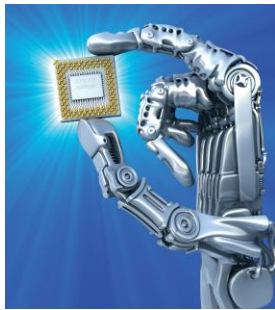




GOVERNOR'S ACADEMY
Innovation, Technology and Engineering

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New Governor's CTE Academy Focuses on Engineering Technology



In May 2008, The Virginia Peninsula School Divisions, facilitated by NHREC, was selected by the Virginia Board of Education as one of the first six sites for Governor Kaine's newly created Governor's Academy for Career and Technical Education. The Peninsula Academy is titled "Governor's Academy for Innovation, Technology, and Engineering" (GAITE) and will focus on Engineering Technology with pathways in **Electrical and Mechanical Engineering Technology**. The first Academies will be implemented in the Fall of 2009 at the following high schools: Phoebus, Heritage, Poquoson, York, Warhill, and Gloucester. NHREC was awarded a \$120,000 grant through the National Governor's Association. Partners include: TNCC, Rappahannock CC,

Canon, Northrop Grumman and The Apprentice School, NASA, Virginia Space Grant Consortium, Peninsula Council for Workforce Development, CHROME, and Peninsula Career Pathways Consortium (Tech. Prep.).

GAITE Serves as a Model

October 2010. NASA has funded Virginia Space Grant Consortium's Summer of Innovation planning grant proposal. The project, titled *NASA Technology Exploration Saturdays*, is modeled after GAITE's very successful *Engineering Technology Exploratory Saturday Series* program offered to students on the Peninsula. NASA's program will extend their Exploration Saturdays to three additional regions within the state by partnering with Eastern Shore Community College, John Tyler Community College, Tidewater Community College, and Thomas Nelson Community College (TNCC). Vikki Wismer, GAITE Director, will team up with TNCC to assist in developing the themed based Saturdays and a summer camp in each region.

Schools partner with ECPI Poquoson High to offer technology classes



POQUOSON - Looking for instructors for two very different career and technical classes left Poquoson City Public Schools officials at a loss. In a chance conversation while attending a meeting, the president of ECPI College of Technology offered a solution to Linda Reviea, the school district's deputy superintendent of instruction and support services. "He said: 'We teach those classes,'" Reviea said. The result is a partnership that started this school year at Poquoson High School. The school district pays for the classes, and ECPI supplies the teachers. "The reason behind this was so we can provide a really strong academic program for our students," Reviea said. "ECPI was willing to partner with us, to work with

us."The classes are A-plus Computer Hardware and Programming, and Electronic Systems I. "We had students who wanted those courses and we couldn't find instructors," Reviea said. Jennifer Romanelli, the district's teacher instructional specialist, teaches part-time at Poquoson High School and has a background in career and technical education. She has shepherded the program. "We had a unique situation where the two instructors needed two different sets of credentials," Romanelli said. "An opportunity presented itself to provide the courses that students needed and wanted." This could be done in other school systems as well." The coursework is a combination of online and classroom instruction, with a few trips to ECPI's Newport News facility for students to participate in hands-on labs. Dual enrollment credits are earned for college, while students fulfill the high school curriculum requirements for the classes at the same time. Students can earn seven college credits for completing each of the year-long classes, and cannot take them at the same time. After completing the courses, students can complete a two-year career and technical certification at New Horizons Regional Education Centers. Tweaks were required because ECPI's course content doesn't exactly match that required by the Virginia Department of Education for the high school courses. "We took the VDOE-mandated curriculum objectives and approached ECPI with it," Romanelli said. "We said you have a curriculum, and how can we take these two and marry them?"

Partnership

ECPI is partnering with Poquoson High School to provide instructors for two career and technical education classes this year.

Jennifer L. Williams, Daily Press
January 27, 2011

Engineer's Week 2011

Susan Generazio, GAITE Career Coach, recently helped area GAITE schools celebrate Engineer's Week. This year Engineer's Week was February 21-25, 2011. The week kicked off with 26 Warhill High School, Introduction to Engineering students touring NASA Langley in Hampton. The students were able to see the Windtunnel, Model Shop, as well as a demonstration on the uses of Liquid Nitrogen.

Engineer's Week is a week set aside every February, to recognize the many contributions that engineers have made to society. It also emphasizes the importance of Science, Technology, Engineering and Math. Mrs. Generazio visited Heritage, Poquoson and York High Schools during this year's Engineers Week, accompanied by a NASA Engineer, Coop student, and NASA intern. The trio spoke about NASA and how NASA Engineers go about solving design problems. The visit culminated with a Design Challenge of building a better propeller. The students had the opportunity to design, fabricate and test their propellers using balsa wood planes. The winning group was awarded NASA prizes. Ninety students participated from the three different schools.



Engineering Class visits NASA



February 2011. Mr. Tatum's Introduction to Engineering Design class at Warhill High School in Williamsburg visited NASA's U.S. National Transonic Facility where they were given a tour of the Pressurized Air/Cryogenic Wind Tunnel. In addition, students visited the composite materials and model development area. They were treated to a demonstration of advanced materials technology and their uses in developing aircraft for the future. This trip was in conjunction with the Governors Academy for Technology and Engineering (GAITE) and was in recognition of National Engineering Week.

Pictured Above. Left: NASA Presenter. Top Right: Instructor Stephen Tatum, Reece Bartlett, Aaron Savage, Trevin Ashby and Brandon Cambell. Lower Right: Stephen Tatum, Ryan Byrd, Dominique Niranont, Stephen Eubanks, Mitchell Dannon, James Ford, Charles Roadley

Engineers Week 2010

GAITE schools were recognized this year in a unique way. Susan Generazio, GAITE Career Coach, accompanied by Julie Young, Mechanical Engineering Technology Instructor at Thomas Nelson Community College, and Greg Sprock, Machine Technology Instructor at New Horizons Career and Technical Education Center, visited Gloucester, Heritage, York, Warhill and Poquoson High Schools. At each school, the trio spoke to Introduction to Engineering classes about engineering, Engineering Technology, the pathways to getting these degrees, skills needed in these occupations, and past Engineering disasters that occurred and why they happened. The culmination was an Engineering Design challenge in which students had to build a structure out of plastic drinking straws and scotch tape. The competition was held to see which group's structure could hold the most pennies. Over 140 students participated from five different schools.



SNAME Boat Design Competition

Students from John Hammons', York High School class will be going to Newport News Shipyard and the SNAME Boat Design Competition Awards Luncheon on March 16, 2011 to find out what four boat designs are going to be selected to be built and get the opportunity to compete in head-to-head competition. Seven teams are entered in this year's competition; four teams from Introduction to Engineering and three teams from Engineering Drawing/Design. Three teams from Introduction to Engineering will be competing in the Team America rocketry Challenge (TARC) and all three teams are currently in the flight-testing phase. Students will be traveling to Fentress Airfield in Chesapeake on Saturday, March 5, 2011 to conduct test flights and hopefully declare at least one qualification flight per team.

Student Receives Internship Opportunity

January 2011. Shekela Braswell, 12th grade Engineering & Technology Magnet and GAITE Academy student at Heritage High School received an internship opportunity with Camp Dresser and McKee, Inc. (CDM) engineering firm in Newport News. When asked when did she become attracted to the field of engineering, she attested it to the interest she received from her Basic Technical Drawing class during her sophomore year. Shekela stated “My teacher made learning fun and meaningful and introduced me to several careers in the engineering field that I didn’t know existed.” Shekela now has the goal of attending Old Dominion University with plans to become a civil engineer. During Shekela’s internship experience, she will be working on a major waterworks project with CDM over the next two months.

GAITE Students Hired at Canon



Chris Conkling, a 2010 graduate of Phoebus High School in Hampton and GAITE Seal recipient, as well as Craig Hawkins, a 2010 graduate of York High School in Yorktown and also a GAITE Seal recipient, were hired as Process Operators with Canon, Virginia. The Process Operator Training Program combines community college and technical schooling with actual work experience. Chris and Craig are receiving paid classroom instruction and on-the-job training. The curriculum core areas include Math, AC & DC circuits, Electronics Troubleshooting, Pneumatics, and Robotics. Process Operators are responsible for the monitoring and maintaining of the automated process lines to insure optimal equipment functionality. Both students were identified and prepared for their interviews by Susan Generazio, GAITE Career Coach.



Virginia Modeling, Analysis and Simulation Visit

October 2010. Susan Generazio, GAITE Career Coach, chaperoned a trip to the Virginia Modeling, Analysis and Simulation Center in Virginia Beach, VA. Accompanying her were 18 students from New Horizons Career and Technical Center’s Electronics/Robotics class. During their trip, students were shown how modeling and simulation is used in transportation, health care and research.

Field Trip to Stihl

On November 1, 2010, GAITE Career Coach, Susan Generazio, planned a field trip for the New Horizons Career and Technical Center’s Electronics/Robotics class to tour Stihl, Inc. in Virginia Beach. Stihl manufactures a variety of handheld outdoor power equipment of which their chain saw is the cornerstone. Stihl is one of the most technologically advanced manufacturers in the industry. Automation and robotics can be seen in all of their manufacturing processes. Thirty students toured this highly automated facility and saw how robots are used in manufacturing.

Students and Parents Participate in “Exploratory Saturday”

Sixty-seven middle school students and their parents were inspired by the commonwealth's highest education official on March 27 at NASA's Langley Research Center. Virginia Secretary of Education Gerard Robinson provided opening remarks and interacted with attendees at the Governor's Academy for Innovation, Technology and Engineering (GAITE) Exploratory event entitled "Automating the Future." The event was part of the Exploratory Saturday series coordinated by the Virginia Space Grant Consortium (VSGC).

Nathanael Miller, aerospace engineer at NASA Langley, introduced the audience to robotics and their current and future applications. Miller provided examples of how NASA is using robotics to conduct research and exploration missions. A former VSGC scholar and Langley Aerospace Research Summer Scholar (LARSS) intern, Miller described how he took advantage of the many opportunities offered by NASA to prepare himself for an exciting career. He encouraged the students to "turn off the TV, be active and be a producer instead of a consumer." Students and parents then participated in a penny hauling competition in which teams were tasked with designing a vehicle to transport the most pennies over a string track for the lowest cost.

During lunch, attendees visited with student robotics teams from the local community, including the GAITE Program and Center for High Technology at Phoebus High School, TwistedBotz robotics team from Gloucester County and the NASA Knights—a FIRST robotics team from New Horizons Regional Education Center in Hampton. Working as a team, students and their parents also built a motorized Mars rover robot from a kit to apply basic physics principles and demonstrate the importance of fabrication skills. The students could take the robot home with them to remind them of the opportunities in engineering technology offered by GAITE.

GAITE Exploratory Saturdays were created to expose students and their parents to engineering technology and related careers. The engaging and hands-on events are organized around three themes: designing the future, connecting the future and automating the future. Since spring 2008, VSGC has coordinated 10 GAITE Exploratory Saturday events. Other hosts have included Canon Virginia and Thomas Nelson Community College.

GAITE background:

The Greater Peninsula is one of the initial six Virginia sites selected by the Department of Education in 2008 to implement then-Gov. Timothy Kaine's "Governor's Academy for Career and Technology Education." The initiative is to prepare innovators and technologists for Virginia's workforce, especially in the area of Science, Technology, Engineering and Mathematics (STEM). GAITE provides academic pathways in engineering technology--mechanical and electrical-- and advanced academic and technical skills in each of the six Greater Peninsula school divisions (Gloucester County, Hampton City, Newport News City, Poquoson City, Williamsburg-James City County and York County). Graduates of GAITE



Virginia's Secretary of Education, Gerard Robinson, observing students competing in the penny hauler challenge. Credit: NASA/Sean Smith.



Nathanael Miller, aerospace engineer at NASA Langley, introduced the audience to robotics and their current and future applications and provided examples of how NASA is using robotics to conduct research and exploration missions. Credit: NASA/Sean Smith.

will have earned industry credentials and/or transferable college credits. GAITE is coordinated by New Horizons Regional Education Centers, and other GAITE partners include Northrop Grumman, The Apprentice School at Northrop Grumman, Canon Virginia, Cooperating Hampton Roads organizations for Minorities in Engineering (CHROME), ECPI College of Technology, Greater Peninsula Career Pathways Consortium, NASA Langley Research Center and Virginia Space Grant Consortium.

Chris Carter, Virginia Space Grant Consortium
April 2, 2010

Recruitment

Susan Generazio, GAITE Career Coach, visited Heritage High School in Newport News on Wednesday, March 2, 2011 and spoke to 100 ninth and tenth grade students who were enrolled in a foundations technology education class. She explained the GAITE program, it's benefits and curriculum.

Susan Generazio, GAITE Career Coach, recently addressed 50 parent attendees at the GAITE Exploratory Saturday held at Thomas Nelson Community College on January 22, 2011. Mrs. Generazio's presentation, entitled "Gear Up for the Future with the Help of a Career Coach", explained the Virginia Community College System's Career Coach program, her role as a GAITE Career Coach, what parents can do to help their students prepare for their futures, and the various post secondary options available to high school graduates.

Susan Generazio, GAITE Career Coach, addressed 85 parents of middle school students who attended the GAITE Exploratory Saturday held at Thomas Nelson Community College on November 7, 2009 and Canon Virginia on February 6, 2010. While the students had fun building robots and doing fun engineering activities, their parents learned about what they could do to help their children select the appropriate post secondary program that would be right for them, the many options available to their students and how to pay for college.



During the months of October 2010 through December 2010, Susan Generazio, GAITE Career Coach traveled to the GAITE high schools of Gloucester, York and Poquoson and spoke to 360 high school students enrolled in Technology Engineering classes. She reviewed the requirements and benefits of being in the GAITE Academy. During these visits, Mrs. Generazio also spoke to 22 students who were already enrolled in the GAITE Academy to review their progress.

During the months of December 2009 through February 2010, Susan Generazio, GAITE Career Coach visited Gloucester and Heritage High Schools, holding 93 individual appointments with 10th, 11th and 12th grade students explaining the requirements and benefits of being in the Governor's Academy in their respective high schools. Mrs. Generazio reviewed the schools career pathways for the Mechanical Engineering and Electrical Engineering Technology tracks.

Regional CTE Professional Development

Susan Generazio, GAITE Career Coach presented at the January 28, 2011 Regional Career and Technical Education Professional Development held at Warhill High School in Williamsburg. Her topic was "Introduction to GAITE and the Role of the GAITE Career Coach." Twenty-two high school and middle school guidance counselors, as well as middle school and high schools technical education instructors, were in attendance to learn more about the GAITE program, it's requirements and benefits.

Integrative STEM Education

With the use of state ARRA funding, New Horizons' Governor's Academy for Innovation, Technology and Engineering (GAITE), provided a summer professional development workshop to a cohort of science, technology, and mathematics teachers and counselors in each of the six Peninsula school divisions. The workshop, which was held August 16th through 18th, 2010 at New Horizons, was coordinated by the Virginia Space Consortium, and conducted by Patricia Watson from the Virginia Tech STEM Integration Education Program. The goal of the workshop was to continue to build STEM cohorts in each division and to better understand STEM, STEM Integrated Education, and best practices for use within the high school setting. Each participant conducted a pre-assessment survey, read articles, received the book "Meeting Standards through Integrated Curriculum", learned about GAITE career pathways, and participated in hands on approaches to integrating STEM education. Participant evaluations are in and they were incredible! During the Regional Professional Development Day scheduled for January 28, 2011, New Horizons will bring these cohorts back together to discuss how they implemented the strategies they learned into their curriculum or counseling services.

Teachers Attend GAITE Summer Workshop

In partnership with NASA Langley and the NASA Aerospace Education Specialists Program, the Virginia Space Grant Consortium conducted the Governor's Academy for Innovation, Technology and Engineering (GAITE) Summer Teacher Institute, July 13-15, 2009. Twenty-one teachers attended the three-day workshop with two days hosted by NASA Langley. A cohort of science, technology, and math teachers were selected from each of the public school divisions partnering in GAITE. The teachers learned best practices and methods for teaching STEM subjects, and how to incorporate project-based learning and interdisciplinary project ideas into the classroom. The participants also toured a wind tunnel at NASA Langley! At the end of the workshop, the teacher cohorts presented their plans for integrating and teaching STEM subjects in an interdisciplinary manner.

