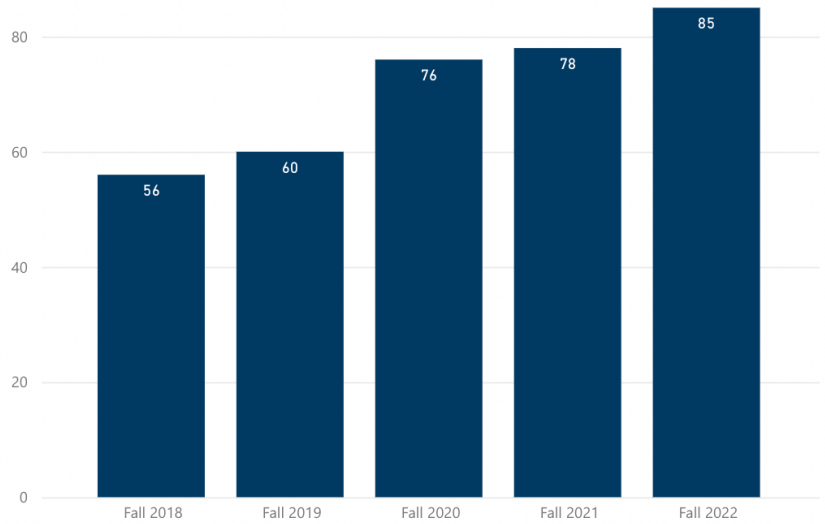
Program
All

Classification
All

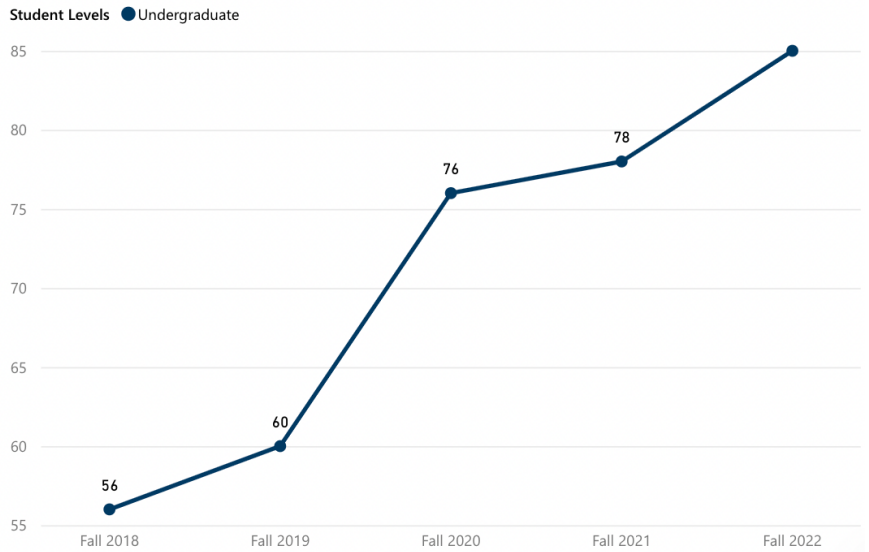
Ethnicity
All

Degree
All

Total Enrollment



Enrollment by Levels



Data Sources: Fall 2022 Enrollment Census data as of October 21, 2022
Office of Institutional Research & Assessment

Enrollment—Computer Science

Fall 2018 - Fall 2022 Student Enrollment Trend

College/School
College of Engineering...

Student Level
All

Student Type
All

Gender
All

FT/PT
All

Citizenship
All

Major
Computer Science

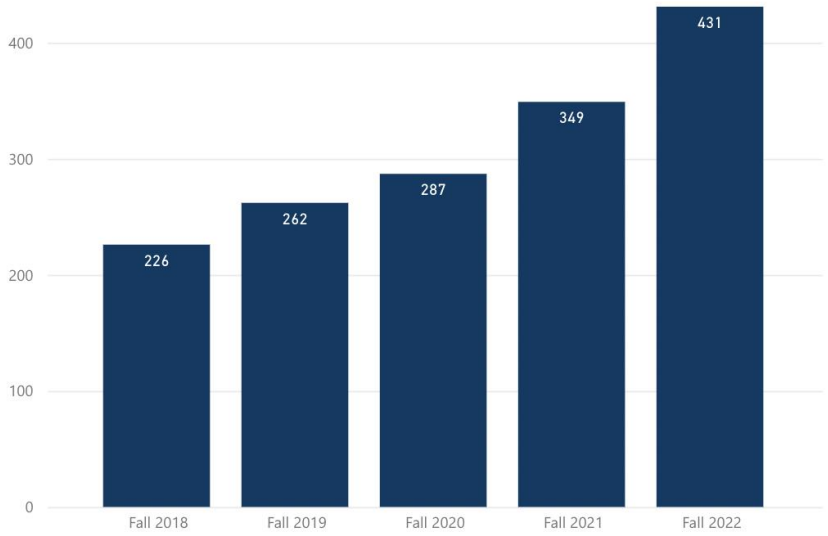
Program
All

Classification
All

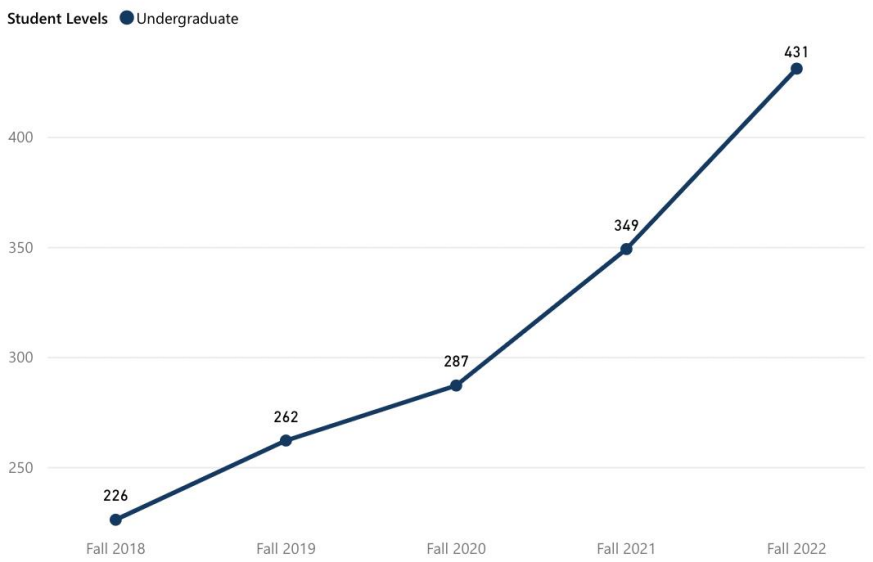
Ethnicity
All

Degree
All

Total Enrollment



Enrollment by Levels



Data Sources: Fall 2022 Enrollment Census data as of October 21, 2022
Office of Institutional Research & Assessment

Enrollment—College of Engineering and Architecture

Fall 2018 - Fall 2022 Student Enrollment Trend

College/School: College of Engineering...

Student Level: All

Student Type: All

Gender: All

FT/PT: All

Citizenship: All

Major: All

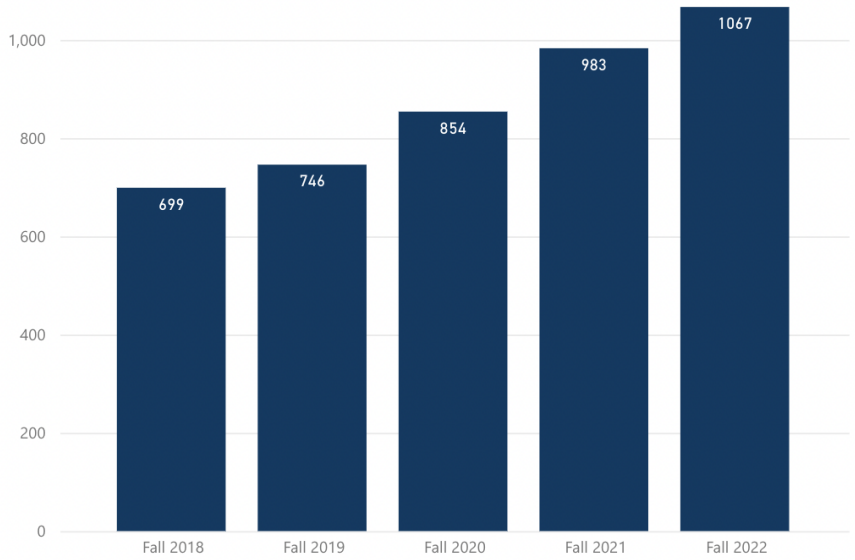
Program: All

Classification: All

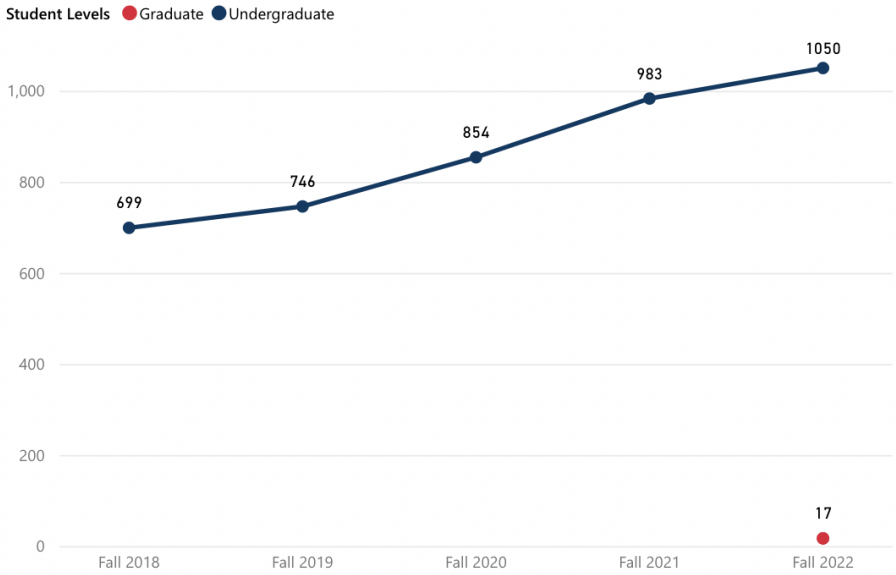
Ethnicity: All

Degree: All

Total Enrollment



Enrollment by Levels



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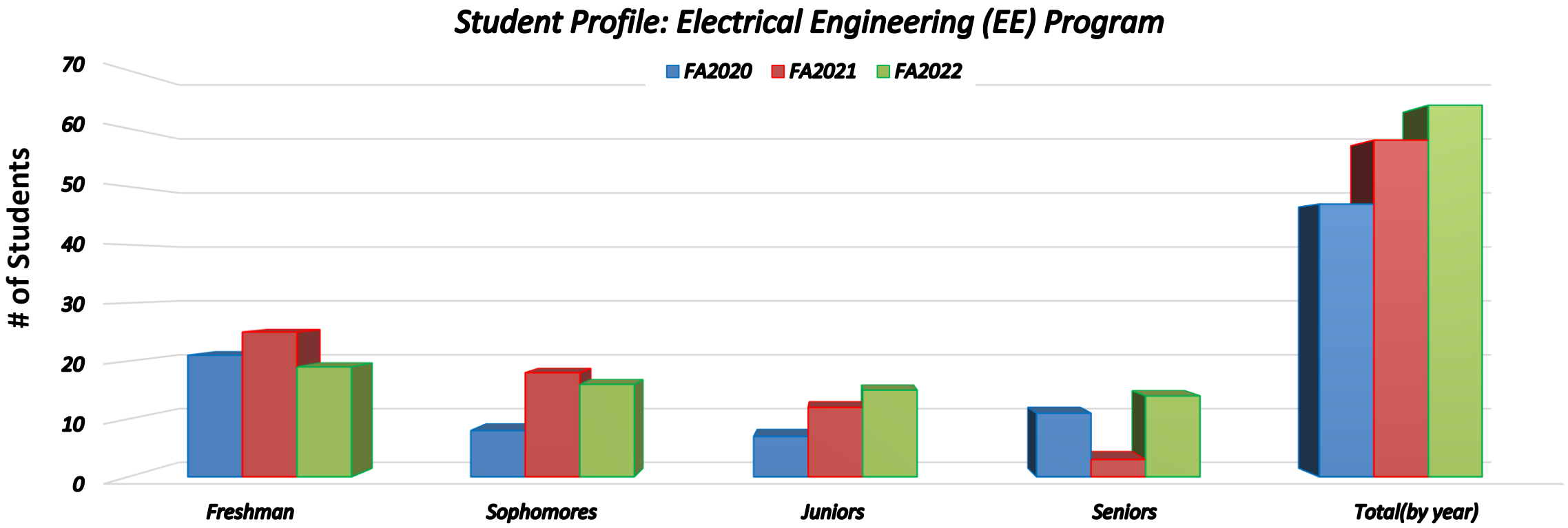
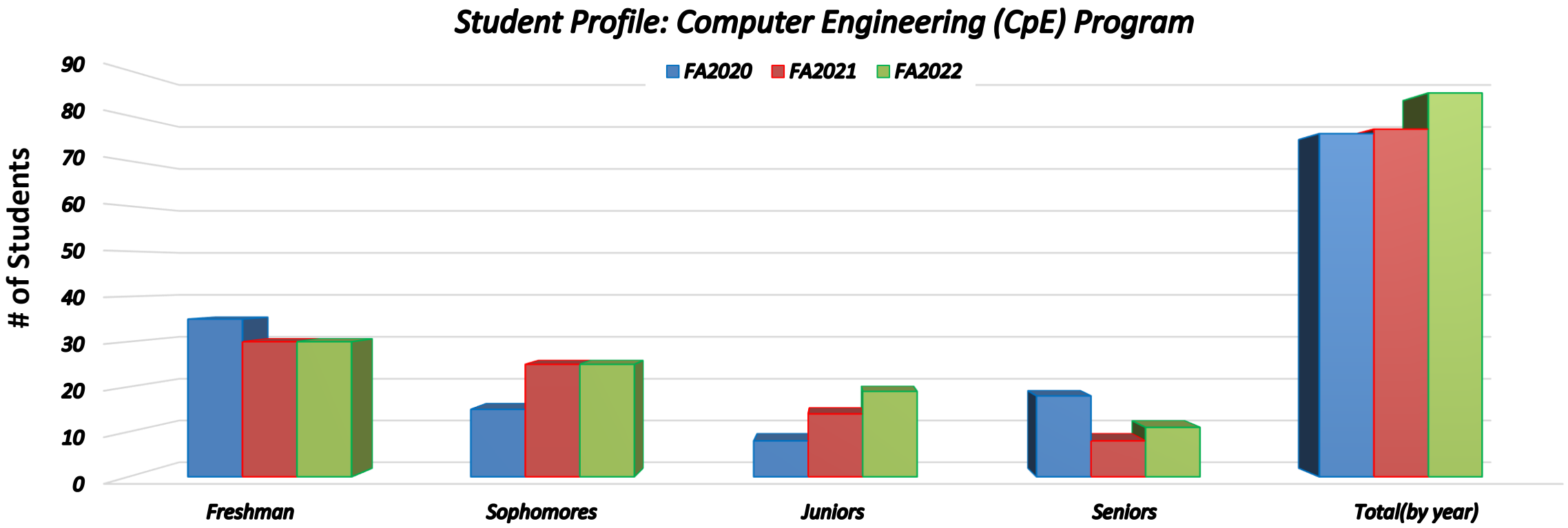
Enrollment—Electrical Engineering Program



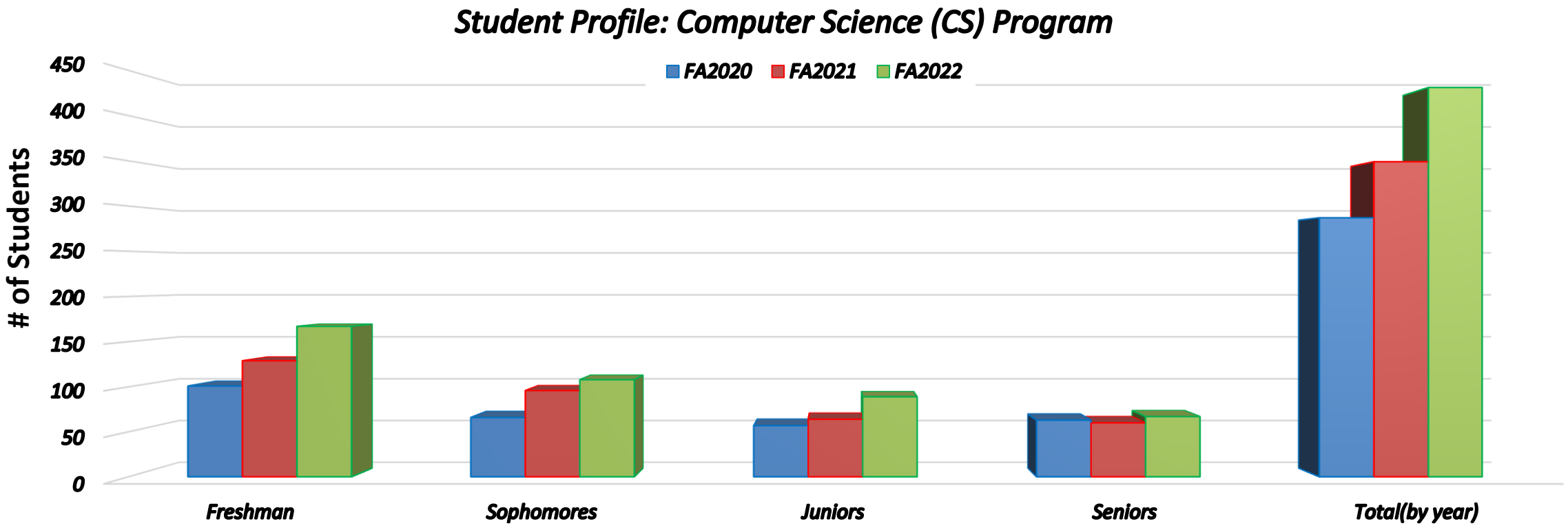
	Freshman	Sophomores	Juniors	Seniors	Total (by year)
FA2020	21	8	7	11	47
FA2021	25	18	12	3	58
FA2022	19	16	15	14	64

Enrollment—Computer Engineering Program



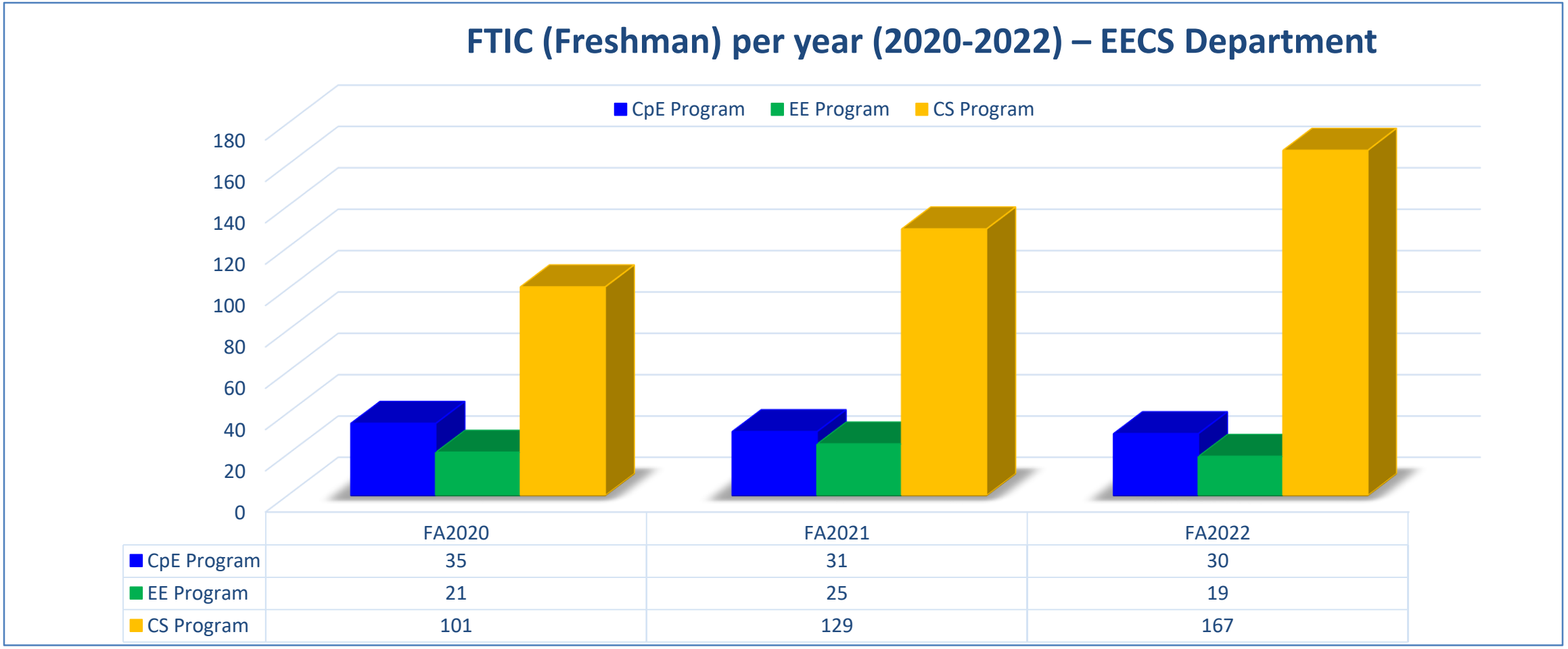
	Freshman	Sophomores	Juniors	Seniors	Total (by year)
FA2020	35	15	8	18	76
FA2021	31	25	14	8	78
FA2022	30	25	19	11	85

Enrollment—Computer Science Program



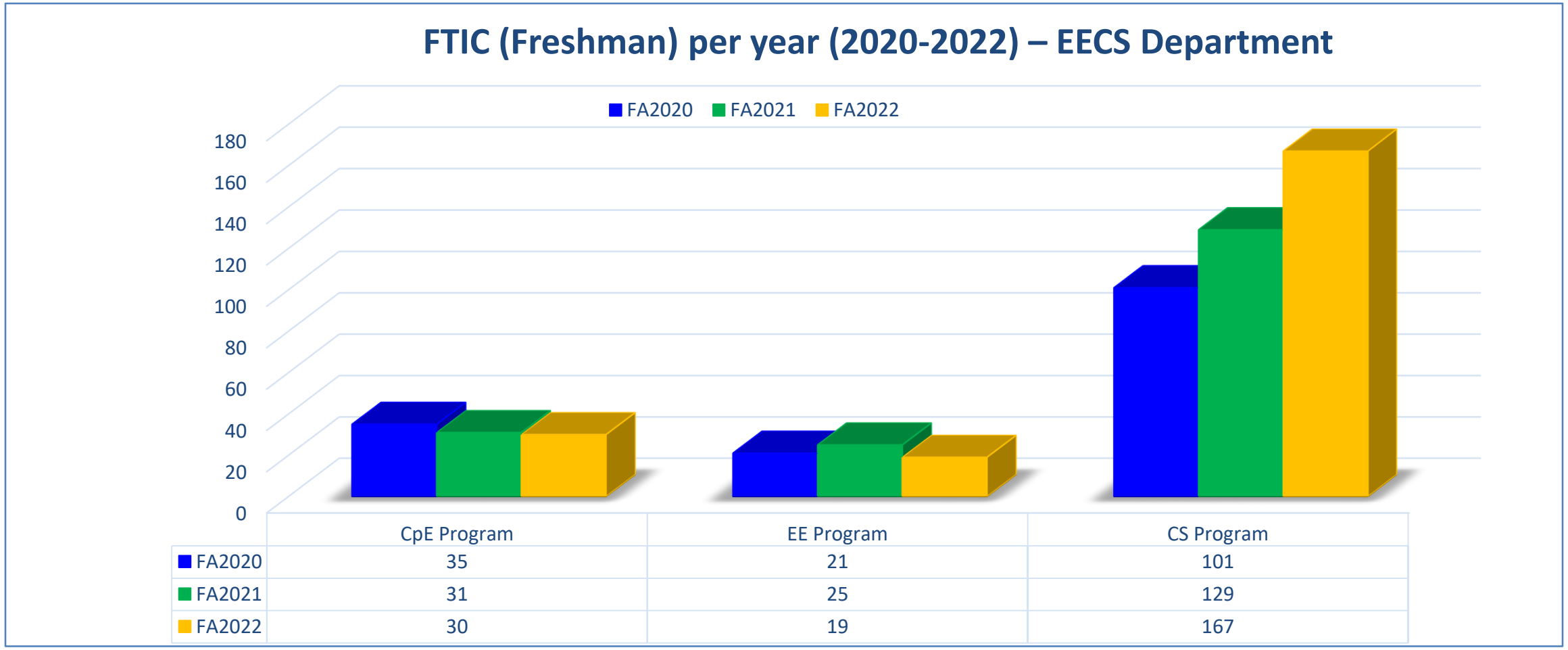
	Freshman	Sophomores	Juniors	Seniors	Total (by year)
FA2020	101	66	57	63	287
FA2021	129	96	64	60	349
FA2022	167	108	89	67	431

First Time in College (FTIC) (Freshmen) per year (2020-2022) – EECS Department



	FA2020	FA2021	FA2022
CpE Program	35	31	30
EE Program	21	25	19
CS Program	101	129	167

First Time in College (FTIC) (Freshmen) per year (2020-2022) – EECS Department



	CpE Program	EE Program	CS Program
FA2020	35	21	101
FA2021	31	25	129
FA2022	30	19	167

How Will We Build a Pipeline of Students into the Power Engineering Workforce?

- Creating a Pipeline of High School Students pursuing careers in power engineering.
- Working with high school teachers and school counselors to help them understand what power engineers do and how they can make a true difference in the world.
- Hosting High School teachers under “engineering careers for High School students’ initiative.” This effort will help to create an image that engineering is “flashy, dynamic, and cool”
- Tuition costs are often a barrier for students. Thus, Availability of scholarships may be a great boost to student interest in engineering.

How Will We Promote Enrollment?

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- Establishing an Engineering Track at the community college level.
- Increasing the number of transfer students from community colleges.
- Offering a Power Engineering Certificate (power electronics, motor drives, control, power systems).
- Offering online courses and labs that can be taught virtually, using industry professionals to teach these courses.
- Developing a high-quality website to enhance our online presence and attract more students.

By implementing these ideas, we aim to achieve our goal of boosting enrollment and ensuring our program remains a leading option for prospective students.

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Thank you!