

THE FUTURE IS ...

N.E.A.R.

NANOTECHNOLOGY EDUCATION AND RESEARCH

www.thefutureisnear.org

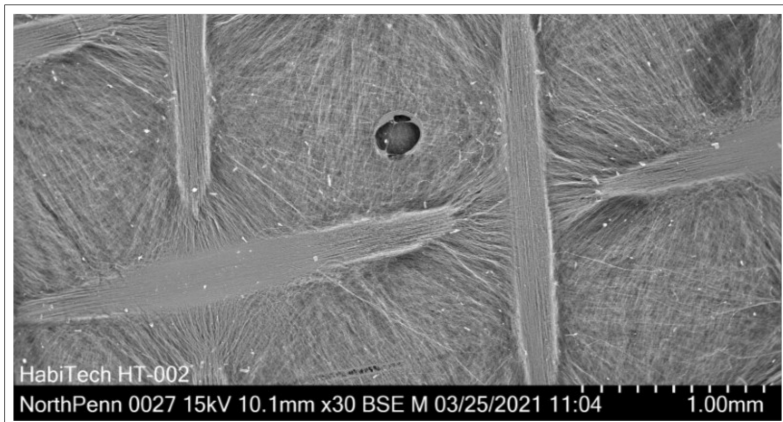


Technology & Engineering
Discover your Future



PLTW

**NORTH PENN HIGH SCHOOL ENGINEERING ACADEMY
ENGINEERING DESIGN AND DEVELOPMENT
2021 LIVE STREAM
NANOTECHNOLOGY AND
ENGINEERING SYMPOSIUM**



The Future is N.E.A.R. program (Nanotechnology Education and Research) at North Penn is a custom designed STEM education endeavor engaging senior Engineering Academy students in the exciting world of nanotechnology, experimental design, and engineering research.

Students work in design teams to research and develop solutions to global challenges by capitalizing from the fundamentals of materials science, engineering, and nanotechnology utilizing a combination of their own creativity coupled with some of the latest published research available.

The N.E.A.R. program is woven into the Engineering Design and Development course of the Project Lead the Way program here at North Penn. It offers our students an opportunity to gain essential 21st century skills that prepare them to become successful leaders in a global technological society.

2020 - 2021 Engineering Design and Development Nanotechnology & Engineering Research Teams

2021 Live Stream Nanotechnology and Engineering Symposium!

This year, with the unfortunate events of Covid-19, the 29 students in 11 research teams of the Engineering Design and Development course learned how to effectively collaborate and perform research in a hybrid learning environment.

Not to be stopped, with the purpose of contributing to the collective body of knowledge to solve their justified global problems, these Engineering Academy seniors collaborated to develop outstanding project proposals. A few teams were even able to design and run experiments that clearly articulated their engineering endeavors!

The 2021 North Penn High School Nanotechnology and Engineering Research Symposium is being offered live to their families in the auditorium at North Penn High School while visitors can view a live-stream of their symposium on the North Penn YouTube channel @ www.youtube.com/nptv

2020-2021 NORTH PENN HIGH SCHOOL ENGINEERING ACADEMY SENIOR CLASS



AntivireX Tech

Akhil Jobi
John Steele



Accessible Water Worldwide

Alap Patel
Mahir Sadique
John Yi



HabiTech

Ruchi Kalola
Kendra Tiger
Md Zahin



Carbon nanoCapture Development

Christopher Bonsignore
Kyle Schafsteller



Modern Plastics

Luke Alcorn
Damien Miller
Takiur Rahman
Eric Vibol



Fire Protection Fibers

Owen Brasch
Maharaz Joy
Aiden O'Brien



SolareX

Andy Fari



UV315

Julia Hauser
Erin Zhu



Soteria Tech

Dan Diehl
Alex Hammond
Joe Hier
Dylan Main



Voltaic Cycles

Brayden Bell
Josie Biddle
Matthew Chmielewski
Logan Shafer



Vibe Check

Sarah Ahner

2020 - 2021 Engineering Design and Development Nanotechnology & Engineering Research Teams



Sarah T. Ahner *Vibe Check*

Sarah has taken four of the engineering courses within the Engineering Academy. She plans to attend Montgomery County Community College and transfer to a larger university to pursue a degree in Mechanical Engineering.



Luke Arthur Alcorn *Modern Plastics*

Luke will be majoring in Materials Science and Engineering in the College of Earth and Mineral Sciences at the Pennsylvania State University. He has completed several of the courses in the Engineering Academy. Luke has also been throwing for track and field since freshman year. His main event is javelin, but he also throws discus and shot put.



Brayden G. Bell *Voltaic Cycles*

Brayden will be attending the Penn State Abington campus for an undecided major in engineering. He has taken five of the engineering courses with in the Engineering Academy. He has been a part of the North Penn Swim Team for four years and does lifeguard work in the summer. His hope is to find a field he truly enjoys to work in so he won't have any regrets.



Josie Lin Biddle *Voltaic Cycles*

Josie will be attending the University of Pittsburgh at the Swanson School of Engineering. She is going in undecided but looking forward to the variety of courses she may choose from. She currently attends North Penn High School and is involved in the robotics club. As an owner of two dogs, she works at a rescue, daycare, and boarding facility called Dogtown. She looks forward to what the future holds.



Christopher Hughes Bonsignore *Carbon nanoCapture Development*

Christopher will be attending Temple University in the Fall for general engineering. He participates in track and field where he does high jump, pole vault, and triple jump. He is also a member of the Ultimate Frisbee club. Christopher has enjoyed taking the Engineering Academy courses. He plans to use his engineering knowledge to make an impact on society after College.



Owen Caulfield Brasch *Fire Protection Fibers*

Owen will be attending Temple University at the Boyer College of Music. He will be majoring in Music Sciences to earn a degree in Music Technology. He is looking forward to the many opportunities that his college career has in store for him and one day hopes to have his own recording studio.

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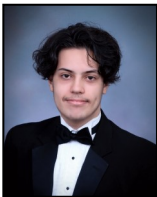
Matthew Francis Chmielewski *Voltaic Cycles*

Matthew will be attending the University of Maryland to major in Aerospace engineering. He has completed four courses in the North Penn Engineering Academy. Matthew is currently the president of the Model Aviation club, a member of National Honors Society, Auto Club, and runs track and field. He hopes to continue his passion for aviation by working in the Aerospace industry.



Daniel Kelly Diehl *Soteria Tech*

Daniel will be enlisting in the United States Air Force as a cyber transportation specialist. He completed six courses in the Engineering Academy, is a member of the International Research Team, and the North Penn Marching Knights. He plans on going to Shippensburg University after his first four years of service to complete a degree in electrical engineering, before re-enlisting as an officer for the United States Space Force, where he plans to dedicate his life to protecting others.



Andy Fari *SolareX*

Andy has taken 5 engineering related courses, 4 of which were part of the Engineering Academy. He plans to attend a community college and then transfer to Drexel University to major in an engineering field.



Alexander Harry Hammond *Soteria Tech*

Alex will be attending Penn State University major in aerospace engineering. He has completed five courses in the North Penn Engineering Academy. He was a member of the International Research Team in his junior year and has been part of the North Penn Marching Knights since the start of his high school career.



Julia Hauser *UV315*

Julia will be attending Temple University to major in Mechanical Engineering. She has completed all five engineering courses in the Academy. Since the beginning, Julia has always had an interest in puzzle solving and understanding how things work. While put down many times in her life for wanting to become an engineer, she pushed through and drove her passion forward with support from the staff in the Engineering Academy. Her drive led her to find what she wanted to do with her life.



Joseph Alois Hier *Soteria Tech*

Joseph has taken five of the courses in the Engineering Academy. Joe plans to go to Montgomery County Community College and then transfer to a larger college in pursuit of a Mechanical or Electrical engineering degree.

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Akhil Chemmazham Jobi AntivireX Tech

Akhil is a senior at North Penn High school and has completed five engineering courses in the North Penn Engineering Academy. Akhil plans to attend Penn State University to earn a bachelor's degree in computer science.



Maharaz Hossain Joy Fire Protection Fibers

Maharaz Joy will be attending Drexel University to major in Computer science. He has completed five courses in the Engineering Academy during his three years at North Penn High School. He was part of the Chess and Badminton club.



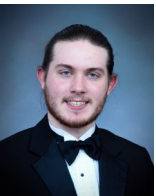
Ruchi P Kalola HabiTech

Ruchi will be attending Drexel University as a biomedical engineering major in the accelerated bachelors/masters program. She discovered her love for engineering by participating in four courses through the Engineering Academy. At North Penn, Ruchi is involved in the Robotics Team, National Honor Society, and Link Crew. After college, Ruchi plans to integrate engineering and medicine in the pharmaceutical industry with hopes of strengthening the healthcare sector.



Dylan Montgomery Main Soteria Tech

Dylan will be participating in a 3+2 program starting with West Chester University where he will receive a physics degree and finish at Penn state where he will receive a civil engineering degree. Dylan has completed all five courses in the North Penn Engineering Academy. He is also a link crew leader, basketball player, and football player.



Damien Christopher Miller Soteria Tech

Damien Miller will be entering the armed forces after high school; specifically the army, before applying to Law School. Damien has kept himself fit more so in recent years in preparation for the military by doing various exercises everyday and pushing himself to his limits in OCR events.



Aiden Tiberius O'Brien Fire Protection Fibers

Aiden will be attending Penn State University to pursue an Energy Engineering degree in the college of earth and mineral sciences. Aiden has completed all five courses in the Penn Engineering Academy as well as being involved in the E.P.I.C.S club. He also loves watching and playing basketball as well as biking, skating, and videography.

2020 - 2021 Engineering Design and Development Nanotechnology & Engineering Research Teams



Alap Ashish Patel *Accessible Water Worldwide*

Alap will be attending Penn State University at the Abington campus to major in computer science. Alap has completed five courses provided by the North Penn Engineering Academy, one of them being the computer science course, which ultimately made him decide to major in that field.



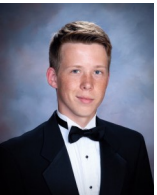
Takiur Rahman *Modern Plastics*

Takiur will be attending the Penn State College of Engineering at Pennsylvania State University to major in Computer Engineering. Takiur has completed five North Penn Engineering Academy Courses. Takiur is currently the president of the E.P.I.C.S club and the vice president of the North Penn Auto Club. Outside of school, Takiur is a car enthusiast who loves to learn more about cars and do projects involving them.



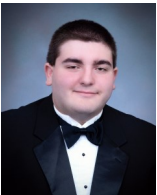
Mahir Sadique *Accessible Water Worldwide*

Mahir will be attending Pennsylvania State University at the Abington campus for two years and then transfer to the Pennsylvania State main campus. He plans to earn a bachelor's degree in Aerospace Engineering. Mahir has completed four Engineering Academy courses, where he found his passion and love for engineering.



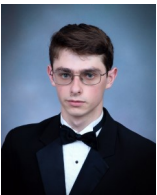
Kyle Helmut Schafsteller *Carbon nanoCapture Development*

Kyle will be attending Penn State University for engineering. He has completed five engineering courses. Kyle is a part of many clubs and extracurricular activities; including, Cross Country, Track and Field, Odyssey of the Mind, Martial arts, as well as a job at Giant. Kyle will continue to pursue running as well as engineering, both a very important part of his life.



Logan Jed Shafer *Voltaic Cycles*

Logan will be attending Temple University starting next fall. He plans to earn a bachelor's degree in Civil Engineering. He's also completed five courses in the Engineering Academy at North Penn.



John Russell Steele *AntivireX Tech*

John will be attending Messiah University in the fall with plans to graduate with a bachelor's degree in Civil Engineering. He has completed four engineering courses. Currently, John is a part of the North Penn Track Team and is a 4-year letter winner for both indoor and outdoor. He plans to continue his track career on Messiah's D3 track team by contributing in both hurdles and horizontal jumps.

2020 - 2021 Engineering Design and Development Nanotechnology & Engineering Research Teams



Kendra Danielle Tiger *HabiTech*

Kendra has completed five Engineering Academy courses. She is currently a member of the North Penn Robotics Team, Gearaffes, the International Research Team, and is the treasurer of the North Penn Auto Club. Kendra plans to major in Electrical Engineering at Florida Institute of Technology. She aspires to work for SpaceX or NASA to help pioneer the future of space travel and wants to encourage young female students to get into STEM fields. She would like to thank Mr. Boyer for helping to establish her love of Electrical Engineering and for being an all around aspiring teacher.



Eric Vibol *Modern Plastics*

Eric will be attending Drexel University's College of Engineering as a Mechanical Engineering major under the accelerated bachelors/masters program. He has completed four Engineering Academy courses. Eric often works on personal projects at home and works a part-time job. Eric also has a passion for cars and anything mechanical and wishes to build and restore a project car.



John Jae Ook Yi *Accessible Water Worldwide*

John is a senior at North Penn High School and has completed five Engineering Academy courses. He has completed the Computer Science and Cybersecurity courses. John hopes to work in the computer science field and get a job after graduating from high school. John will most likely continue his education and further his engineering knowledge.



Md Abrar Zahin *HabiTech*

Md will be going to Drexel University to earn a degree in Electrical Engineering. He has completed the engineering program at North Penn. In the future, he plans to get married and further his education after marriage with a job.



Erin Zhu *UV315*

Erin will be attending Michigan State University to obtain a Bachelor's degree in Packaging Science. She has completed five courses in the North Penn Engineering Academy and participated in International Research Team, EPICS, Marine Biology Club, and Track. She plans to become a packaging engineer specializing in the food industry.

“A vision without resources is just a hallucination...”

Dr. Joseph DeSimone, 2008 Lemelson –MIT Prize Recipient

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Drexel University

Dr. Edward Basgall
Dr. Kapil Dandekar
Joanne Ferroni
Dr. Frank Ko (Now at the University of British Columbia)
Dr. Michele Marcolongo

Hitachi High-Tech America



Inspire STEM Education Outreach Program

North Penn High School was selected by Hitachi High-Tech America to participate in a STEM outreach endeavor this year! Even with the challenges of hybrid learning in a covid-19 environment, we were able to perform some exciting analysis, including working with A.M. Kulp Elementary School! Plans are to open up the outreach to every elementary and middle school in the entire North Penn School District! Thank you, Hitachi High-Tech America!!!!

HITACHI Inspire the Next

Robert Gordon, Vice-President Hitachi High Technologies America
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