LEXMARK E-DAY 2017
EXHIBITORS

AFTER THE STORM
What happens to the rain after a storm? Learn about storm water, rain gardens, and more.
www.uky.edu/bae/bae-student-branch

ALTEC - REACHING HIGHER
Explore the ins and outs of a telecommunications vehicle and take over the controls to reach the bucket to the highest limits.
www.altec.com

AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS
Interested in aerospace? Come stop by and talk to UK AIAA Student Chapter about what we've been up to this year, our ongoing project, and what are plans for the future are!
http://aiaa.engineering.uky.edu/

AUGMENTED REALITY SANDBOX
A topographical sandbox "map" that colors contours according to height and updates in real-time.
www.uksmestore.com

BALLOON GIVEAWAY
Complimentary balloon giveaway to kids 12 and under
www.engr.uky.edu/eday

BALLOONS! BALLOONS!
Ever wonder what goes into a balloon to make it float? Learn all about helium and grab a balloon at the same time!
https://www.uky.edu/bae/bae-student-branch

BIOMATERIALS FOR MUSCULOSKELETAL REGENERATION
A selection of some common orthopedic and cardiovascular implants are presented to demonstrate some of the various applications synthetic materials have in human tissue regeneration. Also present is sampling of polymers produced in our lab available for an example of how simple reagents can become useful resources in medical practice.

BIOMEDICAL IMPLANTS
An exhibit of implants developed by biomedical engineers to augment, replace, and restore function to different body parts.
BIOMEDICAL OPTICAL IMAGING
An exhibit of research conducted by the Biomedical Optical Imaging lab in Department of Biomedical Engineering
http://bioptics.engineering.uky.edu/lab-introduction/

BIOSYSTEMS ENGINEERING INFORMATION
Biosystems and Agriculture Engineering students will be giving general information about what Biosystems engineers do!
https://www.uky.edu/bae/bae-student-branch

BLASTER'S ROUNDUP VIDEO
Video compilation of mining production blasts ranging in many sizes and materials.
same as previous entry

BUILDING SIMPLE CIRCUITS
Learn about electric circuits from the IEEE Student Group

BURNING!!!
Want to burn things? Come!!

CARDIAC RHYTHM
This exhibit shows how pacemakers are used and implanted into the body; a brief description about mouse action potentials, VAD's and other assisted devices
http://www.uky.edu/Centers/CBME/CRL/

CENTER FOR NANOSCALE SCIENCE & ENGINEERING TOUR
See the labs for the CeNSE research group

CHEMICAL & MATERIALS ENGINEERING PROGRAM INFORMATION
Brochures & pamphlets related to the Chemical & Materials Engineering curricula.

COME TO SEE MAGICIAN WITH SMART MATERIALS
Wind turbine toy made with smart materials (nitinol wires), Magic wand/springs, UK logo made with smart polymer will be displayed. Small objectives (sugar, insects, food texture) also will be displayed under high resolution Optical Microscope, to see the real world that your naked eyes cannot do.

COMPUTATIONAL ELECTROMAGNETICS
Learn about how things like radio waves and antennas are analyzed.

COMPUTERS MAKING THINGS
Learn about how computers are used to manufacture parts including 3-D printing

COMPUTING INSIDE
Learn about what is inside computers and how they work

CROSSTOWN KIDS
Learn the physics of some everyday things through fun hands-on activities.
DETECTING BACTERIA IN WATER WITH UV LIGHT
Detecting Bacteria in Water with UV Light

DIGITAL DESIGN LABORATORY
Learn about the circuits that are used to make computers

DREAM BIG - BUILDING LEGO INFRASTRUCTURE
Civil Engineers create infrastructure to help our world work better every day, but it all starts with an idea. DREAM BIG as you play the role of a Civil Engineer, using Legos to design and build a dam to hold back water or a tower to withstand an earthquake.
www.bluegrassbranchasce.com

DRIVING, DIVING AND RAPPELLING...ENGINEERS DO THAT?!
Designing roads, inspecting bridges underwater and dangling from a bridge 886 feet over the Colorado River. Come check out how the coolest engineers do their jobs and test drive the Double Crossover Diamond simulator.
www.stantec.com

ECE SENIOR DESIGN PROJECTS
Explore current projects for senior Electrical and Computer Engineering students

EDIBLE CAR CONTEST
Build a car entirely out of food and see how far it can travel!
http://uky.swe.org/

EGG DROP CHALLENGE
Registration Form: http://www.engr.uky.edu/eday/2017-Egg-Drop-Contest-Form.pdf
http://asce.engineering.uky.edu/

ELECTRICAL, ELECTRONIC, AND COMPUTER SCIENCE EXHIBIT
Magnetism

ELECTROMAGNETIC LAUNCHER
Launch things with an electric energy source

ENGINEER A POLLINATOR
Mother Nature is a great engineer. Learn about pollinators while designing and building your own hand pollinator.
https://www.uky.edu/bae/bae-student-branch

ENGINEERING GEOLOGY ACTIVITIES AT THE KENTUCKY GEOLOGICAL SURVEY
Engineering geology exhibit showing applications related to earthquakes, landslides, energy, and general geology that improves the success of the built environment.
http://www.uky.edu/KGS/
ETA KAPPA NU-SCAVENGER HACK
The Electrical and Computer Engineering Honor Society is recruiting agents to solve circuit and programming puzzles. Each agent will be given a unique ID to scan when they've completed a challenge. Look for clues and solve all the puzzles to get a prize!

FLASH FREEZE
In pharmaceutical sciences, liquid nitrogen is often used for purposes such as cell preservation for research or in drug dosage form processing. It is also used in the food industry to create ice-cream. We will be demonstrating how liquid nitrogen flash-freezes various objects.
http://uky-aaps.org/

FIRST LEGO LEAGUE ROBOTICS EXHIBITION
Teams from the Dec. 3rd First LEGO League Robotics Competition are invited to give a fun, exhibit-version of this contest for the public.

FORCES IN THE HUMAN LOWER BACK
A demonstration of how forces in the lower back change under different physical activities. http://hmbl.engineering.uky.edu/

FUN WITH DAMS!
Roll up your sleeves because this exhibit is sure to be fun! Kids (and their parents!) have the opportunity to see how a dam works with a model built by UK students. Test different gates to see how the water holds, as well as how downstream communities could be affected. This exhibit is a favorite each year, so come and join the fun!
www.damsafety.org

FUN WITH MULTIMEDIA
Learn about advances and applications of multimedia

FUN WITH SPEECH AND SOUND
Learn about audible signals and sound

GROUND VIBRATIONS EXPERIMENT DEMO
A demonstration model that shows how vibrations are measured and how they affect structures

GUMDROP TOWER FREE BUILD
You can build gumdrop creations out of spaghetti and gumdrops!
http://asce.engineering.uky.edu/

HARVESTING HEMP
Weather permitting, a hemp flower harvester will be on display in the courtyard!
https://www.uky.edu/bae/bae-student-branch

HIGH SPEED IMAGING DEMONSTRATION
The Optical Diagnostics Laboratory uses high speed cameras to see fast processes. This demonstration will show two examples: how liquids break up into small droplets and how fires can oscillate because of gravity.
HOW ALUMINUM PRODUCTS ARE MADE
See aluminum products samples and videos of how they are made.

HOW IS COTTON CANDY MADE?
Biosystems engineering students will describe how cotton candy is made! Samples of this scientific treat will be given out.
www.uky.edu/bae/bae-student-branch

HUMAN GYRO TRAINER
Come ride Newton's Attic's three axis human gyro training device. Once you get strapped into the seat you will spin, flip and roll head over heels in an unpredictable manner.
www.newtonsattic.org

INFRARED CAMERA IMAGING IN MACHINING
While touring the machining lab, visitors will be able to stand in front of an infrared camera to view their body heat.
https://www.engr.uky.edu/ism/

INNOVATION IN CHEMICAL ENGINEERING
Stop by to learn about exciting topics in Chemical Engineering!

ISPE: INTERNATIONAL SOCIETY FOR PHARMACEUTICAL ENGINEERING
Play a game (and earn candy!) while learning about how medicines travel from the research lab to the store shelves!

KENTUCKY ENGINEERING EXPOSURE NETWORK
KEEN is an educational outreach associated with the Kentucky Transportation Cabinet. It is a program dedicated to teaching Kentucky's kids about engineering. We will have a Spaghetti and Marshmallow Bridge Building Contest, Foam Block Arch Building Activity, EnviroScape Demo, Highway Planning/Design/Construction Information, and Scholarship Applications.
http://transportation.ky.gov

KENTUCKY GIRLS STEM COLLABORATIVE
Science is FUN! Fun for boys & girls!
www.kgsc.org

LEARN ABOUT ELECTRICAL AND COMPUTER ENGINEERING
Visit at least 7 ECE exhibits to be entered in a drawing for an Arduino or Snap Circuit Junior!

LEGO® CAR RACES
On your mark, get set, go! Use LEGO® Bricks to design, build and race your own car! What design is better/faster/most creative?
www.bricks4kidz.com/lexingtonky

LEXMARK
www.lexmark.com/careers
MAIL-IN PRINGLE COMPETITION
When you think of a Pringle potato chip, I'm sure the last thing you think about is its strength. This competition lets you find out just how strong this chip actually is. In order to compete in this competition, all you have to do is send a single Pringle chip through the US Postal Service without it breaking or falling apart. The catch is the winner of this competition will be the contestant who is able to construct the lightest by weight package to ship the Pringle in. The package must be durable enough to protect the Pringle, but also as lightweight as possible if you want a chance to win! All packages can be made out of any material you desire, but it must be hand-made. All packages must have one Pringle chip contained inside and should be mailed to the following address: 430 Park Avenue, Lexington KY, 40502. 
http://kspe.engineering.uky.edu/

MAKE YOUR OWN SCRATCH AND SNIFF CARD!
Learn how common scented food products may be manipulated through a process to break down and recreate agents to make your very own scratch and sniff card to take home with you! 
https://www.uky.edu/bae/bae-student-branch

MAKING BIODIESEL
Learn how to make biodiesel from waste cooking oil! 
www.uky.edu/bae/bae-student-branch

MAKING ICE CREAM!
Come learn about scientific concepts used in making ice cream. You can make your own ice cream here and enjoy your sweet treat!

MASON & HANGER - ARCHITECTURAL & ENGINEERING SERVICES
Mason & Hanger, oldest engineering & construction company in the United States, provide full discipline architectural and engineering services worldwide. 
www.masonandhanger.com

MATERIALS SCIENCE GALORE!
Polymers and metals that bounce back into their original shape when heated (shape memory materials). A tile that can protect you from an acetylene torch. Stable/unstable glass droplets (Prince Rupert's drops). Three-dimensional printing. Levitating superconductors. 
http://ukymaterialadvantage.wixsite.com/home

MATH-OFF AT THE MATHNASIUM
Come work out your math skills at the Mathnasium (like a gymnasium for math) and see who will walk away the champion. Do you have the Number Sense? Can you defeat our Math Games? Prizes will be awarded. 
www.mathnasium.com/westlexington

MAZE BOT
Race a remote-controlled robot around a maze against the clock! 
http://ieee.engineering.uky.edu
MECHANICAL ENGINEERING SENIOR DESIGN POSTERS
Poster presentations of Senior Design projects by students in the course.

MINE RESCUE TEAM
A look at the equipment used by real mine rescue teams in underground mining disasters as taught by the UK Collegiate Mine Rescue Team.

MINERALS PROCESSING SEPARATION DEMO
Interactive exhibit of different minerals separation techniques including magnetic and density separation.

MOLECULAR ENGINEERING
Molecular Engineering, also called molecular dynamics, is a technique for computer simulation of complex systems such as proteins. This exhibit will demonstrate how molecular dynamics is used to model the physics of protein atoms in space; participants will play the interactive puzzle-solving video game Foldit.

NANOSCALE 3D PRINTING
Nanoscale materials exhibit

NASA KENTUCKY
Learn about Kentucky's aerospace and NASA-related educational, research and workforce development programs at the NASA Kentucky office open house.
http://nasa.engr.uky.edu/

NEURAL ENGINEERING: "MIND GAMES"
Non-invasive Brain-Computer Interface system in regards of "Mind Games".
http://www.uky.edu/~ssu223/

NEWSPAPER BRIDGE CONTEST
ITE is hosting a bridge building competition where students will attempt to build the strongest bridge out of 1 pound of newspaper and masking tape. The bridges will be loaded with weight, and the designer whose bridge holds the most will win a prize.
http://www.engr.uky.edu/~ite/index_.htm

PEIK RENEWABLE ENERGY LAB
Learn about alternative electrical energy sources

PIPE CLEANER TOWER CONTEST
Build as freestanding tower as tall as possible with pipe cleaners
http://ewb.engineering.uky.edu/

PLASMA GENERATION AND DIAGNOSTICS
Generating high temperature plasmas with radio frequency and microwave excitation and high voltages
https://www.engr.uky.edu/research/researchers/michael-winter/
POPCORN!
Learn about what makes popcorn pop from Biosystems engineering students! Bags of this delectable snack will be given out!
www.uky.edu/bae/bae-student-branch

POWER PROTECTION AND ADVANCED SOFTWARE LABORATORY
See how analysis of the power grid is performed

QUICKSAND TANK: DEMONSTRATING EARTHQUAKE SOIL LIQUEFACTION
A tank of saturated sand will demonstrate the effects of seismic vibration on soil

REALY VERY VERY VERY FAST!!!
Amazing things you wouldn’t be able to see without a high-speed camera.

ROBOT MAZE
Race a Lego robot against the clock.

RUBE GOLDBERG EXHIBITION MATCH
We are partnering with Big A$$ Solutions here in town to host the Rube Goldberg exhibition. This event will be a preview of the actual contest happening in April at Big A$$ Solutions.

SEE THE SUN - FOR FREE!
We observe the Sun, only in the light of hot hydrogen. The image is much more detailed than a white-light image. The telescope is computer driven to follow the Sun. We expect to see prominences and sunspots.
https://pa.as.uky.edu/observatory

SNAP CIRCUITS
Have fun learning about electronics! Build your own circuits and complete a variety of interesting projects!
http://ieee.engineering.uky.edu

SPACE AGE MATERIAL FOR STRUCTURAL REPAIR
Composite and high performance material used for the construction and structural repair of bridges are presented. These include pultruded hybrid CFRP-GFRP I-beams, CFRP and GFRP rebar and prestressing tendons, carbon fabric and laminates and composite deck sections. Several field projects carried out in Kentucky will also be highlighted.
http://www.ktc.uky.edu/structures/

SPACE SYSTEMS LABORATORY GROUP TOURS
Learn about UK’s Space Systems Lab and their projects including satellite design

STEAM STUDENT SHOWCASE
Student-run exhibit showcasing the engineering work we do at FCPS's STEAM Academy
http://steam.fcps.net

STREAM RESTORATION
Streams need doctors too. Learn what make a stream healthy and help us construct a new one.
www.uky.edu/bae/bae-student-branch

SUPERCOMPUTERS R US
Massive parallel computing systems
TEST YOUR CRITICAL THINKING SKILLS!
We will have Critical Thinking Puzzles that incorporate Math skills for ages 4 and above.
www.eyelevellexingtonwest.com

THE POWER OF CUMMINS: EVERYTHING ENGINES
From compression ignition to what engines power, come and learn the basics of modern combustion engines.
www.cummins.com

THE WONDERS OF MEDICAL PHYSICS
A display of the technology, methods and problems addressed by medical physics involved in diagnosing and treating cancer.

THIS SHOULD BE THE SAME AS LEXMARK’S TITLE
Hands-on STEM Activities
www.kentuckyshpe.org

TRAFFIC AND SAFETY QUIZ BOWL
Students will participate in a Jeopardy style quiz competition, answering transportation safety questions to win prizes. There will also be videos and information provided showcasing how crashes are combatted in the state among other interesting transportation related projects.
http://www.ktc.uky.edu/traffic-safety/

TRAFFIC ENGINEERING - WHY’S MY LIGHT STILL RED?
Exhibit will show different devices used to move and control traffic safely. Signs, reflectors, traffic signal, controller cabinet, video cameras, simulation models, etc.
www.lexingtonky.gov

TRANE / ASHRAE
HVAC Engineering

TWO TOWERS CHALLENGE
Using clothes pins and craft sticks to see who can build the highest tower in a set time.

UAS AND REMOTE SENSING IN AGRICULTURE
Learn how drones and sensors are used to assess fields!
https://www.uky.edu/bae/bae-student-branch

UK AIR FORCE ROTC
A program dedicated to producing officers for the United States Air Force, Air Force ROTC is a unique opportunity to take your career dreams to the next level and be a leader for our nation's military. Have a normal college experience while attending military leadership development classes on the side to graduate college as a Second Lieutenant. The Air Force has a career field equivalent for just about any civilian job.
https://afrotc.as.uky.edu/
UK ARMY ROTC
The U.S. Army Reserve Officers’ Training Corps is one of the best leadership courses in the world. Here at the University of Kentucky we create agile, adaptive, creative and critically-thinking leaders of character for the nation. Army ROTC develops men and women who thrive in chaos and excel in complex environments, serving and leading by example in the Army uniform as commissioned officers.
https://armyrotc.as.uky.edu

UK COLLEGE OF ENGINEERING INFORMATION SESSION AND CAMPUS TOUR
Learn about UK Engineering admissions, scholarships, housing, internships, and more! The 60-minute information session (9 am and 1 pm) will be followed by a 60-minute campus tour (10 am and 2 pm).
https://www.engr.uky.edu/

UK SOLAR CAR
Solar powered cars are closer to reality than you think! Come and visit the UK Solar Car Team to see Gato Del Sol V, the team's fifth solar car. The UK Solar Car Team designs, builds, and races solar powered cars. Visit the team to learn about how they built their solar car and to see videos of them racing on a formula one track!
www.uksolarcar.com

UK’S UNMANNED AERIAL VEHICLE LAB
Explore the exciting world of unmanned aerial vehicles (UAVs) with UK's Unmanned Aerial Vehicle Lab. Children can test their skills as UAV pilots with our mini drones! Learn about past and present projects taking place in the lab.
http://usrc.engineering.uky.edu/

VEX ROBOTICS COMPETITION
VEX Robotics Competition Skills Event. Link to details/registration:
http://www.pltwky.org

VIBRO-ACOUSTIC LABORATORY
Anechoic chamber and associated noise demonstrations
www.engr.uky.edu/vac

VOLCANO CONTEST
Many different variables affect the disastrous potential of a volcanic eruption. Some of these variables are height, shaft dimensions, amount of material, and slope. Ironically, these are some of the same variables that engineers encounter in their daily work practices. To emphasize the power of small parameter changes, we have designed the Volcano Contest competition. This is your chance to play Mother Nature and build your own volcano.
Rules & Registration Form: http://www.engr.uky.edu/eday/2017-AIChe-Volcano-Contest.pdf
http://ukaiche.engineering.uky.edu/
WATER TREATMENT PROCESS
Check out how Kentucky American Water brings you quality drinking water, from the river to the tap.
www.kentuckyamwater.com

WATERSHED: EVERYONE LIVES IN ONE!
Interactive ability to make it rain, see run off, simulate farms, factories, and neighborhoods and where your drinking water comes from originally.
www.uky.edu/WaterResources

WEIGHT AND DISTANCE: HOW DO THEY WORK TOGETHER?
We are going to build cars or have premade cars with add-ons and put different weight in the car to see what difference it makes to distance. We have a ramp that will be used to start the cars all at the same speed and they will mark how far it went and we will track all the cars for the day.
www.toyota.com and www.visittoytoky.com

WHAT CAN'T BE GROWN MUST BE MINED
A game of matching everyday items with the minerals from which they are produced.