

FOUNDED 1862

2021 SUMMER OPPORTUNITIES

PART I

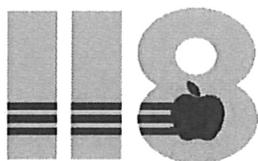
2021 Illinois Engineering Summer Camps

**Danville School District No. 118 is excited to offer
virtual University of Illinois Summer Camps
to our Danville High School
INCOMING SOPHOMORES, JUNIORS, AND SENIORS**



**ALL APPLICATIONS ARE DUE
TO JACKSON BUILDING
516 N. JACKSON ST.
BY FRIDAY, MARCH 12, 2021!**

Kelly Truex (217)444-1062 or Brandie Kuchefski (217)444-1065



FOUNDED 1862

Dr. Alicia Geddis

Superintendent

Mr. John Paul Hart

Assistant Superintendent

Dr. Elizabeth Yacobi

Assistant Superintendent

February 2021

Hello, Danville High School Families,

The University of Illinois Engineering Department is offering week-long virtual camps for incoming sophomores, juniors, and seniors. The different camps are described in the enclosed *2021 Illinois Engineering Summer Programs* booklet. We are grateful to the Danville Board of Education and their continued investment into our children. Once again they have allocated funds and enabled us to offer these camps *free* of charge to those Danville District 118 students who are selected for the program.

Students interested in the program must complete an application as described in the summer programs booklet. The application process requires a letter of recommendation from both a parent and a teacher. Please note in the application that Danville District 118 is listed as a second parent. This allows the district to coordinate communication between the University and our students.

Applications are due to the Educational Support office, 516 N. Jackson St., no later than March 12, 2021. They may be delivered in person or mailed. High school guidance counselors are available to assist with the application process. Please understand that all applicants may not be accepted, so submit applications early.

We expect to provide additional exciting summer opportunities in partnership with the University of Illinois. Please look forward to hearing more about exciting Summer 2021 programs.

Sincerely,

A handwritten signature in cursive script that reads 'Dr. Alicia Geddis'.

Dr. Alicia Geddis, Superintendent

Danville Community Consolidated School District No. 118

If accepted, students will need:

- ① parent | guardian recommendation letter
- ② teacher recommendation letter

All camps are virtual experiences
paid for by Danville District 118.

9th-12th grade

- 2-week experience of exploring the various engineering fields through presentations, speakers, demonstrations, and hands-on labs and projects.
- Virtual field trips to working research labs on campus and related industries.
- Unique breakout sessions around special interests such as women and minorities in engineering, college essay writing, and more.
- Hands-on labs and projects using materials from the Lab Kit that will be mailed to your home.
- Meet new people and engage socially as well as academically in your daily small group sessions via web conference, facilitated by a University of Illinois student who will be your guide for the week.
- The first week of camp consists of exploratory labs and recorded content for campers to explore on their own with office hour sessions and live-chat during the day. The second week provides campers with a deeper dive into three of the engineering topics they explored the week before.
- Small group community-building activities in the late afternoon/early evening.

2021 AEROSPACE ENGINEERING

****EAGER: SUN 6/27/2021 – THUR 7/1/2021**

10th-12th grade

From tiny airplanes delivering packages on Earth to powerful rockets sending humans to Mars, today is an exciting time for everything related to Aerospace Engineering! This camp provides campers with the opportunity to explore aerospace engineering through numerous hands-on projects and demonstrations.

Utilizing individual and team activities, participants will investigate various aspects of this discipline including flight mechanics, aerodynamics, aerospace structures, orbital mechanics, and propulsion systems, and then apply them to aircraft and spacecraft design. These topics will help the students answer questions such as:

- What keeps airplanes in the air during a flight?
- How are composite materials used to improve aircraft efficiency?
- What is needed to launch people and satellites into space?
- How do satellites stay in orbit around the Earth?

CAMP ACTIVITIES INCLUDE:

- Design, construct, and launch model boost gliders and rockets and attend virtual sessions with an Aerospace Engineering professor or lab assistants.
- Attend Virtual classes and laboratory sessions led by graduate students and faculty working on cutting-edge research projects.
- Attend guest speaker video conferences from the Aerospace industry. Past guest speakers included representatives of NASA, Northrop-Grumman, Orbital ATK, and JPL.

****EAGER camps aim to increase the number of women and gender non-binary students pursuing STEM majors and careers**

**2021 CURIE: CATALYZING UR INTEREST
IN ENGINEERING (CHEME)**

***IDEA: SUN 7/25/2021 – THURS 7/29/2021**

10th-12th grade

Chemical engineering is a discipline that is organized around producing useful materials by combining ideas from science and mathematics. In most cases, a chemical engineer takes a scientific process or discovery, and engineers it so that it can be made on a large scale. This makes the products produced by these processes more affordable. Because chemical engineers make food, clothes, power, medicines, and plastic on a large scale, they are cheaper for all of us! Campers have explored many exciting topics within chemical engineering, such as:

- Working with big engineering equipment such as distillation towers in a chemical plant in a virtual interactive session with chemical engineers.
- Making plastics from scratch using an extruder machine.
- Video tours of chemical plants in Champaign-Urbana area.

These topics will be covered through online lectures, at-home activities, and interactive sessions with professors and students at the University of Illinois.

CAMP ACTIVITIES INCLUDE:

- Playing with Silly Putty to understand the physics of fluids.
- Playing computer games to understand protein function in our body.
- Understanding how engineers make large amounts of chemicals used in everyday products.
- Meeting with faculty, graduate and undergraduate students to learn about the chemical engineering discipline and research.

Campers used to go on field trips to further understand concepts within chemical engineering and to witness how these topics apply to the real world. IN THE 2021 VIRTUAL CAMP, we plan to organize a virtual visit to local chemical plants such as Lyondellbasell Plant in Tuscola, IL, and Abbott Power Plant in Champaign, IL. We will learn first-hand experience about life in a chemical plant from engineers working on-site!

This year's camp will include most of these topics and projects but is subject to change.

*IDEA camps aim to increase the number of underrepresented populations pursuing STEM majors and careers

**2021 CIVIL & ENVIRONMENTAL ENGINEERING:
ADDRESSING SOCIETAL CHALLENGES**

SUN 8/1/2021 – THURS 8/5/2021

10th-12th grade

Civil and Environmental Engineering (CEE) plays an important role in the lives we live today by addressing our most important societal challenges. CEE covers a wide range of topics that impact our society including climate change, air and water quality, safe and sound structures, and innovative construction methods. Learn more about how Civil and Environmental Engineers are taking on the toughest societal challenges. Experience hands-on projects, lab demonstrations, virtual field trips, and expert panels.

10th-12th grade

Nuclear, Plasma and Radiological Engineering (NPRE) is a branch of engineering with diverse and broad applications –among them: the continued safe and reliable use of fission reactors for energy production, risk assessment and analysis, plasma science and engineering for materials processing, development of fusion reactors for longer-term power generation, and radiological sciences use of radiation sources in areas such as national security and medical imaging and treatment.

NPRE fields are for those who:

- Are passionate about impacting climate change and exploring clean, renewable energy sources
- Want to innovate the plasma technologies of the future
- Are interested in developing fusion reactors
- Want to apply radiological science to advancing security, medicine, and human health
- Enjoy experimental hands-on and/or computational research using math, physics, and computer skills

Our virtual campers will explore NPRE through at-home hands-on projects and virtual demonstrations and lab tours.

CAMP ACTIVITIES INCLUDE:

EXPLORING QUESTIONS SUCH AS:

- How does a nuclear reactor work, and how does it impact the nation's energy production?
- What are the issues regarding nuclear reactor safety?
- What is radiation and how is it controlled?
- What is plasma and what are its uses?
- How do plasmas contribute to the fields of medicine and materials processing?
- What is a fission vs. a fusion reaction?
- What are current developments in fusion reactors?
- How does a radiation detector work?
- What are some of the beneficial uses of radiation?

SEE NPRE IN-PRACTICE THROUGH LABORATORY DEMONSTRATIONS SUCH AS:

- Using virtual and lab simulations to learn about radiation dosages, half-life, and shielding
- Observing confined plasma and interacting with a plasma ball
- Understanding magnetic pressure in plasmas through a can-crushing experiment

VIRTUAL TOURS MAY INCLUDE:

- HIDRA, NPRE's unique plasma/fusion facility

- A plasma nanotechnology facility and labs that make the machines that make the semi-conductor chips that go into your electronic devices
- A radiological instrumentation lab
- The soft robotics lab

2021 ILLINOIS AEROSPACE INSTITUTE

SESSION 1: MON 6/21/2021 – FRI 6/25/2021

SESSION 2: MON 7/12/2021 – FRI 7/16/2021

9th-12th grade

Due to the continuing COVID-19 pandemic, the 2021 Illinois Aerospace Institute summer camp will be a one-week virtual program for students entering grades 9-12 who are interested in learning about the field of aerospace engineering.

**2021 CRACKING THE CODE: DEMYSTIFY
COMPUTER SCIENCE**

***IDEA : SUN 6/27/2021 – THUR 7/1/2021**

10th-12th grade

Curious about programming? Want to know what it is useful for? Want expert guidance from a university with the best Computer Science programs in the world? In this camp, all these questions and ambitions will be fulfilled. There will be hands-on project-based experience with computer science: learn to code and understand the why behind coding. You get to hear from people within the industry and work with University of Illinois faculty and computer science majors!

***IDEA camps aim to increase the number of underrepresented populations pursuing STEM majors and careers**

2021 SUMMER OPPORTUNITIES

APPLICATION

2021 Illinois Engineering Summer Camps

Danville District 118 2021 Summer Opportunity

University of Illinois at Urbana-Champaign Virtual Summer Camps

Parent Recommendation

Parent Name: _____

Address: _____

Phone: _____

I, _____, parent of _____
recommend my student for the District 118, 2021 Illinois Virtual Summer
Camp Program with the University of Illinois at Urbana-Champaign. I
recognize this is a week-long virtual program. I believe _____
is a responsible student and can be counted upon to represent District
118 in a positive manner.

Parent Signature _____ Date: _____

**Please remove your completed application from the booklet
and return to JACKSON BUILDING: 516 N. JACKSON ST.
by 3:00 pm on Friday, March 12, 2021.**

2021 ILLINOIS ENGINEERING SUMMER PROGRAMS – APPLICATION

General Application

What program are you applying for?

Please indicate your **first** and **second** choice below with 1 being *most* preferred and 2 being *equally or just slightly less* preferred. If space is unavailable in your first choice, we will place you in your second choice. Do not choose a 2nd choice if there are no other programs that interest you.

Track	Session Dates	1	2
What It Takes: Exploring Your Options Virtual Camp – Session 1 9 th – 12 th graders	June 13 – June 25, 2021	<input type="radio"/>	<input type="radio"/>
What It Takes: Exploring Your Options Virtual Camp – Session 2 9 th – 12 th graders	July 11 – July 23, 2021	<input type="radio"/>	<input type="radio"/>
CURIE: Catalyzing UR Interest in Engineering (ChemE) - *IDEA 10 th – 12 th graders	July 25 – July 29, 2021	<input type="radio"/>	<input type="radio"/>
Civil & Environmental Engineering: Addressing Societal Challenges 10 th – 12 th graders	August 1 – August 5, 2021	<input type="radio"/>	<input type="radio"/>
Aerospace Engineering - **EAGER 10 th – 12 th graders	June 17 – July 1, 2021	<input type="radio"/>	<input type="radio"/>
Cracking the Code: Demystify Computer Science - *IDEA 10 th -12 th graders	June 27 – July 1, 2021	<input type="radio"/>	<input type="radio"/>
Exploring Nuclear, Plasma, and Radiological Engineering 10 th – 12 th graders	July 25 – July 29, 2021	<input type="radio"/>	<input type="radio"/>
Illinois Aerospace Institute – Session 1 9 th – 12 th graders	June 21 – June 25, 2021	<input type="radio"/>	<input type="radio"/>
Illinois Aerospace Institute – Session 2 9 th – 12 th graders	July 12 – July 16, 2021	<input type="radio"/>	<input type="radio"/>

**IDEA camps aim to increase the number of underrepresented populations pursuing STEM majors and careers*

***EAGER camps aim to increase the number of women and gender non-binary students pursuing STEM majors and careers*

APPLICANT'S INFORMATION

First Name	Middle Name	Last Name	Preferred first name or nickname <i>This will be on the applicant's name tag.</i>
MONTH DAY YEAR Date of Birth (Month, Day, Year)	Race: <input type="radio"/> American Indian or Alaska Native <input type="radio"/> Asian <input type="radio"/> Black or African decent <input type="radio"/> Native Hawaiian or Other Pacific Islander <input type="radio"/> White <input type="radio"/> None of the above <input type="radio"/> Prefer not to say	Race other than those listed <i>If you responded, "None of the above," please list your race here.</i>	Ethnicity
Street Address			
City	State	Zip	Country
() - Applicant's Primary Phone	Phone Type	Applicant's Email Address	
School Currently Attending	What grade will you ENTER in the Fall 2020 school year?		
Are you a returning participant? <input type="radio"/> Yes <input type="radio"/> No	If so, what year did you most recently attend?	What program did you attend?	

PARENT | GUARDIAN #1 INFORMATION

First Name	Last Name	Relationship to applicant	
() - Primary Phone	Phone Type	() - Secondary Phone	Phone Type
Email Address			

PARENT | GUARDIAN #2 INFORMATION

Danville Dist. 118	Last Name	School District	
First Name	Last Name	Relationship to applicant	
(217) 444 - 1065	Phone Type	(217) 444 - 1062	Phone Type
Primary Phone	Phone Type	Secondary Phone	Phone Type
kuchefskib@danville118.org			
Email Address			

TEACHER INFORMATION (for teacher recommendation form)

The following information will be used to contact the teacher, tutor, or counselor who will be completing your Recommendation Form. We highly recommend that this person be someone who can attest to your skills in math or science. Be sure to notify this person that they should expect an email from wyse@illinois.edu (mailto: wyse@illinois.edu) for this purpose.

What is the name of the person we should contact to complete your recommendation form?

() -
What is their phone number?

What is their email address?
Enter a single, valid email address only

What is their relationship to this student?
i.e. algebra instructor, mentor

Provide a list of coursework in math, science, technology, and engineering.

Include grades – official transcripts are not required (example below):

For example:
Science: Biology: A
AP Chemistry: B
Engineering: Intro to Engineering: B
Math: Algebra: B
Geometry: A

High School GPA and scale
e.g. 4.2 on 5.0 scale

Check any of the following that are provided by your school:

- AP science or math course(s)
- IB science or math course(s)
- Engineering course(s)
- Computer science course(s)
- Honors course(s)

Statement of purpose essay

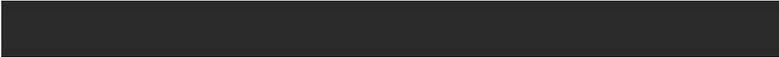
Please write in the space below an essay describing the impact that you hope this program (and the continued pursuit of an education in math, engineering and science) will have on your future. Describe why you want to attend. Please limit your essay to 500 words.

How did you hear about these programs?

Check all that apply:

- School announcement
- Teacher
- Counselor
- Community program leader
- Format program participant
- Web search
- Social media

If you heard of these programs in some other way, please tell us how:



Please remove your completed application
from the booklet and return
with your parent | guardian recommendation
to 516 N. Jackson St., the

Educational Support Program Office
no later than:

Friday, March 12, 2021

