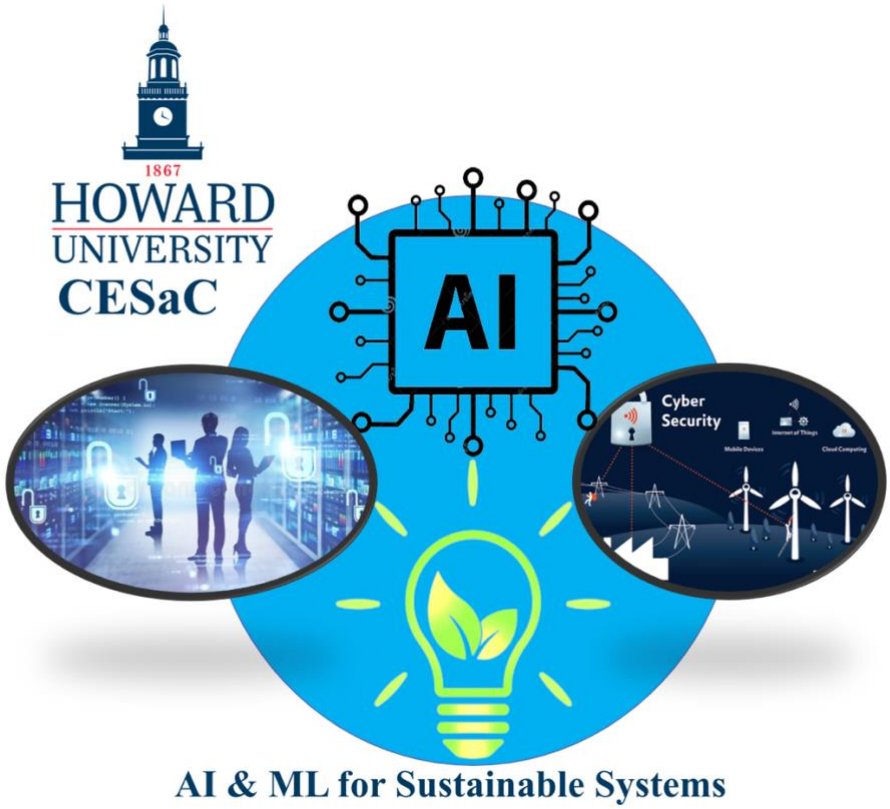
CESAC



BRIDGING THE GAP BETWEEN RESEARCH AND EDUCATION

(June 18th- July 3rd)

2023

APPLICATION PACKAGE

Residential Pre-College STEM Program for Engineering Systems (PCES)
Centre for Energy Systems and Control (CESaC)

College of Engineering and Architecture (CEA)DC
Howard University, Washington, DC

The PCES Outreach Program is an expansion of the previous Energy Expert Systems Institute (EESI) program. The EESI summer outreach program, which lasted five weeks and was provided by CESaC at Howard University, was highly successful in encouraging women and minority students to consider STEM as a feasible college major. However, the program was suspended five years ago, and there has been no alternative program at Howard or in the region to take its place. As a consequence, underrepresented youth are neither equipped nor developed to tackle significant technological challenges, including cybersecurity and energy transition.

Engineering consists of several specialization areas such as: Artificial intelligence, Cybersecurity, Machine learning, Renewable energy transition, Robotics, Aerospace etc. Electrical and Computer Engineers for example are involved in a wide array of industries from the design of cellular technology to the creation of smart materials such as conductors and microchips for the computer. This program will incorporate all aspects including Machine Learning, Internet of things, Digital twins, cybersecurity, artificial intelligence, and Energy transition to introduce participants to the beauty and importance of STEM.

Students with strong backgrounds in Mathematics, Science and English and above all, an interest in the STEM are selected to attend lectures and engage in hands-on-research activities. Campus housing and meals will be provided for the students during the 2-week period of the program. Underrepresented high school juniors and seniors will be given will be given priority.

CESaC Howard University
2300 6th Street NW, Suite 1105
Washington DC, 20059
Tel: (202) 806-5350
Email: jmomoh@howard.edu

Email application to: cesachoward1@gmail.com

PURPORSE:

- To introduce pre-college minority students to research in STEM using modern state-of-the-art technology in Machine Learning Digital twins, cybersecurity, artificial intelligence, and Energy transition
- To involve minority students in developing core competency with engineering science.
- To generate an interest in career options in Engineering Systems.
- To give minority students and opportunity to experience problem solving in a research/project-based teamwork environment consisting of faculty, senior research associates, graduate, and undergraduate students.

APPLICATION PROCEDURES

To apply, (i) please complete enclosed application, include official transcript: and (ii) mail (or email) your completed application package to:

PCES Summer Outreach Program
Center for Energy Systems and Control (CeSAC)
Howard University
2300 6th Street NW, suite 1105
Washington, DC 20059
cesachoward1@gmail.com

(a) Personal Information:

Applicant Name:_____
LAST MIDDLE FIRST
e-mail:_____ phone:_____
Address:_____
Social security no._____ US citizen (yes/no}___
If No type of visa:_____
Date of birth (mm/dd/yyyy): _____
Ethnic origin (circle one): Black (African American), Asian, Hispanic,
other (explain)_____

(b) Education Information

School name:_____ **Phone:** _____
Email: _____
Address: _____
If you plan to attend Howard University in the Fall 2023 indicate here_____

I have completed or currently enrolled in the following coursed: (please grades received so far)

Algebra I_____ Algebra II_____ Trigonometry_____Computer Science____
Physics_____ Geometry____ Chemistry____ English_____
Pre-calculus: _____

GPA (junior year/overall)____ SAT Score Math_____ English_____

What are you most excited for (Rank between 1-4):
Machine Learning: Artificial Intelligence: Internet of Things:
Energy:

List briefly your program-related experience:_____

List any past research experience:_____

List your extra-curricular activities:_____

(C) Written essays

(i) Write 500-word essay (use separate sheet) on why you want study engineering (chemical, civil, computer, electrical, mechanical, other)

(ii) If you are a high school senior planning to attend Howard University in the Fall 2023, write a 200-word essay statement to attend Howard University for a Bachelor of science degree or other

(iii) Briefly explain your reasons to participate in the PCES outreach program

Please, attach resume and official transcript((s)

(c) Parent/Guardian consent for

I, hereby, grant my permission for my son/daughter to participate fully in the PCES 2023 summer outreach program

Signature (Parent/guardian)_____ Date_____
Printed NAME_____ Relationship _____

Phone: _____
Email_____

e-mail
cesachoward1@gmai;.com

mailing address

Centre for Energy Systems and Control
Howard University
2300 6th NW Suite 1105
Washington, DC 20059

For more information call 202-806-5350, email: cesachoward1@gmail.com

(d) Teacher recommendation form

Student name:_____

Teacher name: _____

School name: _____

Teacher e-mail _____

Please evaluate the applicant listed above by completing the information below by checking 5= exceptionally high, 4 = above average, 3 = average, 2 = below average, 1 = poor, 0 = no basis for evaluation

Ability and personality traits

		5	4	3	2	1	0	
1	Personal integrity							
2	Social and emotional							
3	Ability to work with pears							
4	Leadership qualities							
5	Oral communication skills							
6	Analytical skills							
7	Written skills							
8	Promise of academic growth							
9	Creativity							
10	Ability to work with teachers							
11	Honesty							
12	Manners							

Other_____

_____

Indicate strength of your overall endorsement by checking the appropriate:

Not recommended_____ Recommended with reservation _____

Recommended_____ Highly recommended_____

Howard University Residential Pre-College STEM Program for Residential Engineering Systems Outreach Program

(a) Teacher recommendation form

Student name:_____

Teacher name: _____

School name: _____

Teacher e-mail _____

Please evaluate the applicant listed above by completing the information below by checking 5= exceptionally high, 4 = above average, 3 = average, 2 = below average, 1 = poor, 0 = no basis for evaluation

Ability and personality traits

		5	4	3	2	1	0	
1	Personal integrity							
2	Social and emotional							
3	Ability to work with pears							
4	Leadership qualities							
5	Oral communication skills							
6	Analytical skills							
7	Written skills							
8	Promise of academic growth							
9	Creativity							
10	Ability to work with teachers							
11	Honesty							
12	Manners							

Other_____

_____

Indicate strength of your overall endorsement by checking the appropriate:

Not recommended_____ Recommended with reservation _____

Recommended_____ Highly recommended_____

Howard University Residential Pre-College STEM Program for Residential Engineering Systems Outreach Program

(b) Teacher recommendation form

Student name:_____

Teacher name: _____

School name: _____

Teacher e-mail: _____

Please evaluate the applicant listed above by completing the information below by checking 5= exceptionally high, 4 = above average, 3 = average, 2 = below average, 1 = poor, 0 = no basis for evaluation

Ability and personality traits

		5	4	3	2	1	0	
1	Personal integrity							
2	Social and emotional							
3	Ability to work with pears							
4	Leadership qualities							
5	Oral communication skills							
6	Analytical skills							
7	Written skills							
8	Promise of academic growth							
9	Creativity							
10	Ability to work with teachers							
11	Honesty							
12	Manners							

Other_____

_____

Indicate strength of your overall endorsement by checking the appropriate:

Not recommended_____ Recommended with reservation _____

Recommended_____ Highly recommended_____