CyberSecurity Camp

Presented by Northrop Grumman,
Aurora Public Schools,
Colorado State University,
and Cherry Creek Schools
(Open to all school districts)

July 13 – 17, 2015
8:00 am – 4:00 pm
Rangeview High School
(17599 E. Iliff Ave, Aurora, CO)
Students entering grades 6-12

Online registration May 1 – June 30
http://istec.colostate.edu/STEM2015

Clean Energy Technologies: Solar, Wind, and Hydrogen Fuel Cell Power (Grades 6-9)
Students will explore advanced engineering concepts in alternative energy, focused on the future of solar, wind, and hydrogen fuel cell technology. Students will learn about the engineering and science design challenges faced in bringing alternative energy solutions into everyday use. Students will be challenged in the design, construction and testing of a working hydrogen fuel cell vehicle and charging station that integrates wind and solar energy. Students will experience becoming an engineer and joining an engineering team tasked with tackling significant engineering and systems integration challenges. This integrated STEM program is designed around informative work sessions, hands-on laboratory design-build experiences, challenging classroom experiments, and expert guest speakers. Emphasis of this engineering experience is to demonstrate how math, science, and engineering are used to create the designed world.

Biomedical Engineering (Grades 6-9)
What do prosthetics, genetic engineering, pharmaceutical development, biosensors, and tissue engineering have in common? Biomedical Engineering! Biomedical engineers use engineering principles to improve human and animal health. Topics such as biomechanics, biomedical imaging, biomaterials, tissue engineering and biomedical devices will be introduced and supplemented with hands-on projects – because what engineer doesn’t want to build something? Students will learn about things like pulse oximeters, prosthetic limbs, cell and bacterial growth and much more.

Biomedical Engineering (Grades 9-12)
This track features a more rigorous option to Biomedical Engineering I. Similar hands-on activities will be performed, but the course will move at an accelerated pace. A strong background in mathematics is recommended.

Fundamentals of CyberSecurity (Grades 6-12)
According to a study into computer security manpower challenges and potential solutions released by the Center for Strategic and International Studies (CSIS), “we not only have a shortage of the highly technically skilled people required to operate and support systems already deployed, but also an even more desperate shortage of people who can design secure systems, write safe computer code, and create the ever more sophisticated tools needed to prevent, detect, mitigate, and reconstitute from damage due to system failures and malicious acts.” Northrop Grumman cyber experts will teach Computer Forensics, CyberSecurity fundamentals, and provide invaluable information on CyberSecurity Internships & Careers. The week-long program will culminate with a CyberSecurity Grand Challenge Competition between two student teams. The program encourages both students who are beginners and students who have an intermediate knowledge of CyberSecurity.

Advanced CyberSecurity Concept/Techniques (Grades 9-12)
Are you ready to take your CyberSecurity skills to the next level? This course is intended for students who have a solid foundation in the fundamentals of CyberSecurity, and will include extensive hands-on lab time. Northrop Grumman cyber experts will lead this course and help students improve their skills and prepare them for the CyberPatriot competitions this fall. Enrollment priority will be given to students who have participated in at least one Cyber Patriot season and intend to compete in the 2015-2016 season.
Choose Your Hands-on Learning Experience from these Seven Exciting Tracks

- Clean Energy Technologies (Middle School)
- Biomedical Engineering (High School)
- Biomedical Engineering (Middle School)
- Fundamentals of Cyber Security (Combined)
- Advanced Cyber Security Concepts/Techniques (High School)
- Intro to Programming (Middle School)
- Intro to Programming C++ (High School)

Breakfasts & lunches included with registration fee. Space is limited to 30 per class. Registration closes June 30th.

Introduction to Programming (Grades 6-9)

Students will learn the basics of circuits, electricity, engineering and computing using Arduino. Some of the tools we will use are the Processing programming language, the SparkFun Inventor’s Kit for Arduino, the LilyPad e-textiles line and the SparkFun RedBot robotics platform. This STEM track is designed to give a basic foundation to start working in a heavily relevant programming and engineering setting.

Introduction to Programming in C++ (Grades 9-12)

Are you thinking about a career in Software Engineering? Did you know that Software Engineering was rated number one for job satisfaction in a Wall Street Journal article of the 10 Best Jobs of 2012? In this course, you will be introduced to the fundamentals of computer programming which will allow you to get a feel for what it would be like to be a Software Engineer. Some common applications for computer programming include:

- Computer Games
- Analysis of Integrated-circuit simulation results.
- Medical Software
- Anti-Virus Software
- Real-Time Physical Simulations
- High-performance image processing/Al software
- High performance aerial and mobile sensor processing

Online registration is required and will be open from May 1st thru June 30th at http://istec.colostate.edu/STEM2015

Needs based scholarships are available

Space is limited, submit your registration as early as possible.