WELCOME TO THE 2018 SHPE PRE-COLLEGE CONFERENCE!
Today we hope to motivate you to excel in your current academic journey, reach new collegiate aspirations and explore Science, Technology, Engineering, and Math (STEM) related careers.

This year, you will interact directly with STEM professionals and current college students. We will engage your minds with engineering activities hosted by The Boeing Company, Navy Civilian Careers, Rockwell Automation, U.S. Army and SHPE.

WE HOPE YOU HAVE AN AMAZING DAY!

Sincerely,
2018 SHPE Pre-College Conference Committee

JOIN SHPE
SHPE Jr. Chapters provide high school students with opportunities to participate in hands-on STEM activities, receive mentorship, and experience STEM firsthand at a participating local university or museum. Members are also eligible to participate in academic and engineering summer camps, compete in National Science Bowls, participate in local science fairs, and engage with SHPE Student and Professional chapters.

To learn more about how to start or join a SHPE Jr. chapter, contact programs@shpe.org.

SHPE National Office
13181 Crossroads Parkway North Suite 450
City of Industry, CA 91746
www.shpe.org

Presented by SHPE and the following Partners and Sponsors:
# High School Program

**Cleveland Public Auditorium**  
**Friday, November 9, 2018**

<table>
<thead>
<tr>
<th>Time</th>
<th>Workshops</th>
</tr>
</thead>
</table>
| 8:30 am - 9:20 am | Registration/Breakfast  
(50 min) Lower Level Foyer |
| 9:20 am - 10:05 am| Welcome  
LL10A/B |
| 10:15 am - 11:05 am| Boeing - The Future Is Built Here  
U.S. Army - Learning How to Lead from the Nation’s Largest Team: The U.S. Army Reserve  
SHPE - Truth About College  
NAVSEA - Electrical Circuits  
SHPE - Labyrinth  
LL05A  
LL02  
LL08  
LL05B  
Grand Reception |
| 11:10 am - 12:00 pm| Boeing - The Future Is Built Here  
U.S. Army - Learning How to Lead from the Nation’s Largest Team: The U.S. Army Reserve  
SHPE - Truth About College  
NAVSEA - Electrical Circuits  
SHPE - Labyrinth  
LL05A  
LL02  
LL08  
LL05B  
Grand Reception |
| 12:05 pm - 1:00 pm | Lunch  
LL10A/B |
| 1:05 pm - 1:55 pm | Boeing - The Future Is Built Here  
U.S. Army - Learning How to Lead from the Nation’s Largest Team: The U.S. Army Reserve  
SHPE - Truth About College  
NAVSEA - Electrical Circuits  
SHPE - Labyrinth  
LL05A  
LL02  
LL08  
LL05B  
Grand Reception |
| 2:00 pm - 2:50 pm | Boeing - The Future Is Built Here  
U.S. Army - Learning How to Lead from the Nation’s Largest Team: The U.S. Army Reserve  
SHPE - Truth About College  
NAVSEA - Electrical Circuits  
SHPE - Labyrinth  
LL05A  
LL02  
LL08  
LL05B  
Grand Reception |
| 2:55 pm - 3:45 pm | Boeing - The Future Is Built Here  
U.S. Army - Learning How to Lead from the Nation’s Largest Team: The U.S. Army Reserve  
SHPE - Truth About College  
NAVSEA - Electrical Circuits  
SHPE - Labyrinth  
LL05A  
LL02  
LL08  
LL05B  
Grand Reception |
| 3:50 pm-4:30 pm | Closing  
LL10A/B |

**Key**
- Group 1  
- Group 2  
- Group 3  
- Group 4  
- Group 5
HIGH SCHOOL WORKSHOPS

The Future Is Built Here
THE BOEING COMPANY
“If you build it, they will come.” Did you ever wonder how Boeing is able to build the incredible machines that it does? Are you ready to be challenged in a hands-on project that will test your creativity, engineering, and communication skills? In this session, a team of Boeing engineers will guide you through a fun project that illustrates how The Boeing Company leverages the skills of different teams to build everything from commercial airplanes to the next generation of manned spacecraft. So, ready, set, build!

Learning How to Lead from the Nation’s Largest Team: The U.S. Army Reserve
U.S. ARMY
Leadership development is self-development. In this workshop, the U.S. Army will explore core leadership concepts, analyze leadership challenges, and teach students how to apply these concepts to achieve success on both personal and professional levels.

Truth About College
SHPE
Find out what it is really like to be a college student. This highly interactive session connects undergraduate students with high school students to facilitate candid and open conversations about college life. The session will be in a moderated round table format where high school students will interact with a college student.

Electrical Circuits
NAVSEA
Students will be making a Bristlebot. During the project, students will learn about electrical circuits, including open/closed circuits, conductive/insulative properties and flow of electricity. For this project specifically, students may learn about center of mass, drag and/or friction depending on how their project is designed. This project highlights engineering, electricians and electronics techs.

Labyrinth
SHPE
Whether you are a student, a parent or an engineer, you face problems every day that need solving. This activity aims to challenge teams of students to work together to all find their way through a maze while facing everyday obstacles. The objective is to get the students thinking about the importance of communication and teamwork and draw parallels between the activity and their real life experiences while having fun!
 ENGINEERING DESIGN CHALLENGE

Cleveland State University Student Center  
Saturday, November 10, 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 am - 9:00 am (30 min)</td>
<td>Registration/Breakfast Ballrooms C &amp; D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:00 am - 9:55 am (55 min)</td>
<td>Welcome and Competition Open Ballrooms C &amp; D</td>
<td></td>
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<tr>
<td>10:00 am - 10:25 am (25 min)</td>
<td>Technical Managers Company Managers Marketing Managers Financial Managers</td>
<td>Ballrooms C &amp; D</td>
<td>Ballroom A</td>
<td>Ballroom B</td>
</tr>
<tr>
<td>10:30 am - 11:45 am (75 min)</td>
<td>Design Session</td>
<td>Ballrooms C &amp; D</td>
<td>Ballroom A</td>
<td>Ballroom B</td>
</tr>
<tr>
<td>12:00 pm - 12:45 pm (45 min)</td>
<td>Lunch</td>
<td>Ballrooms C &amp; D</td>
<td>Ballroom A</td>
<td>Ballroom B</td>
</tr>
<tr>
<td>1:00 pm - 1:25 pm (25 min)</td>
<td>Technical Managers Company Managers Marketing Managers Financial Managers</td>
<td>Ballrooms C &amp; D</td>
<td>Ballroom A</td>
<td>Ballroom B</td>
</tr>
<tr>
<td>1:30 pm - 2:55 pm (75 min)</td>
<td>Design Session</td>
<td>Ballrooms C &amp; D</td>
<td>Ballroom A</td>
<td>Ballroom B</td>
</tr>
<tr>
<td>3:00 pm - 3:40 pm (40 min)</td>
<td>Competition Close and Evaluations</td>
<td>Ballrooms C &amp; D</td>
<td>Ballroom A</td>
<td>Ballroom B</td>
</tr>
<tr>
<td>3:45 pm - 4:45 pm (60 min)</td>
<td>Campus Tour</td>
<td>Ballrooms C &amp; D</td>
<td>Ballroom A</td>
<td>Ballroom B</td>
</tr>
</tbody>
</table>

ABOUT THE DESIGN CHALLENGE

The Engineering Design Challenge will give students the opportunity to become entrepreneurs for a day. In the course of designing a product and pitching their company, students will learn and implement valuable skills needed to successfully manage a project and work within a structured team.
We would like to thank Rockwell Automation for their contribution as this year’s sponsor of the Engineering Design Challenge.
A SPECIAL THANK YOU TO ALL OUR 2018 SHPE PRE-COLLEGE CONFERENCE SPONSORS AND PARTNERS

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U.S. Army

HIGH SCHOOL PROGRAM BAG SPONSOR
Nordson Corporation

ENGINEERING DESIGN CHALLENGE SPONSOR
Rockwell Automation

ENGINEERING DESIGN CHALLENGE UNIVERSITY HOST
Cleveland State University Washkewicz College of Engineering

A SPECIAL THANK YOU TO THE 2018 SHPE PRE-COLLEGE CONFERENCE COMMITTEE

Elicia Magaña, Pre-College Conference Lead
Victor Cervantes, Captain
Renata Revelo, Ph.D., Evaluations Chair
Belix Ortiz, Special Events Chair
Joanna Nieske, Registration and Outreach Chair

HIGH SCHOOL PROGRAM
Karolyn Saenz, High School Programming Co-Chair
Joe Martinez, High School Programming Co-Chair
Denise Salinas, High School Programming Co-Chair

ENGINEERING DESIGN CHALLENGE
Juan Valentin, Engineering Design Challenge Co-Chair
Nicole Ortega, Engineering Design Challenge Co-Chair
Matthew Alonso, Ph.D., Engineering Design Challenge Co-Chair